

Influence of Son Preference on Contraceptive Use in Bangladesh

Future fertility would decline if son preference were diminished at the earlier stages of family formation

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Son preference is commonly believed to be widespread in South Asia and in many developing countries, particularly where women are economically and socially dependent on men (Bairagi and Langsten, 1986; Arnold and Kuo, 1984; Cleland and others, 1983; Vlasoff, 1990). Analysing 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. Sons are generally preferred over daughters owing to a complex

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interplay of economic and socio-cultural factors. Sons 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 hand, 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 contributions 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.

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. Research 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 (Kabir and others, 1994). Although the common preference is for sons, there is evidence that parents may prefer to complete their families with a daughter (Mannan, 1988; Rahman and others, 1992). Das (1989) has claimed that the desire for at least one son and one daughter, and the tendency to continue childbearing until the desired minimum has been attained would increase the total fertility rate and crude birth rate in the population by 36 to 38 per cent compared with what would happen if family size were limited to two surviving children regardless of their sex. Thus, when parents have a strong preference for a child of one sex, the sex composition of the children that they already have could influence their decision about whether or not to have another child.

Although strong preference for sons is often assumed to be a significant barrier to fertility reduction, no consistent association has been observed between the sex composition of the children and fertility regulation. The associations are varied; for example, in cross-national settings among developing countries, Repetto (1972) concluded that fertility decisions are less influenced by sex preference and more by the costs and benefits involved with a child. Studies in India and Pakistan in the period 1960-1970 provide no clear evidence that son preference significantly affects fertility (De Tray, 1984; Mukherji, 1977). In Sri Lanka, De Silva (1993)

argued that “son preference has proven to be no substantial obstacle to achieving significant fertility decline”. However, analysing data from a cohort study in Pakistan, Hussain and others (2000) showed that the sex of surviving children is strongly associated with subsequent fertility and contraceptive behaviour. Also, recent Indian data have shown that the sex composition of children in the family affects subsequent fertility behaviour (Arnold and others, 1998). Analysing national-level survey data from Bangladesh for the years 1969 and 1979, Amin and Mariam (1987) concluded that son preference has a negative effect on contraceptive use regardless of socio-economic and demographic characteristics. However, the effect of son preference on fertility was not evident during the early 1980s; it was estimated that fertility would be reduced by 4-8 per cent if there were no gender preference in the country (Chowdhury and Bairagi, 1990). In a similar period, Rahman and others (1992) documented that the sex of the surviving children has a profound effect on the acceptance and continuation of contraceptives in Matlab, Bangladesh. Another study of South Asian countries reported that, although there is an increasing trend of son preference in Bangladesh, the effect of son preference on fertility is not clear (Nag, 1991). Other authors have argued that couples with sons have longer birth intervals and fewer subsequent births (Bairagi and Langsten, 1986; Chowdhury and Bairagi, 1990). These disparate findings have led to the hypothesis that the sex of the surviving children may have minimal, if any, effect on subsequent fertility behaviour. As argued by Rahman and Da Vanzo (1993) contraceptive use is likely to be influenced most strongly by sex preference and have a potential impact on fertility because it is the key variable for deliberate control of fertility. Therefore, the present study is designed to examine the effect of son preference, if any, on contraceptive use in order to gain an understanding of how it affects the fertility behaviour of Bangladeshi women.

Data and methods

The data for this study were obtained from the 1996-1997 Bangladesh Demographic and Health Survey (BDHS), which is the most recent and most comprehensive of all the national surveys conducted in Bangladesh. The BDHS is part of the worldwide Demographic and Health Surveys (DHS) programme which collects information on a number of areas such as demographic characteristics, reproductive history and family planning. The survey was conducted during the period from November 1996 to March 1997, under the authority of the National Institute of Population Research

and Training (NIPORT), Bangladesh. A nationally representative two-stage probability sample design was used for the sample survey in which a total of 9,127 ever married women were successfully interviewed (for details, see Mitra and others, 1997). This study is based on 6,996 currently married women aged 12-49 years who had at least one child and who were not currently pregnant, i.e. about 76.7 per cent of the total sample ($N = 9,127$) and 82.8 per cent of the currently married women ($N = 8,450$). Currently pregnant women were not considered in the analyses since they were not current users of contraception. The working hypothesis of this study is that the more sons a family has, the more likely the couple is to use contraception, because it is more likely to have satisfied its preference for sons. The term “contraceptive use” covers both modern and traditional methods of contraception. It should be noted that the BDHS data do not have information on stated preferences for children; however, such a large data set provides a unique opportunity to examine whether women’s fertility behaviour is influenced by the sex composition of their surviving children in the family.

In the present study, contraceptive use was examined at each parity for the sex composition of the surviving children. As the total fertility rate is less than 4 ($TFR = 3.3$, Mitra and others, 1997), women with four or more children are shown separately. Thus, the study participants were divided into four mutually exclusive groups, based on their number of children, namely, one child, two children, three children and four or more children. The list of variables initially considered for the analysis includes age of the respondents, religion, education, area of residence, membership in organizations, heard family planning messages on television or radio, land ownership, employment status, visits of family planning workers, women’s mobility, discussion of family planning issues with husband and husband’s education. For this article, woman’s mobility was defined according to whether they were allowed to go outside their home.

Multivariate analyses were conducted to examine the adjusted effect of son preference on the practice of contraception after allowing for potential confounders. Initially, four sets of potential confounders were identified in consideration of their independent potential contribution to the current use of contraception by using the chi-square test (results are in table 3). Subsequently, four logistic regression models were fitted for different numbers of children, i.e. one child, two children, three children and four or more children, by considering the current use of contraception as the outcome variable, which was dichotomized by taking the value 1 for those

Table 1. Socio-demographic characteristics of currently married women aged 12-49 years who had children, Bangladesh, 1996-1997

Characteristics	Percentage (N = 6,996)
Average age (years)	30.3
Average number of children	3.1
Rural residents	84.2
Muslim	88.3
Landless	64.3
No formal education	54.1
Husband has no education	43.6
Access to television/radio	48.8
Women working outside the home	37.0
Belongs to women's group	23.7

who were currently using contraceptives and 0, otherwise. Sex composition of the surviving children, expressed as the number of son(s), was used as the study variable and was kept in the model disregarding their significance. The “no son”, which means all daughter(s), category was considered as the referent for the analyses. Since this is an epidemiologic type of study, the effect of son preference on current use of contraception was assessed after adjusting for confounders. The following section describes the results of the analyses, with [table 4](#) presenting four logistic regression models with the study factor and confounders.

Results

[Table 1](#) presents the socio-demographic characteristics of currently married women aged 12-49 years (N= 6,996) who had at least one child and were not currently pregnant. On average, the study participants were 30.3 years old and had had 3.1 children. The overwhelming majority of them were Muslim (88.3 per cent) and from rural areas (84.2 per cent). Almost two thirds of the participants did not have any cultivated land (64.3 per cent). More than half of them did not have any formal education (54.1 per cent); however, less than half of the husbands had no education (43.6 per cent). Electronic media such as radio or television were accessible to 49 per cent of the participants. More than one third of the respondents were currently working (37 per cent). Almost a quarter of the study participants (23.7 per cent) were members of different organizations or associations such as the Grameen Bank, Bangladesh Rural Advancement Committee, Bangladesh Rural Development Board or Mothers' Club.

Table 2. Percentage distribution of currently married women aged 12-49 years using contraception, by number of children and by number of sons, Bangladesh, 1996-1997

Number of children and number of sons	Contraceptive use %	Total (N)
One child^a	46.9	1,487
No son	43.3	722
One son	50.3	765
Two children^b	62.8	1,696
No son	54.3	328
One son	64.6	942
Two sons	65.6	426
Three children^c	63.0	1,339
No son	53.8	143
One son	62.2	510
Two sons	67.6	534
Three sons	59.2	152
Four or more children	55.8	2,474
No son	53.4	73
One son	57.1	396
Two sons	59.0	746
Three or more sons	53.7	1,259
Overall	57.0	6,996

^a P < 0.01

^b Mantel-Haenszel P < 0.01

^c P < 0.05

Current use of contraceptives

Table 2 presents the current users of contraceptives by number of children and by number of sons. Although all currently married women reported that they knew about at least one method of contraception, only 57 per cent of the study participants who had at least one child were currently using contraceptive methods. Contraceptive use was significantly associated with the number of surviving children ($X^2_{MH} = 12.67$, $P < 0.0001$) and demonstrated a curvilinear relationship. Contraceptive use increased monotonically as the number of surviving children increased from a use rate of 47 per cent among those who had one child to 63 per cent among those who had two or three children. This rate, however, declined to 56 per cent for women with four or more children.

Within each parity, women who had no sons were less likely to use contraception than those with at least one son. For women with one child,

although the overall contraceptive use rate was slightly lower, this rate was significantly higher for women with only a son than for women with only a daughter ($X^2_1 = 7.26, P = 0.007$). Use of contraception increased consistently with the increase in number of sons for women with two children ($X^2_{MH} = 8.88, P = 0.003$). Of these, 54 per cent with no sons were practising contraception compared with 65 per cent with one son and 66 per cent with two sons. Among women with three children, contraceptive use was significantly associated with the number of surviving sons in the family ($X^2_3 = 10.7, P = 0.013$). Although there was no trend in the relationship, it is noteworthy that the highest contraceptive prevalence rate was among those couples with two surviving sons and one daughter (67.6 per cent). There was no evidence of association between contraceptive use and the number of sons among women with four or more children. These results indicate that son preference has a consistently adverse effect on the use of contraception for women at lower parities, although it becomes statistically insignificant when the number of children rises to four or more.

Table 3 shows the percentage of women aged 12-49 years who were using contraception according to some selected characteristics by number of children.

Logistic regression analyses

Multivariate logistic regression analyses were conducted to assess the net effect of son preference on the use of contraception by currently married women after allowing for potential confounders. Of the 12 variables initially considered (see table 3), respondent's education was found to be highly correlated with her husband's education. Therefore, a decision was made to drop the husband's education from the analyses to avoid the problem of multicollinearity, thus leaving 11 variables for the analyses. A potential confounder was dropped from the model if its exclusion changed the estimated odd ratios of the exposure variable, i.e. the number of sons in the family, by less than 10 per cent, or did not decrease the precision of the exposure effect on outcome to a material extent. The four final models, based on number of children, with confounders are presented in table 4.

The results of the multivariate analyses are in broad agreement with the univariate analyses. For women with one child (model 1), composition of the surviving children was found to be significantly associated with the current use of contraception after adjusting for the confounding factor,

Table 3. Percentage distribution of women aged 12-49 years who were using contraceptives, by some selected characteristics for different numbers of children, Bangladesh, 1996-1997

Category	Number of children			
	One (N= 1,487)	Two (N= 1,696)	Three (N= 1,339)	Four or more (N= 2,474)
Age (years)				
< 24	48.2 ^a	56.5 ^b	42.9 ^c	23.8 ^b
25-34	46.7	69.9	67.3	59.4
35+	30.3	56.2	65.8	54.6
Religion				
Muslim	46.5	61.6 ^d	61.5 ^d	59.6 ^b
Non-Muslim	50.0	70.5	72.5	78.2
Education				
None	37.7 ^c	56.6 ^c	58.0 ^c	57.5 ^c
Primary	47.1	65.5	65.6	63.3
Secondary +	60.8	72.8	76.9	77.0
Area of residence				
Rural	44.1 ^b	60.0 ^b	60.4 ^b	59.6 ^c
Urban	60.2	75.3	76.0	74.0
Membership in organization				
No	45.9	60.1 ^b	60.4 ^d	57.3 ^b
Yes	52.2	71.8	70.0	73.3
Heard family planning message on television/radio				
No	40.1 ^b	54.9 ^b	56.6 ^b	58.2 ^d
Yes	53.3	70.8	71.8	66.7
Land ownership				
No	41.9 ^b	58.4 ^b	60.7 ^d	61.0
Yes	54.3	70.2	68.1	63.5
Employment status				
No	45.8	60.7 ^f	59.5 ^e	58.9 ^f
Yes	49.3	66.5	68.6	66.3
Visited by family planning worker				
No	36.9 ^b	54.1 ^b	53.4 ^b	54.5 ^b
Yes	64.9	74.7	75.5	73.2
Allowed to go outside				
No	41.8 ^f	59.7	59.1	53.4 ^d
Yes, with someone	50.8	62.9	63.1	61.2
Yes, alone	47.6	67.2	67.1	69.4
Discussed family planning with husband				
No	38.9 ^b	57.9 ^b	58.7 ^b	57.4 ^b
Yes	68.8	75.4	75.1	75.7
Husband's education				
None	38.7 ^c	57.4 ^c	58.0 ^c	60.7 ^a
Primary	46.6	60.1	62.4	54.7
Secondary +	56.3	71.2	71.5	70.8

^a Mantel-Haenszel P < 0.05; ^b P < 0.0001; ^c Mantel-Haenszel P < 0.0001;
^d P < 0.01; ^e P < 0.001; ^f P < 0.05

family planning workers' visits during the period six months prior to the interview. Compared with women having only a daughter, women with only a son were 1.4 times more likely to be practising contraception (95 per cent confidence interval (CI): 1.11-1.69). For women with two children (model 2), women with one or two son(s) were 1.6 times more likely to be using contraception compared with their counterparts having no sons after adjusting for the effects of area of residence and visits of family planning workers (95 per cent CI: 1.22-2.07 for one son and 1.19-2.18 for two sons). The number of sons among women with three children was found to be significantly associated with current use of contraception after allowing for the confounders age of the respondents and their discussion about family planning issues with husband (model 3). Women with two sons were 1.7 times more likely to be using contraception than women with no sons (95 per cent CI: 1.18-2.58). As with the univariate assessment, overall association between the number of sons and use of contraception was not found to be significant for women with four or more children (model 4). All the models except model 4 (women with four or more children) were well fitted based on the Hosmer and Lemeshow test of goodness of fit (P-values are shown in the last column of [table 4](#)). These results clearly demonstrate a moderately adverse effect of son preference on contraceptive use among Bangladeshi women at lower parities.

[Table 4](#) also reveals that, in all but one of these models (model 3: women with three children), women who were visited by family planning workers during the period six months prior to the interview were more likely to use contraception than their counterparts who were not visited. For women with two children, urban residents were more likely to be users of contraception than their rural counterparts. Women with three or more children and those aged 25 years or older were more likely to be using contraception than their younger counterparts. Women with three or more children who discussed family planning issues with their husband were more likely to use contraception. Among women with four or more children, those who had heard family planning messages on television or radio were more likely to be using contraception than women who did not hear such messages.

Interactions of the number of sons with the potential confounders for different models were examined and found to be not statistically significant, which suggests that son preference affects contraceptive use in the same order of magnitude irrespective of the potential confounders.

Table 4. Multivariate assessments of association between sex of the surviving children and use of contraception among currently married women aged 12-49 years who had children, Bangladesh, 1996-1997

Category	Adjusted-OR ^a	95 per cent CI ^b	Goodness of fit ^c (P)
Model 1: One child			0.66
Number of sons			
No son	1.0 ^d		
One son	1.37 ^e	1.11- 1.69	
Visited by family planning worker			
No	1.0 ^d		
Yes	3.19 ^f	2.56 - 3.99	
Model 2: Two children			0.78
Number of sons			
No son	1.0 ^d		
One son	1.59 ^g	1.22 - 2.07	
Two sons	1.61 ^e	1.19 - 2.18	
Area of residence			
Rural	1.0 ^d		
Urban	2.08 ^f	1.56 - 2.76	
Visited by family planning worker			
No	1.0 ^d		
Yes	2.47 ^f	2.00 - 3.06	
Model 3: Three children			0.78
Number of sons			
No son	1.0 ^d		
One son	1.35	0.92 - 2.00	
Two sons	1.74 ^e	1.18 - 2.58	
Three sons	1.27	0.79 - 2.06	
Age of respondent (years)			
< 24	1.0 ^d		
25-34	2.76 ^f	2.00 - 3.79	
35+	2.68 ^f	1.88 - 3.82	
Discussed family planning with husband			
No	1.0 ^d		
Yes	2.27 ^f	1.71 - 3.00	
Model 4: Four or more children			0.24
Number of sons			
No son	1.0 ^d		
One son	1.34	0.77 - 2.32	
Two sons	1.42	0.84 - 2.42	
Three or more sons	1.24	0.73 - 2.08	
Age of respondent			
< 24	1.0 ^d		
25-34	5.24 ^f	2.43 - 11.34	
35+	5.65 ^f	2.61 - 12.20	

Table 4 (continued)

Category	Adjusted-OR^a	95 per cent CI^b	Goodness of fit^c (P)
Visited by family planning worker			
No	1.0 ^d		
Yes	2.99 ^f	2.48 - 3.62	
Heard family planning messages on television/radio			
No	1.0 ^d		
Yes	1.67 ^f	1.40 - 2.00	
Discussed family planning with husband			
No	1.0 ^d		
Yes	2.75 ^f	2.15 - 3.53	

a adjusted odds ratio after adjustment for potential confounders

b confidence interval

c Hosmer and Lemeshow test

d reference category

e Wald P < 0.01

f Wald P < 0.0001

g Wald P < 0.001

Discussion

This study shows that the sex composition of the surviving children moderately influences women's decisions regarding contraceptive use at lower parities. The more sons a woman has, the more likely she is to practise contraception. This phenomenon holds true among women with one, two or three children, but breaks down among families with four or more children. At lower parities, this behaviour may be primarily because couples with at least one son among their children are less likely to want more children, as they are satisfied with the sex composition of their children. However, couples who have all daughters are less likely to terminate their childbearing and continue having more children until such time that they have a son. These results are consistent with a similar recent study in Viet Nam (Haughton and Haughton, 1995). Bangladeshi women control their births at lower parities in order to regulate fertility; thus, the average family size has begun to decrease since the inception of family planning programme in the 1950s. In such a situation, women become more aware of the sex of their children. However, preferred sex composition is not always achieved within a preferred family size, and contraceptive use

thus depends on the couple's trade-off between sex preference and family size preference. This study also shows that some of the women with higher parities, four or more children, who have all sons, avoid the use of contraception until they have at least one daughter. These findings resemble the earlier finding that couples have a strong preference for sons but also want to have at least one daughter after having several sons (Rahman and Da Vanzo, 1993).

Although it is difficult to quantify the effect of son preference on fertility and family planning, a measure developed by Arnold (1985) can be used to estimate the effect. According to the measure, the contraceptive prevalence rate would increase modestly from its current level of 57.0 per cent to 60.3 per cent, if there were no sex preference. Although moderate, an increase of this magnitude (3.3 per cent) would be a boon for the country's family planning programme.

For a better understanding of son preference, it is important to bear in mind the socio-economic and cultural settings of the country. In a society such as in Bangladesh, where men are the traditional authorities in their families, women often cannot make decisions themselves regarding family size and contraceptive use, although they carry a heavy burden of poor health related to reproduction. Women's contributions are often unrecognized in the family as well as by society; however, their worth is predicated mainly on their ability to produce children, particularly sons. The social and cultural milieu does not allow women to work outside the home, especially in rural areas. Women who go outside the home for work are often considered to be of low social status (Piet-Pelon and others, 1999). The practice of *purdah* (the seclusion of women in the household and the area immediately surrounding it) and the traditional norms of modesty (including the wearing of a veil outside the home) isolate women and limit their contact with the world beyond their household. The norm of marginalizing women teaches them to accept dependence and deprivation relative to the male members of their family (Schuler and Hashemi, 1994).

The key finding of this study is that son preference has a moderately adverse effect on contraceptive use among women at lower parities and could be a significant barrier to reducing further the country's fertility rate. 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. As son preference is largely socio-cultural, its effect should not be underestimated in a traditional, poor

society such as in Bangladesh where women are considered to be of low status. Short-term and narrowly defined population control activities may be ineffective in reducing the influence of son preference on fertility. Nonetheless, an integrated effort is essential to decrease gender inequality as well as to increase the status of women, which potentially could help to decrease further the country's fertility rate.

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