

Determinants of Contraceptive Use in Bangladesh

Masuda Mohsena¹ and Nashid Kamal²

¹Department of Community Medicine, Ibrahim Medical College, Bangladesh, Dhaka

²Department of Population-Environment, Independent University, Bangladesh, Dhaka

Abstract

Background: Bangladesh is experiencing a plateau phase in fertility decline after its dramatic reduction in early nineties. Aspects of contraceptive use dynamics have important influences on fertility.

Methods: This study used data from the 2004 Bangladesh Demographic and Health Survey and applied Multinomial Logistic Regression model to examine the determinants of use of modern methods of contraception.

Results: The results showed that individual level characteristics had strong influence on contraceptive use. These variables included educational level of the couples, autonomy of woman, male child preference, woman's membership with an NGO, visit by family planning worker, region and type of residence.

Conclusion: The analysis indicated that further increase of contraceptive prevalence rate to achieve decline in fertility level depended on the improvement of educational status of couples and as well as increase in societal value of girl child. It was evident that household visit by a family planning worker was a significant factor in contraceptive use. Influences of Muslim religion were found to be declining in the case of several methods of contraception use. NGOs could take this opportunity to advocate condom use among their credit clients, which would also benefit the country as a policy against sexually transmitted diseases and AIDS.

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Introduction

Bangladesh, having a population of 140 million and a corresponding population density of more than 900 per square km happened to be one of the most densely populated countries in the world¹. The policy to reduce fertility rate was repeatedly emphasized by the Government of Bangladesh since its liberation in 1971. In 1976, the Government declared the rapid growth of the population as the country's top-most problem and adopted a broad-based, multi-sectoral family planning program along with an official population policy. Population planning was seen as an integral part of the total development process of the country and was incorporated into successive five-year plans².

Over the years, the program continued to be revised and expanded. Finally, in the late nineties the country experienced a substantial decline in fertility in the context of a strong family planning program³. The level

of ever use of family planning was observed to increase steadily in Bangladesh. In 2004, 80% of ever-married women of reproductive age reported having used a family planning method at some time, compared with only 14% in 1975, registering a more than five-fold increase over the past three decades¹. Despite this increasing pattern of use of contraceptives, fertility decline, the vital population strategy, was not achieving the target⁴.

There are programmatic and policy importance of understanding the choice of contraceptive method use and factors affecting contraceptive choice in order to reduce the total fertility rate (TFR) of a country⁵. As any future reduction in fertility in Bangladesh may be largely dependent on the increased use of effective birth control measures, identification of specific determinants of each method is needed. To facilitate

Address for Correspondence:

Dr. Masuda Mohsena, Associate Professor, Department of Community Medicine, Ibrahim Medical College, 122 Kazi Nazrul Islam Avenue, Shahbag, Dhaka-1000. email: masuda669@gmail.com

that effort, by using a single model and controlling for the various factors, this study aims to 1) Analyze socio-economic and demographic determinants of different contraceptive methods choice in Bangladesh; and 2) Discuss the policy implication of the findings.

Methods and Models

The study used data from the 2004 Bangladesh Demographic Health Survey (BDHS). This is a two stage nationally representative survey. The 2004 BDHS sample is a stratified, multi-stage cluster sample consisting of 361 primary sampling units (PSUs), 122 in urban area and 239 in the rural area. The PSUs were borrowed from sampling frame created for the 2001 census of Bangladesh and which was termed as enumeration area (EA). A systematic sample of 10,811 households was selected from a complete list of households. All women aged 10- 49 from the selected households were eligible respondents for this survey. In these households 11,601 women were identified as eligible for individual interview, and interviews were completed for 11,440 women. From them 10,554 currently married women were selected for this study. The dependent variable in this study was “current method of contraception adopted by the woman”. BDHS 2004 collected information on pill, intrauterine device (IUD), injection, condom, female and male sterilization, periodic abstinence, withdrawal, norplant and other methods. Here four groups were considered: Non-user, folk and traditional method users were considered as one group and coded as 0. Pill users,

having highest frequency were coded as 1. Permanent method acceptors (tubectomy and vasectomy) were coded as 2. Long term temporary method users (injection, norplant and IUD) were coded as 3. Condom users, as the use additionally gives protection against Sexually Transmitted diseases (STDs) and AIDS were coded as 4. The frequencies of use of these four methods were presented in Figure 1.

In the BDHS, there were many variables available related to mobility of the women. Principal Component Analysis (PCA) technique was employed to create the variables into a mobility score for each woman⁶. On the basis of prior knowledge of determinants of contraceptive use educational level of the women, her religion, number of living son, her membership with an NGO, husband’s education level, wealth index, age of women, her type of residence (urban/ rural), division to which she belonged were entered as independent ones in the model. These independent variables were tested for statistical significance using bivariate techniques such as chi square tests (Table 1). Finally, Multinomial Logistic Regression (MLR) model was employed to estimate the relationship between contraceptive use and socio-economic and demographic factors using SPSS software.

Results

Among the 10,554 currently married women surveyed in BDHS 2004, 53.14% either did not practice any method or relied on folk or traditional methods. Oral contraceptive method seemed to be the most popular one having 25.44% use rate. Long term methods (norplant, IUD and injections) came out as the second most popular method (11.04%), 5.6% couples accepted either male or female sterilization method. Condom had the lowest frequency (4.8%) of use.

Among the 10,554 women 32.7% lived in urban area and 67.3% in rural area. The percentage distribution over six divisions was not same; maximum (22.2%) of them were from Dhaka division. Approximately, one fifth of the samples came from Chittagong and Rajshahi division each. The percentages of women from Sylhet, Mirisal and Khulna divisions were 13%, 12.2% and 12.2%, respectively. BDHS 2004 survey consisted of women aged 10-49 years. In this analysis two categories of age (< 30, > 30) were recoded; 55.5% of women were less than 30 years and the rest was above 30 years. Majority of the women were Muslim (89.9%).

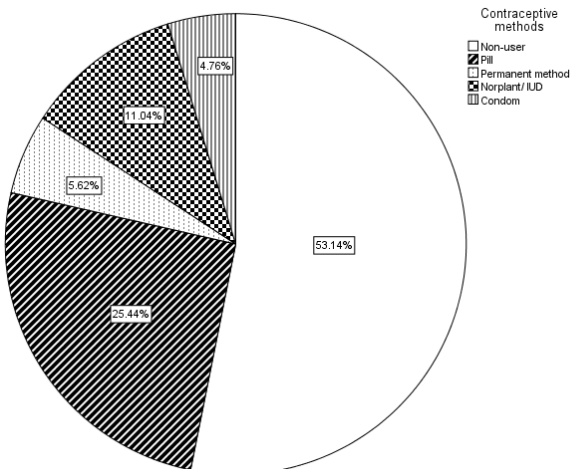


Fig.1: Contraceptive method preferences among married couples, BDHS 2004

Table-1: Distribution of the variables and their association with current method of contraception used by women (The dependent variable in this model is 'current use of contraceptive')

Variable	Non user	Pill		Permanent method*		Long term**		Condom	
	%	%	Sig	%	Sig	%	Sig	%	Sig
	53.14	25.4		5.6		11.0		4.8	
Woman's education									
None	36.8	32.4		60.9		46.4		12.0	
Primary	30.5	30.4		26.5		31.8		18.5	
Secondary	26.9	31.5		10.3		18.8		40.6	
Higher	5.8	5.7	<0.001	2.4	<0.001	3.0	<0.001	28.9	<0.001
Mobility index									
Mobility0	61.2	54.0		43.3		45.3		46.2	
Mobility1	21.4	25.6		25.5		31.3		28.1	
Mobility2	17.4	20.3	<0.001	31.2	<0.001	23.3	<0.001	25.7	<0.001
No of living son									
0	36.7	23.2		7.3		17.3		32.5	
1	29.3	41.6		33.7		39.7		38.8	
2	19.7	23.8		37.3		26.1		21.3	
3	14.3	11.4	<0.001	21.8	<0.001	17.0	<0.001	7.4	<0.001
Age of woman									
Below 30	55.3	60.0		9.3		53.2		58.0	
Above 30	44.7	40.0	<0.001	90.7	<0.001	46.8	ns	42.0	ns
Religion									
Islam	89.8	86.4		82.0		93.5		91.4	
Other	10.2	13.6	<0.001	18.0	<0.001	6.5	<0.001	8.6	ns
Member of NGO									
No	78.4	71.4		64.6		65.8		81.7	
Yes	21.6	28.6	<0.001	35.4	<0.001	34.2	<0.001	18.3	ns
Visited by FP worker									
No	90.7	76.1		96.0		83.2		84.9	
Yes	9.3	23.9	<0.001	4.0	<0.001	16.8	<0.001	15.1	<0.001
Husband's education									
None	34.6	33.6		47.9		42.3		12.0	
Primary	26.4	25.4		25.6		31.0		15.5	
Secondary	26.4	28.4		19.2		20.6		27.3	
Higher	12.6	12.6	ns	7.3	<0.001	6.1	<0.001	45.2	<0.001
Missing (8)									
Residence									
Urban	30.4	35.9		36.3		34.3		59.2	
Rural	69.6	64.1	<0.001	63.7	<0.005	65.7	<0.01	40.8	<0.001
Region									
Barisal	12.6	10.9		9.4		15.3		7.0	
Chittagong	20.6	14.4		12.1		15.5		21.1	
Dhaka	21.7	24.5		25.8		20.2		26.9	
Khulna	13.8	16.5		12.5		17.4		18.3	
Rajshahi	17.6	29.5		32.0		26.2		20.1	
Sylhet	13.6	4.3	<0.001	8.1	<0.001	5.5	<0.001	6.6	<0.001
Socio economic condition									
Poorest	18.3	14.9		21.9		21.2		4.8	
Poor	17.9	17.7		18.9		22.3		6.6	
Middle class	19.4	19.5		21.2		17.6		9.8	
Rich	20.4	22.0		16.0		19.6		15.5	
Richest	24.0	26.0	<0.005	21.9	<0.05	19.3	<0.001	63.3	<0.001

*Permanent – tubectomy and vasectomy

** Long term – IUD/ Norplant/ Injection

Table-2: Multinomial logistic regression of modern contraceptive methods used by females on selected variables, Bangladesh DHS 2004

Variable	Category	PILL		Permanent*		Long term**		Condom	
		OR	Sig	OR	Sig	OR	Sig	OR	Sig
Women's education	None^	1		1		1		1	
	Primary	1.06	ns	0.81	ns	0.83	<0.05	1.46	<0.05
	Secondary	1.24	<0.01	0.51	<0.001	0.72	<0.005	2.32	<0.001
	Higher	1.10	ns	0.44	<0.05	0.74	ns	4.15	<0.001
Mobility index	mobility0/no^	1		1		1		1	
	mobility1	1.19	<0.05	1.29	<0.05	1.74	<0.001	1.48	<0.005
	mobility2	1.19	<0.005	1.59	<0.001	1.62	<0.001	1.38	<0.05
No of living son	0^	1		1		1		1	
	1	2.44	<0.001	3.39	<0.001	2.74	<0.001	1.80	<0.001
	2	2.39	<0.001	4.54	<0.001	2.73	<0.001	2.02	<0.001
	3	2.05	<0.001	3.73	<0.001	2.69	<0.001	1.45	ns
Age of woman	Above 30^	1		1		1		1	
	Below 30	1.56	<0.001	0.14	<0.001	0.69	<0.001	0.82	ns
Religion	Other^	1		1		1		1	
	Islam	0.67	<0.001	0.51	<0.001	1.56	<0.001	1.36	ns
Member of an NGO	No^	1		1		1		1	
	Yes	1.20	<0.002	1.36	0.002	1.54	<0.001	1.05	ns
Visit by FP worker	No^	1		1		1		1	
	Yes	2.87	<0.001	0.36	<0.005	1.73	<0.001	2.20	<0.001
Husband's education	None^	1		1		1		1	
	Primary	0.97	ns	0.94	ns	1.15	ns	1.30	ns
	Secondary	0.96	ns	0.75	<0.05	0.81	<0.05	1.39	ns
	Higher	0.83	ns	0.67	ns	0.54	<0.001	2.37	<0.001
Residence	Rural^	1		1		1		1	
	Urban	1.30	<0.001	1.42	<0.002	1.38	<0.001	1.57	<0.001
Region	Sylhet^	1		1		1		1	
	Barisal	2.84	<0.001	1.55	<0.001	3.30	<0.001	0.92	ns
	Chittagong	2.25	<0.001	1.07	n	1.82	<0.001	1.78	<0.01
	Dhaka	3.57	<0.001	1.99	<0.001	2.12	<0.001	1.89	<0.005
	Khulna	3.47	<0.001	1.54	<0.05	2.98	<0.001	1.96	<0.005
	Rajshahi	5.39	<0.001	3.17	<0.001	3.41	<0.001	2.28	<0.001
	Poorest^	1		1		1		1	
Socio economic condition	Poor	1.16	ns	0.88	ns	1.09	ns	1.13	ns
	Middle class	1.22	<0.05	0.99	ns	0.87	ns	1.27	ns
	Rich	1.42	<0.001	0.80	ns	1.05	ns	1.62	ns
	Richest	1.49	<0.001	1.09	ns	1.05	ns	3.06	<0.001

^ Reference Category; *Permanent – Tubectomy and vasectomy; ** Long term – IUD/ Norplant/ Injection

A significant percentage of the women (34.8%) had never attended school. Among the rest, 29.5% had primary education, 28% secondary education and 7.7% higher education. Similarly, a significant percentage of husbands (32.8%) had no formal education. The percentages of husbands who had primary, secondary and higher education were 25.5%, 26.5% and 15.3% respectively. Women's autonomy was measured by their mobility and membership with NGOs; 21.3% of the

surveyed currently married women were members of NGO's. Nearly 60% of the women were not allowed to go anywhere alone. Only 9.7% of them reported to be visited by family planning workers in the last six months.

Results of the MLR analysis are presented in Table 2. From the model 'education level of the women' came out as a strong predictor of contraceptive use. The probability of being a pill user was 1.24 times higher if the woman had secondary education compared to

woman having no education. The probability of using condom for husbands of highly educated women (with post-secondary education) was 4 times higher compared to the husbands of non-educated women, whereas the values were almost 2.5 and 1.5 times higher for husbands of secondary educated women and those of primary educated women, respectively. Women who were illiterate were more likely to be users of long term temporary methods compared to primary (17% less) and secondary educated women (28% less). Uneducated women were more likely to be users of permanent method of contraception, as-well, compared to primary and secondary educated women.

The logistic regression model showed that women who had a higher mobility had higher odds of use of all types of contraceptive methods; a woman with a mobility score of 1 and 2 (meaning better freedom of mobility) had a 1.19 times higher probability of being a pill user compared to a woman with score 0 (minimum mobility). The probability of condom use increased by 48% and 38%, respectively for women with a mobility score of 1 and 2 compared to women with a score of 0. It was found that women who had higher mobility had higher odds of use of long term and permanent methods as-well.

Odds of taking pill was found to be almost two and a half times higher in women having one living son compared to those having no living son. Couples with one or two sons preferred condom twice (1.8 and 2.02) more than those having no son. Having at least one son increased the odds of using long term and permanent methods by more than 2.5 and 3.5 times, respectively compared to women having no living son.

The regression coefficients clearly showed as expected, that the younger women (< 30 years) were more likely to be using the pill (1.5 times) than older (> 30 years) women, who showed a significantly higher odds of accepting permanent method compared to younger women. Condom use, on the other hand, did not differ between these two groups of women.

From the table it was observed that Muslim women were significantly lower users of pill and had less chance of being a permanent method acceptor compared to non-Muslim women. Religion turned out to be an insignificant predictor for condom use. Contrary to expectation, the study finding showed that Muslim women had 1.56 times more probability of being acceptors of long term temporary methods than non-Muslim women.

Membership with an NGO turned out to be an insignificant predictor for condom use. But all other types of contraception use were increased with the women's membership of an NGO. Visit by family planning (FP) workers emerged as another significant predictor of contraceptive use. The odds of using the pill and condom were almost 3 and 2 times higher, respectively in those women who were visited by family planning workers in the last three months compared to those with no visit. Visit by family planning workers on the contrary decreased the probability of accepting permanent method by 74%.

The model showed that women living in urban areas had higher odds of being users of modern contraceptive methods than women living in rural areas. Division also mattered in the pattern of contraceptive use. Using Sylhet as the reference category, it was found that the women, who were from Rajshahi division, showed highest odds of using all types of modern contraceptive methods; use of pill was 5 times higher in women from Rajshahi compared to women from Sylhet. Compared to women who lived in Dhaka division, condom use were significantly less among women of Barisal and Sylhet divisions. Data of Rajshahi, Khulna and Barisal division showed higher use of long term methods of contraception by the women in these divisions compared to those in Dhaka, whereas women in Sylhet again showed poorer performance.

Upward trends of odds of pill and condom use were observed with increase in the women's socio-economic condition. Couples categorised as richest group had increased odds (3.1 times) of being a condom user, compared to the poorest quintile. Richest group also showed 1.5 times greater odds of being pill users compared to poorest quintile.

Husbands who had higher education showed 2.4 times more likelihood of being a condom user compared to those who were uneducated. Husband's level of education was an insignificant predictor of pill use by their wives. Husband with secondary or higher education showed 0.19 and 0.46 times lower odds of their wives using long term temporary methods compared to non-educated husbands, uneducated husbands preferred the permanent method, whereas, probability of using this method decreased by 25% if educational status increased to secondary education.

Discussion

This study revealed that women using any of the modern methods of contraceptive were relatively better

educated compared with non-users, as was the case with their husbands (with the exception for sterilization). The educational experience obviously has long-lasting implications for women because it serves as a source of knowledge and cognitive skills. It is a resource that enhances economic opportunities and social mobility⁷. Martin and Juarez (1995)⁸ also explained a similar inverse relationship between fertility and education. Bangladesh government has taken a policy to increase the female primary and secondary schooling by making a stipend payable to female students with an expectation that it will motivate them to complete their education at least up to the secondary level and help in reaching the replacement level of fertility in the country. The incentives found to have great impact on higher rate of primary school enrollment¹. Unfortunately still high dropout rate of the girls from secondary education exists⁹. On the other hand, leaving the male counterparts uneducated, as a whole, will not improve the situation. The odds of current use of modern methods among women whose husband had secondary and higher level of education was higher than that of women with husbands having no formal education, except in the case of sterilization. Education scheme both for males and females will be more effective.

Among the other factors, the status of women also depend on whether she can move outside of the homestead alone, thus enabling a woman to cross several socio-cultural barriers⁷. This 'mobility' also has influences over her contraceptive behavior. Higher odds in use of all types of modern methods were observed in women having higher mobility score. To achieve higher rates of contraceptive prevalence, there is a need for widespread measures that will enhance the mobility of the women. Kamal and Mohsena(2011) made recommendations for extending projects like Grameen Bank and Bangladesh Rural Advancement Committee (BRAC) for achieving further autonomy of women⁶.

Non-Muslim women were significantly more likely to accept pill and permanent methods compared to Muslim women, but no differences in use rate of condoms and long-term methods were observed between these two religious groups. This indicates that the less favourable attitude of Muslims toward family planning is gradually changing. Other studies also observed similar patterns⁶.

Interestingly, finding of this study suggests that woman's membership with an NGO increased her probability of using the pill, sterilization and long-

term methods, but condom use was almost the same between women involved or not involved with NGOs. This may be due to the reason that NGOs are now providing family planning services along with their credit programs¹⁰; but their service effort probably is targeted to overall contraceptive prevalence rate (CPR). In these days of impending epidemic of AIDS and higher prevalence of sexually transmitted diseases (STDs) use of condom can serve as double protection, both against unwanted fertility and STDs/ HIV. During group-participation of women in NGOs promotion of condom use could be successful. One advantage to be noted here is that influence of religious beliefs in this regard is negligible.

As Kamal (1994)¹¹ showed that the presence of Family Welfare Assistant (FWA) in an area was found to increase the probability of contraception use by a woman by 54% and the effectiveness of the service is due to the culture that discourages women from leaving the home without their husband. Household delivery of family planning services was introduced in Bangladesh in 1978. It is evident from the analysis that visits by family planning workers still had a very strong and positive influence on the current use of all modern contraception compared to no use or traditional methods. The Government should focus more on this service to increase rate of contraceptive use, especially in a culture that has restricted women's movement.

Gender discrimination and preferences for sons are key demographic features in South Asia¹²; Bangladesh being no exception. After the birth of oneson, the odds of using all types of contraceptives increase, ranging from 1.8 to 3.7. This existence of son preference in a region, where the official target is to decline fertility, has implications for future population policy. This sex preference is likely to correlate with women's autonomy. Girls are not encouraged to engage in any economic activities outside their homes and an associated custom is the practice of dowry payments. These norms always impoverish the parents of girls and enrich the parents of boys. The improvement of women's status, their education levels, their employment and the value of girls in the society should therefore be future policy measures.

The results showed that the place of residence was also positively associated with the current contraceptive use. The data suggested that urban women were more likely to use contraception than rural women. This may be related to the facts that urban areas of Bangladesh are

associated with better access to education, employment, medical care as well as family planning services. Also, administrative division was an important variable. Residents of Rajshahi division were significantly more likely to be using modern methods than residents of Dhaka division. This higher trend in Rajshahi division had been observed from 1989¹³. Overall the use was lowest in Sylhet division, only 9.7% of users reside in Sylhet division. Women of Chittagong were still showing lower use compared to women of Dhaka. Previous studies also showed the conservativeness of the residents of Sylhet and Chittagong¹⁴. More research is needed in this field to find the underlying causes, which may be cultural in nature.

The study findings of this study have a number of policy implications for Bangladesh. The measures that are expected to be useful in devising ways to increase the Contraceptive Prevalence Rate and thus bring about a further reduction in fertility in Bangladesh are multidimensional. Provision of education and employment to women, as well as their male counterpart proved to be the key policy. Policy should be targeted to prevent high dropout rates from secondary schools, which in turn will enable them to get greater degree of autonomy. Kamal and Haider (2006)¹⁵ also recommended that providing free female education alone cannot let the chair stand, it comprises of only one leg, the other legs need to be in place as well. Campaigns should be done to raise the value of girl child in the society and reduce son preference. Demographers have associated 'Dowry' as a major cause of son preference. Motivational campaigns and application of legislation strictly may turn out to be the solution. Besides, improving the employment situation of women will also enable them in obtaining some family power to make family planning decision. Improving the home visit of the family planning workers should be highlighted in policy, as this visit still comes out as a strong predictor of contraceptive use. Various researches showed that role of NGOs in women empowerment are encouraging; where women empowerment is defined as a function of her relative physical mobility and economic security. Contraceptive awareness may be targeted to the credit-receiving clients; involvement of the NGOs in advocating contraceptive use, especially in promoting condom may give better result.

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