Contraceptive Use in Matlab with a Special Focus on Condoms: Socio-economic Correlates and Future Implications

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Abstract: Although the use of condoms is important for fertility control and preventing AIDS, its use is surprisingly low in the developing countries. This paper investigated the socioeconomic correlates of contraceptive use with special reference to condoms in rural Bangladesh. Data for this study came from Matlab MCH-FP area where ICDDR,B has been providing comprehensive maternal and child health and family planing services for a population of 100,000 since 1977. Education and socioeconomic status were not related to contraceptive use, but were positively correlated to condom use. Development, particularly women's education and higher socioeconomic status, also seem important for increasing condom usage.

Introduction

Rural Matlab is an area in Bangladesh where intensive Maternal and Child Health/Family Planning (MCH-FP) services have been delivered for approximately 100,000 people by the ICDDR,B for more than two decades. The services have earned a quality reputation because of high profile management, client satisfaction and positive demographic results. Important demographic parameters like contraceptive prevalence rate, total fertility rate, infant mortality, etc. have demonstrated notable performance that testifies to the program's efficacy in the health and population sector. An important component of the Matlab program is monthly collection and monitoring of data on the contraceptive use and reproductive status of married women of child- bearing age residing in the catchment area of the MCH-FP services. This is called Record Keeping System (RKS). This paper will focus on the relationship between the use of contraceptives and a set of demographic and socio-economic variables. The study will give special attention to condom usage to identify the factors that determine its spread. This exercise will be useful particularly in the light of increasing importance of condoms to prevent the spread of STDs and HIV-AIDS in the foreseeable future[2].

Government support of low-cost contraceptive access largely subsidizes the contraceptive program in Bangladesh. Until recently more than 68 percent of birth control pill users obtained contraceptives free, while approximately seven percent paid a nominal fee (Ali, 1995). The high prevalence of pill use at the national level may also be linked to price subsidization. Economic subsidy, however, is not the only factor that determines the popularity of a contraceptive method. Were it so, the condom should have been equally popular, since it is also subsidized. Or for that matter the permanent methods of birth control (tubal ligation and vasectomy), which are provided free of cost and with cash incentives, should also be popular.

Education was found to be important for adopting birth control practices. A recent health and demographic survey at the national level suggested a positive association between education and birth control practice. This paper will show its relevance to the method mix, particularly the years of schooling[3]. The relevance of education to method mix is not a very recent finding since existing studies already reported that pills and other short-term methods of birth control (IUDs, condoms and traditional methods) are preferred by the educated, while injectibles and permanent methods are preferred by the uneducated (Kahn, 1996). This is largely due to the difference in the understanding of side effects of the contraceptive methods.

Two other independent variables reported to have an effect on the selection of methods are the number of children and the age of women (Kahn, 1996). Married women with several children prefer a permanent contraceptive method and those with fewer children prefer temporary methods. Similarly, older married women prefer permanent methods while younger women prefer temporary methods.

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[2] It is reported that the use of condoms reduced the risk of contacting STDs by one-third and the risk of contracting HIV-AIDS by 60 percent. (Kelly, 1996)

[3] There is evidence that the effects of education as an explanatory variable for birth control practice becomes insignificant with the presence of a program with strong motivation, regular services and follow up.

The limited use of condoms is yet to be widely investigated. Existing studies provide some indications about why condom use is limited (Folman and Alam, 1992). For example, not feeling comfortable during intercourse is a discouraging factor in condom usage. Feeling shy about purchasing condoms prevents some users. It would be worthwhile to probe deeper into this issue of cultural inhibition. It may be presumed that the taboo on free sexual discussion has contributed to a sense of shame about condom usage[4].

Methods and materials

Data for this study came from the Record Keeping System (RKS) of the Matlab Maternal and Child Health-Family Planning (MCH-FP) Project and was collected in October 1998. The RKS is a monthly data collection system and the respondents include all married women of childbearing age in the 70 selected villages of Matlab. These women receive the MCH-FP intervention by ICDDR,B. Survey variables include family planning services, selected demographic and reproductive parameters. Bi-variate and Multivariate analyses are employed for this study.

Results

A varied contraceptive method mix in Matlab reveals a unique feature that differs from the national pattern. The largest distinction lies in injectible contraception being the most prevalent contraceptive method.

One more distinguishing feature of Matlab is its Contraceptive Prevalence Rate (CPR) – 66.1 percent in contrast to 50.2 percent at the national level (Mitra et al, 1997). Birth Control pills are second to injectibles in terms of usage rates. Condoms are also used at a higher level than what is found at the national level (4.9 percent compared to 3.9 percent). Both permanent methods are used at a lesser rate than found at the national level. Women adopted permanent methods of contraception at a higher rate than men, implying a greater inclination among males to retain control over their reproductive capacity. The predominance of female contraceptive methods overall may also be seen as male's reluctance towards contraception. Whatever hassles are involved in the routine practice of contraceptive method are largely borne by the women. This is consistent with patriarchal culture norms that impose greater burden on women in the household.

Table 1: Percent distribution of couples using each contraceptive method, Matlab 1998

Method	n	Percent of total
A. Users		
Pill	2,396	19.4
Intra-Uterine Device	171	1.6
Injectibles	4,015	32.6
Condom	605	4.9
Tubal ligation	634	5.1
Vasectomy	16	0.1
Others	287	2.4
B. Non-users	4,186	33.9
All	**12,342**	**100**

The use of the pill, injectibles, condoms and tubal ligation increases with the age of a married woman. There is some inconsistency in these results (Table2). Rises and declines of use take place frequently making it difficult to identify any method with any particular age cohort. With respect to the pill, IUD and injectibles, and to some extent for condoms, this inconsistency may be meaningful. However, for tubal ligation and vasectomy the

[4] In the findings of a recent national literature review, the factors contributing to the limited use of condom were examined. These factors vary with the normative structure underlying contraceptive use regarding image and perception of condoms as well as gender relationships in society. Female bias in contraceptive use, limited female empowerment and expressing loyalty to a male partner's choice to solidify a confident relationship are some of the noteworthy factors (Gardner et al, 1999).

proportions of users have gradually increased with age cohorts. Husbands of the oldest cohort had the largest proportion of vasectomy (17.7 percent), implying that the couples' increased age leads to acceptance of permanent methods in order to effectively control pregnancy. The use of condoms among the older age cohorts is also higher than that of the younger cohorts. Irregular sexual intercourse among the older age cohorts may make condoms – a one-time use method – more favorable than the pill or injectibles.

Table 2: Percent of married couples by contraceptive method and age, Matlab 1998

Age cohort	Modern Method									
	Any method	Pill	IUD	Injectibles	Condom	Tubal ligation	Vasectomy	Others	Non-use	n
< 19	46.8	19.5	1.8	21.1	3.8	0.3	--	3.0	53.0	397
20-24	71.4	18.4	2.1	31.9	3.0	--	--	--	28.6	1,851
25-29	60.5	21.4	1.7	31.9	4.3	0.8	--	0.4	39.5	2,531
30-34	68.1	20.8	1.4	36.6	5.2	3.1	0.1	0.9	31.9	2,335
35-39	77.0	19.5	1.6	36.2	6.6	9.0	0.2	3.9	23.0	2,019
40-44	84.1	18.4	0.8	34.6	7.2	15.4	0.2	7.2	15.9	1,229
45-49	81.6	16.7	0.8	29.9	6.2	17.7	0.5	9.8	18.4	599

Does the number of living children affect the method mix? The use of the pill and injectibles, although fluctuating, increases when projected against the number of living children (Table 3). However, the relatively consistent increasing trend of condom use and tubal ligation is shown very clearly. Since tubal ligation gives permanent protection against the chance of pregnancy, married couples with a larger number of children would be likely to adopt it. However, the cause behind the higher use of condoms by married couples with a large number of children is not addressed in this paper. Factors such as the occasional absence of husbands resulting in less need for a long term method, or that all children are girls and it is necessary to keep the options for pregnancy open may be taken into consideration. Specific analysis would be necessary to precisely identify the impact, if any, of these factors.

Table 3: Percent of married couples by birth control practice status and number of living children, Matlab 1998

No. of living children	Modern Method								
	Pill	IUD	Injectibles	Condom	Tubal ligation	Vasectomy	Others	Non-users	n
None	2.5	1.0	4.9	0.8	--	--	--	90.4	1,182
One	2.3	0.2	3.2	0.6	0.1	0.2	0.1	93.4	1,177
Two	18.5	1.8	26.6	3.7	1.5	--	1.0	46.9	1,887
Three	20.8	1.4	36.7	4.8	7.7	0.1	2.3	26.2	2.025
Four & more	19.0	0.9	36.5	6.5	11.9	0.2	5.7	19.4	3,084

While a strong family planning program can reduce the gap between literate and illiterate married women in adopting birth control practice, education is an important factor related to method mix (Table 4). The leading contraceptive in Matlab, injectibles, registers a decline in usage as years of schooling increases. The same trend applies to tubal ligation. Pill use increases with education, although some fluctuation is evident. IUD use also increases with education, although its rate of overall use is minimal. Condom use increases with education. Higher education may contribute to increased awareness about side effect discouraging the use of injectibles by educated women. One study has already reported that higher educated women discontinued injectibles at a greater rate (Rahman et al, 1997)[5]. Tubal ligation's decreased use may also be explained by higher education. On the other hand,

[5] The same study also reported a decrease in the use of birth control pills in rural Bangladesh due to side effects when the husband did not press for continuance. This paper does not notice decrease of pill use with longer education. Side effects of injectibles include spotting or amenorrhoea, resulting in the removal of the option from Bangladesh. (Rutter, 1993) For a large number of injectible users, the reasons for discontinuation included side effects, health reasons, and lack of availability. (Ahmad et al, 1992).

condoms should be preferred by many women, given the absence of side effects. Higher education may also empower a woman to encourage her husband to use a male contraceptive method to lessen her own responsibility and side effects.

Table 4: Percent of married couples by birth control practice status and years of education, Matlab 1998

Years of education	Modern Method								
	Pill	IUD	Injectibles	Condom	Tubal ligation	Vasectomy	Others	Non-users	n
None	17.4	1.4	25.9	3.0	6.5	0.2	2.2	33.4	6,590
Primary incomplete	20.4	1.2	34.5	4.4	5.3	0.1	2.1	32.0	1,648
Primary complete	22.2	2.2	28.8	6.4	3.3	0.1	2.4	34.6	3.455
Secondary and more	22.0	2.6	13.7	17.5	0.8	--	3.5	39.8	650

Table 5 focuses on the relationship between standard of living and the method of contraceptive choice by respondents. Standard of living is measured by a composite index constructed by adding together scores obtained on a range of variables indicative of one's economic condition. These variables include the possession of a bed, an *almirah* (a cupboard), a radio, a television, a bike, electricity, and a slab latrine[6]. Any respondent scoring '7' in the index would possess all of the above and the scorer of '0' would have none of them. The scorer of '7' is considered to be rich and the scorer of '0' as poor.

Table 5: Percent of married couples by birth control practice status and standard of living index, Matlab 1998

Standard of living index	Modern Method								
	Pill	IUD	Injectibles	Condom	Tubal ligation	Vasectomy	Others	Non-users	n
0	18.1	1.5	37.4	3.1	5.0	0.2	1.5	33.3	4,993
1	18.9	1.3	34.3	4.0	6.2	0.1	2.6	32.6	2,756
2	21.0	2.0	30.1	5.6	4.8	0.1	2.3	34.1	2,105
3	22.5	1.7	26.1	6.7	5.0	0.1	3.0	35.0	1,498
4	22.3	2.7	21.8	14.7	5.0	0.1	5.4	28.0	743
5	12.4	1.8	9.3	6.2	0.4	--	1.8	68.1	226
6	--	--	--	--	--	--	--	100	22

It has been found that among married couples as many as 41 percent have scored '0', less than one percent have scored '6' and none scored a '7'. A negative relationship exists between use of injectibles and the composite index and a partially positive correlation is found with condom usage. There is a sharp decline in condom use among the very well-off - more than 14 percent of the scorers with a '4' use condoms; this number drops to six percent among the scorers of '5' and no condom usage was reported among the scorers of '6'. An inverse relationship is also shown for tubal ligation. Pill use rises as the index value increases, but declines after the midpoint of the composite index of standard of living. It is notable that the largest proportion of the non-users of contraception is included in the categories scoring high index values (5 and 6). These two categories also include women without any child or only one child to a large extent. For example, 47.3 percent and 68.2 percent respectively of the scorers of '5' and '6' are either childless or have only one child compared to 30.7 percent and 30.6 percent among the scorers of '0' and '1'. Similarly, these two categories also include the highest proportions of women educated above the primary level. This study, however, does not examine the extent of interrelation of the above two factors with non-

[6] However, there is a limitation of the asset possession data and its impact on the score on the composite index. Answers about possession have been gathered in the affirmative and negative. Numbers of an item have not been recorded and, therefore, may underestimate differentiation among the wealthier categories.

adoption of contraception by the rich. The findings indicate that the rich are less inclined to control fertility. These findings are similar to findings long established in rural Bangladesh. The highest child to woman ratio (CWR) was found among the most economically and educationally advanced women (Samad et al, 1974). If higher fertility is related to the lesser use of contraception it may be noted that decreased contraceptive use by the wealthy in rural Bangladesh has long been established, and no significant change has been seen in this regard. The present success of achieving high contraceptive prevalence and declining population growth has resulted largely from initiatives targeted at the poorer section of society. The higher contraceptive prevalence requires taking into account the pressure of poverty on large family size.

Multivariate analysis

Bi-variate analysis furnished the evidence of association between the use of different methods and the selected correlates. Multivariate analysis provides estimates of association after controlling for the effects of other variables. The first analysis focuses on the adoption of any contraceptive method and the effect of the correlates, the second analysis considers the effect of the correlates on condom usage specifically. Logistic regression is employed in this analysis.

The set of independent variables consists of: the age of the married women (WAGE), number of living children (LCH), standard of living (SLVN), and the married women's years of schooling (WEDU). Dependent variables are respectively the adoption of any birth control method and the use of condoms, as shown in Tables 6 and 7 respectively.

In the first equation, the number of living children appears to be the most significant among the four selected correlates with regard to adoption of any method.

As the number of living children increases a married woman tends more towards controlling birth by adopting some birth control practice. As shown earlier in Table 2, the relationship between the age of married women and adoption of any method is inconsistent to an extent. Fluctuation of the proportion of non-users of contraceptives takes place among the sequentially placed age cohorts. Additionally, it is notable that whatever positive effect age could have on adopting contraceptives has been negated by the variable of number of living children. Employing the implications of the above findings, it may be observed that a young married woman with many children would be more likely to adopt contraceptive method than an elderly woman with a fewer children. Notably, the effect of age on contraceptive adoption without the variable number of living children would have shown positive relationship. Increase in standard of living does not influence the adoption of birth control practice, rather it shows a negative relationship in the multiple regression model. The experience of Bangladesh with regard to poor women adopting contraceptives is not unique in the sense that poverty is not seen as correlated with high fertility (McNicoll, 1997). Further examination shows that married women from the categories attaining the highest scores in the standard of living index have no child or only one child. This has resulted in low contraceptive prevalence among the wealthy. Years of schooling also do not have any effect on the adoption of contraceptives. As pointed out earlier, the thrust of a strong family planning program can attract the illiterate or less educated women into accepting contraceptive methods.

Table 6: Logistic regression results on the adoption of any contraceptive method

Variables	Regression coefficient	*p*-value
Constant	0.867	0.000
Married woman's years of schooling (WEDU)	0.001	0.872
Standard of living (SLVN)	-0.045	0.000
Age of married woman (WAGE)	0.044	0.000
Number of living children (LCH)	0.559	0.000

Dependent variable: Adoption of method = 1 and non-adoption = 0

Condom use has been affected by three correlates selected in this analysis, which include years of schooling of a married woman, standard of living and the number of living children. Side-effects of hormonal contraceptives and the empowerment thesis discussed above should be invoked here to explain the relationship between the variables found in Table 7.

Table 7: Logistic regression results on the adoption of condom usage

Variables	Regression coefficient	*p*-value
Constant	-4.070	0.000
Married woman's years of schooling (WEDU)	0.151	0.000
Standard of living (SLVN)	0.136	0.000
Age of married woman (WAGE)	-0.010	0.112
Number of living children (LCH)	0.245	0.000

Dependent variable: Adoption of condom = 1 and non-adoption = 0

If years of schooling of a married woman and awareness of side-effects are positively correlated with condom use, then a higher educated woman should prefer condoms as a contraceptive with less side effects. Similarly, if education and empowerment are positively correlated with condom use, then an educated wife may encourage her husband to use condoms to lessen her own hassle. Condom use is also correlated with higher standard of living. As a more expensive contraceptive, condoms can likely only be afforded by the well-off, unless they are considerably subsidized by the government. If higher standard of living is positively related to a woman's higher education then condom use will be positively influenced by standard of living. The variable of increased living children also indicated a positive effect on condom use. Although not investigated in this paper, the above finding may result because this particular category of women (many children but using condom) is interested in keeping their pregnancy options open for some reason.

Conclusion

This paper focuses on different contraceptive methods with special attention on condom usage. The use of condoms has not reached a satisfactory level yet in Matlab or the country as a whole. The family planning services provided in Matlab and the rest of the country do include some male contraceptive methods, but owing to the tradition of bias for female methods, it will be difficult to increase condom use to a satisfactory level.

Analysis of this paper shows that the number of living children is an important correlate in the use of contraceptives generally as well as condom use specifically. It shows that the family planning campaign to reduce family size is consistent with the choice of most married couples. Age plays a relatively small role both with regard to contraceptive usage generally as well as condom usage. Years of schooling does not play a role with regard to contraceptive decisions in Matlab because of strong program effects, but it does with regard to using condoms in both Matlab and the country. It may be observed that female education will likely have an increased effect on condom use in the future. Similarly modernization will also have positive effect. Since the poor are enthusiastic adopters of contraceptives, the present contraceptive subsidy should not be discontinued to support poverty alleviation programs.

At present, any campaign to use condoms to prevent HIV/AIDS is not integrated into family planning program in Matlab and the country. From the findings of this paper it may be expected that the educated and well-off couples will respond more positively to such a campaign than the poor and less educated.

Finally it may be observed that the results of this study provide an indication that there is reason to target increases in the presently low rate of condom use by influencing specific socioeconomic variables in a targeted manner.

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References

Ahmad, S. et.al.1992.*Determinants of acceptance of injectable contraception in Bangladesh*. Dhaka: Bangladesh. Associates for Research Training and Computer Processing, 124:1-32.

Ali, A.M.1995. Contraceptive Use in Bangladesh : A Study of Trend and Pattern. Paper Presented in a Seminar on *Socio-economic Interventions and Changes in Rural Bangladesh*, Organised by Centre for Human Resource Development, Jahangirnagar University, and Morgan State University, USA, Bangladesh, August 1995.

Folman, S. and S.M.N. Alam.1992. *Condom Use in Bangladesh*. (Mimeo) Dhaka: Bangladesh. Social Marketing Company.

Gardner, R. et.al.1999. Sexual Behaviour and Condoms. *Population Reports*, Johns Hopkins University School of Public Health, Population Information Program, XXVII (1), H (9): 8-11.

Kelly, J.1996. Condoms and STDs. *British Journal Of Hospital Medicine*.56(7):370.

Khan, M.A.1996. Factors Affecting Use of Contraception in Matlab, Bangladesh. *J.biosoc.Sci*. 28:265-279.

Khan, M.A. and M. Rahman.1997. Determinants of Contraceptive Method Choice in Rural Bangladesh. *Asia-Pacific Population Journal*. September: 65-82.

McNicoll, G. *Population and poverty: a review and restatement*. Policy Research Division Working Papers. New York: New York. Population Council, 105:1-73.

Mitra, S.N. et.al.2001. *Bangladesh Demographic and Health Survey, 1999-2000*. Dhaka: Bangladesh. National Institute of Population Research and Training.

Mitra, S.N. et.al.1997. *Bangladesh Demographic and Health Survey, 1996-97.* Dhaka: Bangladesh. National Institute of Population Research and Training.

Rahman, M. et.al.1997. Factors associated with reported side-effects of oral pills and injectables in rural Bangladesh. In *Reproductive health in rural Bangladesh: policy and programmatic implications*, T.T.Kane et.al. (eds). Dhaka: Bangladesh. International Centre for Diarrhoeal Disease Research(ICDDR,B. Volume 1/ Monograph No.7: 191-216.

Ruiz, I. et.al.1996. Prevention of human immunodeficiency virus infection (HIV):condoms or abstinence. (letter). *Medicina Clinica*.107(13):516-7.

Rutter, T.1993. The future for injectible contraceptives. *Africa Health.*15(3):18-9.

Samad, A. et.al.1974. Fertility Differentials in rural Bangladesh.*Rural Demography.* 1 (1): 55-74.