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CONTRACEPTIVE USE PATTERNS IN MATLAB, BANGLADESH: INSIGHTS FROM A 1984 SURVEY

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ABSTRACT

An experimental maternal and child health and family planning program has been in existence in Matlab for almost ten years. During this time the project has achieved remarkable success in the area of family planning. Based upon the analysis of a 1984 survey, this study examines the underlying pattern of the high level of contraceptive use as evident in the Matlab treatment area, and contrasts it with the regular government service program in the neighbouring comparison area. Important differences between the two areas are observed, with the treatment area characterized by substantially higher levels of current contraceptive use, much greater reliance upon temporary methods for birth spacing and among acceptors of sterilization, much more prior experimentation with other methods. In the comparison area lower rates of contraceptive use are observed, with heavy reliance upon tubectomy for limiting family size. The findings suggest that an intensive and innovative family planning program in rural Bangladesh can achieve success not only in terms of contraceptive prevalence, but can also attract users interested in child spacing and others wanting to limit their family size, by offering the widest range of contraceptive methods.

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INTRODUCTION

In 1977, the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) launched an innovative experimental family planning and maternal and child health program in Matlab, Bangladesh, to test the hypothesis that family planning programs could achieve success in a rural setting characterized by unfavorable socio-economic conditions. In the decade of its existence, this project has achieved remarkable success in family planning, with current contraceptive prevalence rates standing at over 40 percent of all eligible women. While the organization of the Matlab service project and its initial demographic effects have been extensively documented elsewhere, much remains unknown about the underlying dynamics of the rise in contraceptive prevalence. Data from a sample survey carried out in Matlab in 1984 provide an opportunity to explore this issue in greater detail. This paper has two primary objectives: to describe the family planning knowledge, attitudes, and practice of women residing in the Matlab treatment area, and to examine

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differences between the ICDDR,B experimental program and the regular government service program functioning in the neighboring comparison area.

BACKGROUND

The Matlab Family Planning Health Services Project (FPHSP) was introduced to test the hypothesis that an appropriately designed program could initiate and sustain a fertility decline in the setting of rural Bangladesh. The project has been characterized by a rigorous experimental design and carefully collected data on contraceptive use and demographic events. The design specified that approximately one-half of the study area (70 villages with a 1984 population of 97,329) would receive services from the intensive ICDDR,B program, while the remaining comparison area (consisting of 79 villages with a 1984 population of 95,362) would continue to be provided with services offered by the regular government program.

An important component of the Matlab service program is the presence of Community Health Workers (CHWs): young, educated, married women who are contraceptive users and who come from respected families in the community. The Matlab program also has a well-developed system of back-up by female paramedical and medical staff, and a strong and supportive system of field supervision. The program has introduced a worker oriented management information system to assist workers in planning and delivering services as well as evaluating performance. Emphasis is given to a 'cafeteria' approach to the delivery of family planning services, including doorstep provision of injectable

contraception and home insertions of IUDs. Over time the CHWs have established close rapport with the village women they serve, and have developed impressive competence in motivating women for family planning services as well as in counselling and treatment of side effects.

The Matlab FPHSP started as a comprehensive family planning program with only basic MCH services. Between 1977 and 1984 additional services were gradually added, including tetanus and measles immunization, oral rehydration therapy, training of traditional birth attendants and the provision of safe birth kits.[1] During this period, the treatment area continued to be served by the regular government program.

A well-documented achievement of this program has been a sharp rise in the level of contraceptive use, with contraceptive prevalence rising to 33 percent during the first 18 months.[2] After a plateau of several years, prevalence began to steadily rise again slowly from April 1982, reaching 45 percent at the end of 1984. Separate research has documented a significant decline in fertility as a result of this increase in contraceptive use.[3]

Although the comparison area also benefits to some degree from the presence of the ICDDR,B treatment and outreach service programs,[4] formal services received there continue to be largely through the regular government program. While on the surface there would appear to be strong similarities between the government and the Matlab programs, in reality they differ

substantially. In contrast to the staffing ratios of Matlab, where the female worker to population ratio of 1:1200 allows fortnightly household visits, the average government staffing ratio of 1:7500 means that each household can only be visited once every 3-5 months. The nature and quality of services in the government program also differ significantly: the range of contraceptives provided to households by government workers is more limited, consisting largely of pills and condoms and in practice the paramedic stresses sterilization frequently at the expense of other methods[5]. While the Matlab worker carries basic medical supplies with her, government policies do not allow similar practices: to obtain basic medicines in the government system, it is necessary for the client to visit static clinics, frequently at considerable distances from their households. Unlike the Matlab system, the linkage between outreach and clinical services is not well established, and therefore medical back-up is poor. Relative to the Matlab program, the system of supervision in the government program is weak. It lacks a strong field presence by supervisors, a well developed system of meetings which focus upon problem solving, and an effective recordkeeping system to facilitate planning and evaluation of performance by both fieldworkers and supervisors[6].

Data

Results from a survey conducted in the Matlab treatment and comparison areas in 1984 provide an opportunity to describe more fully contraceptive use patterns in the Matlab study area.

Between May and December 1984, a KAP sample survey of 6,214 women in the Matlab treatment and comparison areas was conducted. The survey consisted of a two-stage cluster sample of married women between 15-49 years of age, and was carried out in 37 villages in the treatment area and 40 villages in the comparison area[7]. In addition to detailed birth histories, extensive information was collected about respondents' knowledge, attitudes, and practice of family planning, as well as their exposure to the government's health and family planning programs. Since sampling procedures may have led to under representation of very young married women, analysis in the current paper is restricted to all currently married, fecund women aged 20-44 years[8]. The final sample sizes are 2,840 women in the treatment area and 1,790 women in the comparison area.

RESULTS

Family Planning Knowledge

Knowledge of family planning is universal in both areas; as illustrated in Table 1, all women have heard of at least one method of contraception. Considerable variation in knowledge is evident, however, with regard to specific methods. In both areas, virtually all women have heard of the pill and tubectomy. In the treatment area, knowledge of the IUD and injectables is almost universal, and knowledge of vasectomy and condoms slightly lower. Knowledge of these other modern methods is somewhat lower in the comparison area. In both areas, knowledge of traditional methods remains quite low.

Table 1. Percent with knowledge of contraceptive methods: Matlab treatment and comparison areas, 1984.

Knowledge	Treatment	Comparison
At least one method	100.0	100.0
MODERN METHODS		
Pill	99.6	98.7
Condom	86.3	75.6
Vasectomy	85.2	75.6
Tubectomy	99.8	99.7
IUD	97.3	79.0
Injectables	99.0	87.5
Foam	34.5	21.1
TRADITIONAL METHODS		
Rhythm	46.2	40.5
Withdrawal	25.6	17.7
Others	48.8	49.2
N	(2840)	(1790)

Family Size Preferences

Data on family size preference in the treatment and comparison areas is presented in Table 2. The measure considered is desired family size, which consists of the current number of living children plus the number of additional children desired. Two important findings emerge from this table. There would appear to be broad similarity in family size preference in the treatment and comparison areas in 1984, with women expressing preference for roughly 4 children and 2 sons. Since the measure we have considered is heavily weighted by current childbearing experience, it is of interest to consider responses from younger women at the start of their reproductive careers. As can be seen from Table 2, young women in both areas express a preference for approximately 3.5 children and fewer than 2 sons.

Table 3 presents the proportion of women expressing a preference for no additional children. Preferences again appear to be similar in the treatment and comparison areas using this alternative measure; 55 percent of women in the treatment area as opposed to 60 percent in the comparison area expressed a preference for no additional children. This similarity persists when more detailed demographic subgroups are considered, with the number of respondents wanting no more children increasing systematically with maternal age and family size in both areas.

Table 2: Family size preferences in Matlab treatment and comparison areas, 1984.

Family Size Preference	Treatment	Comparison
Desired No. of children		
20-29 years	3.47	3.56
30-39 years	4.69	4.94
40+ years	5.47	5.49
All women	4.22	4.37
Desired No. of Sons		
20-29 years	1.95	1.98
30-39 years	2.60	2.64
40+ years	2.90	3.01
All women	2.34	2.41
N	(2830)	(1784)

Excludes cases with missing data or non-numerical responses

Table 3: Percent wanting no additional children by selected demographic characteristics: Matlab treatment and comparison areas, 1984.

Demographic characteristics	Treatment	Comparison
Total	55.4	60.0
Maternal Age		
20-29	27.4	32.8
30-39	77.5	81.4
40+	95.4	94.9
Number of Living Children		
0	8.9	4.2
1-3	31.1	33.4
4-6	83.8	87.9
7+	99.0	98.1
N	(2830)	(1784)

Excludes cases with missing data or non-numerical responses.

Contraceptive Use

Table 4 presents levels of reported current contraceptive use in both areas at the time of the survey. Almost 39 percent of eligible women in the treatment area were current users of contraception, a figure lower than that reported in the separate ICDDR,B service record keeping system during the same time period (44 percent). The reason for this difference is currently being explored. Prevalence in the comparison area, in contrast, was markedly lower (16 percent), a figure lower than the national rural average in 1985 of 23.1 percent[9]. Equally significant, an additional 24 percent of women in the treatment area, while not current users, had previously used a method. Thus, over 60 percent of all women in the treatment area had had at least some contraceptive experience; among women aged 30 or above, this figure approached 70 percent. Data from the comparison area presents a markedly different picture; not only was current use low, but levels of prior contraceptive experience were also relatively insignificant: only one quarter of all eligible women had previously used or were currently using a method of contraception.

Table 4: Distribution of contraceptive use status: Matlab treatment and comparison areas, 1984

Contraceptive use status	Treatment	Comparison
Ever user	62.5	26.1
Not currently using	23.7	9.6
Currently using	38.8	16.5
Never user	37.5	74.0
Total	100.0	100.0
N	(2840)	(1784)

Table 5 shows that fertility rates in the treatment and comparison areas were quite different. In the treatment area, the CBR and TFR stand at 30.7 and 4.0 respectively, while the corresponding higher rates for the comparison area are 37.3 and 5.1.[10]

Table 6 presents a more detailed breakdown of specific method use among current users. Significant differences are observed between the treatment and comparison areas. In the treatment area, injectable contraception accounts for 37 percent of all current use; tubectomy and the IUD are the other main methods used, accounting for 24 and 20 percent respectively of all method use. These three methods together account for over 80 percent of all use in the treatment area in 1984. In the comparison area by contrast, tubectomy accounts for half of all current methods used, which reflects the priority placed upon this method by the government program. The remaining users in the comparison area rely primarily upon the IUD (14 percent) and traditional methods (24 percent).

Table 5: Differential fertility rates in Matlab treatment and comparison areas, 1984

Fertility Rates	Treatment	Comparison
Crude Birth Rate/1000 (CBR)	30.7	37.3
Total Fertility per woman (TFR)	4.0	5.1

Source: Demographic Surveillance System 1984 ICDDR,B

Table 6: Current contraceptive method use, Matlab treatment and comparison areas, 1984.

Methods	Treatment	Comparison
MODERN METHODS	**93.6**	**75.9**
Pill	7.9	5.1
Condom	2.1	2.7
Vasectomy	1.1	2.0
Tubectomy	24.4	49.5
IUD	20.4	13.9
Injection	37.4	2.7
Foam/Jelly	0.4	0.0
TRADITIONAL METHODS	**6.4**	**24.0**
Rhythm	2.9	11.2
Azal(Withdrawal)	1.6	2.7
Others(Herbal medicine,kabiraj)	1.8	10.2
Total	**100.0**	**100.0**
N	(1102)	(295)

Previous contraceptive use by respondents prior to their adoption of sterilization is examined in Table 7. In the comparison area, almost three quarters of sterilization clients had no previous history of contraceptive use. Clients' first experience with contraception was therefore the adoption of sterilization, predominantly tubectomy. Among sterilization clients in the treatment area, experience with other contraceptive methods is both more common and considerably more diverse, with over half having used other methods, primarily injectable contraception prior to choosing sterilization.

Contraceptive Limiting and Spacing

Contraceptive users consist of two groups: those who wish to limit their family size and those who wish to or space their children. Women using contraception who state they want no more children may be classified as limiters, whilst women using contraception who desire additional children may be considered to be delaying or spacing their next birth. Important differences by area are observed in Table 8 for both these groups of women. In the treatment area almost 50 percent of women who want no more children are current users, a figure roughly twice that of the comparison area (24 percent). Even greater differences are evident with respect to contraceptive spacing. While under 5 percent of women who want more children in the comparison area could be categorized as contraceptive spacers, the corresponding figure in the treatment area is 26 percent. A separate analysis has demonstrated that the rise in contraceptive use for spacing accounts for almost three-fifths of the increase in contraceptive use in the treatment area between 1977 and 1984[11].

Table 7: Clients adopting sterilization by previous contraceptive used: Matlab treatment and comparison areas, 1984

Previous methods used	Treatment	Comparison
No previous method used	46.7	73.7
Previous method used	53.3	26.3
Pill	12.5	17.1
Condom	1.1	1.3
IUD	6.0	2.0
Injection	31.7	3.9
Foam	0.0	1.3
Rhythm	0.7	0.7
Others	1.4	0.0
Total	100.0	100.0
N	(281)	(152)

Table 8: Current practice of contraception by desire f additional children: Matlab treatment and comparison areas, 1984.

Desire for additional child.	Treatment	Comparisor
All Women	38.9 (2830)	16.5 (178
Women who do not want more children	49.0 (1568)	24.4 (107
Women who want more children	26.3 (1262)	4.6 (714

*Excludes cases with missing data

Source : Koenig et al., 1987

The distribution of methods used among contraceptive limiters and spacers in the treatment and comparison areas is shown in Table 9. In the treatment area, contraceptive limiters appear to rely primarily upon tubectomy and injectable contraception, with a much smaller proportion using the IUD. Among spacers in the treatment area, injectable contraception and the IUD predominate. Thus, tubectomy is clearly used for limiting, the IUD represents a more important method among spacers than limiters, and injectable contraception is extensively relied upon for both limiting and spacing. In the comparison area, heavy reliance upon tubectomy for limiting fertility is evident, followed by a much smaller proportion of women using traditional methods (22 percent). Among the extremely small number of contraceptive spacers in the comparison area, two method groups stand out-- the IUD and traditional methods, representing 30 and 42 percent respectively of all methods used.

In both areas, significant differences are apparent between contraceptive spacers and limiters in terms of their mean socio-demographic characteristics (Table 10). In the treatment and comparison areas, contraceptive spacers are on average almost ten years younger than contraceptive limiters, and mean maternal educational levels are somewhat higher among spacers than limiters, particularly in the comparison area. Contraceptive spacers are also characterised by smaller numbers of living children and sons in the treatment and comparison areas.

Table 9: Percent using contraception to space or limit family size by specific method: Matlab treatment and comparison areas, 1984

Methods	Treatment		Comparison	
	Limiters	Spacers	Limiters	Spacers
MODERN METHODS	93.2	94.6	78.2	57.5
Pill	7.4	9.0	3.4	18.2
Condom	2.1	2.1	2.3	6.1
Vasectomy	1.6	0.0	2.3	0.0
Tubectomy	35.0	0.0	56.0	0.0
IUD	14.1	35.2	11.5	30.3
Injection	32.8	47.6	2.7	3.0
Foam/Jelly	0.3	0.6	0.0	0.0
TRADITIONAL METHODS	6.8	5.4	21.8	42.5
Rhythm	2.9	3.0	9.2	27.3
Azal	1.8	1.2	1.9	9.1
Others	2.1	1.2	10.7	6.1
Total	100.0	100.0	100.0	100.0
N	(768)	(332)	(261)	(33)

Table 10: Mean socio-demographic characteristics among current users: Matlab treatment and comparison areas, 1984.

	Treatment		Comparison	
Mean	Limiters	Spacers	Limiters	Spacers
Age	34.8	24.7	34.1	25.0
Wife's education (yrs)	1.9	2.6	1.4	2.8
Living sons	2.5	1.1	2.7	1.0
Living children	4.6	2.2	4.7	2.4
N	(768)	(332)	(261)	(33)

Table 11 shows the distribution of contraceptive spacers and limiters by selected socio-demographic characteristics. The results show that in the treatment area, the use of family planning for spacing is largely confined to younger, lower parity women. Among contraceptive users aged 20-24 years, over four-fifths are using contraception to space births. Although contraceptive spacing prior to the birth of the first child is almost non existent, some contraceptive spacing prior to the birth of the first son is evident. By later ages or parities (35+ years, 5+ living children or 3+ sons) contraceptive users are almost exclusively limiters. While among uneducated women in the treatment area almost three-quarters are contraceptive limiters, the percentage using contraception for spacing increases with higher education; amongst those with 6+ years of schooling, 44 percent of contraceptive users are spacers. This reflects in part the greater concentration of educated women among the younger, low parity groups[12]. In the comparison area, at all ages and parities, contraceptive use is dominated by those limiting their family size. In contrast to the treatment area, contraceptive use prior to the survival of two living children or one son is rare. Among more educated women in the comparison area, contraception is still predominantly used for limiting. From these results a profile of contraceptive behaviour begins to emerge, with the adoption of family planning among young women with low parity to space births and among older women with higher parity to limit births, a pattern which is particularly pronounced in the treatment area.

Table 11: Percent using contraception to space or limit family size by selected socio-demographic characteristics: Matlab treatment and comparison area 1984.

	Treatment			Comparison		
	Limit	Space	N	Limit	Space	N
Age						
20-24	18.6	81.3	(209)	33.3	66.6	(27)
25-29	50.2	49.7	(215)	88.8	11.1	(63)
30-34	82.0	18.0	(250)	92.1	7.8	(76)
35-39	97.0	2.9	(237)	97.2	2.7	(74)
40-44	98.4	1.5	(189)	100.0	0.0	(54)
No. of living children						
0	--*	--*	(5)	--*	--*	(0)
1	6.0	93.9	(82)	--*	--*	(9)
2	26.8	73.1	(164)	50.0	50.0	(28)
3	62.5	37.4	(211)	89.1	10.8	(46)
4	85.6	14.3	(257)	93.7	6.2	(64)
5	94.8	5.1	(174)	98.4	1.5	(64)
6	95.0	4.9	(122)	8.0	92.0	(50)
7+	100.0	0.0	(85)	96.9	3.0	(33)
No. of living sons						
0	10.5	89.4	(85)	--*	--*	(10)
1	41.4	58.5	(280)	69.4	30.5	(59)
2	82.6	17.3	(387)	93.4	6.5	(91)
3	92.1	7.8	(205)	100.0	0.0	(73)
4	93.4	6.5	(91)	100.0	0.0	(39)
5+	94.2	5.7	(52)	95.4	4.5	(22)
Years of education						
No education	73.3	26.6	(548)	90.3	9.6	(187)
1-5 yrs.	68.7	31.2	(442)	--*	--*	(8)
6+ yrs.	56.3	43.6	(110)	72.7	27.3	(22)

* Percentages not shown for denominators with <20 cases.

DISCUSSION

The findings presented here provide insight into the rise in contraceptive use which has occurred in the Matlab treatment area, as well as illustrating important differences between the Matlab program and the regular government service program. The results indicate that in both the treatment and comparison areas, there is almost universal knowledge of a variety of family planning methods, which can be attributed to diffusion occurring between the treatment and comparison areas, as well as the increased exposure in general to family planning messages presented through the mass media in recent years by the government program. Evidence presented here also suggests broadly similar family size preferences between the two areas in 1984.

In spite of these broad similarities, the two areas diverge considerably in terms of levels of contraceptive use. Although there is some evidence of higher female educational attainment in the treatment area in recent years, these differences are not extensive, and educational levels as a whole remain very low in both areas[13]. Differences in socio-economic levels between the treatment and comparison areas do not provide an adequate explanation for the observed difference in contraceptive use[14]. Where the two areas differ markedly is in the nature and character of the service programs.

The treatment area is served by the intensive ICDDR,B outreach program, whilst the comparison area receives services provided by the government only. These programs differ substantially in terms of the frequency, regularity and quality

of service delivery. In Matlab the worker is able to visit each eligible woman every fortnight, but in the government program, it may take the field worker 3-5 months to complete one round of visitation to each women in her work area. This latter work cycle does not allow the worker the frequency of visits required to establish rapport, nor does it enable her to provide either follow-up care for an acceptor or intensive motivation for ambivalent cases. Findings from the 1984 survey illustrate these points more fully; whereas 83 percent of women living in the treatment area had received a visit from a female worker during the previous two weeks, only 5 percent of women in the comparison area had received a visit from a government worker during the same period.

Almost two-thirds of all women in the treatment area had had at least some contraceptive experience, while only a minority of women from the comparison area had ever used contraception. Tubectomy remains the predominant method in the comparison area; injectable contraception and the IUD-- both delivered to the household-- are the most popular methods in the treatment area, followed by tubectomy. Initial use of temporary methods is followed by acceptance of sterilization in the treatment area, whereas sterilization is usually the first method adopted in the comparison area. However, the proportion of eligible women adopting sterilization from both the areas remains similar at 8-9 percent.

A striking difference between the treatment and comparison areas is apparent with regard to contraceptive use for both spacing and limiting. The importance of the availability of a wide range of contraceptive methods is again highlighted by extensive reliance upon the IUD and injectables for child spacing in the treatment area. Two distinct demographic groups of contraceptive users have emerged in the treatment area, with contraceptive spacers primarily confined to younger women with low parity and contraceptive limiters consisting largely of women with higher parity.

Our findings suggest that the presence of an innovative maternal and child health family planning program in the treatment area is a central factor accounting for the difference between the two areas in terms of contraceptive prevalence, and also for the distinctive contraceptive use patterns observed between the two areas. While the Matlab Family Planning Health Services Project has demonstrated the feasibility of delivering a successful family planning maternal and child health program in rural Bangladesh, the larger challenge ahead lies in achieving similar success within the public sector program. Current efforts are being made in two additional rural areas of Bangladesh to address the question of whether the successful services delivered in Matlab can be replicated within the broader government system[15].

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FOOTNOTES

1. See J.F. Phillips, R. Simmons, J. Chakraborty, and A.I. Chowdhury. "Integrating health services into an MCH-FP program: Lessons from Matlab, Bangladesh, "Studies in Family Planning, Vol. 15, No. 4 (1984). 153-161 and D.S. Degraff, J.F. Phillips, R. Simmons, and J.Chakraborty, "Integrating health services into an MCH-FP program in Matlab, Bangladesh: An analytical update," "Studies in Family Planning, Vol.17, No. 5(1986): 228-234.

2. See S. Bhatia, W.H. Mosley, A.S.G. Faruque, and J. Chakraborty, "The Matlab Family Planning Health Services Project, "Studies in Family Planning, Vol. 11, No.6 (1980): 202-212 and J.F. Phillips, M.A. Koenig, and J. Chakraborty, "The Matlab Family Planning Health Services Project: Impact on Family Planning, Fertility and Child Survival. Final Report to the United Nations Fund for Population Activities, December 1985.

3. J.F. Phillips W.S. Stinson, S. Bhatia, M. Rahman, and J. Chakraborty, 'The Demographic Impact of the Family Planning Health Services Project in Matlab, Bangladesh." Studies in Family Planning. Vol. 13, No.5 (1982):131-140.

4. In addition to receiving ORS packets during field visits by ICDDR,B demographic surveillance workers, residents of the comparison area have frequently made use of the central ICDDR,B treatment facility for diarrhoeal disease treatment, as well as for IUD and tubectomy adoption.

5. The fieldworkers' focus arises partially from the differing organizational context of the government program. At the time of the survey, monthly methodwise targets were implemented into the program to achieve demographic goals and monetary compensation used to motivate both workers and clients to fulfill sterilization and IUD targets.

6. For a discussion of the differences between the two systems, see M.A. Koblinsky, R. Simmons, J.F. Phillips and M. Yunus. "Barriers to Implementing National MCH-FP Program." 195-207 in Selected Papers of the 1984 Annual Conference of the National Council for International Health: Controversy and Consensus, Washington D.C. National Council for International Health.

7. For a more detailed description of the survey, see J.F. Phillips, J. Akbar and M.A. Khan, "Aim and Objectives of the Matlab Indepth Survey," Documentation Note #1, MCH-FP Extension Project, ICDDR,B., 1986.

8. Young women may be under represented due in part to a steady rise in age at marriage in the Matlab Study area during this period and in part to sampling procedures that have under represented newly married women.

9. See Mitra, S.N.; Kamal, G.M. "Bangladesh Contraceptive Prevalence Survey, 1985. Final Report 1985, Dhaka.

10. Demographic Surveillance Systems in Matlab: Vital Events and Migration 1984, International Centre for Diarrhoeal Disease Research, Baagladesh, unpublished data.

11. See M.A. Koenig, J.F. Phillips, R. Simmons, M.A. Khan. "Trends in Family Size Preference and Contraceptive Use in Matlab, Bangladesh, Studies in Family Planning, Vol 18, No. 3, 1987: 117-127

12. See J.F. Phillips, R. Simmons, M.A. Koenig, J. Chakraborty. "The Determinants of Reproductive Change in a Traditional Society: Evidence from Matlab, Bangladesh. " Working Paper Series #20. ICDDR,B, November 1986.

13. See M.A. Koenig et al. cited in Note 11.

14. For a more detailed discussion of this issue see Note 12.

15. For a description of this issue see J.F. Phillips, R. Simmons, G. Simmons and Md. Yunus. "Transfering Health and Family Planning Services Innovations to the Public Sector: An Experiment in Organizational Development in Bangladesh", Studies in Family Planning, Vol. 15, No. 2 (1984):62-73.