Continuation of Contraceptive Use in BRAC Villages: A Life Table Analysis

[Final Report]

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Executive Summary

1.   Introduction and Objectives

BRAC began its Family Planning Facilitation Program (FPFP) in December 1994 covering two districts (Nilphamari and Sherpur) although Moulavibazar and Habiganj districts were subsequently added in next year. The program aimed to improve the quality of life through an enhanced family planning initiative. While the increase in contraceptive prevalence in FPFP areas is reported significant, it was unclear whether such increase was *real* or an *artifact* of program data. Assessing the continuity of contraceptive use was considered an useful attempt to understand the quality and program sustainability. Keeping that in view, this study estimates the contraceptive continuation rate with differentials by social categories, and identifies major reasons of discontinuation in two districts where BRAC has family planning facilitation programs.

2.   Data and Methods

In this study, life table approach is used to estimate the contraceptive continuation rates that shows the proportion of women continuing contraceptive use at duration since the start of using any contraceptive method. Data were collected from two districts namely Nilphamari and Sherpur where BRAC started its Family Planning Facilitation Program (FPFP) in late 1994. All thanas (including both rural and urban areas) of the two districts were considered to be included in the sample where BRAC had family planning facilitation program. In total, 30 villages and 3 wards from the municipalities were selected for this study. The Couple Registers were used as the sampling universe to select eligible women for interviews. The sample women were then selected following the systematic random sampling technique. In total, 1145 women were selected from all 11 thanas in two study districts. The observation period began on 1st January 1995 or dates of in-migration of contraceptive user in the study villages which continued till the end of June of 1997.

3.   Key Findings

3.1   Duration of Exposure

The mean duration of a total of thirty month exposure period has been only 18.6 months of all contraceptive users. Significant demographic and socioeconomic variations in the duration are reported.

The duration increases with age of women indicating that more older than younger women were using contracepting during the study period. The exposure to contraceptive use was much higher among women of lowest socioeconomic status. Women having no education and cultivable land were more likely to continue contraceptive use than others. The participation of micro-credit program appeared to have a positive association with the duration of use. No difference in the duration of use was observed between the two districts.

3.2   Contraceptive Continuation

The contraceptive continuation rate declines with the exposure period. More than 90% of users survived after six months although the survival probability was only 78.4% after 12 months. The continuation rate was about 63% after 24 months that reached to nearly 59% at the end of 30 months. The probability of continuation rate increases with age of women and the number of surviving sons. Unlike conventional belief, the continuation rates had no relevance with the education of women or land ownership. But the continuation rate was much higher among the participants than non-participants of micro-credit programs. It appears that the cumulative continuation rate was higher in Nilphamari than Sherpur districts after 12 months.

3.3   Reasons of Discontinuation

Sickness was the primary cause of discontinuation (6.6%) followed by side-effect (6%) of all eligible couples. Method failure as a cause of discontinuation seemed to be very high in a program where both the government and BRAC provided services to women.

4.   Conclusions

The contraceptive continuation rate in the family planning facilitation program areas were quite high although differences among various social and demographic categories were significant. The low continuation rates among younger and low parity women were quite natural as they were expected to fulfil their reproductive goal. As found by others, education of women and land ownership of the family had no effect on the continuity of use. It is not clearly known why the continuation rate was higher among credit program participants than non-participants. It is quite possible that the social and cultural aspects of the participation of women in productive activities increase their opportunity to decide on their reproductive choices and exposure to various options of using contraceptive. Also, women involved in economic activities might have relatively less time to spend for childbearing. No significant difference in the continuation rate between Nilphamari and Sherpur reflects identical program efforts in both

districts. The study concludes that continuity of use can be enhanced further by promoting target oriented counseling and intensive supervision particularly in managing health-related complications.

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Introduction

The family planning program in Bangladesh began in the 1950s as a voluntary effort. One of the goals of Bangladesh family planning program has been to reach the replacement level of fertility by the year 2005. To achieve that target, the Bangladesh Planning Commission identified the following three issues to consider: i) increasing contraceptive prevalence to 70% by the year 2005; ii) recruiting younger acceptors; and iii) providing method mix for program acceptors (Planning Commission 1993).

Due to past high fertility, population of Bangladesh has doubled in less than 30 years since 1961. This fast population growth is one of the outcomes of poverty and illiteracy. No appreciable change in the socioeconomic condition of Bangladesh has been observed since it achieved independence in 1971. Despite of poor showing of its economy and social development, the government and a number of non-government organizations (NGOs) have been providing family planning programs. Such programs are expected to reduce fertility by increasing contraceptive adoption and continuation. Along with others, BRAC was requested by the government to assist the government program in some of the low-performing areas to enhance the contraceptive coverage and develop a strategy to sustain that coverage (BRAC 1996).

As part of assisting the government, BRAC began its Family Planning Facilitation Program (FPFP) in December 1994 covering two districts (Nilphamari and Sherpur) although Moulavibazar and Habiganj districts were subsequently added to the program next year. The program aimed to improve the quality of life through an enhanced family planning initiative (BRAC 1996). While the performance of FPFP in terms of raising contraceptive prevalence is significant (BRAC 1997), it was not known whether such increase in prevalence rate might have produced desired outcome or has been only an artifact of program data. The net fertility reduction, as a result of this program, is expected to be assessed at the end of the project period. It was felt that measuring the continuity of contraceptive use would indicate the quality and program sustainability. The objectives of this study are to i) estimate the contraceptive continuation rate and differentials by social and demographic categories, and ii) identify major reasons of discontinuation of contraception in two districts where BRAC has family planning facilitation programs.

Materials and Method

Life Table Construction

Life tables have extensively used in demographic literature to estimate survival probabilities, contraceptive failure rates, etc. (Moreno and Goldman 1991). In this study, life table approach is used to

estimate the contraceptive continuation rates that shows the proportion of women continuing contraceptive use at duration since the start of using any contraceptive method. Generally two types of measures such as 'single decrement' or 'multiple decrement' are used. As our purpose is to examine the continuation of use or non-use of any method, we consider that single decrement measures of continuity would be adequate. We estimate the cumulative probabilities by month. Also, the continuation rates after 12, 24 and 30 months since use began are also measured. All contraceptive segments reported for interval occurring after the starting date are included in the calculation. The observation period began (i.e., a woman entered the life table) in December 1994 and continued till 30 June 1997, the last day of the observation. The database includes 1,010 married women of reproductive ages between December 1994 and June 1997 i.e. approximately 568,410 person months of follow-up. Thus, these data allow description of age-specific contraceptive use and its differentials.

Source of Data

Data were collected from two districts namely Nilphamari and Sherpur where BRAC started its family planning facilitation program in late 1994. Both rural and urban areas of the two districts where only government had its family planning program (i.e., where no family planning services by NGOs) at that time were included as the project areas of BRAC. There were 11 thanas (6 in Nilphamari and 5 in Sherpur) including 3 municipalities (in three thanas) in the two districts. In this study, all 11 thanas were included in the sample. In each thana, three unions were purposively selected: one from the relatively well developed semi-urban areas, one from the remote areas and the third from other areas. In three thanas having a municipality, the relatively developed semi-urban unions were replaced by the municipalities. Then one village from each selected union and one ward from each municipality were drawn at random. Thus, total 30 villages and 3 wards were selected for this study. In selecting the unions, the Area Manager and Program Organizers of the relevant thanas were consulted.

The family planning facilitation program of BRAC was carried-out by the *Shasthya Sebika (SS)* (previously known as Depot Holder). Each Sebika was assigned to provide services to about 150-175 eligible couples of her catchment area. The large villages were covered by more than Sebikas. The Sebikas maintained *Couple Registers* where all relevant events (e.g. pregnancy, childbirth, contraceptive acceptance and dropout, along with basic demographic information) were documented. The Couple Registers, updated every month by the Sebikas, were used as the sampling universe to select couples for interviews. All registers of the selected villages were collected from the relevant Sebikas. The sample women were then selected following the systematic random sampling technique. In total, 1145 women were selected from all 11 thanas in two study districts.

Analytical Techniques

The observation period began on 1st January 1995 or dates of in-migration of contraceptive user in the study villages. The date of exit from the observation period was either dates of stopping contraceptive use, out-migration or 30 June 1997. Life table technique was used because the women were observed for different lengths of time, variations in the initial date of observation, and the losses as a result of out-migration.

Although all married women of reproductive age who have ever used any contraceptive during the observation period were included in the study, the possibility of selectivity among women who dropped out from the program remains a potential source of bias. The continued users might be a special group who may have had higher chances of survival even if they had not been received services from the providers. This potential source of bias was addressed in various ways. First, the differences in socio-economic status between the continuing and discontinuing users in terms of the accessibility to family planning facilities were examined. Secondly, multivariate analysis was performed to control the effects of potential confounding variables on the continuation of use. Finally, we investigated whether a high variation in contraceptive continuation rate by district (an administrative unit of the government responsible for providing the services in the area) may have been intended for better performance compared to other areas. This suggests that some selection bias may have occurred.

Ethical Consideration

Each project, carried out by NGOs in Bangladesh, requires prior approval of a committee appointed by the government. The major tasks of that committee, among others, are to appraise various components of the project proposal including the ethical issues of the proposed intervention. The contraceptive distribution has been the national program operated by the government of Bangladesh for many years. No discrimination in providing the services to eligible women was made in the study villages. Also, data collection has never been linked to services providers, to participating communities, and has not involved any experimental design. The project has been ethically and significantly approved by BRAC.

Results

The descriptive characteristics of women living in two study districts are presented in Table 1. Mean age of all sample women was 29 years although women in Nilphamari were slightly (but not statistically significantly) older than Sherpur. As a result, the mean number of living children was also

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higher (p<.05) in Nilphamari than Sherpur. While illiteracy among women was widely prevalent in both districts (nearly 73%), mean years of schooling was higher in Sherpur than Nilphamari indicating that continuity of women in schools in Sherpur was better than Nilphamari. Nearly 47% of study households were landless in both districts but a higher mean land (p<.10) in Nilphamari reflects that land ownership was more concentrated among households in Nilphamari than Sherpur. About a third of the sample women was participating in credit based development program. The rate of participation was marginally higher in Nilphamari than Sherpur.

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Table 1. Socio-demographic characteristics of sample women by district

Social category	District		
	Nilphamari	Sherpur	Both
Mean age of women (years)	29.1	28.8	29.0
Mean living children (number)**	3.00	2.78	2.90
% illiterate	72.7	72.6	72.7
Mean schooling (years)	1.44	1.61	1.52
% landless	47.2	46.8	47.0
Mean land owned (decimal)*	98.5	76.8	88.5
% with credit program	35.1	32.9	34.1
N	619	526	1145

** $p<0.05$ *** $p<0.10$

Duration of Exposure

The duration of exposure of study women by selected sociodemographic factors is presented in Table 2. Total duration of exposure of all women is estimated as 18780 months. The duration increases with age of women indicating that more older than younger women were using contracepting during the study period ($p<0.01$). As expected, duration of exposure to contraception was low among women having no children compared to other women having children ($p<0.05$) although no association between the number of living children and duration of exposure has emerged. Unlike conventional belief, the exposure to contraceptive use was much higher among women of lowest socioeconomic status. Data clearly show that women having no education ($p<0.01$) and cultivable land were more likely to continue contraceptive use than others. The participation of micro-credit program appeared to have a positive association with the duration of use although not statistically significant. Similarly, no difference in the duration of use was observed between the two districts.

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Table 2. Distribution of exposure by selected sociodemographic factors

Sociodemographic factors	Exposure		
	Mean	Sum	Number
All	18.6	18780	1010
Age of women*			
15 – 24	13.3	2838	214
25 – 29	17.1	5437	317
30 – 34	20.1	4264	212
25 – 35	23.1	3769	163
40 +	23.8	2472	104
Number of living son**			
None	17.6	2218	126
One	18.0	7281	404
Two	19.7	6137	312
Three	18.7	2183	117
Four or more	18.8	961	51
Education of women*			
No school	19.4	13412	690
Grade I – V	16.8	3060	182
Grade VI +	16.7	2308	138
Land ownership			
Landless	19.3	8738	452
1 – 199 d	17.7	7248	409
200 + d	18.7	2794	149
Credit program			
Participant	19.3	7381	383
Non participant	18.2	11399	627
District			
Nilphamari	18.4	10190	553
Sherpur	18.8	8590	457

*** $p < 0.01$ ** $p < 0.05$ *** $p < 0.10$

Continuation Rate

The results of the life table analysis of overall cumulative continuation rate of contraception of women who ever received any method during the study period are displayed in Table 3. As expected, the

continuation rate declines with the exposure period. After six months from the start of the use of contraceptive more than 90% of users survived although the survival probability was only 78.4% after one year (or 12 months). The continuation rate after is estimated as nearly 63% after two years (or 24 months) of initiating the use that reached to nearly 59% at the end of the observation period of 30 months.

Table 3. Results of life-table analysis of overall cumulative continuation rate of contraception

Completed months of exposure	Number of use at risk of pregnancy	Cumulative continuation rate	Hazard rate
0	1010	1.0000	.0000
3	931	.9521	.0110
6	838	.9041	.0308
9	726	.8456	.0298
12	651	.7842	.0499
15	554	.7515	.0147
18	504	.7125	.0263
21	451	.6767	.0045
24	421	.6275	.0569
27	367	.6011	.0166
30	347	.5890	.0117

Differentials in Continuation Rate

Figure 1 shows the cumulative contraceptive continuation rate estimated by age of women. A clear difference in continuation rate was observed between age groups. The continuation rates among women aged more than 35 year are very close even at the end of observation period.

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Figure 1. Cumulative contraceptive continuation rate by age of women
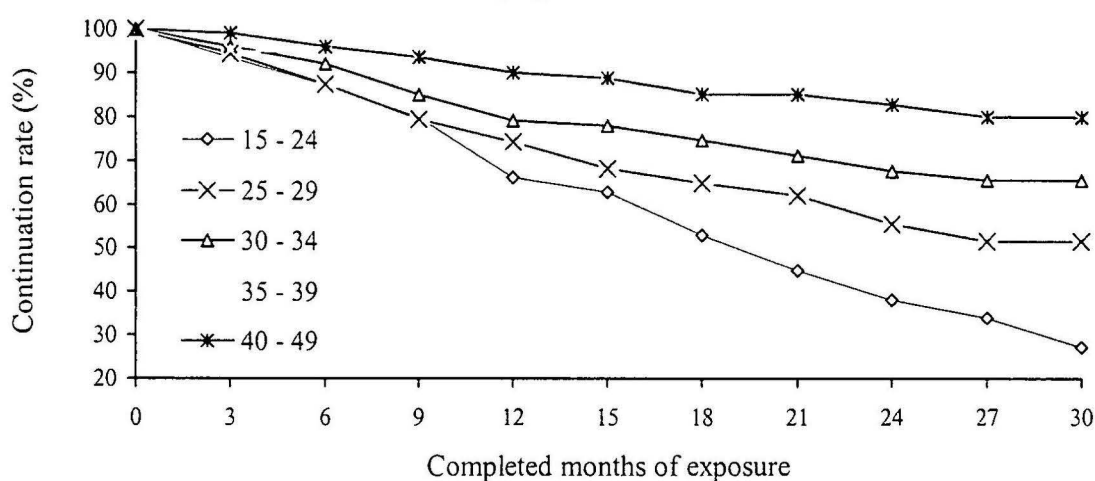
Age specific cumulative rates shown in Table 4, indicates that the probability of continuation rate generally increases with age of women. At the end of 12 months, the youngest group showed the highest rate of termination of use. The continuation rate increases among other groups as only less than 10% percent dropped out after 12 months among women aged 35 or more.
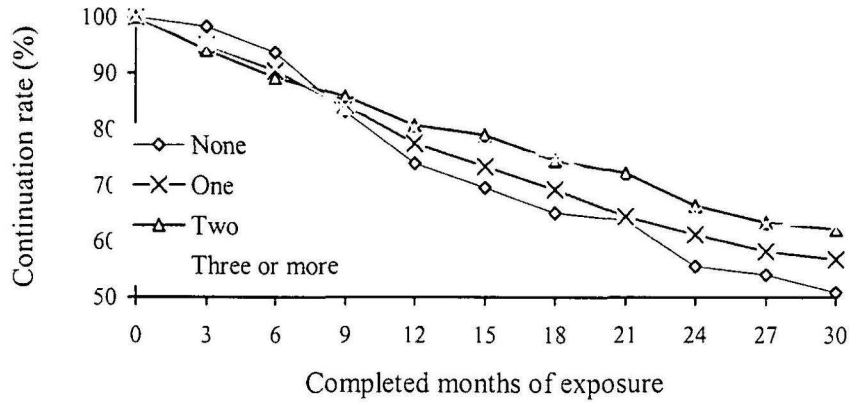
Table 4. Cumulative contraceptive continuation rate by age of women

Age group (in years)	Months exposed			No. of women
	12	24	30	
All	0.784	0.627	0.589	1010
15 – 24	0.662	0.381	0.273	214
25 – 29	0.744	0.558	0.518	317
30 – 34	0.793	0.678	0.656	212
35 – 39	0.901	0.794	0.794	163
40 +	0.903	0.829	0.802	104

The cumulative continuation rates are displayed by the number of living sons of women (Figure 2). It appears that women of no living son were least likely to continue as contraceptive user compared to any other groups of women after 12 months of exposure. At the end of observation period of 30

months, only half of the women are likely to continue. While the probabilities of continuation rate by the number of living sons vary but the general trends indicates that continuation rate was positively associated with the number of surviving sons particularly after 24 months of exposure.

Figure 2. Cumulative contraceptive continuation rate
by the number of living son

The cumulative continuation rates after various months of exposure are differentiated by socio-economic characteristics in Table 5. Unlike conventional belief, the continuation rates were not positively associated with the education of women. Also, data show that the women with better education were more likely to discontinue contraceptive use than illiterate users.

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Table 5. Cumulative contraceptive continuation rate by socioeconomic factors

| Socioeconomic factors	Months exposed			No. of women
	12	24	30	
Education of women				
No school	0.795	0.665	0.626	690
Grade I – V	0.748	0.533	0.590	182
Grade VI +	0.775	0.545	0.415	138
Land ownership				
Landless	0.801	0.654	0.612	452
1 – 199 d	0.769	0.592	0.558	409
200 + d	0.776	0.638	0.602	149
Credit program				
Participant	0.804	0.675	0.639	383
Non participant	0.772	0.598	0.558	627

The continuation rate was found higher among landless than both land owning groups of women although the differences are not statistically significant. With the increase of exposure period, the gaps remained and the differences in discontinuation rates were insignificant among landless and land owning women. Involvement of women in credit-based income generating program demand additional time, energy and efforts in addition to their usual household activities. It is, therefore, expected that women participated in such program would prefer to delay their next pregnancy. Table 5 and Figure 3 show that the contraceptive continuation rate significantly differs between the participants and non-participants of credit program. This gaps increases sharply after 12 months of exposure. Thus, the continuation rate declined to about 64% among participants compared to only 56% among non-participants at the end of observation period after 30 months of exposure.

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Figure 3. Cumulative contraceptive continuation rate by
credit program participation
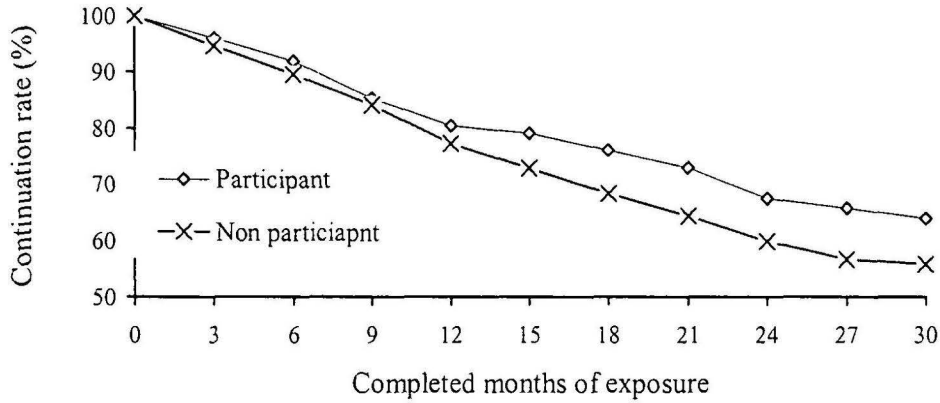
Contraceptive use declined in both Nilphamari and Sherpur districts although the rate of decline differed by the duration of exposure (Figure 4). It appears that the cumulative continuation rate was higher in Nilphamari than Sherpur districts after 12 months of exposure that had reversed after 18 months and continued till the end of the observation period.

Figure 4. Cumulative contraceptive continuation rate by district
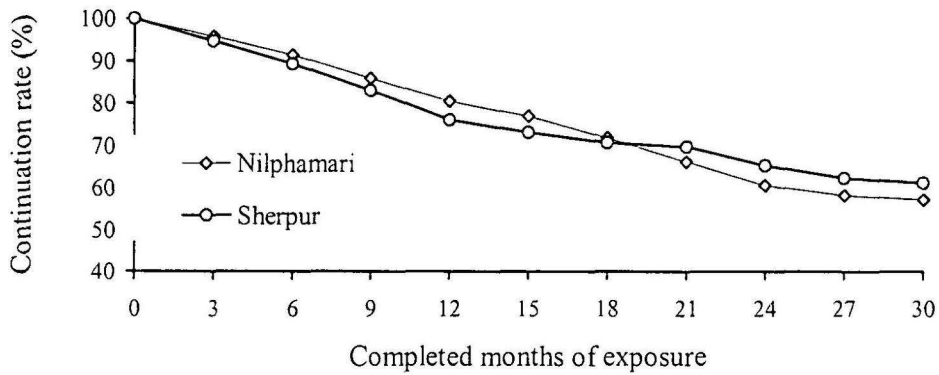
The effects of sociodemographic factors (such as age and education of women, contraceptive decision, regional variation and occupation) on the probability of contraceptive continuation rate after 12 and 24 months are estimated by employing multivariate analysis in Table 6.

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Table 6. Results of the logit regression analysis of the probability of continuation controlling for land and occupation of husband

| Variable | Continue at least for | |
	12 months	24 months
Age of women		
15 – 24	1.00	1.00
25 – 29	1.18	1.63*
30 – 34	1.72**	2.43**
35 – 39	3.79**	5.81**
40 +	4.24**	5.69**
Education of women		
No school	1.00	1.00
Grade I – V	0.97	0.70
Grade VI +	1.03	0.88
Contraceptive decision		
Husband only	1.00	1.00
Wife or both	1.49*	1.31
District		
Nilphamari	1.00	1.00
Sherpur	0.61	0.91

* $p < 0.05$

** $p < 0.01$

The role of age of women on the continuation rate remained pronounced and statistically significant after controlling for these factors. Number of living children was not included in the models since both age of women and number of children are highly correlated. The finding indicates that during the earlier ages, women are less likely to use contraceptive for prolonged period as for most Bangladeshi women prefer to fulfil their reproductive intention before reaching age 30. Thus, the probability to continue the use of contraceptive increases, as they grow older. Education of women does not appear to have any significant impact on the continuation of contraceptive use. Contraceptive decision, a measure of contraceptive decision making of wives, indicates that the probability to continue at least for 12 months will increase nearly 49% indicating that women has some role in contraceptive decision making compared to women who cannot decide to contracept. This is also hold for the continuity of 24 months although the effects of decision making on continuity is not statistically significant. The continuity for

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both 12 and 24 months is lower among Sherpur than Nilphamari although the difference is not statistically significant.

Table 7. Reasons of discontinuation of contraceptive use among all women

Reasons of discontinuation*	Proportion of eligible women
Programmatic	
Health reason	6.6
Side effect	6.0
Method failure	2.6
Others	
Want child	5.8
Husbands moved	1.6
Want to switch	1.3
Inconvenient	1.0
Lack of supply	0.7
Husbands don't like	0.5

* Reasons are estimated taking all eligible couples as denominators.

Reasons of Discontinuation

Table 7 shows the reasons of discontinuation of contraceptive use reported by the study women during interviews. These are categorized as programmatic and others. Health reasons as the primary causes of discontinuation were reported by 6.6% of all eligible couples, i.e., if contraceptive prevalence is 50%, nearly 13 women of every 100 current users are likely to discontinue for health related problems. Almost the same proportion of women reported various kinds of side effects of using method as the causes of discontinuation. Method failure as the causes of discontinuation seemed to be very high in a program where both the government and BRAC provided services to women. The estimates of health related complications, contra-indications and method failures deserve attention from programmatic point of view. Among others, 5.8% of all women cited that they intentionally discontinued to become pregnant and to have another child. The remaining reasons of discontinuation were minor and FPFP had nothing to do with those.

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Conclusions

While contraceptive prevalence rates (CPR) has been widely used as an indicator of family planning program performance, it does not necessarily reflect the effectiveness in terms of fulfilling the objectives of the program. The contraceptive continuation rate, among other measures, is used as the program sustainability as well as the effectiveness of the program. The results of this study are consistent with the findings of others (Akhtar and Rider 1984; Moreno and Goldman 1991) although there has always been a problem in comparing with other studies because of differences in methodology adopted. The continuation rate, estimated in this research, seemed to be quite high as more than 78% of women were continuing to use contraceptive after one year. The low continuation rates among younger and low parity women were natural as they would be more likely to discontinue to fulfil their reproductive goal. Like the relationship of prevalence rates with education and socioeconomic status found elsewhere (Akhtar and Rider 1984), years of schooling and land ownership had no effect on the continuation rates. It is not clearly known why the continuation rate was higher among credit program participants than non-participants. It is quite possible that the social and cultural aspects of participation of women in credit programs increase their opportunity to decide on their reproductive choices and exposure to various options of using contraceptive. Also, women involved in economic activities might have relatively less time to spend for childbearing. No significant difference in the continuation rate between Nilphamari and Sherpur reflects identical program efforts in both districts. The study concludes that continuity of use can be enhanced further by promoting target oriented counseling and intensive supervision particularly in managing health-related complications.

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