

Factors Associated with Reported Side-effects of Oral Pills and Injectables in Rural Bangladesh

**Mizanur Rahman
Mehrab A. Khan
Bruce K. Caldwell
Thomas T. Kane**

International Centre for Diarrhoeal Disease Research, Bangladesh
Mohakhali, Dhaka 1212, Bangladesh

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GPO Box 128, Dhaka 1000, Bangladesh

Telephone: (880-2) 871751-60 (10 lines); Cable: CHOLERA DHAKA; Telex: 675612 ICDD BJ

Fax: (880-2) 871568 and (880-2) 883116

E-mail: barkat@cholera.bangla.net

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Abstract

The use duration of pills and injectables, which constitute two-thirds of modern contraceptive methods in Bangladesh, is low, and 55-70% of those who discontinue report side-effects as a cause for discontinuation. This study examines the demographic, socioeconomic, and programmatic factors associated with the reported side-effects of pill users in logistic and/or multinomial regressions. Information was collected during 1993 and 1995-1996 from over 11,000 married women of reproductive age in 12 rural sub-districts. Reported side-effects were low among current pill and injectable users who were younger and older than average; were lower parity; were more educated; were relatively wealthier; were assisted by their husbands in choosing the method; had obtained their pills from private sources; and were likely to perceive that the service providers offered a "quality contact."

These characteristics were similarly associated with lower pill discontinuation due to side-effects. Reported side-effects were low among current injectable users who were younger and older than average; were relatively wealthier; were using the method for a short period; and were likely to perceive that the service provider offered a "quality contact." Discontinuation of injectables was lower among younger and older than average; and uneducated than educated women. The health and family planning programme strategies that enhance the quality of client-worker contact and men's involvement in family planning can help reduce perceived side-effects, as well as discontinuation of pills and/or injectables.

Introduction

Contraceptive use in Bangladesh has increased rapidly in recent years, with almost half of all couples now using a method. However, the majority of the users employ only temporary methods. The 1996-97 Bangladesh Demographic and Health Survey (BDHS) showed that at the time of the survey, 49 per cent of the couples were currently using a method, and about 33 per cent a modern temporary method (Table 1). Pills and injectables constituted about 55 per cent of all the methods, 65 per cent of all modern methods, and over 80 per cent of modern temporary methods [1].

Table 1: Method-specific contraceptive prevalence rate (CPR) per 100 eligible couples

Method	National 1996-97* (n = 8,450)	Abhoynagar and Sirajganj 1993 (n = 5,712)	Chittagong District 1995-96 (n = 5,774)
CPR	49.2	45.6	36.5
Modern temporary methods	32.7	34.1	25.0
Pill	20.8	15.2	17.1
Injectable	6.2	13.3	3.5
IUD	1.8	2.2	2.7
Condom	3.9	3.4	1.7
Sterilization	8.7	6.3	7.7
Traditional methods	7.7	5.2	3.8

* NIPORT, 1997 [1]

Unfortunately, the use duration of most temporary methods is very low. Results of the BDHS showed that 47 per cent of the temporary method users discontinued the method by the end of the first year of use [1]. The 12-month discontinuation rate was 44 per cent for pills and 51 per cent for injectables. Figure 1 presents the first-year discontinuation rates and reasons for discontinuation of pills and injectables in four developing countries, with comparable contraceptive prevalence rates (CPRs)¹. A wide variation in discontinuation rates exists between the countries which is largely due to differences in stated side-effects or health reasons. Discontinuation due to method failure, desire for pregnancy, and other reasons is quite similar among the countries.

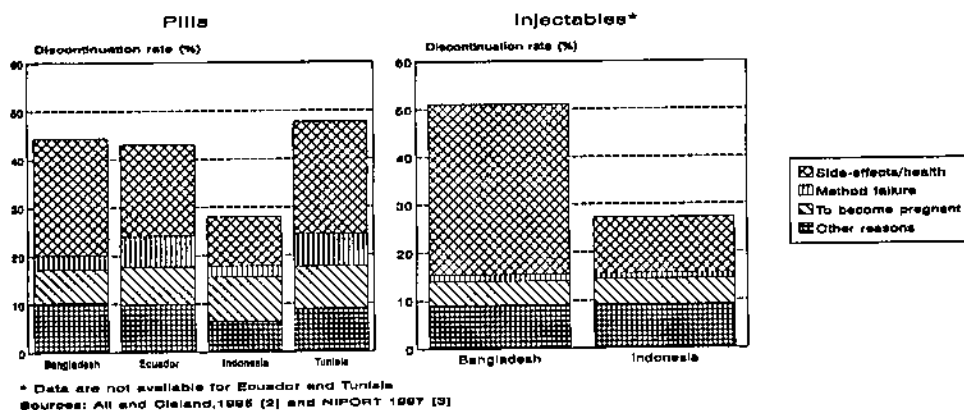


Fig. 1: First-year pill and injectable discontinuation rates by reason in four countries

¹ During 1996-1997, CPR was 49 per cent in Bangladesh; and during 1987-1988, it was 44, 48, and 50 per cent, respectively, in Ecuador, Indonesia, and Tunisia.

Health-related reasons or side-effects were the predominant reasons given for discontinuing pills and injectables in Bangladesh. About 24 of the 44 pill users (55%) and 36 of the 51 injectable discontinuers (70%) discontinued due to side-effects. In cross-sectional surveys, 40-50% of the pill or injectable users reported that they had experienced side-effects, discomforts, or health-related problems associated with the method [3]. According to these estimates, about three million pill or injectable users believed that they were suffering from side-effects, discomforts, or health-related problems because of the method they were using. This, itself, is a public health issue which needs to be seriously considered by programme planners and managers.

There are also adverse programmatic and reproductive health implications to contraceptive discontinuation due to side-effects, such as low contraceptive prevalence, and unplanned/undesired/less-desired conceptions. Many of these conceptions are terminated through abortions, which, when performed under hygienically sub-standard conditions, lead to maternal morbidity and mortality. The excess births which result from side-effect-related contraceptive discontinuation cases may be subject to conscious or unconscious neglect leading to higher infant or child malnutrition and mortality.

Therefore, a study of the side-effects of pills and injectables is warranted. This study, thus, examines the characteristics of current and past pill and injectable users who reported side-effects in contraceptive prevalence surveys. The findings of such a study are expected to potentially help improve the design of the current family planning delivery system, and will, in turn, lead to greater client satisfaction, higher contraceptive continuation and prevalence, and better reproductive health.

Pill and injectable supplies in Bangladesh

The Bangladesh family planning programme has clear guidelines for family planning workers to help them determine the most suitable method for each

individual woman [4]. The programme has provided screening checklists to be used in this process. The providers are instructed to inform a new user about the probable side-effects of a selected method, and what to do in case of such side-effects. When pills or injectables are chosen as a method, clients are informed that, in most cases, side-effects disappear after several cycles of the method. If side-effects persist, a user is advised to see a female paramedic, known as the Family Welfare Visitor (FWV), available at the Health and Family Welfare Centre (H&FWC) or monthly Satellite Clinic (SC). There is one H&FWC, on an average, for 6,000 women of reproductive age. The FWV also runs eight SCs per month, out of private homes, selected from the catchment area of the 6,000 women.

Oral pills are the dominant contraceptive method in Bangladesh, about 80 per cent of which are supplied by the public sector. Prior to the end of 1995, the so-called standard-dose combined pill (0.050 mg of estrogen and 0.100 mg of progestin) was supplied, and, beginning in 1996, the low-dose pill (0.030 mg estrogen and 0.150 mg of progestin)² has been supplied. The Social Marketing Company (SMC) currently supplies low-dose oral pills, produced by multinational companies, to pharmacies and shops. Low-dose pills are also marketed through pharmacies and shops by other multinational companies. Depot-medroxy progesterone acetate (DMPA) and norethisterone enantate (NET-EN) are the injectable contraceptives offered from public sources in Bangladesh. The FWVs provide injectables to women at H&FWCs and SCs. The paramedics of some NGOs also provide injectables. The International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) is currently involved in two projects, where female Community Health Workers (CHW) or Family Welfare Assistants (FWA) provide injectables at the homes of the clients. However, initial screening and selection of injectable clients is done by paramedics, like Lady Family Planning Visitors (LFPVs) or FWVs. Injectable clients with side-effects are referred to paramedics.

² One brand, "Femicon," supplied by SMC contains 0.030 mg of estrogen and 0.300 mg of progestin.

Use of pills and injectable and their side-effects

Contraceptives, in general, provide numerous benefits to a woman, i.e., it allows a woman to control reproduction, thus reducing maternal and child health risks. Pills can pose serious cardiovascular complications [5], menstrual disturbances, nausea or vomiting, headaches, depression, and decreased libido [5], nervousness, dizziness, tender breasts, weight gain, edema, leg pain, and/or leukorrhoea [6-11]. Additionally, pill users in Bangladesh have reported that they experience general weakness, lower abdominal pain, burning extremities, and hyperacidity [12-13].

Injectables also have side-effects, like bleeding irregularities (spotting, break-through bleeding, or amenorrhoea, particularly among prolonged users), weight gain, breast tenderness, depression, and, in rare cases after use for a long period, decrease in bone density [5]. Headaches, nervousness, decreased libido, breast discomforts, and depression have also been reported by DMPA users [14]. Amenorrhoea, spotting, headache, excessive bleeding, and weakness have been reported by injectable users in Bangladesh [13,15-16]. In Bangladesh, Azim, observed that injectable users report lower abdominal pain, weight gain, and burning sensations in eyes, in addition to the above mentioned side-effects [17].

The occurrence of side-effects due to the pill or injectable use, and their discontinuation, due to side-effects, may be due to a combination of personal and programmatic characteristics. Reported side-effects, as obtained in surveys, may be higher than the actual prevalence of side-effects as diagnosed by a medical professional, because a percentage of all reported side-effects may only be perceived as side-effects of the chosen method, when, in fact, they are not the result of method use. The reported symptoms which fall under this category do not tend to be particularly helpful in representing the nature of the contraceptive or its tendency to induce side-effects, but rather, reflect personal characteristics of the clients themselves [18-19]. That the association of a side-effect with a method is, in part, subjective, however, does not mean that it can be ignored. Actual side-effects, if not addressed, may lead to method discontinuation or switching. Perceived side-effects can also lead to discontinuation of method use. Addressing client concerns is, indeed, part of the programme's role.

Personal characteristics and side-effects of pills and injectables

For biological reasons, a woman's age is associated with the risk of side-effects. It has been observed that, for pill users, relatively older women are at higher risk for clinical side-effects [5,18-19]. However, most of these women have already borne children and may be strongly motivated to use contraception for limiting future births. In such cases, they are likely to be more tolerant of the discomforts of side-effects, and, thus, may be less likely to report them, as well as to discontinue the method after experiencing side-effects. Young women, who are highly motivated to space births, probably find pills the most convenient method, and, similarly tend to be highly tolerant of side-effects.

In general, contraceptive users who do not want to have any more children are likely to be strongly motivated to use contraceptives and are, thus, less likely to report side-effects. However, Erasmus and Mostert (1985) did not observe such an association among oral contraceptive users in a black population [20].

In rural Bangladesh, there are high social and psychological costs associated with contraceptive use because of the traditional nature of the society and poor socioeconomic and health conditions. Schuler et. al, 1995, describe, based on their ethnographic study, various adverse familial and social situations women face in using contraception [21]. Many users may remain dissatisfied while using a method because of social and psychological costs. A large portion of the reported side-effects may simply reflect such dissatisfaction.

Educated women may be more informed as to which discomforts are actually side-effects, and which ones are not. Educated women and women from higher socioeconomic backgrounds may be more likely to seek advice or help from family planning workers or medical professionals when experiencing side-effects. Janowitz et al., 1986, found, in Brazil, that pill users, who were more educated, were more likely to seek health care from professionals in case of side-effects [10]. In Bangladesh, reproductive health care seeking is negatively associated with maternal education [22].

Attitudes regarding family size and contraceptive use for the purpose of achieving a desired family size are still familial³ issues in rural Bangladesh. The men, in this case husbands, play a crucial roles [21,23]. A woman whose husband is already convinced of the advantages of a small family is likely to be in a position to space or limit births because her husband is likely to motivate and/or support her to do so. Consider the example, however, of a woman who is convinced of the virtues of the small family and contraceptive use (say, through contact with community-based, female family planning workers), and her husband is not. She has to convince her husband (and often parents-in-law and other family members) that it is in the family's best interests to contracept before she can successfully begin a method. Discussion between the spouses is essential. The husband, thus, has an important role in family planning. If a husband is involved in selecting the method, it is highly likely that he will support his wife in the event of significant side-effects, and ensure that she receives counselling, advice, or treatment for them. For this reason, it is expected that the prevalence of side-effects would be lower among users whose husbands are involved in the selection of a contraceptive method. In fact, contraceptive use has been found to be higher among women who had frequent discussions with their husbands about family planning in Bangladesh [24-25] and in Kenya [26].

Because of hormonal effects of both pills and injectables, side-effects do occur in some cases during the initial period of use. These, however, usually disappear after several cycles [5,12] . Thus, the prevalence of side-effects should decline with the duration of use. Women who cannot tolerate the side-effects, however, discontinue before the side-effects have had a chance to subside. Thus, the prevalence of side-effects may not be associated with the duration of pill or injectable use (the level of tolerance also depends on how motivated a woman is for birth spacing or limitation).

³ Family, here, refers to a broader context involving members of a nuclear and/or extended family as well as those of patrilineally-related families who reside in the same cluster of households, known as *bari*.

Some side-effects, like amenorrhoea, may become more pronounced with prolonged use, in which cases the prevalence of side-effects may be positively associated with the duration of method use [12].

Programme characteristics and side-effects

In Bangladesh, pills are supplied through public, NGO, and private sectors, while injectables are supplied only through the public sector and a limited number of NGOs. Pills and condoms are delivered to women through house-to-house visits by female field workers, known as FWAs, through the public sector. In some special project areas, FWAs or NGO workers also provide injectables at the homes of clients. An FWA is supposed to visit each married woman of reproductive age (MWRA) every two months to advocate a small family, provide information on contraceptives, supply pills and condoms, counsel on contraceptive use-related side-effects, refer clients to SCs and H&FWCs for side-effects, and provide antenatal and other maternal and child health-family planning (MCH-FP) services. High-quality client-FWA contact has been demonstrated to have a positive effect on contraceptive adoption and continuation [27-28]. Counselling by providers on contraceptive choice and use has been found to be negatively associated with reported dissatisfaction and side-effects in various populations [29-31]. These findings suggest that high-quality FWA contact should reduce the prevalence of reported pill and injectable side-effects, whereby reducing pill and injectable discontinuation.

While FWAs are trained in contraindications and side-effect management, the prevalence of side-effects may vary with the source of supplies. The 1996-97 BDHS showed that about 27 per cent of pill users bought their pills from shops or pharmacies (a prescription is not required to buy pills from shops or pharmacies).⁴ The users of pills obtained pills from shops and pharmacies, therefore, might be expected to suffer more

⁴ Pharmacies and shops receive their supplies from SMC and other multinational pharmaceutical companies.

from side-effects. Pharmacists and other drug sellers, in most cases, do not screen pill users or provide side-effect management.⁵ Also, for various practical reasons, pharmacists/drug sellers are not in a position to implement the screening procedures or counselling formalities during the sale of pills. This effect, however, may be counter-balanced by the higher levels of motivation among the couples who tend to buy their own supplies. Since the husband usually buys the method, he may provide more support to his wife in the event of side-effects. It is also possible, however, that a male partner may not be able to communicate effectively about concerns regarding pill contraindications or side-effects that may be experienced by his wife. Injectables, on the other, are for the most part available only from family planning workers, and thus, do not present the same variations with regard to screening for contraindications and side-effects counselling.

Data and Methods

The data for this study come from the fertility and contraceptive prevalence surveys, conducted by the Rural MCH-FP Extension Project of the ICDDR,B in 1993 in Abhoynagar and Sirajganj thanas (sub-districts); and in 1995-1996, in eight thanas of Chittagong district (Table 1). The Project has made an important contribution to the success of the country's family planning programme through operations research and technical assistance in the areas of management improvement and quality of care.

The surveys were conducted by the specially trained permanent and temporary female interviewers of the Sample Registration System (SRS) of the Project, which was established in 1982. The interviewers collected information on structured questionnaires from 11,486 MWRAs. The entire process of data collection, processing, and management was supervised at the field, as well as at the headquarters under the overall guidance of the SRS manager.

⁵ SMC has a programme which provides basic training to pharmacists/drug sellers on screening of pill users.

Abhoynagar is located about 300 km south-west, Sirajganj about 200 km north-west and Chittagong about 300 km south-east of Dhaka, the Capital of Bangladesh. Subsistence agriculture, primarily rice agriculture, dominates the economy of the entire area. Fishing is quite common in some thanas of Chittagong and Sirajganj. Literacy, particularly female literacy, is still low in all areas, but at Abhoynagar and Chittagong it is higher than at Sirajganj. Many thanas of Chittagong have easy access to Chittagong city, the second largest commercial and industrial city of the country. Abhoynagar is not easily accessible to Dhaka, but is quite near Khulna, the third largest commercial and industrial city of Bangladesh. Social institutions are predominantly traditional, although the influence of modernization is increasing through access to radio and personal commercial contacts with industrial areas. An appreciable proportion of young male adults of Chittagong district work in the Middle-East. Among the study areas, Abhoynagar is the least conservative area, while Chittagong and Sirajganj are relatively conservative areas. Sirajganj is the most remote area.

We consider maternal age, number of surviving children, maternal education, decision to adopt the method (whether or not husband was involved in the decision), and the perceived quality of the services provided by the FWA, the potentially important covariates of reported side-effects. Desired fertility and, thus, demand for contraception were different between Abhoynagar and Sirajganj, and, therefore, regional variation was also considered as a factor which could possibly be associated with the reported side-effects. The "sources" from which the pills, currently being used, were obtained, was taken as an independent variable for the Chittagong data set, mainly because most clients in Abhoynagar and Sirajganj received pills from the FWAs. As a measure of motivation to use contraceptives, a variable assessing whether or not a woman wants to have more children was included in the Chittagong, Abhoynagar and Sirajganj data sets. The use duration of the current method was available in the Abhoynagar and Sirajganj data sets, and therefore, is included in the analysis of those data.

Household income was used as an independent variable, represented by household space, in Abhoynagar and Sirajganj. In Chittagong, "whether or not a household has electricity" was included as an independent variable.

This variable may be an indicator of household socioeconomic condition or that of an advanced community. If there is electricity in a rural community, it is likely that almost all households, regardless of economic status, have electrical connections.

For the Abhoynagar and Sirajganj data, a score indicating the quality of contact between the client (respondent) and the FWA was derived, based on the responses to several questions in the survey. The questions were designed to determine whether or not the client perceived that the FWA: (i) spent sufficient time with the respondent, (ii) provided relevant information, if asked, (iii) maintained privacy during counselling, when appropriate, (iv) referred the client to a paramedic, when appropriate, (v) expressed sympathy, when appropriate, and (vi) exhibited reliability in handling problems related to the pill or injectable use. Each item has a value of 0 or 1. The score was derived by adding the responses. For estimating the statistical models, a dummy variable was coded as 1 if the total score was six, because we consider that all six elements are required for the client-worker contact to be considered of high quality. Over 11 per cent of pill and injectable users had scores of six (Table 3). For Chittagong, questions on the quality of FWA contact were not asked.

From the surveys in Abhoynagar and Sirajganj, information on contraceptive side-effects was obtained in two ways. First, the prevalence of side-effects was obtained from current contraceptive users; each user was asked if she was having any health problem which she associated with the use of her chosen method. Second, information was gathered from women who had used methods in the past. These women were asked about their reasons for discontinuation. The reasons were categorized into two groups: (a) side-effects and (b) others (for example, desire for more children or social or religious reasons). Those who reported method failure [n = 51] were dropped from the analysis. The surveys in Chittagong district obtained data only from current users. Table 2 shows the distribution of reported side-effects of pill users. Most side-effects were of a general nature, like headache or weakness. Analysis of the side-effects of injectables is restricted to Abhoynagar and Sirajganj, since it is only there, that injectables are provided by FWAs.

Table 2: Distribution of reported side-effects of current pill and injectable users in Abhoynagar and Sirajganj and current pill users in Chittagong

Side-effect	Abhoynagar and Sirajganj, 1993				Chittagong, 1995 -1996	
	Pills		Injectables		Pills	
	Per cent	No.	Per cent	No.	Per cent	No.
All side-effects	42.0	364	69.5	526	48.7	482
Headache/weakness	37.5	325	37.3	283	42.6	421
Irregular menstruation	0.7	6	20.6	156	2.7	27
Excessive menstrual bleeding	1.4	12	8.0	61	1.2	12
Others*	2.4	21	3.6	27	2.2	22
No side-effects	58.0	502	30.5	231	51.3	507
Total	100.0	866	100.0	758	100.0	989

* Burning sensation, vomiting, abdominal pain, spot bleeding, and weight gain.

The association between side-effects of current pill or injectable use and the independent variables was examined in logistic regressions. The association between discontinuation of a method due to side-effects, having another child, or social reasons, and independent variables was examined in multinomial logit regressions. The respondents, who had discontinued the pill or injectable use due to side-effects and/or other reasons, were treated as two categories, while the respondents who continued the same method were treated as the reference category in the multinomial model.

Results

Reported side-effects were lower among younger and older current users of pills or injectables than those users in the middle of their reproductive years, as indicated by the coefficients of maternal age and its square term (Table 4 and 5). This was true for the current pill users in Chittagong (Table 4) and for the current injectable users in Abhoynagar and Sirajganj (Table 5). The likelihood of reported side-effects was highest among the current users aged 30-34 years. This relationship represents several aspects of contraceptive use dynamics. First, very young women (many of the women of the recent generation have positive attitudes toward small families and birth spacing) who were currently using a method may belong to a group which is likely to be highly motivated, and thus, relatively tolerant of side-effects. Therefore, they are less likely to report them (they are the spacers, and for them, the best options are pills or injectables). Second, given that older women are more likely to be limiters (who do not want to have more children), those who have adopted pills or injectables instead of longer-acting methods, like IUDs or tubectomies, are probably more tolerant of side-effects, and are similarly less likely to report them. Table 6 (column 3) similarly shows that the discontinuation of injectables due to side-effects was lower among the younger and older women than the 30-34-year old women. These findings also support the idea that motivated women are less likely to discontinue a method due to side-effects.

Table 3: Characteristics of current pill and injectable users by area

Characteristic	Abhoynagar and Sirajganj		Chittagong
	Pill users (n = 866)	Injectable users (n = 758)	Pill users (n = 989)
Mean maternal age	29.5	30.2	30.5
Mean number of living children	2.9	3.2	3.2
% do not want to have more	62	71	70
Maternal education (% distribution)			
None	55	68	34
Primary	28	26	25
Above primary	17	6	36
Household space (% distribution)			
Small	39	45	a
Medium	40	35	a
Large	21	20	a
% having electricity at home	a	a	46
% husband having involved in	48	42	a
Duration of method use (%)			
0-5 months	35	30	a
6-17 Months	24	30	a
18+ months	41	40	a
Source of the method (%)			
FWA at home	a	a	62
Shop/Pharmacy	a	a	30
Fixed-site health facility	a	a	8
% sample in Sirajganj	53	51	NA

a = not available for use in the analysis; and NA = not applicable

The positive association between the number of surviving children and reported side-effects may also reflect the role of motivation on reported side-effects (Table 4). Between two women of the same age, the one who

has the most children is likely to have been the one less motivated to use contraception. Due to her lack of motivation for small family, she did not use contraception when she had fewer children and, thus, has already achieved a large number of children. Since she is less motivated to use contraception, she is also more likely to report side-effects. On the other hand, women who have more children are motivated by economic reasons to contracept, even if they have side-effects. Further, a high-parity woman in poor health (resulting from repeated pregnancies), who has been using the pill, may also perceive her illness as being associated with the pill. The negative association between the number of surviving children and contraceptive discontinuation for other reasons (Table 6) indicates that women who have fewer children are more likely to discontinue contraceptive use for having a child or social reasons. This finding was expected.

It would seem logical that a woman who does not want to have additional children and uses the oral pill would be highly motivated to use contraception. But the coefficient of the variable "Does not want to have more children" that is used for representing this motivation effect is small and statistically insignificant (Table 5). This indicates that the reporting of side-effects may not be associated with motivation to contracept. It may also mean that the variable "Does not want to have more children" is not an indicator of motivation to use contraceptives, particularly temporary methods.

Table 4: Logistic regression estimates of odds ratios of factors associated with reported side-effects during current use of pills in Chittagong district (n = 989)^a

Independent variable	Odds ratio
Maternal age	1.22*
Maternal age squared	0.99**
No. of surviving children	1.17*
Does not want to have more children (rc† = Wants more)	0.97
Maternal education (rc = None)	
Primary	0.58**
Above primary	0.64*
Electricity at home (rc = No)	0.83
Source of the method (rc = FWA at home)	
Shop/Pharmacy	0.58***
Fixed-site health facility	0.87

†rc = reference category; * p<0.05; ** p<0.01; and *** p<0.001

^a Constant - 2.65*

Log-likelihood -1370.41

Educated or wealthier pill users were less likely to report side-effects than uneducated or poor women (Table 4 and 5). Discontinuation of pills due to side-effects was also lower among the educated than uneducated/less educated women. Pill use among the educated women was higher than among the uneducated women [23]. Lower prevalence of reported side-effects or lower discontinuation due to side-effects among the educated or wealthier women can be explained in at least four ways. First, these women are more likely to be aware of the types of side-effects associated with their

chosen method, less likely to report other unrelated discomforts as side-effects, and more likely to tolerate side-effects - leading to lower discontinuation. Second, it is possible that educated or wealthier women who use pills receive special attention from family planning workers (i.e., superior counselling and referral), which may help reduce the prevalence of side-effects and the anxiety and health concerns related to the experience of side-effects - leading to lower discontinuation. Third, educated or wealthier women may consult private or public medical professionals for treatment, resulting in the lower prevalence of side-effects and higher method continuation. Fourth, educated or wealthier women are more likely to be healthier, thus having fewer symptoms of weakness or headache. Weakness or headache were the dominant among reported side-effects.

The association between maternal education and injectable side-effect-related discontinuation is in the opposite direction to that between education and pill side-effect discontinuation (Table 4-6). Injectable discontinuation due to side-effects was higher among the educated than the uneducated women (Table 6). It should also be noted that the injectable use is lower among the educated than the uneducated women [23]. This probably indicates that the educated women are probably less likely to tolerate the side-effects of injectables than the uneducated women, and are thus, more likely to discontinue use of injectables.

The variable "Electricity at home" does not seem to be associated with reported side-effects (Table 4) in Chittagong where it was positively associated with contraceptive use.

Table 5: Logistic regression estimates of odds ratios of factors associated with reported side-effects during current use of pills and injectables in Abhoynagar and Sirajganj^a

Independent variable	Odd ratio	
	Pills (n = 866)	Injectables (n = 758)
Maternal age	1.06	1.16
Maternal age squared	0.99	0.99*
No. of surviving children	1.11	1.08
Does not want to have children (rc = Wants more)	1.14	1.08
Maternal education (rc = None)		
Primary	1.03	1.09
Above primary	0.67 ⁺	1.29
Household space (rc = Small)		
Medium	0.91	0.64**
Large	0.56*	0.80
Husband was involved in choosing the method (rc = Wife choosing)	0.73*	1.09
Duration of use of the method (rc = <6 months)		
6-17 months	1.15	1.82**
18+ months	1.16	
FWA provides quality contact (rc = Poor-quality)		0.54**
Sirajganj (rc = Abhoynagar)	1.08	1.41 ⁺

†rc = reference category; ⁺ p < 0.10; * p < 0.05; ** p < .01 and *** P < 0.001

^a Constant - 0.93 - 1.99⁺
Log-likelihood -1124.78 -890.57

Table 6: Multinomial logit estimates of odds ratios of factors associated with discontinuation of pills and injectables in Abhoynagar and Sirajganj^a

Independent variable	Discontinued pills for (n = 2,625)		Discontinued injectables for (n = 1,731)	
	Side-effects (n = 1,322)	Other reasons ¹ (n = 440)	Side-effects (n = 814)	Other reasons ¹ (n = 157)
Maternal age	1.05	1.04	1.19***	0.89
Maternal age squared	0.99	1.00	0.99**	1.00
No. of surviving children	1.04	0.61***	0.98	0.83*
Maternal education				
Primary	0.90	1.10	1.25 ⁺	0.94
Above primary	0.68**	0.64**	1.72**	0.65
Household space				
Medium	0.92	1.07	0.97	0.73
High	1.09	1.16	1.01	0.64
Husband was involved in choosing the method	0.84*	0.99	0.87	0.81
FWA provides quality contact	1.01	1.04	0.79	0.91
Sirajganj	1.18 ⁺	1.31*	1.40**	1.69**
* p<0.10; * p<0.05; ** p<0.01; and *** p<0.001				
¹ Includes desire for more children, social (objections against contraceptive use by husband, in-laws, or relatives), and religious reasons.				
^a Constant	- 0.547	- 0.440	- 2.89***	0.937
Log-likelihood	-2536.50		-1576.90	

Pill users whose husbands were involved in the decision to adopt a method were significantly less likely to report side-effects (Table 5). Husband's involvement was also negatively associated with discontinuation of pills due to side-effects (Table 6). This finding can be explained in several ways. The husband may help his wife (a) in choosing a suitable method, (b) by providing support in the event of side-effects or anxiety resulting from method use, (c) in seeking treatment and/or (d) in switching to a different method, when appropriate. This association may also reflect a motivation effect because the husband's involvement in the contraceptive decision-making process may be associated with stronger motivation for birth spacing or limitation. This involvement could, therefore, lead to lower levels of reported side-effects.

The person(s) responsible for making the decision to contracept was categorized by two dummy variables: (a) Both spouses decided together and (b) Husband decided. Decision by the wife was treated as the reference category. The coefficient was positive for both dummy variables, being larger for "Husband decided." The variable "Husband decided" was significant only at the 10-per cent level (results not shown). (The non-significance of association of these dummy variables may be due to small cell frequencies, however.) This implies that it is not inter-spousal communication, but the husband's involvement in the decision that is important in reducing the perception of side-effects.

In case of injectables, neither reported side-effects nor discontinuation due to side-effects were associated with husband's involvement in choosing the method. This finding and those on the negative association between maternal education and injectable use [23] and the positive association between maternal education and injectable discontinuation probably support the argument of Khan and Rahman (1997) [23]. They argue that there is a provider-bias in the areas of counselling among clients' method selection and its continuation. The FWAs or FWVs probably can convince a section of women (e.g. women without education or women who do not consult their husbands about method selection) to use injectables which is relatively longer acting and which does not require "user-skills."

Table 5 (column 1) shows that the likelihood of reporting side-effects does not change with the duration of pill use. We expected that the prevalence of side-effects would be higher within six months of use than

users of prolong duration, as side-effects generally decline with continued use of pills. The lack of a parallel decline in the reporting of side-effects may indicate two things. First, pill users who experience side-effects shortly after acceptance discontinue the method. Second, the longer some women use the pills the more likely they are to attribute headaches and other unrelated discomforts to the pill. In the case of injectable users, the prevalence of reported side-effects was higher among those who had been using the method for a relatively longer duration. Amenorrhoea is an often-cited complaint among the long-term users. The positive association, therefore, between the reported side-effects and the duration of injectable use could suggest that injectables are not discontinued for relatively tolerable side-effects, such as amenorrhea, and that such side-effects possibly accumulate with the duration of use.

A significant negative association between the quality of client-FWA contact and the reported side-effects for the pill and injectable use is illustrated in Table 5. This is a clear indication of the importance of a programme's emphasis on the quality of care. A good worker really makes a difference.

Following is an example of the type of efforts that have been made by contraceptive pill and injectable users with side-effects, what assistance has been received from FWAs, and how satisfied the users have been with the counselling they receive. Table 7 shows that, in most cases, users who experience side-effects discuss these with their husbands as well as the FWAs. Over 90 per cent of the pill and injectable users who consulted the FWAs received some kind of counselling from them, and about 60 per cent of those with side-effects were satisfied with the counselling they received. Only 40 and about 50 per cent of the women who experienced side-effects from pills and injectables respectively, and received counselling from the FWAs, were satisfied with the counselling offered by the FWAs. This shows that the FWAs need further guidance on how to provide effective counselling for side-effects. The supervisors (Family Planning Inspectors) and managers (Family Planning Officers) can provide routine in-house IEC training to the FWAs which will help improve client-worker interactions. The paramedics (FWVs) and medical officers can provide routine in-house training to the FWAs regarding information and counselling on contraceptive methods.

Table 7: Efforts made by current pill and injectable users when experiencing side-effects in Abhoynagar and Sirajganj

Efforts and outcome	Pill users (n = 364)		Injectable users (n = 527)	
	Per cent	Per cent of total	Per cent	Per cent of total
Discuss with husband	88 (321/364)	88 (321/364)	77 (406/527)	77 (406/527)
Discuss with FWA	75 (272/364)	75 (272/364)	89 (468/527)	89 (468/527)
Received advice from FWA	92 (250/272)	58 (250/364)	92 (429/468)	81 (424/527)
Satisfied with advice	58 (145/250)	40 (145/364)	60 (256/429)	49 (256/527)

Pills obtained from family planning workers at the doorstep or fixed-site service centres are free of charge, while those sold at shops or pharmacies cost from about 10 cents to about 3.0 dollars for the two-month long cycles. Additionally, pills available at shops and pharmacies are of different brands than those available with the family planning workers. Table 4 shows that reported side-effects were lower among pill users who bought their supplies from a private source, such as a pharmacy or medicine shop. This probably reflects a selectivity-effect. The users who buy from private sources may be more aware of the true nature of side-effects, more motivated to use pills, and more likely to receive treatment in the event of side-effects, all leading to lower levels of reported side-effects. In fact, this variable may have captured some income-effect on health. For example, wealthier women who are also likely to be healthier are more likely to buy their pills. The dominant side-effects (weakness and headache) are less likely to be suffered by the wealthier women. The variable "Source of method" might have also partially captured the effect of husband's involvement (the variable "Husband's involvement" is not included in the model due to lack of data), because, in most cases, pills are procured from the shops and pharmacies by the husband. Additionally, users of different brands obtained from shops and pharmacies may perceive that these products are of higher quality and less likely to cause side-effects, resulting in lower reporting of side effects.

Discontinuation of the pill and injectable use (for any reason) was higher at Sirajganj than at Abhoynagar (Table 6). This reflects an effect of motivation, rather than a difference in programme quality of care, since the two areas were similar with respect to the management and quality of care. Furthermore, the demand for a small family and birth spacing was lower at Sirajganj than Abhoynagar. Therefore, it is possible that women at Sirajganj were less motivated to use contraceptives than women at Abhoynagar.

Discussion, Conclusions, and Policy Implications

Many analyses of side-effects as reported by the method users in cross-sectional surveys suffer from selectivity bias. The bias may arise from two perspectives. In a cross-sectional survey, temporary method users who have been using the method for a longer duration have a higher likelihood of being included as respondents. In this process, those who have discontinued pills or injectables due to either side-effects or other reasons, after a short duration of use, have not been included in the sample. The onset of side-effects is usually high, shortly after the acceptance of pills or injectables and many users discontinue the method shortly after accepting it. The users who have been using the method for a relatively longer duration may have done so probably because they (a) have not experienced any side-effects, or (b) have experienced mild side-effects, or (c) are more tolerant of side-effects. We tried to minimize bias in the analysis by collecting information on reasons for discontinuation from the past users. The analyses of past users and current users of pills and injectables reveal a common set of factors that are associated with discontinuation due to side-effects, and the association is in the same direction.

Reported side-effects of current pill users were low among: the youngest and oldest women of reproductive age; mothers with fewer children; more educated women; relatively wealthier women; women whose husbands were involved in choosing the method; women who obtained the current method from private pharmacies or medicine shops; and women who perceived that the Family Welfare Assistants (FWA) provided a "quality contact." Reported side-effects of current injectable users were low among:

the youngest and oldest women of reproductive age; relatively wealthier women; women who perceived that the FWAs provided a "quality contact;" and women who had been using injectables for a shorter duration.

Pill discontinuation due to side-effects was lowest among the more educated women and women whose husbands were involved in choosing the method. Injectable discontinuation due to side-effects was lowest among the youngest and the oldest women of reproductive age and the uneducated women.

From a programmatic point of view, two very important findings emerged: (i) the impact of high-quality FWA contact and (ii) the importance of the husband's involvement in choosing a method. The quality of FWA-client contact was negatively associated with reported side-effects of pills and injectables. For pills, husband's involvement in choosing the method was negatively associated with reported side-effects and discontinuation.

The likelihood that a pill or injectable user reports a side-effect is about 70 or 45 per cent lower if she is served by an FWA who provides a high-quality contact, than a user who is not served by such an FWA. High-quality contact (as evaluated by the respondents, and according to our definition) means that an FWA spends sufficient time with the user; provides relevant information, if asked; maintains privacy during counselling, when appropriate; refers the client to a paramedic, when necessary; expresses sympathy, when necessary; and exhibits reliability in handling method-related problems. An FWA exhibiting all these characteristics can help reduce reported side-effects and, thus, discontinuation substantially. These are basic elements of provider-client contact in the delivery of contraceptive services. Yet, one must not forget the social and psychological costs, in addition to the clinical side-effects, that the user faces. A large portion of the reported side-effects may reflect dissatisfaction associated with the social and psychological costs of contraceptive use. An FWA, through her high-quality contact, can help compensate for social and psychological costs, by providing emotional support and empathy while counselling the client on the clinical side-effects and by also emphasizing the social and economic benefits of contraceptive use (for example, reduced fear of unplanned pregnancy, better economic opportunities inherent to carefully planned families, among others).

The clinical side-effects may be handled either (a) by the FWAs through their improved skills in screening clients for methods and in side-effect management or (b) by referrals to the paramedics at the fixed-site service centers, if necessary. The SMC can strengthen their efforts to train pharmacists/drug sellers to provide side-effect-related information to pill buyers.

The association, we observed, between the clients' perception regarding quality contact and reported side-effects brings up another question. Could those users who are dissatisfied with the methods also be dissatisfied with some elements of client-worker contact? If this is the case, it may have exaggerated the association between quality contact and reported side-effects.

We find that the involvement of husbands in choosing a method is significantly associated with lower reporting of side-effects, as well as lower discontinuation of pills. This suggests that the increased involvement of males in family planning activities may not only increase contraceptive acceptance but also reduce pill discontinuation due to side-effects. The current family planning service-delivery system is directed toward women. In other words, FWAs contact women personally, at their homes, once every two months to provide contraceptive information and supplies. Men are not approached in this way. If, at the community level, men could be motivated and counselled to share responsibility with their wives regarding fertility regulation and reproductive health, contraceptive prevalence might increase through increased adoption and decreased discontinuation of contraceptives due to side-effects.

The quality of care component of the family planning programme should seek to improve the skills of the workers on counselling, on screening for contraindications, and on management of side-effects of pills and injectables in particular, and in providing a variety of contraceptives, in general. The local-level programme managers, frontline supervisors, and paramedics could provide routine in-house training and refresher training on counselling skills and management of contraceptive side-effects and build more client-oriented and client-centred approaches to service delivery. The NGOs devoted to the improvement of the quality of family planning services may take an initiative of a local-level training programme for this purpose. Moreover, the current innovative approach of delivering basic health and

family planning services from fixed-site facilities through more highly trained personnel may significantly contribute to reducing pill and injectable side-effects, and thus increasing continuation.⁶

Further qualitative, quantitative, and epidemiological studies, as well as longitudinal research, should be undertaken to gain a better understanding of the consequences of pill and injectable use-related side-effects. To improve the quality of pill and injectable services, it will be necessary to understand under what situations "perceived" side-effects lead to method discontinuation. The present study could not fully explain why perceived side-effects are higher in some groups than in others. For example, we hypothesized that less-motivated women would be more likely to report pill or injectable use-related side-effects. However, supporting evidence was not forthcoming. It is also necessary to document what actions are initiated by users and what services are offered by providers (for example, counselling and referrals for side-effects). To develop IEC materials for men, it is necessary to know what role a husband plays in choosing the method and in providing subsequent support in case of discomforts or side-effects.

An operations research (OR) intervention could be undertaken to help reduce the incidence of reported pill and injectable use-related side-effects and the dissatisfaction associated with these side-effects. Because of a traditionally early onset of childbearing in Bangladesh, most women complete their family size by 25 or 30 years of age and subsequently continue using pills or injectables for 15-20 years. The contraceptive literature recommends that women after 35 years of age avoid using pills. This OR may also try to motivate those women who are currently using pills or injectables for limiting purposes, to switch to permanent methods which have lower side-effects and higher effectiveness. A well-designed sterilization programme with a sound technical base, backed-up by strong family planning educational activities, may help couples who want no more children in their decision to switch to permanent methods. Apart from reducing side-effects and discontinuation, this may also lead to a more effective contraceptive method-mix in Bangladesh.

⁶ The MCH-FP Extension Project (Rural) of ICDDR,B has been conducting operations research on basic health and family planning service delivery in some thanas of Bangladesh.

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