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Research Article

Factors Associated with IUD Discontinuation in India: A Discrete-time Hazard Model

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Abstract

In this paper an attempt has been made to examine the factors associated with IUD discontinuation in India. The contraceptive histories were collected through a "calendar" that records monthly contraceptive/pregnancy status and reasons for discontinuing contraceptive methods for the five calendar years before the survey in the National Family Health Survey-3 (NFHS-3) during the period 2005-06. These contraceptive histories provide a useful source of data for examining the contraceptive discontinuation. Life table analysis was used to examine the 12 month and 24 months' discontinuation rates of IUD using NFHS-3 data. All episodes of IUD use that began one month after the reference period and three months prior to the survey were used in this calculation. A discrete-time hazard model was used to identify the factors associated with the discontinuation of IUD. The analysis indicates that the number of children at the time of use significantly influence the discontinuation of IUD. It is important to check the future fertility intentions before IUD insertion, in order to avoid the IUD discontinuation, particularly among nulliparous and low parity women. Similarly, family focused counselling rather than women centric may be useful, since woman's decision making factor shows no effect on continuation of IUD use.

Introduction

The vision of family planning in India has been changed from population stabilization to preventing maternal deaths through reduction of unwanted pregnancies- and thus infant deaths, to accelerate the country's progress to meet the Millennium Development Goals (MDGs). At the International Conference on Population and Development, 1994 held in Cairo, family planning's objectivity was subdued by the call for a sustainable rights based approach to reproductive health. However, over the period, the slow progress towards the set goals of MDG with related to maternal and infant deaths necessitated deliberation on family planning as a potential factor to accelerate the reduction process. The "London Summit on Family Planning" which is considered as a "watershed" event in the area of family planning where more than 100 governments, major donors, private sector and civil society organizations participated and pledged to reach 120 million women with lifesaving family planning information, services and supplies, a sizeable 48 million of whom are expected to be resident in India. Following this Government of India adopted "India's Vision FP 2020" and expected to avert 23.9 million births and thus 1 million infant deaths and over 42000 maternal deaths by 2020 (Ministry of Health and Family Welfare, 2014). Thus, it becomes necessary to understand the reason for discontinuation of contraceptives, particularly of spacing methods. Contraceptive continuation is an important determinant of contraceptive prevalence as well as of unwanted fertility. According to Blanc et al. (2002), in the absence of contraceptive discontinuation and failure, the total unwanted fertility would be lower between 44 percent and 88 percent (Blanc et al., 2002). In India, based on the recent National Family Health Survey (NFHS-3), if the unwanted births are eliminated, the total fertility rate would be below the replacement level of fertility (IIPS and Macro International, 2007). Hence, studies on factors contributing to the continuation of spacing methods assume paramount importance. The IUD is the most effective reversible contraceptive methods currently available; as

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such public health significance of IUD use is very high. The IUD is also effective for a longer duration than any other reversible contraceptive method (Kaneshiro and Aeby, 2010). Recently, the government of India advocated insertion of IUD to women in the immediate postpartum period (Ministry of Health and Family Welfare, 2010). Considering the public health importance of IUD, it may be important to understand the factors that influence the IUD discontinuation in India. In this article, we examined the factors influencing the IUD discontinuation in India.

Studies on contraceptive discontinuation have consistently shown that contraceptive discontinuation rates vary substantially by the method used. Typically, discontinuation rates are lowest among IUD users and highest among users of condoms and, to a lesser extent, within users of injectables (Ali and Cleland 1995; Blanc et al. 2002). According to NFHS-3, among the spacing methods, discontinuation of IUDs is lowest and discontinuation is highest for injectables, followed by pills and male condoms. Reasons for discontinuation also vary substantially by method. In India, for pills, IUDs, and injectables, the most common reason for discontinuation is concerns about side effects or health problems, whereas for condoms and traditional methods the desire to become pregnant is most frequently cited (IIPS and Macro International, 2007).

According to Philips et al. (1989), contraceptive discontinuation is a complex and multidimensional phenomenon. The relationship between the method used and contraceptive discontinuation is complicated by the fact that method choice is determined by women balancing a number of factors, including ease of continuation, risk of failure, intended length of use, and other background characteristics of women (Curtis and Blanc, 1997). Jain (1989) argued that the quality of services increases contraceptive prevalence through increased adoption of contraceptives but more significantly through improved continuity of use. However, several studies have suggested that the effect of quality of care upon contraceptive continuation may not be as strong as it is commonly believed (Phillips et al., 1989; Bhat and Halli, 1998; Tripathi et al. 2005). In addition, demographic characteristics such as age at start of the method, number of children at the time of use, socio-economic factors such as educational level, work status, household socio-economic status, residential area and religion may also affect continuation of the contraceptive method. These covariates are shown to be significant determinants of discontinuation behavior in other analyses (Ali and Cleland 1999; Curtis and Blanc 1997; Steele et al. 1996; Bhat and Halli 1998).

Data

The data used for the study come from a large scale sample survey conducted in different states of India under the title National Family Health Survey (NFHS-3) by the International Institute for Population Sciences, Mumbai (IIPS). Fieldwork for NFHS-3 was carried out in two phases from November 2005 to August 2006. The sample design adopted for the NFHS-3 is a systematic, two-stage stratified sample of households. NFHS-3 interviewed men age 15-54 and never married women age 15-49, as well as ever-married women, and included detailed history of contraceptive use during the five-years prior to the survey. NFHS-3 collected information from a nationally representative sample of 109,041 households, 124,385 women age 15-49, and 74,369 men age 15-54. The details of the sample design and implementation of the survey can be obtained from the all India NFHS-3 report (IIPS and Macro International, 2007).

In this survey, contraceptive histories are collected through a "calendar" that records monthly contraceptive/pregnancy status and reasons for discontinuing contraceptive methods for the five calendar years before the survey. These contraceptive histories provide a useful source of data for examining the contraceptive discontinuation. For the first phase states detailed information on the events that were started from January 2000 was recorded and for the second phase states the events that were started from January 2001 was recorded. The analysis is based on all episodes of IUD use that began during the calendar period. However, in the present analysis, all episodes of IUD use that began from February, 2000 for first phase states and that began from February, 2001 for second phase states only were included. In other words, episodes of IUD use that began on or before the start of the calendar (i.e., left-censored episodes of use) were excluded from the analysis because the start dates of

these episodes were not known accurately. Also, the episodes of IUD use that began three months prior to the survey date only were included in the analysis. Thus, the analysis is based on 2914 episodes of IUD use contributed by 2761 women.

Methodology

The differentials in the timing of discontinuation of IUD use by selected background characteristics of women were examined as the first step of the analysis. The present analysis examined the one-year and two-year discontinuation rates of IUD use. Let 't' be the time that elapsed before a woman experiences discontinuation of IUD. Clearly a significant number of women may not terminate the use of IUD at the time of survey, that is, we get right-censored observations. In such situation, the basic methodology for examining the differentials in the timing of IUD discontinuation is the life table analysis.

In case of women whose episodes of IUD use are still in progress, the duration is terminated due to interview and is calculated by counting the units of time elapsed between the date of start of using IUD and date of interview. The conditional probability of discontinuation between time points t_i and $t_{j+l}(q_i)$ and the conditional probability of continuation in the same interval (p_i) are given as:

$$q_i = \frac{d_i}{n_i^*} \; and \quad p_i = 1 - q_i \; with \quad n_i^* = n_i - \frac{C_i}{2}$$

where, n_i is the number of women exposed at the beginning of interval (t_i, t_{i+l}); d_i is the numbers of IUD acceptors who experienced IUD discontinuation in the same interval; C_i is the number of IUD acceptors among those who had both terminated and reached the same interval without experiencing the event. The proportion surviving (S_i) at the end of the interval (t_j, t_{i+1}) is given as:

$$S_i = \prod_{i=0}^{t+1} p_i$$

The corresponding proportion failing (F_i) at the end of the interval ($t_{i,}$ t_{i+1}) is given as:

$$F_i = 1 - S_i$$

The above method known as actuarial life table approach is applied in estimating the one-year and two-year discontinuation rates and the estimates are not rates, but are true probabilities. In the next step, a discrete time hazard model namely binomial logistic regression (or logistic regression with grouped data) model is applied for identifying the various factors of IUD discontinuation in India. The first step in carrying out a discrete-time analysis is to restructure the data so that we have an observation for each time point until the event or censoring occurs. Once data is expanded so that we get an observation for every month, we would fit a logit regression model. But it is often possible to store the data in a more compact form, e.g. an observation for each 6-month interval rather than 1-month interval and fit logistic regression for grouped data, known as binomial logistic regression. For the present analysis, the data are restructured to have an observation for each time period, such as 0-5 months, 6-11 months, 12-17 months, 18-23 months, 24-29 months, 30-35 months and 36+ months, until the event or censoring occurs. When the data are restructured in this fashion, we end up with 11,981 records out of the 2914 episodes of IUD use. For each episode of IUD use and for each discrete time period at which the women is at risk of experiencing discontinuation of IUD, the file contains information about the occurrence or nonoccurrence of termination of IUD as well as the values of the covariates. In each time interval the response has a code 1 if a woman experienced IUD discontinuation in the time period, and 0 otherwise.

A discrete-time model, assuming piecewise constant baseline hazard can be written as a standard logistic model as given below:

$$\log\left(\frac{h_{ij}}{1-h_{ij}}\right) = \alpha_j + \boldsymbol{\beta} x_{ij}$$

The covariates $\mathbf{x}_{ij}$ can be constant over time or time-varying. α_j is the baseline hazard function for interval t_j on the logit scale. Changes in h_{ij} over time are captured by α_j. This might be a **linear** or **quadratic** function; the linear function is given below:

$$\alpha_j = \gamma_0 + \gamma_1 t_j$$

In the model considered in the present analysis, time is treated as a categorical variable with a category for each time point. We fit this kind of model by including time as explanatory variables as a set of dummy variables, T_2, T_3, . . . T_q, one for each time interval from t_2 to t_q (q is the maximum duration).

Results

Out of the total 2914 cases of IUD acceptors, 1346 cases are discontinued and the remaining 1568 cases are still using the method. We examined the status of these IUD acceptors prior to adopting the method. Prior to the IUD acceptance, 77 percent were not using any contraception, 5 percent each had a birth or a pregnancy terminated, 5 percent were using condom, 4 percent were using oral pills and the remaining were practicing withdrawal, abstinence or other methods (see Figure 1).

The life table estimates showing the percentage of IUD acceptors who discontinued the use within 12 and 24 months after starting its use by selected background characteristics are provided in the Table 1. The results indicate that IUD discontinuation rates are lower among women in urban than in rural areas. The discontinuation rate in the first-year is significantly higher among Muslims. However, the differentials in the discontinuation rates within 24 months after its use are narrowed between various religious categories considered. To be specific, the discontinuation rate in the first year of IUD use is higher among Muslims as compared to other religious groups such as Hindus, Christians and others. No differentials in the discontinuation of IUD are found according to the caste/tribe of the acceptor. Surprisingly, the acceptors living in the households with average wealth index experience higher discontinuation than acceptors living either in households with poor or high wealth index. IUD discontinuation rates are lowest among acceptors with 12 or more years of education. By contrast the IUD discontinuation rates are also found to be less among acceptors with no education. Not much variation in IUD discontinuation rates is found according working status of the women. However, the differentials in IUD discontinuation rates are large according to age and parity at start of using the method. The discontinuation rates are generally decreasing with increasing age and parity at start of using the method. In other words, the episode level variables, such as age and parity, show the highest differentials in the discontinuation of IUD. Discontinuation of IUD is found to be higher among acceptors who have poor decision making power. Similarly, acceptors with poor mass media exposure also have higher discontinuation rates of IUD.

We analysed the status of the women after the discontinuation of the IUD method. Out of the 1346 acceptors who experienced IUD termination, around two-thirds are not using any contraceptives following its discontinuation. Ten percent of the acceptors who had IUD termination became pregnant. About 10 percent switched to condom, 7 percent changed to oral pills, 4 percent changed to female sterilization and another 3 percent to periodic abstinence immediately within one month of its termination (see Figure 2).

In the next step of the analysis, the discontinuation rates of IUD due to method failure and switching over to another method is examined. In the present analysis, adoption of a different contraceptive method within one month of discontinuation of IUD is classified as a method switch. Clearly, contraceptive failure is of interest because it leads directly to an unintended pregnancy. Method switching also may lead to an increased risk of unintended pregnancy if use of a modern method is discontinued in favor of a less effective, traditional method. Further, a high rate of switching among modern methods may be seen as either a positive or negative indicator of program quality: high switching rates may reflect an adequate range of available methods or, on the other hand, poor counseling regarding the initial method choice, poor management of side effects, or intermittent supplies of the original method. Contraceptive failure is somewhat different in that it presumably is an

unintentional event, whereas contraceptive switching suggests some decision-making and choice on the part of the acceptor (see figure 2).

The percentage of IUD acceptors who discontinued within 12 months and 24 months due to either failure or method switch is provided in Table 2. Overall, in India, the experience of discontinuation among IUD acceptors due to failure is very small. The discontinuation of IUD attributable to failure is slightly higher among acceptors belonging to scheduled tribes, acceptors living in economically poor households, and acceptors with three children at use. The percentage of IUD discontinuation within 12 months and 24 months due to method switch is about 6 percent and 10 percent, respectively. Although, the overall IUD discontinuation is higher in rural areas, discontinuation due to method switching is found to be slightly higher in urban areas. The percentage of IUD acceptors switching over to other methods is slightly greater among acceptors belonging to scheduled castes, acceptors living in economically rich households, acceptors who are educated but studied less than 8 years of education, acceptors who started using before age 20 years and acceptors with no children.

Examination of the reasons for discontinuation among the 1346 IUD acceptors who had experienced termination indicated that about one-quarter of each reported side effects and wanted to have a child as the reason. About one-fifth reported health concerns, 5 percent reported that IUD created menstrual problems, and 4 percent reported that they wanted more effective method as the reasons. However, three percent of the acceptors reported method failure as the basis for IUD discontinuation. The information on reason for discontinuation was missing for about 5 percent of the women.

Finally, the results from the discrete time hazard model are presented in Table 3. The results indicate that discontinuation of IUD is significantly higher after 24 months of IUD initiation as compared to discontinuation in the first 6 months. On the other hand, IUD discontinuation is significantly lower between 6 and 18 months after starting the method as compared to discontinuation in the first 6 months. Even after controlling for the other factors, the effects of religion on the IUD discontinuation remains statistically significant. All the religious groups, such as Hindus, Christians and Others, experience significantly lower IUD discontinuation than acceptors belonging to Muslims. Surprisingly, according to acceptors educational grouping, the effect on IUD discontinuation is found to be significant only for one education category, when other factors are accounted for. The acceptors with 12 or more years of education found to have significantly lower levels of discontinuation than acceptors with no education. Similarly, only one group of the age at starting the IUD use, such as IUD accepted between age 30 and 46, identified to be significantly influencing the IUD discontinuation. The acceptors in this age group have significantly lower discontinuation rates than acceptors who use the method before age 20. The results also suggest a statistically strong relationship between parity at use and IUD discontinuation. The result indicates that the likelihood of experiencing IUD discontinuation is significantly lower among acceptor with two children at the time of use as compared to acceptors with no children. The influence of other factors on IUD discontinuation is not statistically significant.

Summary and Conclusions

The purpose of this paper was to examine the factors affecting the discontinuation of IUD in India. The estimates from the life table analysis suggest that one-fifth of the IUD acceptors discontinue its use within 12 months of its adoption. The IUD discontinuation rate observed in India is slightly higher than the 13.3% discontinuation rates noted in a 14-country study (Rivera et al., 1999). However, studies conducted in India identified higher rates of IUD discontinuation at the end of one year (Saxena, 1996 and Rajeshwari and Hasalkar, 1996). The discontinuation of IUD attributable to method failure is very small at one percent, and due to change in method within 12 months after using the method is about 6 percent. The life table estimates also reveal that the IUD discontinuation is higher in rural areas, among Muslims, acceptors living in the households with average wealth, who are educated with less than 8 years of schooling, who started using the method before age 20 and acceptors who had no children at the time of using the method.

The status following the termination of IUD suggests that two-thirds of the IUD acceptors are not using any method and one-quarter of them switched to other contraceptive methods within one month of discontinuation. But 10 percent of the acceptors who had discontinued the use of IUD were pregnant immediately after its termination. Prior to IUD acceptance, 13 percent of them were using other modern methods of contraception. The results thus suggest that switching from other contraceptive methods to IUD is slightly lower than switching from IUD to other contraceptive methods. The most frequently reported reasons for IUD discontinuation were: the acceptor wanted to become pregnant, followed by side effects and health concerns.

The results of the discrete time hazard model suggest that many of the socio-economic variables, such as place of residence, work status, caste/tribe, wealth status, and decision making power, considered in the analysis are not significant in explaining the IUD discontinuation. Though, the multivariate analysis indicated five predictors, religion and parity at acceptance of IUD are found to be the most significant predictors. To some extent, variables such as education of the women, age at start of using the IUD and mass media exposure influence the IUD discontinuation rate in India. As evident from other studies, the present study also indicated that women of Muslim religion are more likely to discontinue the IUD than women of other religions (Bhat and Halli, 1998; Rivera et al., 1999). There could be cultural reason behind such observation, for example, it is obvious that Muslim women's desire to stop child bearing is comparatively lower than women of other religion (IIPS and Macro International, 2007). In their article, Bhat and Halli (1998) observed that women who wanted to space births were twice as likely to discontinue the IUD as were those who wanted to limit childbearing. Research studies also noted that discontinuation rates of IUD are likely to reduce with increasing parity. The factors that have been consistently associated with a higher rate of IUD discontinuation are age younger than 20 years and nulliparity. It has been documented that the length, width, and volume of the uterine cavity of nulligravida women tends to be smaller than the cavity of gravid women thus leading to higher rate of IUD expulsion (Kurzetal, 1984). As with all women, a major concern about future fertility may be a deterrent to IUD use in nulliparous women as well as women below age 20 years.

The study has some limitations. Though, studies identified quality of care as a factor for IUD discontinuation, the study is limited by non-availability of information on quality of care. The information on contraceptive use was collected retrospectively and is subject to recall bias. However, it is reported that the calendar data provide superior quality data to more traditional retrospective data collection techniques for contraceptive histories (Westoff et al., 1990). We did not consider competing risk model to study the IUD discontinuation in India. Studies that considered competing risks were generally used the reasons for discontinuation as the risk in their analysis (Zhang etal., 1999). However, it was documented that data on calendar data are subject to recall bias, particularly for the reasons for discontinuation (Bradely et al., 2009).

We noticed that large proportion of women reporting adverse side effects and other health concerns for IUD discontinuation. Thus proper counselling and communication by health workers and staff are critical in terms of ensuring adoption and continuation of IUD. Counselling would be more effective if along with benefits, side effects of IUD are also discussed. Frontline health workers for rural beneficiaries, which accounts for the greater proportion of deliveries, are an essential link between health facility and the woman in the community for following up on continuation status and also counsel the beneficiary when needed. Aspects of human psychology may be difficult for frontline health worker to comprehend and thus effective communication tools, possibly pictorial, may be provided to the frontline health workers. Policy makers may like to stress more on family focused counselling rather than women centric since woman's decision making factor shows no effect on continuation of IUD. It is also important to check the future fertility intentions before IUD insertion, in order to avoid the IUD discontinuation, particularly among nulliparous and low parity women. This aspect may be important, since, presently the government of India is advocating for postpartum IUD insertions.

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Table 1: Percentage of IUD users who discontinued the use within 12 and 24 months after beginning its use, India 2005-06

Characteristics	Percentage discontinuing IUD within		Number of cases
	First year	Second Year	
Place of residence			
Urban	17.33	31.90	1,780
Rural	22.81	37.59	1,134
Religion			
Hindus	19.38	34.46	1,954
Muslims	25.42	36.37	368
Christians	10.88	35.15	333
Others	16.91	30.93	257
Caste/Tribe			
Scheduled caste	21.20	38.52	258
Scheduled tribe	21.92	39.47	372
Other backward class	21.79	35.80	844
None	17.66	32.14	1,418
Wealth index			
Poor	24.18	32.18	235
Average	26.87	41.98	389
High	18.27	33.76	2,290
Education of women			
No education	20.42	28.97	436
<8 years complete	31.65	47.71	280
8-11 years complete	20.22	36.93	1,590
12 or more years complete	12.63	25.99	607
Work status			
Not working	19.63	35.45	1,948
Working	20.26	32.34	966
Age at start			
< 20 years	28.46	50.92	322
20-24 years	24.10	41.83	1,103
25-29 years	18.27	29.49	918
30-46 years	6.51	14.08	571
Number of children at use			
No children	27.50	46.72	680
1 child	20.02	37.55	882
2 children	13.06	24.41	722
3 children	19.17	28.88	324
4-12 children	16.98	25.58	306
Index of decision making			
Poor	23.20	40.15	865
Average	19.00	32.39	916
Good	17.17	30.62	1,096
Index of mass media exposure			
Poor	23.12	36.37	1,166
Average	17.81	37.84	794
Good	16.99	28.71	947
Total	**19.82**	**34.48**	**2914**

Table 2: Percentage of IUD users who discontinued the use within 12 and 24 months after beginning its use, by failure and method switch, India 2005-06

Characteristics	Failure		Method switch		Number of cases
	Percentage discontinuing IUD within				
	First year	Second Year	First year	Second Year	
Place of residence					
Urban	1.07	1.80	6.67	10.61	1,780
Rural	0.88	1.31	5.69	8.16	1,134
Religion					
Hindus	1.23	1.79	5.85	9.35	1,954
Muslims	0.00	0.79	8.74	10.64	368
Christians	0.04	0.20	2.06	6.82	333
Others	0.63	1.56	7.09	10.46	257
Caste/Tribe					
Scheduled caste	0.33	1.27	9.48	12.43	258
Scheduled tribe	2.92	3.52	6.21	7.04	372
Other backward class	0.77	1.25	5.68	8.91	844
None	1.13	1.76	5.85	9.55	1,418
Wealth index					
Poor	2.91	3.11	4.68	5.62	235
Average	2.12	3.03	5.85	7.90	389
Rich	0.58	1.19	6.48	10.24	2,290
Education of women					
No education	1.60	2.07	2.94	4.07	436
<8 years complete	0.70	1.01	11.23	16.53	280
8-11 years complete	0.82	1.68	6.90	10.14	1,590
12 or more years complete	1.05	1.20	4.84	9.18	607
Work status					
Not working	1.20	1.95	6.33	9.26	1,948
Working	0.49	0.73	5.99	10.14	966
Age at start					
< 20 years	1.19	1.94	9.26	11.65	322
20-24 years	1.03	1.81	7.19	11.45	1,103
25-29 years	1.49	1.75	5.81	9.58	918
30-46 years	0.01	0.68	2.90	4.36	571
Number of children at use					
No children	0.98	1.59	8.15	11.10	680
1 child	0.71	1.27	5.98	10.73	882
2 children	0.05	1.16	6.07	8.79	722
3 children	3.03	3.10	5.95	6.42	324
4-12 children	1.68	1.84	3.58	7.88	306
Index of decision making					
Poor	1.37	1.55	6.47	9.90	865
Average	0.79	1.62	5.60	9.20	916
Good	0.80	1.60	6.80	9.85	1,096
Index of mass media exposure					
Poor	1.52	1.92	6.24	7.83	1,166
Average	0.02	1.52	6.19	11.83	794
Good	1.14	1.20	6.14	9.56	947
Total	**0.99**	**1.58**	**6.23**	**9.54**	**2914**

Table 3: Estimated Odds ratios and Standard Errors for Hazards Model of IUD discontinuation

Characteristics	Odds ratio	95% confidence interval		Standard Error
		Lower limit	Upper limit	
Duration (months)				
6-11	**0.6293**	0.5227	0.7577	0.0596
12-17	**0.8012**	0.6648	0.9655	0.0763
18-23	0.9297	0.7649	1.1300	0.0926
24-29	**1.2677**	1.0422	1.5420	0.1267
30+	**1.7332**	1.4824	2.0265	0.1382
Place of residence				
Urban	1.0249	0.8988	1.1687	0.0686
Religion				
Hindus	**0.8000**	0.6749	0.9483	0.0694
Christians	**0.6878**	0.5176	0.9139	0.0997
Others	**0.5964**	0.4585	0.7758	0.0800
Caste/Tribe				
Scheduled tribe	1.0641	0.8070	1.4032	0.1501
Other backward class	0.8996	0.7323	1.1051	0.0945
None	0.8698	0.7109	1.0642	0.0895
Wealth index				
Average	1.2576	0.9715	1.6280	0.1656
Rich	1.1200	0.8711	1.4401	0.1436
Education of women				
<8 years complete	**1.3403**	1.0653	1.6863	0.1570
8-11 years complete	1.0039	0.8214	1.2268	0.1027
12 or more years complete	**0.7371**	0.5725	0.9492	0.0951
Work status				
Working	0.9624	0.8499	1.0899	0.0611
Age at start				
20-24 years	1.0946	0.9384	1.2769	0.0860
25-29 years	0.9021	0.7591	1.0721	0.0794
30-46 years	**0.6530**	0.5149	0.8280	0.0791
Number of children at use				
1 child	**0.6567**	0.5689	0.7581	0.0481
2 children	**0.4282**	0.3611	0.5078	0.0373
3 children	**0.4951**	0.3967	0.6178	0.0560
4-12 children	**0.4994**	0.3912	0.6376	0.0622
Index of decision making				
Average	0.9556	0.8276	1.1034	0.0701
Good	0.9914	0.8632	1.1386	0.0700
Index of mass media exposure				
Average	0.9742	0.8426	1.1265	0.0722
Good	**0.8531**	0.7278	0.9999	0.0691

Figure 1: Percentage of IUD acceptors according to their status prior to use

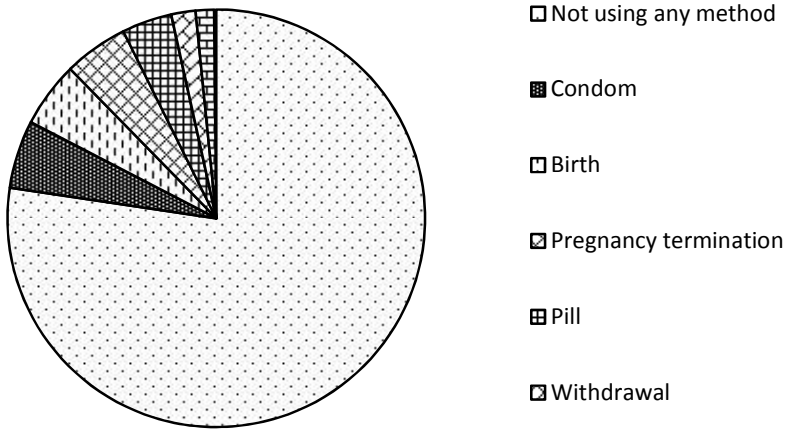

Figure 2: Percentage of IUD acceptors according to their status after discontinuation