Understanding the Pattern of Contraceptive Switching and Discontinuation in India

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Introduction

The use of contraception among currently married women in India has increased from 41 percent in 1992-93 to 56 percent in 2005-06, while the use of spacing method increased slowly; from 10 percent to 18 percent in the same period (IIPS and Macro International, 1995, 2000, and 2007). On the contrary about 27 percent of users of all methods in the country discontinued use within 12 months after beginning its use. This varies substantially by methods; from 53 percent in case of injectables followed by pills (49%) and minimum for terminal methods (IIPS and Macro International, 2007). Thus, with increase in contraceptive prevalence, aspects of contraceptive-use dynamics particularly, the method failure, reasons for discontinuation, switching over of methods and quality of care become critical component for programme and policy (Steele and Diamond, 1999).

The discontinuation of contraceptive method may lead to unintended pregnancy and have adverse health outcome. Moreover, some women who are practicing contraception may be at risk of pregnancy because they use their method inconsistently or incorrectly, particularly in case of traditional methods. Therefore a programme too closely focused on unmet need might miss the opportunity to assist women who have already started to practice contraception. Jain (1999) using data of Peru advocated the users of spacing method should be programme priority. High rates of contraceptive discontinuation are not good for any family planning program and undermine their ability to protect women from unwanted pregnancies (Cotton et al, 1992).

After discontinuing a method, a woman may switch to an alternative method or may abandon the practice of contraception. In case of switching to an alternate method, a comparison of the effectiveness of woman's destination method with that of the original method she switched from is of apprehension. Of particular concern is switching from a modern method to an inefficient

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method and switching from method use to non-use among women who are at risk of experiencing an unintended pregnancy (Steele and Diamond, 1999).

A study done by Zhang, Tsui and Suchindran (1999) found that socioeconomic well being, age, parity, travel time, method access, method type and source on reason-specific risks have significant impact on contraceptive discontinuation in northern India. The findings of a study of rural Sri Lanka done by Hamill, Tsui, and Thapa (1990) suggest that Couples were practicing contraception in a nonrandom fashion, switching methods in accordance with changes in their fertility motivations and contraceptive experience. The identification of large variation in continuation between users of different methods or between different clients may be useful to programme managers (Ali and Cleland, 1995).

Contraceptive use has an important role in reducing fertility and also it can inform about the efforts to improve service delivery (Curtis and Blanc, 1997). The national family welfare programme in India has been successful in increasing the spacing method to 18 percent among currently married women. Studying women's behaviour after acceptance, in particular, determining whether they sustain use is vital. Examining the extent to which women abandon the practice of contraception even though they are still at risk of experiencing an unintended pregnancy is especially important. The future success of the programme will depend increasingly upon the effectiveness of contraceptive use and in particular on the way in which women are able to manage their contraceptive use period so as to have the number of children they want, when they want to have them. Often surveys, research and programme in many developing countries, including India, is focused on contraceptive adoption to achieve the demographic targets. But the focus on discontinuation of methods, method related problems and switching over of method has given less attention. In India, studies that address the women's behaviour following discontinuation of a method are relatively rare in spite of the fact that the results can be important for family planning programmes.

This paper aims to understand the contraceptive discontinuation and switching over by using alternative approaches.

Data and Methodology

The data analyzed is taken from a sample of 124,385 women of age 15-49 years, interviewed during the National Family Health Survey. The survey fieldwork was carried out in two phases. First-phase data collection was carried out from November 2005 to May 2006. Second-phase data collection was carried out from April to August 2006. The sample was selected in two and three stages in rural and urban areas respectively. In rural areas first stage involved the selection of primary sampling units (PSUs) which are villages, with probability proportional to population size (PPS); followed by systematic selection of households within each PSU in the second stage. In urban areas a three stage procedure was followed. In the first stage wards were selected with PPS sampling. In the next stage, one census enumeration block (CEB) was randomly selected from each ward. In the final stage households were randomly selected within each selected CEB.

The NFHS-3 data set contains four calendars in the women's file, which is about births, pregnancies, and contraceptive use, reason for contraceptive discontinuation, marriage and ultrasound conducted during pregnancy. Each of the four calendars run concurrently, starting in the month of interview, and going back in time to January 2000 (phase 1) or January 2001 (phase 2). For any woman calendar is at least 60 months in length. Each of the calendar variables is an 80 character string, with the 80th position in the string corresponding to January 2000 or January 2001 (phase 1 or 2). To use the data it was destringed, and each month in the calendar was converted into a separate variable.

The unit of analysis in this study is based on women. The study is limited to the period which is common for both phase 1 and phase 2 states i.e. from 80th month to 16th month. The 16th month is month after which phase 1 state's survey started to get complete and women interviewed in the first phase were lost to follow up. Among the spacing methods only pill, IUD, and condom and for the traditional methods only periodic abstinence and withdrawal method users are observed because there were few users in the other methods of spacing and limiting.

Three approaches have been adopted to calculate the discontinuation probabilities; first is computation of monthly discontinuation rates using cross classification, second approach is cohort approach and third is single decrement life tables. Here, cohort had been considered as the

number of women who were using a particular method in the beginning of calendar. The motive was to study the behaviour of women over a period of time. In third approach, 12 month discontinuation rate for pill, condom, IUD and traditional methods are calculated using single decrement life table. A woman is counted for more than one time if she discontinued and again started to use the method. One-year contraceptive discontinuation probabilities by method were calculated using single decrement life tables.

Calendar Data

The DHS calendar is collected only in surveys that use the DHS model "A" questionnaire (i.e. relatively high contraceptive prevalence). It consists of a matrix of rows and columns. Each row represents a particular month with the first row usually representing January of the fifth calendar year before the survey (January 2000 for the surveys conducted in 2005, etc). The columns are used to record different types of information for each month. The first column is used to record information on periods of contraceptive use, non-use and pregnancies; the reason for discontinuation of each episode of contraceptive use is recorded in the second column in the row corresponding to the last month of continuous use of each method. Based on this information, episodes of contraceptive use can be identified and linked to the reason for discontinuation. The third column of the calendar records the months in which the respondent was married or cohabiting. The marriage history data can be linked with the contraceptive history data in the first two columns to permit analysis of the relationship between marital status and contraceptive discontinuation (Curtis and Blanc, 1997).

Results and Discussion

The monthly discontinuation rates for pill, IUD, condom and traditional methods are derived by cross classifications of users in i^{th} and $i+1^{th}$ month. In a given month, the women are classified into three groups, namely who were using a specific method in the i^{th} month and continuing in the $i+1^{th}$ month, those who were not using the method in i^{th} month but started using in $i+1^{th}$ month (termed as new user in the month) and those who were using in the i^{th} month but not using the same method in $i+1^{th}$ month. These rates are calculated for 24 months preceding the completion of first phase survey. Discontinuation rates are computed as the number of women discontinued in $i+1^{th}$ month divided by the number of users exposed to the method i.e. the sum of

women continued, discontinued and the new users of the method in the i+1th month. The whole calculation is given in appendix table 1a and table 1b. The final results are shown in table 1. The results suggest that on an average 2.8 percent of pill users, 1.9 percent of IUD users, 2 percent of condom users and 1.7 percent of traditional method users discontinue the use in every month. The discontinuation for IUD, condom and traditional methods varies between two to three percent. This approach gives estimates only for a month and may not depict the true discontinuation behavior in a longer term.

Table 2 presents the percentage of cohort of women, who discontinued the method in subsequent months after starting the use. Among all pill users, 17 percent discontinued within a year, 34 percent discontinued within 24 months and about 63 percent discontinued within 60 months since method of use. The users of IUD, condom and traditional methods are more consistent than the pill users. The percentage of IUD users discontinued within 12 months is 13 percent, which increases to 31 percent within 24 months and 49 percent within 36 months. Condom users are most likely to continue the method; 10 percent discontinued within 12 month, 21 percent discontinued within 24 month and 29 percent discontinued within 36 month since method of use. Among traditional method users 9 percent discontinue within a year, 21 percent discontinue within 2 years and 30 percent discontinued in 36 month.

On comparing all the methods condom and traditional methods are the most continued methods. Around 9 in 10 users of male condom and traditional methods, and more than two-thirds continue the method even after 12 month and 36 months of use respectively. The demerit of this approach is that new users of the method are not taken into the account.

The monthly discontinuation rates using single decrement life table are given in table 3. The first month discontinuation rate is highest for pills (9%) and the 12 month discontinuation is highest for IUD users (18%). Figure 1 show that 17 percent users of pill have stopped within a year and more than one third discontinued within 24 months and only one third of the women continued pill till 60th month. Almost similar pattern was found for IUD also. While it is anticipated that the users of IUD would be more likely to continue than those of traditional methods, the results suggest a different picture. Traditional method acceptors are more likely to continue their method

(78-80%) in comparison to IUD users (69%) at the end of 24 months. Male condom users are even more consistent than all the other methods; 90 percent of them continued even after 12 month.

The cumulative probabilities of one-year discontinuation rate of specific methods of family planning are shown in table 4. The results suggest that almost one in two user of pill discontinue the method within a year of acceptance. In case of IUD more than two in five discontinue and about one-third of the users of traditional method discard it within 12 month.

The percentage of women who discontinued use of a method within 12 months after beginning its use, and percentage who switched to another method by type of method are shown in table 5. All episodes of contraceptive use that began 3-59 months prior to the survey are used in this calculation. Six percent of those who started an episode of contraceptive use stopped using that method, but switched to another contraceptive method. Twenty-three percent of injectables users and 12% of pill users switched to another method. Among the traditional methods switching is increasingly high for withdrawal practitioners (9%).

The most frequently mentioned reason for discontinuing a method is to become pregnant, followed by concerns about side effects or health problems. A smaller number of women said they stopped using because of infrequent sex, because their husband was away, or because the method failed. 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.

Conclusion

Contraceptive discontinuation and switching are likely to become significant determinants of contraceptive prevalence and fertility. The one year discontinuation rates derived from the single decrement life table suggest that 46 percent users of pill users, 42 percent of each IUD and condom users and 34 percent discontinue the method within a year. The prominent programmatic reasons for discontinuation are side effects and health concerns (11%) followed by method failure (3%) cited by the users. The recent increase in contraceptive prevalence in India can be

unproductive if such a high level of discontinuation of contraceptive would prevail for a longer duration.

The main implications of this descriptive analysis of NFHS data on contraceptive discontinuation and switching over are clear. The results enforce that a good family planning programme must offer a range of methods so that clients who are dissatisfied with one method can easily switch over to another. Users of IUD are less likely to discontinue than pill users but are more likely to stop than the traditional method users. Side effects are cited as the main reason for IUD discontinuation. The role of side effects and health concerns may be better understood by followup visits, because these are key factors in a woman's decision to discontinue contraception.

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Method	12 month	24 months	36 month*	48 month*	60 month*	Total
Pill	2.77	2.15	3.00	2.53	3.09	2.83
IUD	1.64	2.27	2.07	2.31	2.42	1.91
Condom	1.68	2.19	2.26	2.20	2.12	2.02
Traditional Method	1.44	1.59	1.39	1.83	1.93	1.73

Table 1. Average discontinuation rate (Percentage) of spacing methods in India

* Not shown in appendix tables

Table 2. Percentage of cohort of women discontinuing a method, by month elapsed since method of use

Method	Within 12 month	Within 24 months	Within 36 month	Within 48 month*	Within 60 month*
Pill	16.45	33.88	46.89	56.01	63.11
IUD	12.82	31.00	48.48	58.82	64.49
Condom	9.96	20.83	28.46	33.83	38.85
Traditional Method	8.80	20.82	30.35	37.30	42.93

* Not shown in appendix tables

Table 3. Monthly Discontinuation rates derived from single decrement life table

		2		
Month	Pill	IUD	Male Condom	Traditional Method
1	0.09	0.02	0.05	0.03
2	0.05	0.03	0.04	0.03
3	0.04	0.02	0.03	0.02
4	0.03	0.02	0.03	0.02
5	0.04	0.02	0.03	0.03
6	0.03	0.03	0.03	0.03
7	0.04	0.03	0.03	0.03
8	0.03	0.02	0.02	0.02
9	0.03	0.03	0.02	0.02
10	0.02	0.03	0.02	0.02
11	0.06	0.08	0.07	0.04
12	0.14	0.18	0.16	0.11

Month	Pill	IUD	Male Condom	Traditional Methods
1	0.09	0.02	0.05	0.03
2	0.14	0.05	0.09	0.05
3	0.17	0.07	0.12	0.07
4	0.19	0.09	0.15	0.09
5	0.22	0.11	0.17	0.12
6	0.25	0.13	0.20	0.14
7	0.28	0.16	0.22	0.17
8	0.30	0.17	0.24	0.19
9	0.32	0.20	0.26	0.20
10	0.33	0.22	0.27	0.22
11	0.38	0.29	0.32	0.26
12	0.46	0.42	0.42	0.34

Table 4. Cumulative probabilities of discontinuationof specific methods for 12 month period

Table 5. Percentage of contraceptive users who discontinued use of a method within 12 months after beginning its use

	its use										
		Desire to	Side effects/	Costs	Infrequent sex/	Marital			Switched		
	Method	become	health	too	husband	dissolution/	Other		to another		
Method	failure	pregnant	concerns	much	away	separation	reason	Total	method ¹		
Female											
sterilization	0.2	0	0	0	0	0	0	0.2	0		
Male											
sterilization	0	0	0	0	0	2.4	1.1	3.5	0		
Pill	2.6	8.5	20.1	0.3	7.3	0.1	10.3	49.2	12		
IUD	1	2.7	11.2	0.1	0.2	0	4.6	19.8	5.3		
Injectables	5.1	10.9	16.1	4.1	0.8	0	16.5	53.4	23.2		
Male condom	3.4	14.9	2.7	0.8	4.9	0.1	17.9	44.8	9.4		
Rhythm	7.7	14.3	0.3	0	2.3	0	7.5	32.2	4.9		
Withdrawal	6.9	11.3	0.5	0	5.1	0.1	11.3	35.3	8.5		
Folk method	3.6	2.1	1.8	0.7	1.9	0	17.6	27.8	1.6		
All modern spacing methods	2.7	10.4	10.6	0.5	5	0.1	12.8	42.3	9.8		
All spacing methods	4.5	11.4	6.6	0.3	4.3	0.1	11.4	38.7	8.3		
All methods	3.2	8	4.7	0.2	3	0.1	8	27.2	5.8		

Note: Table is based on episodes of contraceptive use that began 3-59 months prior to the survey.

¹Used a different method in the month following discontinuation or said they wanted a more effective method and started another method within two months of discontinuation.

Source: NFHS-3, India, vol. 1





<u>Appendix</u>

Table 1a. Monthly discontinuation rate for pill and IUD method users in last 24 months prior to survey

			Pill Users		IUD Users			
Month	Number of women <u>Continuing</u> Pill use	<u>New</u> <u>users</u> of pill	Discontinued Pill	Monthly Discontinuation rate	Number of women <u>Continuing</u> <u>IUD</u> use	<u>New</u> <u>users</u> of IUD	<u>Discontinu</u> ed IUD	Monthly Discontinuation rate of IUD
1	2674	115	78	0.0272	1713	55	36	0.0200
2	2699	109	90	0.0311	1722	38	46	0.0255
3	2732	78	76	0.0263	1728	40	32	0.0178
4	2738	98	72	0.0248	1738	36	30	0.0166
5	2747	88	88	0.0301	1736	35	38	0.0210
6	2771	92	64	0.0219	1734	40	37	0.0204
7	2764	117	99	0.0332	1738	42	35	0.0193
8	2737	163	144	0.0473	1724	56	56	0.0305
9	2823	126	77	0.0254	1747	45	33	0.0181
10	2860	99	89	0.0292	1757	47	35	0.0190
11	2867	100	92	0.0301	1766	48	38	0.0205
12	2889	114	78	0.0253	1771	47	43	0.0231
13	2924	124	79	0.0253	1783	49	35	0.0187
14	2957	106	91	0.0289	1803	44	29	0.0155
15	2983	104	80	0.0253	1806	44	41	0.0217
16	3019	96	68	0.0214	1816	37	34	0.0180
17	3035	116	80	0.0248	1832	51	21	0.0110
18	3044	92	105	0.0324	1854	59	29	0.0149
19	3027	105	109	0.0336	1873	65	40	0.0202
20	2997	178	135	0.0408	1899	60	39	0.0195
21	3064	130	111	0.0336	1932	48	27	0.0135
22	3086	143	108	0.0324	1928	60	52	0.0255
23	3143	132	86	0.0256	1950	61	38	0.0185
24	3017	122	100	0.0309	1848	48	47	0.0242
Total	69597	2747	2199	0.0295	43198	1155	891	0.0197

		Male	condom users		Traditional methods users			
Month	Number of women <u>Continuing</u> condom use	<u>New</u> <u>users</u> of condom use	Discontinued condom	Monthly Discontinuation rate	Number of women <u>Continuing</u> traditional methods	<u>New</u> <u>users</u> of trditional methods	Discontinued traditional methods	Monthly Discontinuation rate
1	3987	134	82	0.0195	5919	161	99	0.0160
2	4050	131	71	0.0167	5975	130	105	0.0169
3	4112	105	69	0.0161	6019	164	86	0.0137
4	4124	122	93	0.0214	6079	117	104	0.0165
5	4157	124	89	0.0204	6079	125	117	0.0185
6	4192	141	89	0.0201	6102	163	102	0.0160
7	4231	132	102	0.0228	6119	149	146	0.0228
8	4222	164	141	0.0311	6080	180	188	0.0292
9	4279	171	107	0.0235	6115	188	145	0.0225
10	4366	152	84	0.0183	6175	153	128	0.0198
11	4417	117	101	0.0218	6182	175	146	0.0225
12	4431	139	103	0.0220	6238	156	119	0.0183
13	4466	160	104	0.0220	6275	182	119	0.0181
14	4528	130	98	0.0206	6338	154	119	0.0180
15	4569	142	89	0.0185	6366	150	126	0.0190
16	4613	147	98	0.0202	6408	150	108	0.0162
17	4670	141	90	0.0184	6453	129	105	0.0157
18	4698	169	113	0.0227	6414	154	168	0.0249
19	4743	188	124	0.0245	6402	161	166	0.0247
20	4757	260	174	0.0335	6374	203	189	0.0279
21	4881	229	136	0.0259	6423	220	154	0.0227
22	4966	201	145	0.0273	6475	220	168	0.0245
23	5059	208	108	0.0201	6565	194	130	0.0189
24	4849	219	110	0.0212	6436	215	131	0.0193
Total	107367	3826	2520	0.0222	150011	3993	3168	0.0202

 Table 1b. Monthly discontinuation rate for condom and traditional method users in last 24 months prior to survey

 Traditional method users in last 24 months prior to survey

	Cohort		Cohort		Cohort of		Cohort of	
Month	of Pill	Proportion	of IUD	Proportion	condom	Proportion	Traditional	Proportion
1	1820		1297		2520			
1	1830	0.00	1287	0.00	2550	0.00	4284	0.00
2	1808	1.20	12/4	1.01	2314	0.63	4262	0.51
3	1/81	2.68	1266	1.63	2495	1.38	4235	1.14
4	1756	4.04	1247	3.11	2468	2.45	4206	1.82
5	1733	5.30	1224	4.90	2434	3.79	4171	2.64
6	1704	6.89	1211	5.91	2411	4.70	4143	3.29
7	1677	8.36	1194	7.23	2385	5.73	4112	4.01
8	1659	9.34	1177	8.55	2367	6.44	4072	4.95
9	1639	10.44	1165	9.48	2341	7.47	4038	5.74
10	1601	12.51	1151	10.57	2320	8.30	3997	6.70
11	1570	14.21	1136	11.73	2298	9.17	3949	7.82
12	1529	16.45	1122	12.82	2278	9.96	3907	8.80
13	1472	19.56	1096	14.84	2225	12.06	3826	10.69
14	1436	21.53	1079	16.16	2203	12.92	3766	12.09
15	1410	22.95	1065	17.25	2177	13.95	3732	12.89
16	1388	24.15	1048	18.57	2154	14.86	3675	14.22
17	1366	25.36	1029	20.05	2135	15.61	3645	14.92
18	1345	26.50	1009	21.60	2111	16.56	3602	15.92
19	1319	27.92	985	23.47	2096	17.15	3572	16.62
20	1304	28.74	965	25.02	2070	18.18	3539	17.39
21	1284	29.84	946	26.50	2049	19.01	3502	18.25
22	1263	30.98	929	27.82	2032	19.68	3477	18.84
23	1244	32.02	913	29.06	2020	20.16	3436	19.79
24	1210	33.88	888	31.00	2003	20.83	3392	20.82
25	1173	35.90	854	33.64	1970	22.13	3338	22.08
26	1147	37.32	836	35.04	1956	22.69	3300	22.97
27	1122	38.69	821	36.21	1945	23.12	3252	24.09
28	1109	39.40	799	37.92	1925	23.91	3214	24.98
29	1098	40.00	778	39.55	1905	24.70	3183	25.70
30	1086	40.66	750	41.72	1888	25.38	3159	26.26
31	1068	41.64	733	43.05	1875	25.89	3137	26.77
32	1050	42.62	718	44.21	1861	26.44	3108	27.45
33	1025	43.99	703	45.38	1854	26.72	3083	28.03
34	1013	44.64	688	46.54	1843	27.15	3054	28.71
35	993	45.74	674	47.63	1832	27.59	3023	29.44
36	972	46.89	663	48.48	1810	28.46	2984	30.35

Table 2. Proportion of cohort of women discontinuing a spacing method, by month elapsed since method of use