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Traditional Methods Use and Pregnancy Termination in India

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Abstract

In contrast to the global trends, India has witnessed a significant increase in use of the traditional methods among married women. The increasing use of traditional method is associated with higher pregnancy termination and unintended birth. This paper examines the extent of contraceptive failure among traditional and modern spacing method users by socio-economic characteristics in India. The 60 month calendar data of National Family Health Survey 3, 2005-06 is used in the analyses. Bi-variate, single decrement life table and logistic regression model are used to understand the differentials and determinants of births, pregnancy and termination among contraceptive users. The study suggests that 64 per cent of pregnancy terminations are resulting from method failure compared with 36 per cent among modern method users. By the end of 36 months, the probability of discontinuation due to method failure was 0.23 among traditional methods users compared with 0.08 among modern spacing method users. In the absence of method failure, the total fertility rate (TFR) in India would have been 8 per cent lower than the observed TFR, while it would have been lower by 14 per cent in populous state of Uttar Pradesh. Controlling for socio-economic and demographic correlates, the risk of pregnancy among traditional methods users is almost 3 times higher (CI: 2.56, 3.32) than that of modern spacing method users. Based on these findings it is suggested that the family planning programme needs to focus on motivating the traditional methods users to practice modern method to avert pregnancies.

Key words: Traditional contraceptive methods; births, pregnancy termination; method failure, India.

I. Introduction

In India the estimated number of married women using traditional methods[1] of contraception to avert pregnancies has increased from 6 million in 1993 to 16 million[2] by 2006. The share of traditional methods among all contraceptive users has increased from 11 per cent in 1992-93 to 14 per cent in 2005-06, while that of modern spacing method has increased from 14 per cent to 18 per cent during the same period (IIPS & Macro International, 1995; 2007). This is in contrast to the declining global trends of traditional methods use. The contraceptive failure among traditional methods users is high which often leads to induced abortion, unintended births, higher reproductive morbidities and poor health of mother and children. Many of the induced abortions are performed in unsafe conditions that are detrimental to the health and well-being of mothers (Banerjee et al., 2012; Singh, Darroch & Ashford, 2009; Sedgh et al., 2007; Duggal & Ramachandran, 2004). The unintended births are less likely to receive health care services, experience higher post neo-natal mortality, more likely to suffer from stunting and poor cognitive development and unfavourable to the health of mother (Singh et al., 2012; Black et al., 2010; Schwarz et al., 2008; Gipson, Koenig & Hindin, 2008; Chalasani et al., 2007; Shapiro-Mendoza et al., 2005; Hardee et al., 2004; Marston & Cleland, 2003; Santelli et al., 2003; Montgomery et al.

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[1] The traditional method includes withdrawal and periodic abstinence.
[2] The estimates are derived by using the percentage of married women using traditional method multiplied by the mid-year population of married women age 15-49 group in the respective year.

1997). The increasing use of traditional methods and the high pregnancy rate among users of these methods are of concern to policy-makers in India as fertility level remains way above the replacement level.

Studies from developed and developing countries have established the low efficacy of traditional methods in preventing pregnancies. Steele and Curtis (2003) observed wide variations in the method choice and viewed it endogenous to contraceptive discontinuation in Indonesia. In Bangladesh, the 12-month method specific failure rates varied from 0.5 per cent for injectable, 4 per cent for pill, 8 per cent for condom and 10 per cent for traditional methods (Hu & Rahman 2007) among married women. Women with primary education were more likely than those with secondary education to experience contraceptive failure. Ranjit et al. (2001) found that the type of method used is the key factor that explains the differentials in unintended pregnancies in the United States. The first-year failure rates were highest among women using spermicides, withdrawal and periodic abstinence (on average, 23–28 per cent), and lowest for women relying on long-acting methods and oral contraceptive (4–8 per cent). Contraceptive efficacy not only depends on the type of method but also its correct use. While the extent of unintended pregnancy within the first year of use was 22 per cent among typical users, it was 4 per cent among perfect users (Trusell, 2011). Creanga et al. (2007) found high rates of induced abortion among traditional methods users in Romania. Desire of women to have a child or intention to switch to a more reliable method was attributed to traditional methods use. Fu et al. (1999) found that the contraceptive failure rates for the first 12 months in USA were highest among traditional methods users; 28 per cent among spermicides users, 26 per cent among withdrawal users 22 per cent for periodic abstinence users, 2-4 per cent for the implant and injectable users, 9 per cent for pill users, 13 per cent for diaphragm and cervical cap users and 15 per cent for male condom users.

Though India's official family planning programme approves six contraceptive methods, namely, female sterilization, male sterilization, IUD, pills, condom and emergency contraceptive pills, female sterilization accounts for more than two-thirds of all users. This is due to the over-emphasis of the family planning programme on sterilization, suitability of method to the client, limited method choice, cost and unavailability of spacing methods in public health centres. The use of modern spacing method is not only low but has shown high discontinuation (IIPS and Macro International 2007). However, the traditional methods use has increased in many states and socio-economic groups in India. The use of traditional methods is significantly high in the eastern and north-eastern states and the high fertility state of Uttar Pradesh. Studies also documented that the traditional methods are being more efficiently practised among urban and educated women in India (Basu 2005).

Though demographic research in India has focused on the increasing use of contraception in reducing fertility (Mohanty & Ram, 2011; Ram, Dwivedi & Goswami, 2007; Bhat & Xavier, 2005; Bhat, 2002), little is known on the extent of accidental pregnancies and their outcome among traditional methods users in India. We hypothesize that the extent of births, pregnancy termination and current pregnancy[3] is significantly higher among traditional methods users compared with modern spacing method users in India. The paper has been conceptualized with the following rationale. First, the traditional methods use and the extent of induced abortion are on rise in India (IIPS & Macro International, 2007; Banerjee, Andersen & Warvadekar, 2009; Banerjee et al., 2013). Second, the method failure among traditional methods users is high compared with modern spacing methods. Third, reduction in births resulting from method failure can lower the total fertility rate in the country. Fourth, knowledge on level of efficacy of contraceptive methods among users will help to make informed choice and select more effective method. Hence, understanding of the extent of accidental pregnancies and their outcome among users of traditional and modern spacing methods will be helpful for family planning programme.

[3] Current pregnancies imply those who were pregnant at the time of survey.

II. Data and methods

The calendar data, five year birth history record and women's file from the third round of National Family Health Surveys (NFHS 3), 2005-06 are used in the analysis. The NFHS 3 is a nationally representative population based survey that covered 109,041 households and 124,385 women in the reproductive age groups. It used three schedules: household, women and men schedules. The women schedule covered comprehensive information on fertility, contraception, health care utilization and nutrition of women. For the first time, NFHS 3 collected the contraceptive history of women in five years preceding the survey using calendar method. Details of the survey design and findings of NFHS-3 are available in the national report (IIPS & Macro International, 2007). Many studies have examined the contraceptive discontinuation in developing countries, but there are a few nationally representative studies that examined the method failure and switching over of contraception in India (Zhang, Tsuen & Suchindran, 1999). The calendar data gives a complete account of month by month history of pregnancies, births, pregnancy terminations, contraceptive use or non-use with the primary reason for contraceptive discontinuation (in case of discontinuation) in the last five years. The contraceptive history collected for all the women was used to relate pregnancy and immediate previous contraceptive method. The analysis is based on the episode of use and non-use of contraception. The episodes used in the analysis are defined as uninterrupted months of use or non-use of contraception. The episodes started in the 3-62 months prior to the survey have been included in the analysis. These cases were followed till the end of the discontinuation or reference period. The contraceptive failure is defined as the pregnancy, births or pregnancy termination while the women were in use of a contraceptive method. We have used the term accidental pregnancies synonymous to contraceptive failure. A tabular presentation of the number of episodes that resulted in births, pregnancy terminations, switching to another method/non-use and continuation in their original status is shown in Appendix 1. Bi-variate, single decrement life table and logistic regression are used in the analysis.

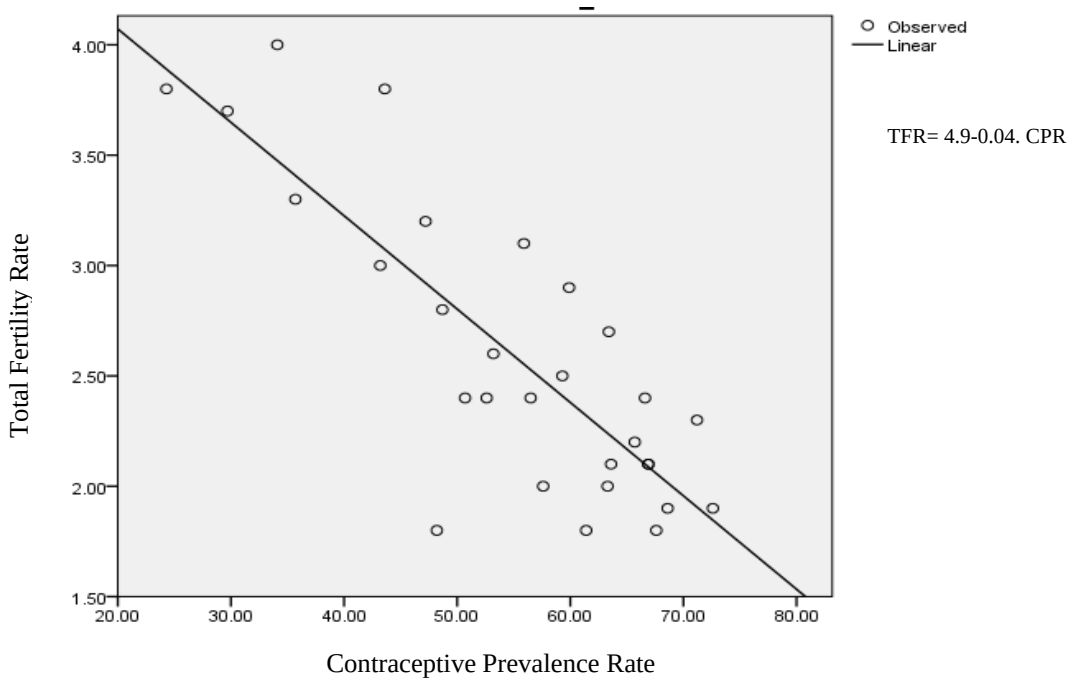
For analytical purposes, we have classified non-sterilized women into three categories (modern spacing method users, traditional methods users and non-users) at 62^{nd} month prior to the survey. The modern spacing method users included users of oral pill, IUD or male condom, while traditional methods users included the users of rhythm and withdrawal methods. We track the status of each category of women that might have 1) switched to any modern method, 2) switched to traditional methods, 3) become non-users, 4) ended in pregnancies (birth/pregnancy termination/currently pregnant), and 5) continue in the same status at the time of survey. Besides, the single decrement life table was computed to estimate the probability of method failure for each of the spacing methods. We preferred to use the logistic regression to understand the risk of pregnancy among traditional, modern spacing method users and non-users because of some time-varying co-variants. The dependent variable is the episodes ended in births, pregnancy termination or current pregnancies among non-users of contraception, modern spacing method users and traditional methods users within 36 months of survey. The regression models are controlled for age and number of children at the end of the episode, place of residence, educational attainment, caste, religion, wealth quintile, region of residence and method type. Besides, we have estimated the total fertility rate (TFR) from three year birth history with the help of command tfr2 in STATA (Schoumaker, 2012) that would have resulted in the absence of method failure and discontinuation of method.

III. Results

In last two decades fertility reduction in most of the states of India is largely due to diffusion of contraception across socio-economic groups. This has been reflected in high negative correlation of TFR and percentage of women using contraception: the correlation coefficient was -0.66 in 1992-93 and -0.82 in 2005-06. However, the correlation coefficient of TFR and use of traditional methods remained weak and insignificant (0.03 each in 1992-93 and 2005-06). On the other hand, the extent of unwanted fertility remains high in high fertility states: 1.4 in Uttar

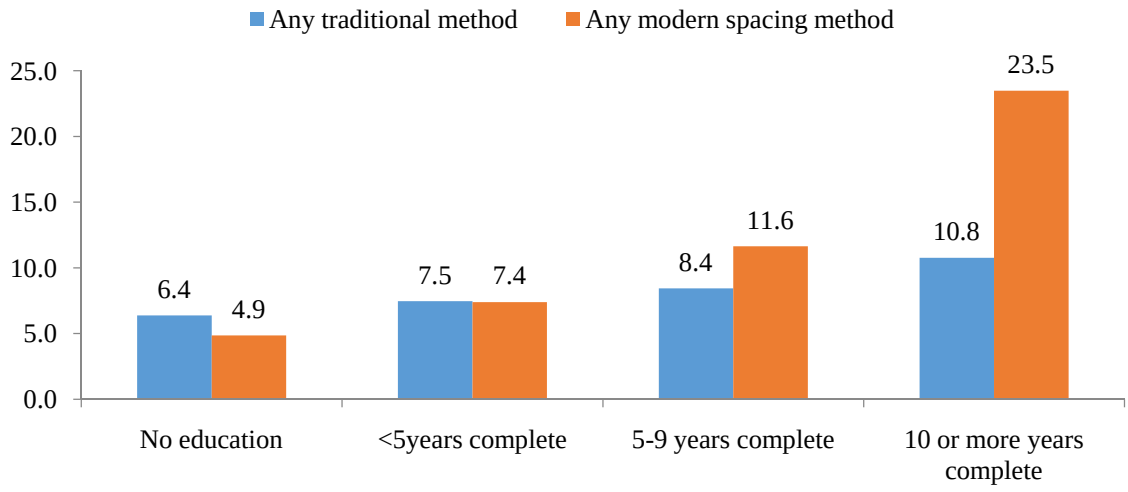
Pradesh and 1.5 in Bihar. We have plotted the TFR and percentage of currently married women using contraception for the year 2005-06 (Figure 1) and found that the states with high modern contraceptive use tend to have lower fertility. On regressing TFR against contraceptive use at state level, we found that the contraceptive use alone explains 67 per cent variation in TFR. Further, 25 per cent increase in contraceptive use will reduce the TFR by 1 unit.

Figure 1: TFR and contraceptive use in states of India, 2005-06



Though the contraceptive use has increased over time, the share of modern spacing method remained low. On the other hand, the share of traditional methods has increased across the states and among socio-economic groups. In four of the 28 states, the prevalence of traditional methods is more than 20 per cent. Their use is equally high among rich and poor, illiterate and better educated. We present the educational differentials in modern spacing method and the traditional methods in India for 2005-06 (Fig 2).

Figure 2: Percentage of women using modern spacing method and traditional method by educational attainment in India, 2005-06



The use of modern spacing method increases with educational attainment of women; from 4.9 per cent among those with no education, 7.4 per cent among those with less than 5 years of schooling, 11.6 per cent among those with 5-10 years of schooling and 23.5 per cent among those with 10 or more years of schooling. However, the differentials are not large with respect to the use of traditional methods. Among mothers with no education, the use of traditional methods was 6.4 per cent compared with 7.5 per cent among those with less than 5 years of schooling and 10.8 per cent among those with 10or more years of schooling. It may be mentioned that a majority of modern spacing method users obtained contraception supply from private providers which incurs cost, while the traditional methods users do not have to pay for the use of those methods.

Spacing method use and the pregnancy outcome in India

In 2006, an estimated 116 million women used any method of contraception of which 79 million were sterilized, 21 million used any modern spacing method and 16 million used traditional methods. To understand the efficacy of traditional and modern spacing methods, we have estimated the relative share of births, pregnancy termination and current pregnancies resulting from contraceptive failure in five years preceding the survey. We found that the efficacy of traditional methods in averting pregnancies is low. Among all births that resulted due to contraceptive failure, 61 per cent were accounted by 16 million traditional methods users compared with 39 per cent among 21 million modern spacing method users (Table 1). This is despite the fact that the numerical size of modern spacing method users is higher than that of traditional methods users. Similarly, among all pregnancy terminations due to method failure, 55 per cent were attributed to traditional methods users compared with 45 per cent among modern spacing method users. It may be mentioned that in calendar data it is not possible to segregate the pregnancy termination to induced abortion, spontaneous abortion or still birth. Since the termination is resulting from method failure, it is likely that most of these terminations were induced abortions. Among all women who were pregnant at the time of survey due to method failure, 59 per cent were among traditional method users and only 41 per cent were modern spacing method users.

Table 1: Percent distribution of episodes ended into births, terminations and current pregnancies by contraceptive method in the last five years prior to the survey, India, 2005-06

Variables	Traditional method	Modern spacing method	Per Cent	N
Per cent using contraception	7.7	10.0	17.8	93,089
Share in method mix*	13.7	17.9	31.6	52,409
Per cent distribution of births resulting from method failure	72.2	27.8	100	1,504
Per cent distribution of pregnancy termination resulting from method failure	63.9	36.1	100	623
Per cent distribution of current pregnancies resulting from method failure	63.0	37.0	100	209
Per cent distribution of births pregnancy termination/ current pregnancies resulting from method failure	69.2	30.8	100	2,336

* The method-mix is computed among total of contraceptive users including sterilization.

Contraceptive failure by methods

Table 2 presents the probability of contraceptive failure by each of the three modern spacing methods and two traditional methods for a period of 60 months. The contraceptive failure is episodes of contraceptive use for which woman reported that she got pregnant while in use of the method. The probability of method failure was highest among periodic abstinence users, followed by withdrawal and lowest for IUD users. In general, the chance of contraceptive failure among traditional methods users is about 3 times higher than that of modern spacing methods users. The

probability of method failure within 12-months of contraceptive initiation was 0.04 among modern spacing method users while it was 0.09 among traditional methods users. By 60 months of use, the probability of contraceptive failure was 0.08 among modern spacing method users compared with 0.24 among traditional methods users. Among modern spacing method users, the method failure was highest among condom users, followed by pill users.

Table 2: Gross life table discontinuation rate due to method failure within 60 months of initiation, India, 2000-06

Within	Pill	IUD	Condom	Any modern spacing	Periodic abstinence	With-drawal	Any traditional methods
6 months	0.023	0.007	0.022	0.020	0.036	0.036	0.036
12 months	0.037	0.009	0.048	0.037	0.088	0.089	0.088
18 months	0.045	0.012	0.062	0.047	0.132	0.127	0.131
24 months	0.060	0.015	0.076	0.059	0.180	0.151	0.172
30 months	0.073	0.017	0.090	0.069	0.213	0.189	0.207
36 months	0.084	0.017	0.098	0.076	0.239	0.225	0.234
42months	0.089	0.017	0.105	0.081	0.253	0.235	0.248
48months	0.094	0.017	0.110	0.085	0.263	0.238	0.255
54months	0.094	0.017	0.110	0.085	0.278	0.260	0.271
60 months	0.094	0.017	0.119	0.090	0.278	0.260	0.271

The discontinuation of IUD in a 36months period due to method failure varies in a narrow range (1-2 per cent). From the above results, it is clear that the efficacy of traditional methods in preventing accidental pregnancies is much lower than modern spacing method.

Births, pregnancy termination and current pregnancies among modern spacing method, traditional methods and non-users in India

Table 3 presents the socio-economic differentials in births, pregnancy terminations and current pregnancy among non-users, modern spacing method users and traditional methods users in India. Births may have resulted due to varying reasons such as method failure, desired to get pregnant and other reasons[4]. We have excluded the episodes which were discontinued due to desire to get pregnant from the analyses because we intend to focus on unintended pregnancies. Child-bearing among spacing method users not only contributes to unwanted fertility but is also detrimental to the health of mother. We found that 33.9 per cent births were reported among non-users compared with11.9 per cent among traditional methods users and 3.9 per cent among modern method users in five years preceding the survey. The differential in pregnancy termination is relatively small among those not using a method and those who used a traditional method (5.1 per cent *vs* 4.3 per cent). The extent of pregnancy termination among modern spacing method users is less than half of the traditional methods users. It may be mentioned that the other category is large because it includes those continuing in the same status, become non-users or switch to other contraceptive method. However, our interest is to compare the outcome of pregnancy and link it with previous contraceptive behaviour.

The percentage of birth among non-users, modern-spacing method users and traditional methods users decreases with age but varies widely by methods. For example, 6 per cent of modern spacing method users in the 15-19 age group had a birth compared with 20 per cent among traditional methods users and 41 per cent among non-users. Among modern spacing method users aged 25-34 years, 2.8 per cent had a birth as compared with8.7 per cent among traditional methods

[4] Other reasons of not using contraception include husband's disapproval, side effects, health concerns, access/availability, wanted more effective method, inconvenient to use, infrequent sex/husband separation, cost, fatalism, difficult to get pregnant/menopausal, marital dissolution, other reasons, lack of sexual satisfaction, created menstrual problem, weight gain, did not like method and lack of privacy for use. If the woman responded that she did not know the reason or the reason for discontinuation was missing, such cases were still considered in discontinuation for other reasons.

users and 29 per cent among non-users. The extent of birth among traditional methods users declined with educational attainment. Among women with no education or less than five years of schooling and using traditional methods, 14.9 per cent had a birth as compared with12 per cent among those with 5-9 years of schooling and 7.3 per cent among women with 10 or more years of schooling. This probably reflects the correct and consistent use of traditional methods among the better educated women. The pattern is similar with respect to modern spacing method but with smaller variations.

Table 3: Percentage of episodes experienced birth/termination/continued pregnancy among nonusers of contraception, modern spacing method and traditional methods in the last five years of the survey, India, 2005-06

Characteristics	Non-users who had				Modern spacing method users who had				Traditional methods users who had			
	Given birth	Terminated pregnancy	Currently pregnant	Others	Given birth	Terminated pregnancy	Currently pregnant	Others	Given birth	Terminated pregnancy	Currently pregnant	Others
Age at the end of episode												
<25 years	40.49	5.17	6.65	47.70	6.08	2.72	1.10	90.10	19.83	5.08	3.48	71.61
25-34 years	29.00	5.48	5.40	60.13	2.76	1.85	0.88	94.52	8.71	4.38	1.65	85.26
35-49 years	13.44	3.14	2.55	80.87	1.15	0.99	0.20	97.65	3.15	2.50	0.55	93.81
Place of residence												
Urban	30.09	6.32	5.05	58.54	3.17	2.27	0.67	93.89	8.44	5.32	1.13	85.10
Rural	35.19	4.70	6.11	54.00	4.41	1.95	1.05	92.59	13.17	3.94	2.51	80.37
Educational attainment												
No education	37.37	4.52	6.42	51.69	4.63	2.25	1.22	91.89	13.58	3.93	2.67	79.83
< 5 years	33.56	5.72	5.09	55.62	5.04	1.38	1.12	92.46	14.91	4.52	2.75	77.83
5-9 years	32.27	5.61	5.76	56.37	4.28	2.44	0.80	92.49	12.22	4.74	1.71	81.33
10 or more years	26.85	5.78	4.63	62.73	2.80	1.81	0.69	94.71	7.27	4.36	1.53	86.85
Caste												
Scheduled caste	36.33	5.35	5.95	52.38	5.75	1.96	0.72	91.56	12.16	4.33	2.94	80.58
Scheduled Tribe	36.90	3.58	6.56	52.96	5.17	2.80	1.32	90.70	7.73	3.58	2.57	86.13
Other backward castes	34.74	5.38	6.33	53.55	4.04	2.29	1.05	92.62	13.16	4.74	2.05	80.04
Others	30.33	5.10	4.92	59.65	3.03	1.93	0.78	94.25	11.37	4.06	1.77	82.80
Religion												
Hindu	33.80	5.21	5.82	55.15	3.79	2.19	0.79	93.23	11.44	4.39	2.10	82.06
Muslim	34.22	5.00	6.09	54.68	4.65	1.97	1.24	92.15	15.35	4.35	2.67	77.63
Christian	32.86	4.66	5.96	56.52	2.83	1.48	1.86	93.82	6.44	2.90	0.73	89.94
Others	33.74	3.72	4.38	58.17	1.84	1.01	0.53	96.63	2.06	2.27	0.12	95.55
Parity												
0	54.53	9.94	9.71	25.81	7.37	1.85	1.38	89.40	16.19	2.89	5.16	75.76
1	39.10	5.20	6.88	48.82	4.93	2.05	1.03	91.98	14.98	4.94	2.44	77.64
2	29.59	4.84	5.21	60.37	2.29	2.09	0.51	95.11	10.65	4.56	1.50	83.28
3+	28.35	4.36	4.63	62.66	3.64	2.18	0.98	93.20	9.95	4.06	1.75	84.23
Wealth quintile												
Poorest	37.27	4.27	6.71	51.75	6.93	1.64	1.64	89.80	15.26	3.31	2.61	78.82
Poorer	35.83	5.09	5.86	53.22	5.08	2.43	1.07	91.42	15.08	5.07	2.93	76.91
Middle	34.54	5.41	5.96	54.09	3.48	2.42	0.70	93.40	8.70	5.52	2.05	83.72
Richer	28.75	5.99	5.19	60.07	2.68	1.96	0.84	94.52	8.41	4.60	1.50	85.48
Richest	25.65	6.24	3.88	64.23	2.81	2.04	0.54	94.62	7.28	3.54	0.75	88.44
Region												
North	34.46	4.64	5.89	55.03	2.47	1.68	0.66	95.19	2.20	3.55	0.87	93.39
Central	34.22	5.03	5.80	54.94	5.83	2.63	1.13	90.42	16.33	4.62	2.51	76.54
East	32.44	4.94	6.00	56.62	4.92	2.13	1.27	91.68	13.61	3.86	2.53	79.99
North-east	28.57	5.98	4.44	61.02	1.87	3.49	0.40	94.25	4.53	6.13	1.40	87.93
West	34.69	5.13	6.03	54.14	0.43	1.36	0.30	97.90	6.07	3.74	1.24	88.95
South	36.47	5.94	5.78	51.81	4.05	1.45	0.65	93.84	7.15	3.45	1.67	87.74
Total	33.86	5.12	5.83	55.18	3.87	2.09	0.88	93.16	11.91	4.31	2.14	81.64
N	22,647	3,428	3,900	36,913	452	244	103	10,885	826	299	149	5,665

The percentage of women having a birth among traditional methods users declined by increase in wealth quintile. Among women using traditional methods and belonging to the poorest wealth quintile, 15.3 per cent had a birth as compared with 7.3 per cent among those belonging to richest wealth quintile. Among traditional methods users, the socio-economic differentials in

pregnancy termination are similar to those of births. With respect to age, the pregnancy termination varies in the range of 2-5 per cent and it was highest among women aged 25-34 years (4.7 per cent). Across educational level, pregnancy termination among traditional methods users with 5-9 years of schooling was 4.7 per cent compared with 3.9 per cent among women with no education. With respect to wealth quintile, the extent of pregnancy termination was 5.5 per cent in middle wealth quintile compared with 3.5 per cent among richest wealth quintile. The socio-economic differentials in pregnancy termination were similar among modern spacing method users to that of traditional methods users but at a lower level for most of the sub-groups. Regional pattern in use of traditional methods is more prominent than the socio-economic differential as women in the eastern and north-eastern states were much more likely than those from other states to rely on traditional methods.

Estimation of fertility, wanted fertility and fertility in absence of method failure by education and wealth

Table 4: Total fertility rates, wanted fertility rates and fertility rates in the absence of discontinuation for the reasons other than desire to get pregnant and method failure by the type of contraceptive method previously used and background characteristics and states for the period of three years preceding the survey, India, 2005-06

Characteristics	Observed fertility	Wanted fertility	Estimated TFR in absence of discontinuation for other reason	Estimated TFR in absence of method failure	Estimated TFR in absence of method failure and discontinuation for other reasons	Percentage contribution of method failure and discontinuation for other reasons to observed TFR
Place of residence						
Urban	2.1	1.6	2.0	2.0	1.9	8.3
Rural	3.0	2.3	2.9	2.9	2.8	7.4
Educational attainment						
No education	3.6	2.8	3.5	3.5	3.3	6.2
<5 years of education	2.5	1.9	2.4	2.3	2.2	9.0
5-10 years of educatior	2.4	1.8	2.3	2.3	2.2	8.9
>10 years of education	1.9	1.6	1.8	1.9	1.7	8.4
Caste						
Schedule Caste	2.9	2.2	2.8	2.8	2.7	7.5
Schedule tribe	3.1	2.5	3.1	3.1	3.0	4.5
Other Backward Castes	2.8	2.2	2.7	2.7	2.6	6.5
Others	2.3	1.8	2.2	2.2	2.1	9.8
Religion						
Hindu	2.6	2.0	2.5	2.5	2.4	7.3
Muslim	3.4	2.4	3.2	3.2	3.0	10.3
Christian	2.3	1.8	2.3	2.3	2.2	6.8
Others	2.2	1.9	2.2	2.2	2.1	3.6
Wealth quintile						
Poorest	3.7	2.8	3.6	3.6	3.5	6.7
Poor	2.8	2.2	2.8	2.7	2.6	8.1
Middle	2.4	1.9	2.3	2.4	2.3	6.6
Rich	2.0	1.6	1.9	2.0	1.8	8.5
Richest	1.8	1.5	1.7	1.7	1.6	10.1
Selected states						
Bihar	4.0	3.1	3.9	3.9	3.8	5.8
Uttar Pradesh	3.8	2.5	3.6	3.5	3.3	13.6
Jharkhand	3.3	2.4	3.2	3.3	3.1	6.9
Rajasthan	3.2	2.7	3.1	3.2	3.1	3.4
Madhya Pradesh	3.1	2.6	3.1	3.1	3.0	2.9
Arunachal Pradesh	3.0	2.4	2.9	2.9	2.8	9.2
Manipur	2.8	2.5	2.7	2.7	2.5	11.0
Chhattisgarh	2.6	2.2	2.6	2.6	2.5	5.3
Assam	2.4	2.0	2.4	2.3	2.3	7.0
West Bengal	2.3	1.7	2.2	1.9	1.8	19.9
Tripura	2.2	1.6	2.0	2.0	1.8	17.6
Sikkim	2.0	1.4	1.9	2.0	1.8	9.9
Total	2.7	2.1	2.6	2.6	2.5	7.5

Table 4 presents the observed TFR, wanted TFR and estimated TFR in the absence of method failure and discontinuation for other than desire to get pregnant. The estimated TFR are presented by educational attainment, wealth quintile, caste, religion, place of residence and selected states. In the absence of method failure and discontinuation of method for other than desire to get pregnant, the estimated TFR would have been 2.5, i.e., 7.5 per cent lower than the observed TFR. In terms of educational attainment, the estimated TFR in the absence of method failure and other than desire, pregnancy reason would have been 6 per cent lower than observed TFR for those with no education, 9 per cent each among those with less than 5 years of schooling and 5-10 years of schooling and 8 per cent among those with more than 10 years of schooling. Similarly, with respect to wealth quintile, the estimated TFR would have been lower by 10 per cent for the richest quintile, 9 per cent for rich and 7 per cent for poorest wealth quintile. The estimated TFR in the absence of method failure and discontinuation for other reasons would have been lower by 14 per cent from observed TFR in Uttar Pradesh and 20 per cent in West Bengal, where the use of traditional methods is more prevalent than elsewhere. Similarly, in Tripura and Manipur the estimated TFR would have been lower by 18 per cent and 11 per cent respectively from the observed fertility in the absence of method failure and discontinuation for other reasons. The analysis suggests that the method failure and contraceptive discontinuation had resulted to higher fertility in some of the high fertility states and socio-economic groups in India.

Predictors of births, current pregnancies and pregnancy termination

To understand the significance of traditional methods in averting pregnancies, we have used two logistic regression models (Table 5). In model 1 any pregnancy in the last five years is the dependent variable, while in model 2, pregnancy termination among those who experienced contraceptive failure is the dependent variable. In model 1 the independent variable of interest is categorized into three groups, namely, non-users, using modern spacing method[5], and those using traditional methods[6]. Both these models are controlled for age and parity before conception, education, wealth quintile, place of residence, caste, religion and region of residence. Results indicate that the risk of giving birth among those using traditional methods was 2.9-9.8 times higher than those using a modern spacing method. The coefficient is statistically significant indicating that the chance of pregnancy among traditional methods users is high. In model 2, the termination among modern spacing method users is the reference category. Results show that the coefficients are not statistically significant indicating that both the modern and traditional spacing method users are equally likely to experience the risk of pregnancy termination resulting from contraceptive failure.

Table 5: The odds ratio of births/termination/current pregnancies (model 1) and terminations among episodes ended into contraceptive failure (model 2) in the last five years of the survey, India, 2005-06

Dependent Variable	Independent variable	Exp(B)	Sig.	C.I.
Pregnancy in last five years (Model 1) (1= Given birth/terminated pregnancy/currently pregnant and 0= Otherwise)	Using modern method (ref)	1.000	0.000	-
	Using traditional methods	2.921	0.000	(2.56, 3.32)
	Nonusers	9.814	0.000	(8.88,10.86)
Termination in the last five years (Model 2) (1= pregnancy termination among those experienced method failure and 0= Births among those experienced method failure)	Using modern method (ref)	1.000	0.000	-
	Using traditional methods	0.795	0.117	(0.59, 1.06)

Note: Model 1 and model 2 are controlled for age and parity before conception, education, wealth quintile, place of residence, caste, religion and region of residence.

[5] Excluding episodes of modern spacing method use which ended into desired to get pregnant.
[6] Excluding episodes of traditional method use which ended into desired to get pregnant.

IV. Discussion and Conclusion

In India the use of traditional methods among married women of child-bearing age has almost doubled in the last two decades. This is despite the fact that traditional methods are not officially approved and the Indian family welfare programme has laid over-emphasis on female sterilization. Though studies across the developing and developed countries have established the low efficacy of traditional methods in preventing pregnancies (Trusell, 2011; Creanga, et al., 2007; Fu et al., 1999), there is limited research in the Indian context. The contraceptive failure among traditional methods is of concern as the fertility level remains well above replacement level, and there is also a high unmet need for modern spacing method and increase in induced abortion (using modern method). In this context this paper examined the efficacy of traditional methods in averting pregnancies using contraceptive history data from NFHS 3. We have the following findings.

First, we found that the traditional methods users accounted for a disproportionate share of method failure (about two-thirds). Second, the chance of accidental pregnancy due to method failure among traditional methods users is significantly higher than that of modern method users across all socio-economic and demographic sub-groups. These findings confirm the low efficacy of traditional methods compared with modern spacing method users partly due to the incorrect and inconsistent use of the method. Third, a significant proportion of modern spacing method users also experienced method failure and accidental pregnancies. Fourth, in the absence of method failure the estimated TFR would be lower by 14 per cent in Uttar Pradesh and by 20 per cent in West Bengal. Fifth, controlling for socio-economic and demographic correlates, the traditional methods users are more likely to have a birth or pregnancy termination compared with modern spacing method users.

We have the following explanation to these findings. First, the use of traditional methods does not involve cost, while modern spacing method users from private facilities incur a cost. This possibly leads to small differences in traditional methods use across socio-economic groups. Second, as literature suggests, contraceptive discontinuation is endogenous to method choice. We also believe that a large proportion of women in India are practising less efficient traditional methods because they want to switch over to more effective method or want to have a child. Third, we suspect an increase in traditional methods use in Uttar Pradesh from 1 per cent in 1992-93 to 14 per cent in 2005-06 could be due to mis-reporting and lack of probing of traditional methods use in surveys. Given the high level of fertility in the state, it might be possible that non-users might be reporting the traditional methods. Based on these findings we suggest that the family planning programme should propagate the high failure rate of traditional methods and motivate the traditional methods users to use modern methods of contraception to achieve demographic and reproductive health goals.

Limitations

Despite interesting findings, we outline three limitations of the study. First, monthly recording of contraceptive use might have been affected by recall lapse to some extent. Second, since a majority of women use only sterilization, the analysis did not provide sufficient episodes for the state level analyses. Third, it is not possible to segregate induced abortion, spontaneous abortion and still births in the analyses because all these three were clubbed into one category in calendar data.

Appendix 1: Number of episodes among non-users, modern spacing users and traditional methods users by next status following discontinuation/continuation in the same status till survey date in five years prior to survey, NFHS-3, 2005-06

Original status	No use	Switched to modern spacing method	Switched to traditional methods	Switched to limiting method	Given birth	Terminated preg Nancy	Currently pregnant	Continued	Total	N
Non-users	-	10,260	6,264	4,428	22,647	3,428	3,900	15,961	100	66,888
Modern spacing method users	3,265	885	734	251	452	244	103	5,750	100	11,684
Traditional methods users	828	483	172	153	826	299	149	4,029	100	6,939

- Not Applicable

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