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RESEARCH ARTICLE

Increasing role of abstinence and infecundity in non-use of contraceptive methods in India

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Abstract

This paper assesses the reasons for non-use of contraceptive methods, and the possible complexity of reported data on women in India. The study used recent data from two successive rounds of the National Family Health Survey (NFHS) (2005–06: *N*=37,296; 2015–16: *N*=247,024), which surveyed currently married women aged 15–49 years. The reporting on non-use of contraceptives and the changing pattern of the reasons for non-use were analysed, classified into fertility and other cited reasons. The self-reported reasons for non-use of contraception were verified with other related information captured in the survey. Bivariate and logistic regression analyses were conducted. Sexual abstinence (not having sex: 10%; infrequent sex: 3%) and infecundity (menopausal/hysterectomy: 12%; subfecund/infecund: 10%) were the most commonly reported reasons for non-use of contraceptive methods in 2015–16, followed by refusal to use (10%). The proportion of non-users who wanted to have a child soon (25% to 21%), were pregnant (16% to 13%), in postpartum amenorrhoea (68% to 40%) and who had method-related reasons (10% to 6%) declined over time (from 2005–06 to 2015–16, respectively). A higher proportion of less-educated women reported abstinence (6%) and menopause/hysterectomy (19%) than educated women. Abstinence was more commonly reported in states with low prevalence of modern contraceptive use. The findings suggest that the increasing trend of abstinence and infecundity among non-users of contraception may be a concern for future research and reproductive health programmes, as it questions both the quality of data and sexual health of married couples.

Keywords: Contraception; Reasons for non-use; Infecundity

Introduction

Contraceptive use contributes to fertility control and birth spacing, and reduces induced abortions (Marston & Cleland, 2003) and unintended pregnancies (Dixit, 2012). Despite the long history of family planning programmes in India, the modern contraceptive prevalence rate (mCPR) remains low in some states, and many couples still lack access to safe and effective family planning methods. Overall, the progress in mCPR remained stagnant in India between 2005 and 2016: the mCPR was 47.7% in 2015–16 as against 48.5% in 2005–06. Contrary to the assumption of an increase in demand for contraception, during the same period, the total demand for any method (from 70% in 2005–06 to 66% in 2015–16) and unmet need for contraceptive methods (13.9–12.9%) decreased (IIPS & ICF, 2017), suggesting the need for a detailed study on the reasons for non-use of contraceptives.

Studies across the world cite several reasons for non-use of contraceptives. Pioneering research by Sedgh *et al.* (2007) in developing countries revealed that about 10–50% of married women who had unmet need cited 'infrequent sex' as a reason for non-use. Infrequent sex, concerns about side-effects (Sedgh *et al.*, 2007) and health risks have been found to be the most common reasons for

non-use in countries with high levels of unmet need for family planning (United Nations, 2015). On the other hand, perceived infecundity and subfecundity are major reasons for non-use in high contraceptive use settings (Casterline *et al.*, 1997; El-Zanaty *et al.*, 1999). For example, in a study conducted in the United States, the majority of non-users believed they could not get pregnant, and therefore cited this as a reason for non-use (Mosher *et al.*, 2015). Earlier studies conducted in the 1980s found that contraceptive use was limited to abstinence in Nigeria and Senegal, where postpartum abstinence and breastfeeding practices were also very high (DIGEST, 1985, 1989). Health and side-effects, reduced need, failure and method-related reasons were among the major reasons for discontinuation according to a multi-country study conducted by Bradley *et al.* (2009). A recent study conducted across 35 villages in Maharashtra by Valekar *et al.* (2017) found that fear of the side-effects of contraceptives was the most common reason (34%) for not using contraception (Valekar *et al.*, 2017).

Most earlier research studies conducted in India and other parts of the world that cited reasons for non-use of contraceptives were based on women who were identified to have unmet needs (Shrestha *et al.*, 1991; Sedgh *et al.*, 2007; Sedgh & Hussain, 2014). These studies excluded a large proportion of women who were infecund or had no need for contraception. The present study examined women's self-reported reasons for non-use of contraception, its trends and associated complexity of reporting selected reasons for non-use of contraception in India.

Methods

Data

The Indian Demographic and Health Survey, also known as the National Family Health Survey (NFHS), is a large-scale, multi-round cross-sectional survey conducted in a representative sample of households throughout India. The NFHS conducted its 4th round of data collection in 2015–16, and the present study primarily used data from this round of the survey. To study changes in the selected measures over time data from the NFHS-3, collected in 2005–06, were also used. The NFHS uses stratified two-stage sampling procedures and collects data on socioeconomic and demographic characteristics, and reproductive, maternal and child health data and other health-related information from men aged 15–54 and women aged 15–49 years. The NFHS-3 provides information up to state level; however, the NFHS-4 covers samples across 640 districts that existed at the time of the survey in India. More details of the survey design and sample size are described elsewhere (IIPS & ICF, 2017).

All non-users were classified into a total of fourteen categories by pregnancy status, based on who wanted to have a (another) child soon/within 2 years, and according to their cited reasons for non-use. The classification framework is shown in Fig. 1. The question on current use was skipped for women who were pregnant at the time, or had a hysterectomy (included in NFHS-4 only). In addition, non-users who wanted to have a child soon (within 2 years), responded undecided or gave a non-numeric response on fertility preference, were not asked for their reasons of non-use. The total sample size of women who were married at the time of the NFHS-3 was 37,296, and 247,024 during the NFHS-4. These women were not using any method at the time of the survey. Twenty different reasons were included in the questionnaire to the question on reasons for non-use, and the same question was asked in both rounds of the NFHS. The question on reasons for non-use of contraception was non-probing, but multiple choices were allowed. Analysis of the responses in NFHS-4 and NFHS-3 respectively indicated that nearly 79% and 66% women of cited only one reason, 12% and 20% cited two reasons, 2% and 3% reported three or more reasons and 7% and 11% women cited other reasons or didn't know.

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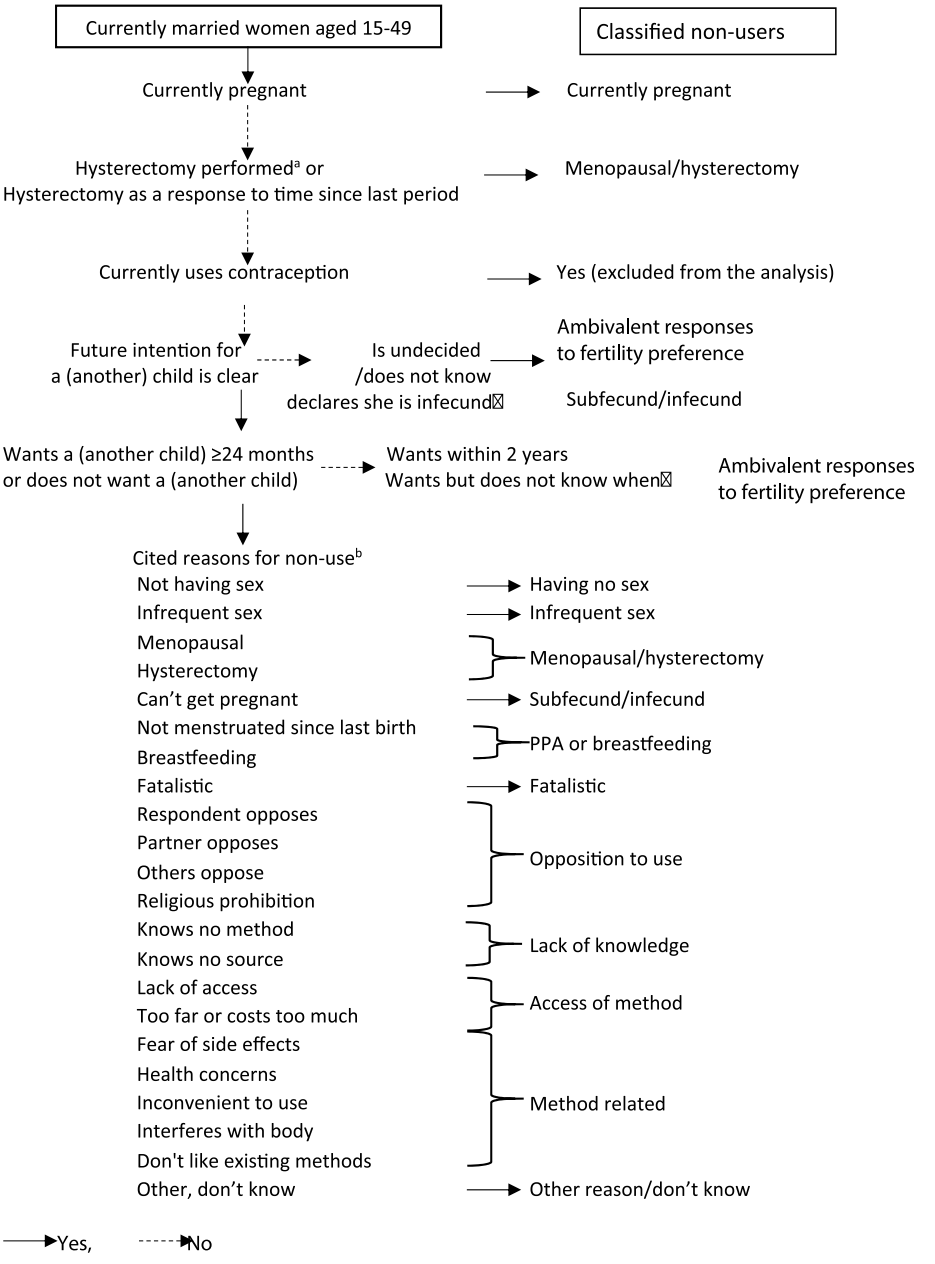

Figure 1. Classification of survey women with question 'skip pattern' of current use, and cited reasons for non-use. [a]A separate question on 'hysterectomy performed' was asked in NFHS-4. [b]Multiple responses possible.

Measures

A derived measure of abstinence (DMA) was computed using a combination of 'cited reasons for non-use' and 'practised sex behaviour within the last 3 months before the survey'. The survey included a question on last sexual activity: 'When was the last time you had sexual intercourse?'; responses were recorded in days, weeks, months and years. This information on sexual activity was compared with cited reasons for abstinence to create the DMA variable. Women who cited

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'not having sex' as a reason for non-use, and who reported 'no sex' in the last 3 months, were classified as 'abstainers' as indicated by the DMA. In the NFHS-4, the question on sexual activity was only asked in the state modules, which was about 15% of the total sample size (IIPS & ICF, 2017). Therefore, the sample size for the analysis of abstinence as indicated by the DMA was reduced to 37,757 in the NFHS-4; however, for other dependent variables, the sample size was 247,024 women.

Infecund women were defined as those who were married, not using contraception, not pregnant or not postpartum amenorrhoeic. Specifically, 'infecund' included the following categories: (i) married for 5+ years, had no children in the past 5 years and never used contraception; (ii) responded 'can't get pregnant' on willingness to have children in the future; (iii) chose 'menopausal/hysterectomy' as a reason for not using contraception; (iv) response to time since last period was ≥6 months, and not postpartum amenorrhoeic (0–59 months); (v) response to time since last period was 'menopausal/hysterectomy' or 'never menstruated'; (vi) response to last period was 'before last birth' and last birth took place 5+ years ago (Bradley *et al.*, 2012).

Independent variables included were age, education, parity, wealth index, place of residence, religion, caste and household structure – all single-item questions. Furthermore, 'husband's living status' was taken as a proxy for migration, with the categories: woman living with husband, husband away for ≤1 month, husband away for 2–6 months and husband away for >6 months. The work status of couples was categorized as no one working, only husband working, only wife working and both working. Information on the husband's living status and occupation were not collected for the overall total sample in the NFHS-4, as it was part of state modules only (IIPS & ICF 2017). However, this did not reduce the sample size in the statistical regression models, as missing values were categorized in a separate category of 'missing'.

Statistical analysis

First, changes in levels of pregnancy, those desiring a child within 2 years and cited reasons for non-use over time (from 2005–06 to 2015–16) were documented. To test whether these changes were significant or not, bivariate logistic regression analysis was applied to the pooled data (NFHS-3 and NFHS-4), by taking a time dummy as the independent variable and each reason for non-use as the dependent variable. The pattern of reasons for non-use by state-level mCPR was assessed, and the level of significance of these differentials tested using the chi-squared test. Furthermore, concordance analyses were carried out between cited reasons and other related issues in the survey. Multivariate logistic regression analyses for the select dependent measures were carried out.

Results

Overall contraceptive use declined by 2.8 percentage points between the two survey rounds, from 56.3% in 2005–06 to 53.5% in 2015–16 (Table 1), and modern contraceptive use remained stagnant at around 48%. Among women who were not using contraception in 2015–16, a fifth wanted to have a child in the next 2 years (20.7%) and 13% were pregnant. Fertility-related reasons for non-use declined significantly by 7.1 percentage points, from 40.8% in 2005–06 to 33.7% in 2015–16. At the same time, 'menopausal or hysterectomy' was the most cited reason for non-use (12.1%), followed by 'not having sex' (10%) and 'opposition to use' (10%). Opposition to use as a reason remained largely the same between the two rounds of the NFHS. On the other hand, postpartum amenorrhoea or breastfeeding (13% and 7%), lack of knowledge (2% and 1%) and method-related reasons (10% and 6%) dropped between the two survey rounds.

The most common reason for non-use among states with moderate or lower levels of mCPR (Table 2) were 'not having sex' and 'menopausal or hysterectomy'. Increase in the reporting of 'menopausal or hysterectomy' was more prominent in states with a mCPR below 35%. In contrast,

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Table 1. Percentage of currently married women aged 15–49 by current use and non-use of contraceptives and reasons for non-use

	NFHS-3		NFHS-4		Percentage point change between NFHS-3 and -4
	n	%	*n*	%	
All currently married women	87,925	100	499,627	100	
Currently using any method	50,629	56.3	252,603	53.5	−2.8
Currently not using any method	37,296	43.7	247,024	46.5	2.8
Current non-users' reasons for non-use					
Pregnant	5886	15.8	32,218	13.0	−2.75***
Wants child within 2 years	8940	25.0	47,291	20.7	−4.33***
Ambivalent response[a]	1298	3.5	16,599	5.0	1.45***
Having no sex	1587	4.3	22,342	10.0	5.69***
Having infrequent sex	2740	7.5	9292	3.1	−4.32***
Menopausal/hysterectomy	2005	4.9	28,610	12.1	7.20***
Subfecund/infecund	3284	8.3	24,335	9.8	1.54***
PPA or breastfeeding	4395	12.6	17,979	6.7	−5.89***
Fatalistic	1727	6.0	9648	3.9	−2.09**
Opposed to use	2798	9.0	23,841	10.0	1.08***
Lack of knowledge	867	2.0	2605	1.1	−0.83***
Access of method	517	1.7	4842	1.9	0.19***
Method related	4201	9.9	14,640	5.6	−4.33***
Other reason/don't know	1747	4.6	8867	3.5	−1.06***

[a]Undecided or non-numeric response or don't know to question on 'desire for next child'.
PPA: postpartum amenorrhoea.
***Difference significant at $p < 0.01$ using logistic regression by taking time dummy as independent variable.
Sum of all reasons is not 100% due to multiple responses (115% in NFHS-3 and 106% in NFHS-4).

reporting of 'subfecund or infecund' was higher (13% in 2005 and 11% in 2016) in states with more than 55% contraception use. Furthermore, during 2005–06 method-related reasons were higher (12 and 9%, respectively) among women from the states with moderate (25–34%) and lower level (below 25%) mCPR. In 2005–06, there were bigger differences between low-mCPR and high-mCPR settings in the reporting of opposition (12% and 3%) and fatalism (8% and 2%) that were not common in 2015–16. The reporting of opposition-related reasons as non-use of contraception fell slightly, from 12% to 9% in the states with low mCPR, but doubled in the states with the highest mCPR.

Self-reported abstinence and abstinence as indicated by the DMA increased from 4.3% to 10% and 1.7% to 5.9%, respectively between 2005–06 and 2015–16 (Table 3). Higher levels of abstinence as indicated by DMA were found among older women aged 40–49 (7%), those with no education (6%), those who had 3 and more children (8%) and among women belonging to richer households (7%) and nuclear households (6%).

The results of the multivariate logistic regression analyses in Table 4 show that reported abstinence as a reason for non-use was higher among older women aged 40–49 years (Adjusted odds ratio [AOR]: 1.54, 95% CI: 1.48, 1.61) compared with younger ones who had 3 or more children (AOR: 5.37, 95% CI: 5.01, 5.75), and increased with the level of education and income. The odds of

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Table 2. Percentage of women by mCPR levels of states by reasons for non-use of contraceptives

Reason for non-use	mCPR level					$\chi 2$
	< 25	25–34	35–44	45–54	55+	
NFHS-3						
Having no sex	4.3	5.5	5.1	3.2	1.1	***
Having infrequent sex	9.8	11.1	6.5	4.8	1.0	***
Menopausal/hysterectomy	4.2	4.2	7.0	3.8	2.4	***
Subfecund/infecund	9.4	9.4	7.0	6.4	12.5	***
PPA/breastfeeding	14.7	14.2	13.3	10.0	1.2	***
Opposed to use	11.9	4.4	7.3	9.7	3.1	***
Lack of knowledge	2.1	5.5	1.3	1.0	2.1	***
Access of method	3.0	2.8	0.8	0.5	0.5	***
Method related	8.8	12.0	8.2	14.7	7.1	***
Fatalistic	7.6	4.6	6.8	3.5	1.8	***
Number of states (*N*=29)	7	6	10	5	1	
Having no sex						
Having infrequent sex	10.8	13.1	8.1	9.1	9.4	***
Menopausal/hysterectomy	1.7	3.2	4.6	3.6	2.5	***
Subfecund/infecund	16.3	12.3	12.2	10.2	12.0	***
PPA/breastfeeding	9.7	5.5	8.2	11.7	11.0	***
Opposed to use	5.7	8.4	7.2	6.3	6.4	***
Lack of knowledge	9.5	11.9	12.8	10.8	6.2	***
Access of method	1.0	0.7	1.6	1.4	0.8	***
Method related	2.1	2.8	2.0	1.8	1.1	***
Fatalistic	6.1	4.0	8.7	5.4	5.0	***
Having no sex	5.4	5.6	6.0	2.7	2.3	***
Number of states (*N*=36)	6	3	6	13	8	

***$p < 0.001$.

abstinence were higher for women with higher education (AOR for self-reported abstinence: 1.37, 95% CI: 1.29, 1.46; AOR for DMA:1.55, 95% CI: 1.28, 1.88) and from the richest families (AOR for self-reported abstinence: 1.11, 95% CI: 1.04, 1.19, AOR for DMA 1.30, 95% CI: 1.06, 1.59). In comparison to women from the North region of India, all others had lower odds of reporting this reason; while women from the Central region (AOR: 1.16, 95% CI: 1.01, 1.34) had higher odds of abstinence. Women living in non-nuclear families had lower odds of being abstainers (AOR: 0.89, 95% CI: 0.81, 0.98) as indicated by DMA.

Overall, women who cited 'menopause or hysterectomy' increased by about two-fold, and 'infecund/subfecund' by 1.5% from 2005 to 2015. Levels of infecundity (including subfecund, menopause and hysterectomy) among non-users increased over the period with women's age, parity and household level of affluence, but reduced with education (Table 5). It had become more prevalent in urban areas (11%), General Castes (10%), Christians (14%), the Northeast region (10%) and among working couples (13%). The highest increase in menopause or hysterectomy

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Table 3. Percentage of non-users who cited 'not having sex' as a reason for non-use and reported derived measure of abstinence by background characteristics

		Cited 'not having sex'		Derived measure of abstinence	
Characteristics		NFHS-3	NFHS-4	NFHS-3	NFHS-4
Age	15–29	3.3	8.1	1.5	5.2
	30–39	5.2	11.2	1.9	6.4
	40–49	6.7	13.2	1.8	7.1
Education	None	3.9	10.7	1.6	6.0
	Primary	4.3	10.3	1.4	5.7
	Secondary	4.6	9.5	1.8	5.7
	Higher	5.8	9.4	2.4	6.4
Parity	No child	1.6	2.8	0.6	1.7
	1	4.0	9.6	1.5	6.1
	2	4.9	11.8	2.0	6.6
	3+	5.7	13.4	2.3	8.0
Wealth index	Poorest	3.5	10.2	1.2	6.5
	Poorer	4.4	10.0	1.9	5.7
	Middle	4.0	9.4	1.7	4.7
	Richer	4.5	9.8	1.6	5.4
	Richest	5.4	10.4	2.0	7.0
Place of residence	Urban	4.7	9.9	1.9	6.3
	Rural	4.1	10.0	1.6	5.7
Caste	General	4.4	10.9	1.7	6.4
	Scheduled Caste	3.9	9.6	1.4	6.4
	Scheduled Tribe	3.3	7.3	1.2	4.4
	Other Backward Caste	4.6	10.1	1.9	5.8
Religion	Hindu	4.4	9.9	1.7	5.9
	Muslim	3.9	10.6	1.5	6.2
	Christian	3.7	6.4	1.2	4.3
	Sikh	4.4	13.2	1.5	5.6
	Other	3.4	10.8	1.0	6.7
Husband's living status	Living with husband	3.4	8	1.4	5.2
	Husband away for ≤1 month	7.9	17.7	6.6	16
	Husband away for 2–6 months	11.1	22.2	3.1	8.1
	Husband away for >6 months	9.0	28.0	2.2	5.8
Region	North	4.6	12.3	2.3	7
	Central	4.1	11.1	1.7	7.8
	East	4.8	10.9	2.0	6.2

(*Continued*)

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Table 3. (*Continued*)

Characteristics		Cited 'not having sex'		Derived measure of abstinence	
		NFHS-3	NFHS-4	NFHS-3	NFHS-4
	Northeast	4.8	6.6	1.1	2.4
	West	4.5	8.6	1.8	4.5
	South	3.1	7.4	0.8	4.0
Household structure	Nuclear	4.1	10.2	1.6	6.3
	Non-nuclear	3.9	9.7	1.5	5.6
All		4.3	10.0	1.7	5.9

Table 4. Odds ratio (95% CI) of currently married women who cited 'not having sex' as a reason for non-use of contraceptives and reported derived measure of abstinence

Characteristics		Cited 'not having sex'		Derived measure of abstinence (DMA)	
		AOR	95% CI	AOR for DMA	95% CI
Age	15–29				
	30–39	1.17***	(1.12, 1.21)	1.12*	(0.99, 1.26)
	40–49	1.54***	(1.48, 1.61)	1.15**	(1.01, 1.33)
Education	None				
	Primary	1.11***	(1.06, 1.17)	1.10	(0.94, 1.29)
	Secondary	1.21***	(1.16, 1.26)	1.30***	(1.14, 1.48)
	Higher	1.37***	(1.29, 1.46)	1.55***	(1.28, 1.88)
Parity	No child				
	1	3.74***	(3.5, 3.99)	3.87***	(3.13, 4.78)
	2	4.88***	(4.56, 5.21)	4.89***	(3.96, 6.04)
	3+	5.37***	(5.01, 5.75)	5.79***	(4.65, 7.21)
Wealth index	Poorest				
	Poorer	1.05**	(1.01, 1.10)	1.01	(0.87, 1.17)
	Middle	1.04	(0.99, 1.09)	1.03	(0.87, 1.21)
	Richer	1.07**	(1.02, 1.13)	1.07	(0.89, 1.28)
	Richest	1.11***	(1.04, 1.19)	1.30**	(1.06, 1.59)
Place of residence	Urban				
	Rural	0.98	(0.94, 1.02)	1.01	(0.89, 1.14)
Caste	General				
	Scheduled Caste	0.98	(0.93, 1.03)	1.03	(0.89, 1.19)
	Scheduled Tribe	0.73***	(0.69, 0.78)	0.62***	(0.51, 0.74)
	Other Backward Caste	0.99	(0.96, 1.03)	0.90	(0.8, 1.02)

(*Continued*)

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Table 4. (*Continued*)

Characteristics		Cited 'not having sex'		Derived measure of abstinence (DMA)	
		AOR	95% CI	AOR for DMA	95% CI
Religion	Hindu				
	Muslim	0.86***	(0.83, 0.90)	0.83***	(0.72, 0.95)
	Christian	0.6***	(0.55, 0.66)	0.79	(0.58, 1.07)
	Sikh	1.32***	(1.18, 1.48)	0.90	(0.6, 1.36)
	Others	0.86***	(0.77, 0.96)	1.31	(0.94, 1.83)
Status of living with husband	Living with husband				
	Husband away for ≤1 month	2.85***	(2.68, 3.04)	4.04***	(3.48, 4.7)
	Husband away for 2–6 months	3.55***	(3.37, 3.73)	1.67***	(1.40, 1.99)
	Husband away for >6 months	4.73***	(4.50, 4.96)	1.30**	(1.06, 1.58)
Region	North				
	Central	0.88***	(0.85, 0.92)	1.16**	(1.01, 1.34)
	East	0.81***	(0.77, 0.85)	0.90	(0.77, 1.06)
	Northeast	0.50***	(0.46, 0.53)	0.34***	(0.26, 0.45)
	West	0.91***	(0.85, 0.97)	0.87	(0.73, 1.05)
	South	0.75***	(0.71, 0.79)	0.67***	(0.56, 0.81)
Household structure	Nuclear				
	Non-nuclear	1.04**	(1, 1.07)	0.89**	(0.81, 0.98)
Work status	No one working				
	Only husband working	0.81**	(0.68, 0.96)	0.82*	(0.65, 1.03)
	Only wife working	1.05	(0.75, 1.47)	0.79	(0.48, 1.31)
	Both working	0.74***	(0.62, 0.89)	0.77*	(0.61, 0.99)
	Constant	0.02***	(0.02, 0.03)	0.01***	(0.01, 0.02)

*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.
AOR: Adjusted odds ratio – the logistic regression model controlled for other characteristics included in the table.
CI: Confidence Interval.

was among older women (24–35%), those who had 3 or more children (10–24%), those from a poor family (4–12%) and from the Northeast region (8–15%). On the other hand, reporting of infecundity and subfecundity increased, with higher rates among young women (1.4–5.4%), those who had lower education (11–12%), those with no or 2 children (4–8%), Christians (8–14%) and those living in the South region (9–16%).

Results from the multivariate logistic regression analyses of NFHS-4 data showed that older women (AOR: 47.1, 95% CI: 45.5, 48.7) were more likely to report infecundity as a reason for non-use than younger women (Table 6). Women with higher education had significantly lower odds (AOR: 0.45, 95% CI: 0.42, 0.48) of reporting infecundity compared with those with no education. Women's risk of reporting 'menopause or hysterectomy' increased with their parity and the economic status of the household; however, infecundity reduced with number of children, and increased with household income. Women in first (AOR: 2.95, 95% CI: 2.67, 3.26), second (AOR: 7.58, 95% CI: 6.91, 8.32) and 3+ (AOR: 8.44, 95% CI: 7.69, 9.26) parity reported higher odds of citing 'menopause or hysterectomy' compared with women with no child(ren). Women

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Table 5. Percentage of non-using currently married women who cited 'menopause/ hysterectomy' and 'infecund/ subfecund' as reasons for non-use and who were classified infecund, by background characteristics

Characteristics		Cited 'menopausal/ hysterectomy'[a]		Cited 'infecund/ subfecund'[b]		Classified 'infecund'[c]	
		NFHS-3	NFHS-4[a]	NFHS-3	NFHS-4	NFHS-3	NFHS-4
Age	15–29	0.3	2.7	1.4	5.4	8.0	11.1
	30–39	3.6	13.1	10.2	12.6	41.5	51.9
	40–49	23.8	34.9	31.4	17.7	82.6	85.7
Education	None	5.6	18.5	10.7	11.6	32.5	50.4
	Primary	5.0	14.0	6.5	10.4	25.5	39.8
	Secondary	3.6	8.5	5.1	8.8	20.7	30.2
	Higher	5.0	5.4	6.7	7.8	23.3	23.3
Parity	No child	0.4	1.2	4.3	8.0	22.4	22.4
	One	1.7	4.2	4.6	7.3	18.3	23.6
	Two	4.9	14.3	7.2	11.7	24.9	41.0
	3+	9.5	23.9	13.4	11.7	37.7	55.3
Wealth index	Poorest	3.8	12.2	7.6	8.8	24.5	35.4
	Poorer	3.8	12.9	8.6	9.2	26.4	36.5
	Middle	5.0	12.2	8.3	10.0	28.2	37.8
	Richer	4.8	11.3	7.8	11.0	27.2	38.3
	Richest	8.1	11.7	9.5	10.3	34.1	38.7
Place of Residence	Urban	5.9	11.0	9.1	10.9	32.0	39.1
	Rural	4.6	12.6	8.0	9.4	26.1	36.4
Caste	General	6.4	13.2	8.5	9.7	29.0	38.3
	Scheduled Caste	3.9	11.5	7.4	9.7	25.2	35.8
	Scheduled Tribe	5.2	10.4	8.0	10.1	26.1	34.8
	Other Backward Caste	4.2	12.1	8.6	9.9	28.1	37.8
Religion	Hindu	4.8	12.5	8.3	10.0	27.5	37.9
	Muslim	4.9	10.5	8.1	8.4	26.2	34.0
	Christian	4.4	8.7	8.4	14.4	34.1	40.9
	Sikh	11.9	15.4	7.5	7.4	38.8	31.0
	Other	5.4	8.3	10.2	8.0	28.4	32.5
Region	North	6.7	10.4	8.3	7.8	28.8	30.0
	Central	4.7	12.7	8.8	6.9	25.2	33.1
	East	4.7	16.0	8.1	8.8	25.4	39.1
	Northeast	7.7	14.9	10.0	9.8	28.9	40.2
	West	5.1	9.4	5.3	9.5	25.0	35.0
	South	3.1	8.7	9.1	15.8	35.3	44.4

(*Continued*)

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Table 5. (*Continued*)

Characteristics		Cited 'menopausal/ hysterectomy'[a]		Cited 'infecund/ subfecund'[b]		Classified 'infecund'[c]	
		NFHS-3	NFHS-4[a]	NFHS-3	NFHS-4	NFHS-3	NFHS-4
Work status[d]	No one working	9.7	8.2	9.0	8.5	32.6	29.4
	Only husband working	4.3	10.6	6.9	8.9	23.4	33.0
	Only wife working	12.1	12.8	21.4	9.7	57.2	43.0
	Both working	5.3	14.6	10.1	12.6	33.3	46.3
	Missing	4.3	12.2	16.8	9.8	43.7	37.5
All		4.9	12.1	8.3	9.8	26.8	37.3

[a]In NFHS-4, reason for non-use was not asked of those women who had had hysterectomies or reported while responding to time since menstruation returned, so they were included in this category.
[b]Also includes women who said 'declared infecund' in response to preference for next child.
[c]Classified by the DHS in definition of unmet need.
[d]Information on employment was collected in the state modules sample; a separate category was created for missing data.

Table 6. Odds ratios (95% CI) of currently married women who cited 'infecund' as a reason for non-use of contraceptives and who reported infecundity, NFHS-4

Characteristics	Cited 'menopausal/ hysterectomy'		Cited 'infecund/ subfecund'		Classified 'infecund'	
	AOR	95% CI	AOR	95% CI	AOR	95% CI
Age						
15–29 (Ref.)						
30–39	3.29***	(3.14, 3.44)	2.63***	(2.53, 2.74)	8.50***	(8.27, 8.73)
40–49	10.60***	(10.1, 11.1)	4.71***	(4.53, 4.90)	47.1***	(45.5, 48.7)
Education						
No education (Ref.)						
Primary	0.92***	(0.89, 0.96)	0.95**	(0.91, 1.00)	0.82***	(0.79, 0.85)
Secondary	0.70***	(0.67, 0.72)	0.81***	(0.78, 0.84)	0.56***	(0.54, 0.58)
Higher	0.45***	(0.42, 0.48)	0.65***	(0.61, 0.69)	0.27***	(0.26, 0.29)
Parity: No child (Ref.)						
1	2.95***	(2.67, 3.26)	0.72***	(0.68, 0.75)	0.63***	(0.61, 0.65)
2	7.58***	(6.91, 8.32)	0.80***	(0.77, 0.84)	0.85***	(0.82, 0.88)
3+	8.44***	(7.69, 9.26)	0.71***	(0.68, 0.74)	0.66***	(0.64, 0.69)
Wealth index						
Poorest (Ref.)						
Poorer	1.37***	(1.31, 1.43)	1.07***	(1.02, 1.11)	1.31***	(1.27, 1.35)
Middle	1.61***	(1.53, 1.68)	1.12***	(1.07, 1.17)	1.56***	(1.50, 1.61)
Richer	1.82***	(1.73, 1.92)	1.13***	(1.08, 1.20)	1.65***	(1.59, 1.72)
Richest	2.11***	(1.99, 2.25)	1.04***	(0.98, 1.10)	1.66***	(1.58, 1.74)

(*Continued*)

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Table 6. (*Continued*)

Characteristics	Cited 'menopausal/ hysterectomy'		Cited 'infecund/ subfecund'		Classified 'infecund'	
	AOR	95% CI	AOR	95% CI	AOR	95% CI
Place of residence						
Urban (Ref.)						
Rural	1.14***	(1.1, 1.18)	0.99	(0.96, 1.03)	1.00	(0.97, 1.03)
Caste						
General (Ref.)						
Scheduled Caste	0.87***	(0.83, 0.91)	0.95**	(0.90, 0.99)	0.89***	(0.85, 0.92)
Scheduled Tribe	0.84***	(0.80, 0.89)	1.04*	(0.99, 1.10)	0.98	(0.94, 1.02)
Other Backward Caste	0.93***	(0.90, 0.96)	0.92***	(0.89, 0.96)	0.96***	(0.93, 0.99)
Religion						
Hindu (Ref.)						
Muslim	0.65***	(0.63, 0.68)	0.82***	(0.78, 0.85)	0.67***	(0.65, 0.69)
Christian	0.48***	(0.45, 0.52)	1.22***	(1.15, 1.30)	0.82***	(0.78, 0.86)
Sikh	1.60***	(1.41, 1.81)	0.76***	(0.65, 0.88)	0.80***	(0.72, 0.89)
Other	0.64***	(0.58, 0.70)	1.00	(0.92, 1.09)	0.94*	(0.88, 1.00)
Region						
Northern (Ref.)						
Central	1.49***	(1.42, 1.56)	0.78***	(0.75, 0.82)	1.23***	(1.19, 1.28)
East	1.71***	(1.62, 1.79)	0.98	(0.93, 1.04)	1.64***	(1.58, 1.70)
Northeast	1.22***	(1.15, 1.29)	1.02	(0.97, 1.09)	1.11***	(1.06, 1.17)
West	1.19***	(1.11, 1.27)	1.02	(0.96, 1.09)	1.65***	(1.57, 1.73)
South	1.03	(0.97, 1.09)	1.78***	(1.69, 1.87)	2.78***	(2.66, 2.9)
Work status[a]						
No one working (Ref.)						
Only husband working	1.25**	(1.02, 1.54)	1.17	(0.96, 1.43)	1.15*	(0.99, 1.33)
Only wife working	1.13	(0.78, 1.62)	1.03	(0.71, 1.49)	1.34**	(1.01, 1.77)
Both working	1.29**	(1.04, 1.59)	1.40***	(1.14, 1.72)	1.41***	(1.21, 1.64)

[a]Information on employment was collected in state modules sample, a separate category was created for missing data.
*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.
AOR: Adjusted odds ratio – the logistic regression model controlled for other characteristics included in the table.
CI: Confidence Interval.

belonging to poorer (AOR: 1.37, 95% CI: 1.31, 1.43), middle (AOR: 1.61, 95% CI: 1.53, 1.68), richer (AOR: 1.82, 95% CI: 1.73, 1.92) and richest (AOR: 2.11, 95% CI: 1.99, 2.25) wealth quintiles had higher odds of reporting 'menopause or hysterectomy' than poorest women. In comparison to the General Caste and Hindu religion, women from all other castes and the Sikh religion (AOR: 1.6, 95% CI: 1.41, 1.81) were more likely to report 'menopause or hysterectomy'. Women from all other regions were more likely to report infecundity than those from the North region.

Among women who cited 'no sex' as a reason for non-use of contraception, nearly 42% reported sexual activity in the 3 months prior to the survey (Table 7). Similarly, among those

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Table 7. Percentage of currently married women who reported sexual activity, time since menstruation and contraceptive use in past according to their reported reasons for non-use

	NFHS-3	*n*	NFHS-4	*n*
Reported sexual activity in 3 months prior to survey among those who cited no sex[a]	39.2	1582	42.2	3490
Reported sexual activity in 4 weeks prior to survey among those who cited infrequent sex[a]	38.3	2738	56.6	1557
Response to time since last period is < 6 months among those who reported menopause as a reason for non-use	NA	NA	14.0	10,749
Response to time since last period is 'before last birth' among those who cited amenorrhoea/breastfeeding as a reason for non-use	67.2	4395	39.9	17,974
Used contraceptives in past among those who cited 'any method related' as a reason for non-use	24.3	4201	27.7	14,633

[a]Based on subsample for state modules.

women who cited 'infrequent sex', around 56.6% reported sexual activity within the 4 weeks prior to the survey. Furthermore, among those who cited menopause as a reason for non-use, only around 14% reported 'less than 6 months' when asked 'time since last period returned'.

Discussion

The stagnation or slight decline in overall modern contraception use, and its contradiction with the decline in unmet need and TFR in India, raises several questions, prompting the in-depth analysis of the reasons for non-use of contraceptives carried out in this study. 'Menopause or hysterectomy', followed by 'abstinence' and 'opposition to use' were the reasons most cited by non-users. The highest increase during the inter-survey period 2005 to 2015 were noted for 'menopause or hysterectomy', followed by 'not having sex' and 'subfecund or infecund'. The increase in 'menopause or hysterectomy' as a reason for non-use could have been influenced by the addition of a new question (for the first time in NFHS-4), letting investigators probe further on hysterectomy. Furthermore, there is a possibility that female sterlization might have been misclassified as hysterectomy in NFHS-4. An approximate one percentage point decline in female sterilization between 2005 and 2015 further supports this possibility of misclassification (IIPS & ICF, 2017).

On the other hand, the share of non-users who cited postpartum amenorrhoea, breastfeeding, infrequent sex and method-related reasons among all non-users had declined over time. These findings clearly reflect the positive impact of family planning programmes in reducing method-related barriers, and increasing postpartum contraception use. The recent commitment of the Government of India to provide modern contraception to an additional 48 million women is implemented through Family Planning 2020 (FP2020) (Government of India, 2014). According to Jain and Winfrey (2017) and Sanogo *et al.* (2003), a wider choice of contraceptive methods, an increase in the number of people receiving contraceptive services and maintenance of quality of care is critical to the use of contraception. Mozumdar *et al.* (2019) showed that information received on the side-effects of a selected method and facility readiness to provide a range of contraceptive choice were significantly associated with receipt of method choice.

The reporting of 'menopausal or hysterectomy' and 'not having sex' has been more prominent in the states with low or moderate levels of mCPR (Casterline *et al.*, 1997; El-Zanaty *et al.*, 1999), and higher reported subfecundity or infecundity was observed in the states with a high level of mCPR. Similar findings have been reported in other countries, where method-related reasons and infrequent sex were found to be higher among women from settings with low levels of

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contraceptive use (Sedgh & Hussain, 2014; Machiyama *et al.*, 2017). The migration/mobility status of the husband emerged as the most prominent factor for reporting abstinence as a reason for non-use. In the NFHS-4, increase in those who cited 'not having sex' as their reason was noted as the length of separation increased – from 8% with no separation (living with husband) to 28% for absences of more than 6 months. On the other hand, the rise in the derived measure of abstinence was irregular and smaller, but this may reflect occasional sexual intercourse when the husband made a home visit. Whether or not contraceptive precautions were used on these occasions, a woman living away from her husband most of the time was likely to define herself as a non-user – unless sterilized. Increase in temporary/seasonal migration/mobility in South Asian countries, including India, has been documented (Deshingkar & Farrington, 2009; Kulkarni, 2015). However, due to limited information on migration and mobility, for example frequency of visits back home, sexual activity when the husband was on a visit to home, this study could not draw more insights in this regard. This study's findings suggest that 'menopause or hysterectomy' as a cited reason is more common among older women, those with higher parity and among poor families.

This study found that the inconsistency between women's cited reason 'abstinence' and their reported sexual activity in the months prior to the survey was similar to the findings in other developing countries (Sedgh & Hussain, 2014). The survey question on current use of contraceptive methods does not pertain to any specified reference period; therefore, the cited reason of 'abstinence' may not be consistent with the reported sexual activity in the months preceding the survey.

Although the findings of this study offer important insights into the programme, it had certain limitations. Firstly, the anomaly between the related measures – e.g. sexual activity and self-report of abstinence – could be interpreted as women not perceiving the risk of pregnancy within their sexual experiences (or) be a result of the investigator's bias for marking non-use of contraception and quoting abstinence as a reason for non-use. The data from the NFHS limit the ability to examine this issue fully. Future research may examine the anomalies identified in the data on reasons for non-use of contraception. Secondly, the study largely relied on the self-reported responses to reasons for non-use of contraception, which also increased the risk of social desirability, and in part may explain the differences between the inter-survey period. The sample size in the recent round of the NFHS was more than six times greater than previous rounds of the survey, raising questions about the quality of data received from study participants and the questions asked by field investigators. Thirdly, there may have been recall bias and/or a lack of understanding of particular questions on sterilization, hysterectomy and sexual activity. To reduce these recall and personal biases, the NFHS could devise methodologies to ask questions in a particular format in the future.

In conclusion, the present results show that abstinence and infecundity are the emerging reasons for non-use of contraceptive methods in India. A higher reporting of abstinence and menopause/hysterectomy among less-educated women, and in states with low levels of mCPR, are perhaps a cause of concern from a research and programmatic perspective. There is a need for programmes to examine these issues within geographies with low levels of contraceptive use. Furthermore, women's survey responses were inconsistent when examined for internal consistency. From the perspective of survey research, it is important to find ways to address these inconsistencies in responses, which might partially be associated with lower quality of data. From a programmatic perspective, it is important to reach out to the substantial proportion of women who cite 'no sex', 'infrequent sex', 'postpartum amenorrhoea' or 'breastfeeding' as reasons for non-use of contraceptives, as they would benefit from counselling on risk of pregnancy and sexually transmitted infections (STIs), and the methods that are appropriate for their circumstances.

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Ethical Approval. The authors assert that all procedures contributing to this work comply with the ethical standards of the National Family Health Survey-4, conducted under the scientific and administrative supervision of the International Institute for Population Sciences (IIPS), Mumbai, India. The IIPS conducted an independent ethical review of the NFHS protocols. The IIPS is under the administration of the Ministry of Health and Family Welfare (MoHFW), Government of India.

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