Levels, patterns and determinants of using reversible contraceptives for stopping childbearing: Evidence from National Family Health Survey, 2015-16

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Abstract

Background: Contraceptive use for family planning is one of the key aspects of reproductive health. In India, contraceptive use for discontinuation of childbearing is five times higher than that for spacing of childbearing. Therefore, this study aims to examine patterns and socio-economic correlates of using contraceptives for limiting childbirths in India.

Methods: The study is based on data from the fourth round of the National Family Health Survey considering 339,537 currently married, non-pregnant and fecund women. Cross-tabulation and logistic regression analysis were carried out to address the research objectives**.**

Results: About 16% of women were using modern reversible contraception to satisfy their demand of postponing childbearing. Women's years of schooling, wealth status, and religion are significant predictors of the use of reversible contraception. Nearly 8% of women were using traditional contraceptives to postpone their childbearing; which was comparatively higher among the women aged 15-19 years, illiterate, poor, Muslims, and belonging to the central and north-eastern region as compared to their counterparts.

Conclusions: Using reversible contraception for stopping childbearing is significantly low in India. Women's age, parity, years of schooling, wealth status, religion and region were found to be strong determinants of using modern reversible contraception for stopping childbearing in India. Providing client choice-based modern contraceptives to the women may address the issue of the low use of modern reversible contraception for limiting childbearing.

Keywords: Unmet need; Limiting childbirth; Reversible Contraceptives; Family Planning; Traditional contraceptives

Background

The practice of ideal family planning is closely associated with the socio-economic development of society and individuals. The demand for family planning means when individuals want to postpone or delay their next birth. The demand significantly depends on individuals' fertility behaviour and socio-economic backgrounds. Since 1951, India has implemented several programmes to increase family planning acceptance and choice-based contraceptive method use [1,2,3,4]. But, the long history of family planning in India suggested that the practice of family planning is primarily tilted towards birth limiting rather than spacing. [5]. And, the demand for limiting childbearing has mainly been met by using permanent contraceptives [4]. The total demand and using contraceptives (met need) for limiting childbearing are remarkably varied across Indian states and union territories [6].

India has achieved noteworthy progress in reducing the fertility rate over the recent period but some states in central and north India are still lagged behind from desire goal [7]. Recent NFHS-4 data (2015-16) shows that about 55% of women had decided to limit or stop their childbirth (limiting demand) out of total demand for family planning (66%) in India [7]. Furthermore, the demand for family planning for limiting childbearing was five times higher than spacing in India in 2015-16 [7]. So, it can be said that the success and failure of family

planning programme highly depend on the type of contraceptives women are using for limiting their childbirths in India. If the unmet need for limiting (not using contraceptives for limiting childbirths) and use of traditional methods for limiting childbirth tend to be high then it can be alarming for high populated country India.

A number of studies have examined the trends, patterns, and determinants of unmet need for family planning for spacing or limiting childbirths, determinants of contraceptive use, reasons for non-use of contraception, etc. in India and elsewhere [4, 8-11], but, no study has so far examined the patterns of reversible contraceptive methods being used to meet the needs of limiting childbirths in India based on NFHS-4 (2015-16) data. Therefore, this study tried to find out the types of contraceptive methods being used to stop the next childbirths in India. The socio-economic correlates of contraceptives used for limiting childbearing have also been analysed. This paper will be a help to evaluate the community needs assessment approach (CNNA) launched by the government of India to promote reversible contraceptive use.

Data and Materials

Data

The study used data from the latest round of the National Family Health Survey (NFHS), carried out during 2015-16. The main objectives of the survey are to provide reliable estimates on fertility, maternal and child mortality, family planning, reproductive and child health, nutritional status of children, utilization of maternal and child health care services, and women's autonomy. The survey adopts a multistage sampling design. The NFHS collected data using different interview schedules – household schedule and eligible women, men and biomarker schedule. The present analysis is based on the information related to a weighted

sample of 339,537 currently married, non-pregnant and fecund women who have demand for family planning (demand for spacing or limiting childbearing).

Outcome variables

The demand for family planning refers to either demand for spacing or limiting childbearing. Total family planning demand denotes the sum of demand for spacing and limiting [7]. The selected outcome variables are - met need using any contraceptive methods for stopping childbearing, met need for limiting childbearing by using any reversible contraceptive method, and met need for limiting childbearing by using any traditional contraceptive method. The study used revised definitions of unmet and met need for family planning as well as spacing and limiting childbirths [12]. The demand for family planning refers to the proportion of currently married women who want no more children or stop childbearing. The met need for family planning is those women who are using contraceptives to discontinue their childbearing.

In this paper, the contraceptive methods are primarily classified into two broad classes- permanent contraceptive methods and reversible contraceptive methods. Permanent methods include male and female sterilizations. Reversible methods are classified into two sub-categories- modern reversible contraceptive methods and traditional reversible methods. Reversible contraceptive methods include pill, IUD, injectable, male condom, female condom, standard days method (SDM), diaphragm, foam/jelly, lactational amenorrhoea method (LAM), and other modern methods, rhythm, withdrawal, and other traditional methods. Modern reversible contraceptive methods include all reversible contraceptives excluding rhythm, withdrawal, and other traditional method**s.**

The three different outcome variables related to limiting childbearing and all the variables are dichotomous in nature. These outcome variables are coded as follows: demand met for stopping childbearing (unmet need '0', met need '1'), demand met for stopping childbearing by using any reversible contraceptives (any permanent contraceptives '0', any reversible contraceptives '1') and demand met for limiting childbearing by using any traditional contraceptives (modern reversible method '0', traditional method '1').

Predictor variables

In the multivariate analyses, a range of socioeconomic and demographic variables have been included which have been documented to be significantly associated with unmet and met need for family planning in India and elsewhere (8-11)). These variables are- respondent's age (15-19, 20-24, 25-29, 30-34, 35-39, 40-44, and 45-49 years), parity (0, 1, 2, 3, 4+), children sex composition (no child, only daughter and at least one son), women's years of schooling (illiterate, 1-5, 6-10, 11+), wealth status (poorest, poorer, middle, richer and richest), religion (Hindu, Muslim, Christians and other) and caste (General, OBC, Scheduled Caste, Scheduled Tribe and other), mass media exposure (no, yes), place of residence (urban, rural) and geographical region (North, Central, East, North-East, West, and South). The division of geographical regions was taken from the NFHS-4 report [9].

Statistical Analysis

Bivariate and multivariate analysis which includes cross-tabulation and binary logistic regression was used to accomplish the study objectives. Bivariate analysis was carried out to examine the levels and patterns of the total demand for limiting childbearing, demand met for limiting childbearing, and types of contraceptives used for limiting childbearing by background characteristics. Three separate binary logistic regression analysis was performed

to find out the socioeconomic correlates of met demand for limiting childbearing, using reversible contraceptive for limiting childbearing and using traditional contraceptives for limiting childbearing. The results of binary logistic regression analysis were presented in the form of adjusted odds ratios (AOR) with a 95% confidence interval (CI). The whole analyses were carried out using statistical STATA (version 14.1 SE).

Outcome variables were estimated by using following formulas-

Percentage of total demand for family planning = (The number of currently married women who wanted no more children or wanted to delay their next births / Total number of currently married women)*100

Percentage of demand for limiting childbearing = (The number of currently married women who wanted no more children/ total number of currently married women)*100

Percentage of contraception using for limiting (met need) = (The women who use contraceptive methods for limiting childbearing / Total number of women who had the demand for limiting childbearing)*100

Percentage of any permanent methods = (The number of women who using permanent contraception to postpone childbearing/ The number of who using any contraception to postpone childbearing)*100

Percentage of any reversible methods = (The number of women who using reversible contraception to postpone childbearing/ The number of who using any contraception to postpone childbearing)*100

Percentage of modern reversible methods = (The number of women who using modern reversible contraception to postpone childbearing/ The number of who using any contraception to postpone childbearing)*100

Percentage of traditional methods = (The number of women who using traditional contraception to postpone childbearing/ The number of who using any contraception to postpone childbearing)*100

Results

Levels and patterns of total demand and demand satisfied for limiting childbearing

Table 1 presents the levels and patterns of total demand for limiting childbearing (total limiting demand) and using any contraceptive methods to meet the demand for limiting childbearing (met need for limiting childbearing) in India during 2015-16. The majority of women (86.5%), with demand for contraceptives to limit childbearing, were using one or other contraceptive methods (met need for limiting). The demand and met need for limiting childbearing both showed to increase with women's age and parity. The demand for limiting childbearing was very low in women age 15-19 years (4.8%) and only about half of them (53.1) were using any contraceptive methods to stop their childbearing. The willingness to postpone childbearing (demand for limiting childbearing) and use of contraceptives for limiting births (met need for limiting) both showed to increase remarkably from the women's age group 25-29 years. The demand for limiting childbearing was significantly high among women who had at least one son (64%) compared to the women who had only daughter (54%). The demand to limit childbearing showed to be inversely proportional to women's level of education. The demand for limiting childbearing was noticeably higher among illiterate women (59.6%) compared to women with 11 or more years of schooling (44.4%). There are no significant differences in terms of demand for limiting childbearing based on wealth status, but using any contraceptive methods for limiting childbirths (met need) was comparatively lower among the poorest (79.3%) than the richest (88.8%). Among the religious groups, the demand for limiting childbearing has been observed lowest in Muslims

(47.1%) and highest in others (63.4%). The use of any contraceptives for limiting childbearing (met the need for limiting childbearing) was low among Muslims (80.2%) compared to others (91%). There was no significant difference in demand for limiting the childbearing or met need for limiting childbearing on the basis of caste category. With regards to geographical regions, the limiting demand was highest in the Southern region (59.2%) and lowest in the north-eastern region (43.2%).

Types of using contraceptives for limiting childbearing

Table 2 shows types of contraceptives being used to meet the demands for limiting childbirths with background characteristics. Results show the majority of women using permanent contraceptive methods (75.4%) to limit or stop their childbearing. About 9% of women are using traditional contraceptives to limit their childbearing in India. The use of permanent contraceptive methods (male and female sterilizations) to limit childbearing increased with women's age and parity and decreased with increasing women's years of schooling and wealth status. Use of any reversible contraceptive for limiting childbearing was noticeably high for the women of age group 15-19 years (65.7%), of single parity (60.9%), with no living child (41.5%), with years of schooling 11 years or more (40.8), Muslims (44.6%), richest (32.3%), general caste (34.1%) and from the north-east region (71.5%) compared to their counterparts. The use of traditional contraceptive methods to limit childbearing was comparatively higher among the women of age group 15-19 years (16.6%), of single parity (20.9%), with no living child (16.5%), Muslims (14%), from the north-east region (26.1) and central region (17.3%) than their counterparts.

Socio-economic correlates of using any contraceptives, reversible contraceptives, and traditional contraceptives to stop childbearing

The logistic regression model after adjusting the effects of predictors revealed that women's age, parity, sex composition of children, years of schooling, wealth status, religion, caste, exposure to mass media, place of residence, and the region continued to be significant determinants of met need for limiting childbearing and using reversible contraceptives or traditional contraceptives for limiting childbearing in 2015-16 (Table 3). The likelihood of the met need for limiting childbearing (using any contraceptives to limit childbearing) showed to be increasing with women's age, parity, years of schooling, and wealth status. The odds of using contraceptives for limiting childbearing were 72% more likely in women's age group 25-29 years compared to the age group 15-19 years. The likelihood of using contraceptives for limiting was four-fold higher in women whose parity was two (AOR: 4.33; 95% CI: 2.59-7.10) compared to those with zero parity. The likelihood of demand satisfied for limiting childbearing was 2.1 times higher in women who only had daughter and 1.7 times higher who had at least one son as compared to women who had no child. The richest women were 71% more likely to have their demand met for limiting childbearing compared to the poorest women. The odds of met need for limiting childbearing were 13% higher among women who completed 10 or more years of schooling (AOR: 1.13; 95% CI: 1.12-1.18) as compared to the illiterate women. The likelihood of using any contraceptive for limiting childbearing (met need) was 40% and 29% less likely in Muslims and Christians respectively compared to Hindus. Women who belonged to scheduled tribes were more likely to have their demand for limiting met (AOR: 1.06; 95% CI: 1.04-1.07) as compared to the women in the 'general' category. Further, a positive association between mass media usage and met need for limiting childbearing was observed. The women who had mass media exposure related to family planning were 30% more likely to be using contraceptives for limiting childbearing compared to women who had no exposure. Women from rural areas (AOR: 1.10; 95% CI: 1.08-1.15) were more likely to have their demand met than women in

urban areas. The met need for limiting childbearing was significantly higher in the South region (OR: 1.82; 95% CI: 1.71-1.87) compared to the North region. The odds of met need for limiting childbearing was 30%, 19%, and 31% less likely in Central, East and North-East region respectively compared to the North region.

Table 3 also shows the odds of using any reversible contraceptives against using permanent methods for limiting childbearing. The odds of using any reversible methods for limiting childbirth were decreasing with increasing women's age and parity. The women who had at least one son were more likely to be using the reversible method (AOR: 2.60; 95% CI: 1.30-5.00) as compared to the women who had no children. Using the reversible contraceptive method for limiting childbearing significantly increased with increasing women's years of schooling and wealth status. The woman with 11 or more years of schooling show higher odds of using reversible contraceptive methods for limiting childbearing (AOR: 3.30; 95% CI: 3.15-3.43) compared to illiterate women. Similarly, women in the richest wealth group were 47% more likely to be using reversible contraceptives for limiting childbearing than the poorest. The likelihood of using reversible contraceptives for limiting childbearing was 3.41, 1.34, and 1.22 times more likely in Muslims, Christians, and others respectively compared to Hindus. Similarly, caste also had a significant influence on the use of reversible contraceptives for limiting childbearing. Women who belonged to Scheduled Tribe (AOR= 0.91; 95% CI: 0.88-0.94), Other Backward Classes (AOR= 0.80; 95% CI: 0.79-0.83) and Scheduled Tribes (AOR: 0.59; 95% CI: 0.55-0.60) were less likely to be using reversible contraceptives to limit or stop childbearing as compared to General caste. Women living in rural were 29% less likely to be using reversible contraceptives to stop childbearing compared to women of urban areas. The likelihood of using reversible contraceptives for limiting showed to be 1.58, 1.13, and 5.61 times higher for the Central, East, and North-East

region as compared to the North region. However, West and South regions were 74% and 98% respectively less likely to be using reversible contraceptives to stop childbearing as compared to the North region.

The odds of using traditional contraceptives against modern reversible contraceptives for stopping childbearing were significantly associated with women's age, years of schooling, wealth status, religion, caste, mass media exposure, place of residence, and region. The odds of using traditional contraceptives to stop childbearing among advanced reproductive-aged women (age 40-49 years) were found to be significantly higher (AOR: 3.52- 5.31) compared to women age group 15-19 years. Results show that the increase in women's years of schooling and wealth status is associated with a reduction in the use of traditional contraceptive methods for limiting childbearing. The women who completed 10 or more years of schooling were 37% less likely to be using traditional contraceptives as compared to illiterate women. Similarly, the richest women were 39% less likely to be using traditional contraceptives than the poorest ones. The Muslim and other religious categories were 36% and 20% less likely to be using traditional contraceptives compared to Hindus. Likewise, women who belonged to OBC and SC caste category were 12% (OR: 1.12; 95% CI: 1.06-1.16) and 11% (OR: 1.11; 95% CI: 1.01-1.12) more likely to adopt traditional methods respectively compared to General category. Rural women were 13% more inclined towards using traditional contraceptives than their counterparts. Further, women residing in Central (OR: 2.10; 95% CI: 1.91-2.13), Northeast (OR: 1.31; 95% CI: 1.16-1.37) and East regions (OR: 1.21; 95% CI: 1.14-1.28) were more likely to be using traditional contraceptive methods as compared to women in North region.

Discussion

This study brings the recent evidence from India on the use of contraceptive methods for stopping childbearing drawing the dynamic use of reversible contraceptive methods and traditional methods. The study found that the demand for contraceptives for limiting childbearing was significantly higher compared to that for spacing childbearing. Further, most women had met their demand for limiting childbearing with the use of permanent contraceptives. Findings also revealed that demand for limiting childbearing was comparatively higher among women who were 35 years or above, multiparous, illiterate, had at least one son and belonged to the Southern region. The level of met need for limiting childbearing lies below the national average for women who were below 35 years, having parity less than two, Muslim, illiterate, poor, and from the North-Eastern region. The early reproductive, highly educated, lower parity, Muslims, and North-eastern region's women significantly preferred reversible contraceptives to stop their childbearing. The use of traditional methods for limiting the births was significantly higher among the women in early reproductive age, with lower parity, belonging from other backward classes (OBC) or scheduled caste (ST), living in rural areas and residing in the Central or North-east regions than other regions. Similar results were suggested in a previous study too [9].

The persistent low use of reversible contraceptive methods for stopping childbearing has implications from the policy perspectives. India's family planning program is skewed towards the limiting methods mainly female sterilisation. Even after two and half decades of the recommendations from the International Conference on Population and Development (ICPD) in 1994, female sterilisation has been incentivised in the government family planning program. Although the spacing contraceptive methods are in the public basket of method-mix from 1951, in the recent past, the government of India has introduced two new contraceptive methods in the basket namely *Antara* and *Chhaya* with the incentives [13]. This program may

help in expanding the use of spacing contraceptive methods in India even for stopping childbearing.

Other socioeconomic characteristics of the respondents are also associated with the use of reversible contraceptive methods in India. Women's age is found to be a strong predictor of willingness for limiting childbearing and using modern contraceptives to stop childbearing. Results suggest that the advanced reproductive-aged women were primarily using traditional methods to discontinue their limiting childbearing. This finding is similar to the results from many previous studies [9, 14, 15]. The present paper also showed that using reversible contraceptives to discontinue childbearing was replaced by permanent contraceptives with increasing women's age and parity [8], possibly because with progression in parity, women achieve desired number of children [16, 17] with acquired knowledge on contraception and its use [17, 18]. Women having at least one son were more likely to use reversible contraceptive methods for limiting childbirths; this result is ambiguous with previous studies (19, 20). The study found that the use of modern reversible contraceptives to stop childbearing increased with an increase in years of schooling and wealth status. With the improvement in the educational level, it is expected that women become more aware of family planning and knowledge about alternative contraceptives [21-23]. The wealth condition reflects the affordability and purchasing power of contraceptive methods of family planning [24, 25]. Among the religious groups, Muslim women were primarily using reversible contraceptives to postpone childbearing; similar findings were observed in many previous studies [26-28]. Previous many studies suggested that rigid religious belief is the main reason for not-using permanent contraceptive methods among Muslims [27, 28]. The role of mass media to increase the use of reversible contraceptives is also significant; and many previous studies have found similar results too [4, 10, 11].

Women in rural areas are less likely to use reversible contraceptives for limiting childbearing. Lower accessibility of any reversible method and less information about contraceptive methods and low follow-ups are the main significant barriers to extensive use of reversible methods in rural areas [29, 30]. Another key finding of the present study is that the demand for limiting and using permanent contraceptives both are higher in the region with low TFR (South region) compared to the region with high TFR (North, Central). Most of the previous studies have found that in the Southern region, sterilization is more standard than in any other region in India [4,31]. The proportion of women using reversible contraceptives was higher in the Northeast region compared to others.

Conclusion

This study has several crucial conclusions based on the findings from this study. *First*, the use of the permanent method of contraception for stopping childbearing is about three times higher than the use of reversible contraceptive methods. This indicates that the promotion of reversible contraceptive methods for stopping childbearing should be communicated at the policy-level. *Second*, the use of traditional reversible contraceptive methods needs to be reduced for the stopping of childbearing as the traditional methods are the least effective methods. *Third*, the identification of the women based on socioeconomic and demographic characteristics in the use of traditional methods of contraception would help to target the population from the programmatic perspectives.

Moreover, the dominance of using permanent methods for family planning (male and female sterilization) in India has led to questions about the failure of the community needs assessment approach (CNAA) programme. The increasing trends of sterilization regrets [31]

highlighted that ministry of family and health welfare (MoFHW) needs to pay attention to promote the client choice-based contraceptives availability, accessibility, and affordability. Thus, the promotion of reversible contraceptive methods would help achieve the sustainable development goals of ensuring the reproductive health and rights of all girls and women.

Declaration of competing interest: No potential conflict of interest was reported by the authors.

Ethical statement: We used the publicly available secondary data (National Family Health Survey, 2015–2016) for this study. The data can be downloaded through online upon a granted request from Demographic Health Survey (https://dhsprogram.com/data/available-datasets.cfm).

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