

Do family planning advice and maternal health care utilization changes course in contraception usage? A study based on Bihar, India

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Abstract

The study aims to assess the impact of family planning advice and maternal health care utilization on contraceptive usage in Bihar using the National Family Health survey round 4, (2015-16) data. Bivariate and multivariate analyses used in the study reveals that majority of the women preferred modern contraceptive methods with female sterilization being the most common among all. More than half of married women received advice on family planning methods but were found to be inconsistent in influencing the contraceptive use. Women who have received proper maternal health care were found to have more likelihood in adopting family planning methods. Age, residence, religion and wealth index are the significant predictors of contraception use. Age and wealth of the women have a positive relationship with the contraception use. There exists a variation in contraceptive usage across regional and religious spheres of women which calls for target specific policies.

Keywords: *Maternal Health, Family Planning, Advice*

Background:

The growth of Population has long been a concern of any country, and India has an extensive history of explicit population policy. The increase of access over contraception and reduction of the unmet need for family planning (FP) are vital components to improve reproductive health. Literature has highlighted numerous benefits of FP, for instance, reduction in fertility and unwanted pregnancies (Yadav & Dhillon, 2015); infant and maternal death (McCleary-Sills, et. al., 2012; Ahmed et. al., 2012; Bhutta et al., 2014; Rutstein and Winter, 2015), education and economic benefits (Canning and Schultz, 2012; Schultz and Joshi, 2013; United Nation, Department of Economic and Social Affairs, 2015). More importantly, FP is one aspect of the targets around universal access to sexual and reproductive health found in the SDGs (3.7 and 5.6) (Dockalova et. al., 2016). FP in India is a part of one's personal choice and could only encourage not force to implement. Hence, the government's role in FP is to promote it through various programme emphasizing the benefits of small family concepts. Most of the public health care providers have FP services to cater the needs of married couples beginning from counseling to its usage.

The continuum of care including antenatal, delivery and the post-natal care is critically important in high focus states of India, like Bihar. Both mothers and babies are vulnerable to a range of health risks resulting in high maternal and neonatal mortality. FP advice is an essential component in the continuum of care and also the key element to improving health behavior of the women and health-care seeking during the antenatal, delivery and post-delivery stage (Nikiéma et. al., 2009). The information provided during the antenatal care (ANC) enables women and their family members to later take care of their newborn, adopt healthy behaviors and to identify and act on medical emergencies that may arise during antenatal, natal and post-natal care (PNC) periods (Renkert & Nutbeam, 2001 and WHO, 2003). Taking advice on suitable FP methods ensures spacing between children. It may provide to preventing unwanted pregnancies. Although, the earlier research report that advice on family planning has a changing role in ANC service utilization and skilled birth attendance (SBA) in the developing country contexts (Pembe et. al., 2009; Magoma et. al., 2011). Advice on family planning is the part of the standard practice of care for women who have just given birth. Demand for contraception methods is potentially high after delivery, and birth spacing plays a critical role in improving MCH (Ahmed et. al., 2012; Levitt et. al., 2004). Post-integration most recent multi-country studies based on Demographic and Health Survey data show a positive relation between MCH service and use of family planning methods (Zerai & Tsui, 2001; Seiber et. al., 2005). This improvement is not demonstrated by exogenous variables (Ahmed & Mosley, 2002). Providing the ANC services is the opportunities to reach the women who would be the main target of Family Planning services. This has been the motive behind standard strategies using antenatal care as an approaching period for the delivery of reproductive health services, including

FP services (WHO, 2004). Some studies have shown that there is a tendency among health workers for promoting ANC and institutional delivery only while FP advice is minimal (Matthews et. al., 2001; Sugathan et. al., 2001). An earlier study suggests that an ANC package including FP advice significantly increased the quality of care (Birungi & Onyango-Ouma, 2006). In the South Asia region (Sines et. al., 2007; Anwar et. al., 2005) particularly in India, studies show that PNC is limited to inequality in service utilization (Jat et. al., 2011; Singh et. al., 2012). Previous studies examining the value of integration have mixed findings. A study based on a randomized control trial on educational interventions for contraceptive use reveals that women who received postpartum counseling on family planning with repeated contacts were more influenced to use FP methods (Lopez et. al., 2012).

Bihar is the third most populous and one of the least developed states with a long history of high fertility in India and having low socio-economic status. It is also a highly focused state with 10 High priority districts out of 38 districts in 184 high priority districts (by the government of India) in India under NRHM. Although NRHM was launched in 2005 with an integration plan, there is a dearth of literature particularly in Bihar to identify the role of maternal and child health care in an increase in the use of contraceptive and decrease in the unmet need for family planning. Therefore, the present study is an attempt to study the answer to the following questions: Does Family planning advice increase the use of contraception? Or does maternal health care utilization play any role in the prevalence of contraception use? This study hypothesizes that family planning advice is the key factor to increase the use of contraceptives and maternal health care utilization play an important role in the use of contraception. The study intends to an analysis by showing the prevalence of contraceptive use in Bihar, India. The overall aim of this study is to examine the impact of family planning advice and use of maternal health care utilization on contraceptive use in Bihar, India.

Data Source and Methodology: The study used the recently released data from National Family Health survey round 4, (2015-16). NFHS data provide information on population, health, nutrition, abortion, sexual behavior, HIV/AIDS knowledge, attitudes, behavior, and domestic violence for India as well as each state and union territory and district for India, conducted under the stewardship of the Ministry of Health and Family Welfare (MoHFW) of India. This survey covered all 35 states and union territories and also first time covered all 640 districts in order to monitor provide the corrective measure on health system. NFHS uses stratified two-stage sampling procedure for the selection of the sample and certain specific set of questions were asked using standard questionnaires with the consent of the respondents. The present study utilizes the data only for Bihar, with the sample 45,812 and restrict for currently married women with the sample 35,373. Current use of contraception is the outcome variable. The information was obtained from currently married women regarding the use of family planning methods by asking them the question “Are you currently doing something or using any method to delay or avoid getting pregnant? If the answer is yes then further asked name of the method. Modern method is defined as the women were using Diaphragm, Female condom, Lactational amenorrhea, Injections, IUD,

Pill, Female sterilization whereas traditional methods are Rhythm/periodic abstinence and withdrawal. Total current use of contraceptives includes the current use of traditional and modern methods of family planning.

Age, any ANC, place of delivery, PNC, advice on family planning, place of residence, education status, caste, religion and wealth index are the predictors for this study. We create a proxy variable for maternal health care utilization using usage any ANC, institutional delivery and postnatal care within two weeks. If the women received any ANC and gone for the institutional delivery and received postnatal care within two weeks, it is as coded “Yes” otherwise it is coded as “No”. Bivariate, as well as multivariate analysis, has been used to fulfill the specific objectives of the study. For the bivariate analysis cross-tabulation and chi-square test has been used to examine the significant association between use of contraceptive and different socio-economic and demographic predictors. Furthermore, for multivariate analysis binary logistic regression has been used.

The logistic regression model is a multivariate technique for estimating the probability that an event occurs. Let Y be a dichotomous dependent variable coded as:

$Y_i = 1$, if the event occurs

$Y_i = 0$, if the event does not occur

Now we can define the dependence of probability of success on the independent variable for single independent variable (X), the logistic regression is the form:

$$Prob. (event) = Prob. (Y_1 = 1) = \frac{e^{\beta_0 + \beta_1 x}}{1 + e^{\beta_0 + \beta_1 x}}$$

$$Or\ equivalently, Prob. (event) = Prob. (Y_1 = 0) = \frac{e^{\beta_0 + \beta_1 x}}{1 + e^{-(\beta_0 + \beta_1 x)}}$$

Where β_0 and β_1 are the regression coefficients to be estimated from the data.

For more than one independent variable, the model assumes the form:

$$Prob. (event) = \frac{e^z}{1 + e^z}$$

$$Or\ equivalently, Prob. (event) = \frac{e^z}{1 + e^{-z}}$$

Where $Z = \beta_0 X_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$.

The formula is given as- $Logit (p) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$.

However logarithm of the ratio of P_i and $1-P_i$ which is called logit of P_i that turns out to be a simple linear function of X_{ij} . We define,

$$\text{logit}(P_i) = \ln \frac{P_i}{1 + P_i} = \sum_{j=0}^k \beta_j x_{ij} = \beta_0 + \sum_{j=1}^k \beta_j x_{ij}$$

The equation can be written in terms of odds as:

$$\begin{aligned} \text{Odds} &= \frac{\text{probability of the event}}{1 - \text{probability of event}} \\ &= \frac{p_i}{1 - p_i} = \exp\left(\sum_{j=0}^k \beta_j x_{ij}\right) \end{aligned}$$

The exponential raise to the power β_j is the factor by which the odds change when the independent variables increases by one unit.

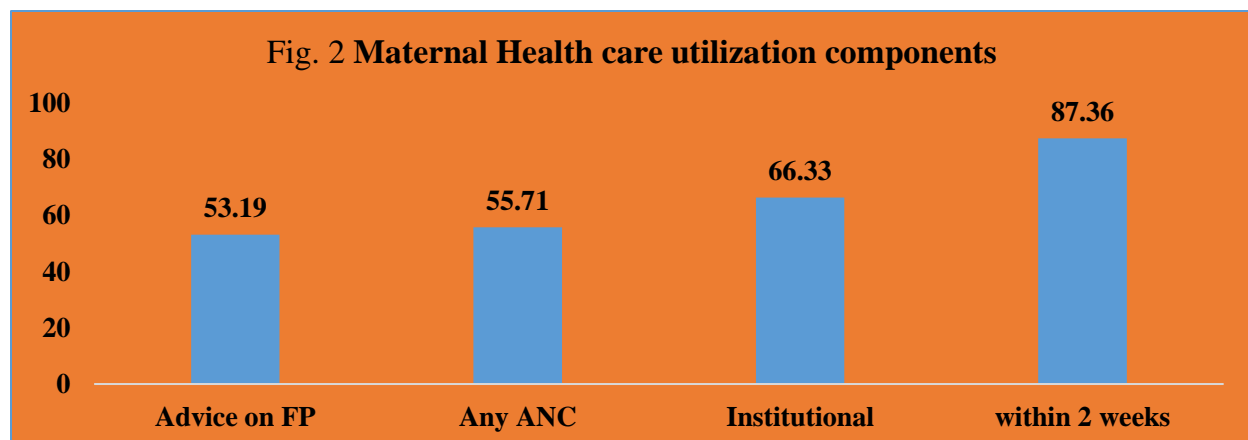
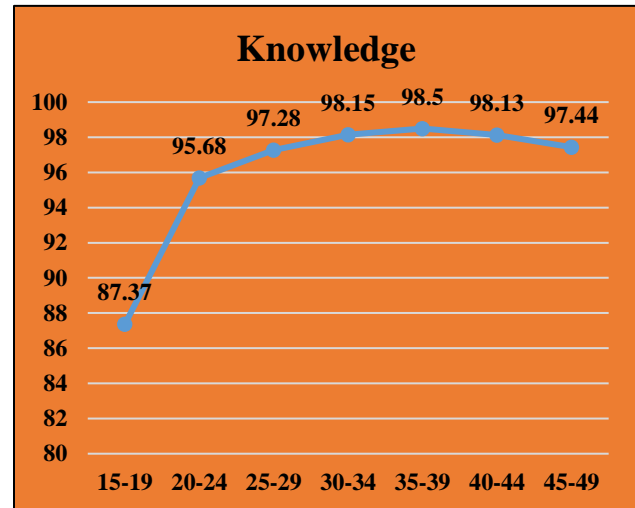
Results: It is obvious that the knowledge of

Fig.1

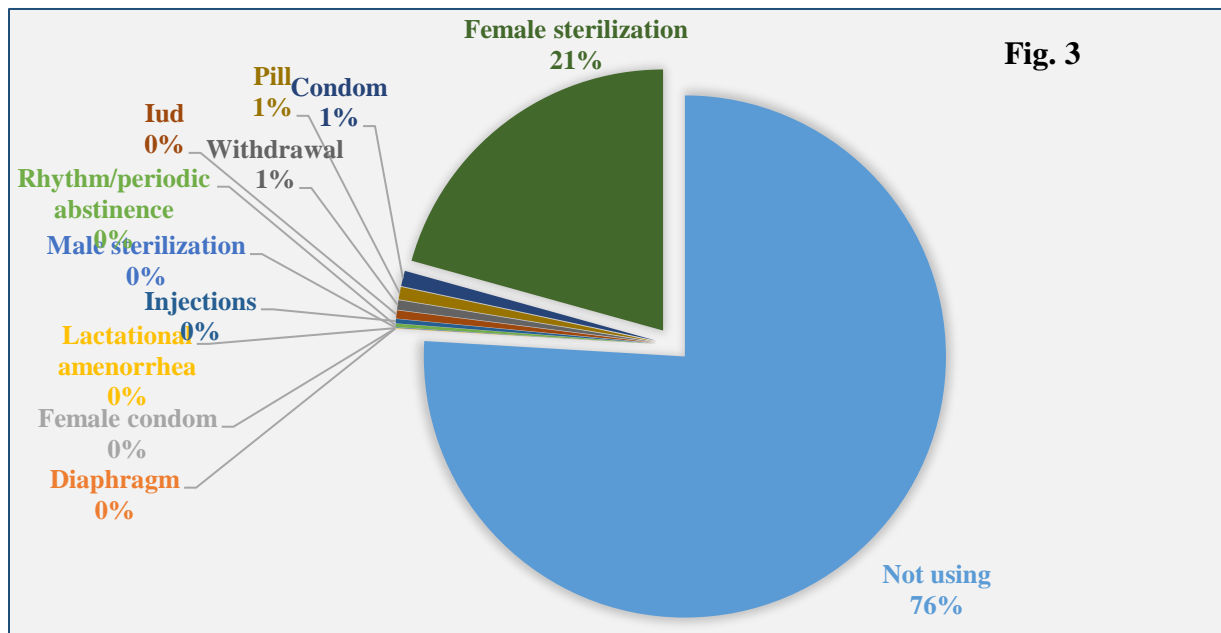
contraceptive methods will vary with the age of women and it will be higher among older age cohorts. The analysis also shows similar results.

Only 87 percent the younger women in the age

group 15-19 were aware about any one method of contraception, which increased to 98 percent in the age group 35-39 and later on decrease in the old ages [Fig.1]. More than half of currently married women received advice on family planning methods and also going for the any antenatal care visit in Bihar. Sixty six percent of the delivery are facility based and eighty seven percent women in Bihar received post-natal care [Fig. 2]. One-fourth of the currently married women is using contraceptive methods in Bihar which is relatively low (24%) and below the national level of 54% [NFHS, 2015-16]. Female sterilization is the most popular contraceptive method used in Bihar, used by 21 percent of currently married women [Fig. 3]. Almost one-fourth of the currently married women are using modern contraceptive methods and very few percent (1%) women are



using traditional methods of family planning [Fig. 4]. In Bihar, women are using more limiting methods (21 percent) the spacing methods (only 3 percent) [Fig. 5].



Use of family planning methods by maternal health care factors according to background characteristic, Bihar India-2015-16 shown in **Table 1**: Overall, nineteen percent women received advice on family planning, twenty percent women receiving any antenatal checkups, eighteen percent delivery conducted at health facility and twenty three percent women are using family planning methods. Eighteen percent currently married women received family planning (FP) advice and going to any antenatal checkups and delivered at health facility, are using modern contraception methods. Women receiving postnatal checkups within two weeks are more (twenty one percent) using modern family planning methods. Age of the women is the important factor for the use FP methods. The use of contraception increases with increase of age of the women till 35-39 age group then it decline. The rural-urban difference between uses of family planning methods in Bihar is quite visible. Women living in urban area are using more contraceptive methods then rural counterpart. Twenty eight percent high caste women are using FP methods followed by OBC and SC/ST. FP users of Hindu religion is more than non-Hindu. In Bihar, FP users (both Modern and Traditional) have a positive relationship with wealth of the women. The use of family planning is more among secondary educated women compared to low and higher educated women.

Fig. 4

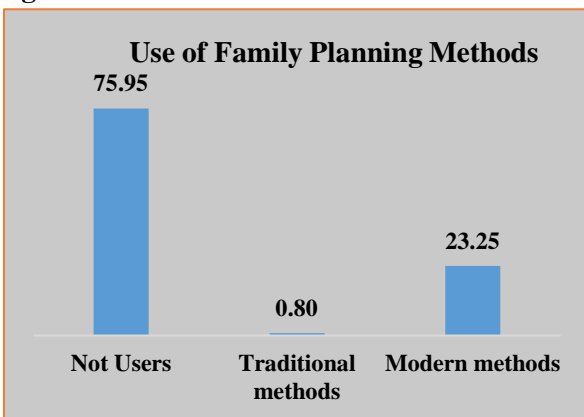
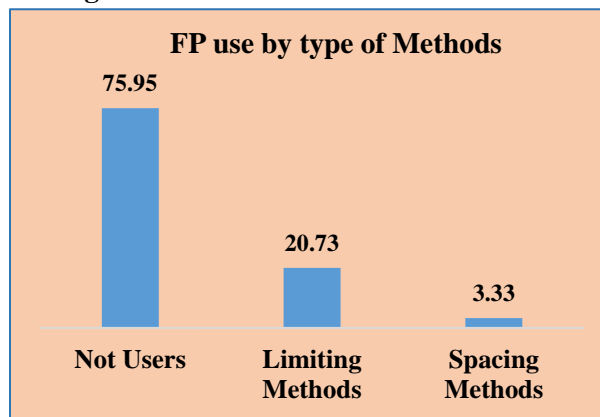


Fig. 5



Result from binary logistic regression analysis of family planning use by maternal health care factors according to background characteristics, Bihar India-2015-16 shown in **table 2**. We use two models for the analysis. In first model, maternal health care utilization, age of the women, place of residence, education of the women, caste, religion and wealth of the women are included as predictor variables and in second model advice on family planning included. In first model, maternal health care utilization, age, residence, religion and wealth quintile significant predictors of contraception use and in second model when we add variable advice on family planning, wealth of the didn't play any significant role for the use of contraception. Women who have received proper maternal health care (Any ANC+Institutional Delivery+Postnatal care), the likelihood is 43 percent more likely to use family planning methods. Maternal health care utilization has a significant Impact on use of family planning methods. Advice on family planning play an important role in the use of contraception, however results are not statistically significant. However Age and wealth of the women have the positive relationship with use of contraception methods. As age and wealth of currently married women increase, the use of family planning services also increases. The likelihood of women living in rural areas is thirty one percent less likely to use of family planning methods than urban. Non-Hindu women are sixty six percent less likely to use family planning methods than Hindu. Interestingly, results suggest that advice on family planning didn't have much effect on birth control in Bihar.

Discussion: Under Progress

Knowledge and Contribution:

It is essential to learn that there is a considerable difference in the awareness and the use of contraception among the women. Though the knowledge of family planning methods is universal among women and more than half of the women received advice on family planning methods, but only one-fourth of the currently married women are using family planning methods in Bihar. The reason behind the low efficiency of family planning advice in limiting birth rates in Bihar could be because of lack of women literacy, low autonomy, highly male-dominated patriarchy system

and other cultural effects. Maternal health care utilization is more effective in increasing the current use of family planning which could be because of contact with the healthcare services which have a strong influence in accepting family planning services. The study calls for strengthening the outreach for encouraging female education, employment among others to enhance the empowerment of women which may be helpful in taking their fair decisions in matters relating to personal health and fertility levels. More needs to be done to support the need for effective maternal health care utilization to increase the use of contraception. Thus, efforts are required to ensure that currently, married women across socio-economic backgrounds have an equal opportunity to received maternal health services. The study also opens scope for further understanding the variations of contraceptive use according to autonomy levels, male involvement in the family planning decision-making process.

Table 1: Use of family planning methods by maternal health care factors according to background characteristic, Bihar India-2015-16

Background indicators	No Users	Traditional	Modern	Users
Advice ***				
No	82.72	0.68	16.6	17.28
Yes	80.73	1.08	18.2	19.28
ANC***				
No	84.38	0.4	15.22	15.62
Yes	80.48	1.36	18.16	19.52
Delivery type***				
Home	83.86	0.51	15.62	16.13
Institutional	81.3	1.16	17.54	18.7
PNC**				
More than 2 weeks	80.65	0.43	18.91	19.34
within 2 weeks	77.39	2.01	20.59	22.6
Age***				
15-19	98.21	0.17	1.63	1.8
20-24	92.33	0.67	7.0	7.67
25-29	77.63	1.05	21.32	22.37
30-34	63.92	1.15	34.93	36.08
35-39	59.94	1.34	38.72	40.06
40-44	61.32	0.72	37.97	38.69
45-49	66.11	0.49	33.4	33.89
Residence***				
Urban	64.35	2.51	33.14	35.65
Rural	74.97	0.65	24.37	25.02
Caste***				
SC/ST	76.69	0.45	22.86	23.31
OBC	72.85	0.97	26.18	27.15
Others	71.7	1.16	27.13	28.29
Religion***				

Hindu	71.26	0.89	27.85	28.74
Non-Hindu	88.6	0.85	10.54	11.39
Wealth index***				
Poorest	77.33	0.48	22.19	22.67
Poorer	73.57	0.74	25.68	26.42
Middle	69.58	1.18	29.25	30.43
Richer	66.1	1.89	32.01	33.9
Richest	59.15	3.74	37.11	40.85
Education***				
Illiterate	73.73	0.6	25.67	26.27
Primary	74.75	0.65	24.6	25.25
Secondary	73.1	1.16	25.73	26.89
Higher	73.87	3.22	22.92	26.14

Chi-square test $p < 0.01$ *** $p < 0.05$ **

Table 2: Result from binary logistic regression analysis of family planning use by maternal health care factors according to background characteristics, Bihar India-2015-16

Background indicators	Model 1	Model 2
Advice		
No [®]		
Yes		1.073(0.902 -1.276)
MH utilization		
Not Received MH [®]		
Received MH	1.592*** (1.4 -1.81)	1.436*** (1.187 -1.736)
Age		
15-19 [®]		
20-24	2.146*** (1.314 -3.504)	2.37** (1.017 -5.52)
25-29	5.774*** (3.565 -9.352)	6.132*** (2.663 -14.117)
30-34	8.473*** (5.211 -13.776)	9.433*** (4.075 -21.838)
35-39	8.479*** (5.149 -13.963)	9.242*** (3.899 -21.909)
40-44	6.785*** (3.955 -11.639)	9.422*** (3.79 -23.427)
45-49	6.303*** (3.277 -12.121)	2.675 (0.629 -11.374)
Residence		
Urban [®]		
Rural	0.739*** (0.617 -0.886)	0.697** (0.494 -0.984)
Education		
Illiterate [®]		
Primary	1.083 (0.923 -1.272)	1.186 (0.912 -1.543)
Secondary	1.017 (0.88 -1.174)	1.003 (0.789 -1.275)
Higher	1.167 (0.854 -1.594)	1.032 (0.546 -1.949)

Caste		
SC/ST®		
OBC	1.097(0.976 -1.233)	1.052(0.868 -1.274)
Others	1.164(0.964 -1.406)	0.966(0.689 -1.355)
Religion		
Hindu®		
Non-Hindu	0.299***(0.249 -0.359)	0.349***(0.252 -0.482)
Wealth index		
Poorest®		
Poorer	1.182**(1.04 -1.343)	1.074(0.867 -1.33)
Middle	1.335***(1.112 -1.601)	1.118(0.81 -1.543)
Richer	1.497***(1.17 -1.915)	1.439(0.899 -2.304)
Richest	1.509**(0.993 -2.294)	1.446(0.553 -3.782)

Note: ® refers Reference Category, p<0.10 *, p<0.05 **, p< 0.01 ***

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