

Unmet need for family planning and its determinants in Bihar: Policy and programme implications

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Asian Development Research Institute



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Executive Summary

Unmet need for family planning (FP) gives an estimate of maximum potential demand for contraceptives and hence family planning services. It indicates the gap between women's reproductive intentions and their contraceptive behaviour. The indicator is useful to track progress towards the target of reaching couples' reproductive goals and thus achieving universal access to reproductive health. Information on contraceptive prevalence complements the indicator of unmet need for family planning (FP). The sum of contraceptive prevalence and unmet need indicates the total demand for family planning.

The current paper is an analysis of predictors of unmet need for family planning in Bihar, based on a state-wide study on Currently Married Women of Reproductive Age (CMWRA) (2016). In this cross-sectional study, tablet-PC assisted face-to-face interviews on reproductive health were carried out across all 38 districts of Bihar among currently married women aged 15-49 years. A total of 22,800 women, 600 per district across all 38 Bihar districts, constituted the study sample. Correlates of unmet need were determined using Adjusted Odds Ratios (AOR).

Key findings

Background characteristics and unmet need for family planning

- Mean age of the CMWRA was 30 years, majority belonged to Hindu religion (84.4%), 2.95 and 1.39 were the mean number of living children and living sons respectively.
- Majority belonged to other backward caste (OBC) (60%) and were illiterate (60.34%).
- Half of them had husbands who worked as unskilled laborers. Mean number of living children at first contraception was 2.7, median age at first contraception was 25 years and median age at sterilization was 26 years.
- One in three women reported their last birth as being unintended.

- Unmet need for contraception among this representative group of women was 28.09%, with unmet needs for spacing and limiting being 7.16% and 20.93% respectively.

Access to family planning (FP) methods and information exposure

- Only one in three currently married women reported access to family planning methods, two out of five had interactions with front line workers (FLWs), and a little less than one-fourth women had some kind of media exposure.
- Interactions with FLWs were found to be negatively associated with access to FP methods and positively associated with better access to limiting methods.
- Women belonging to Hindu religion and those educated beyond 8th standard were more likely to have access to family planning methods especially for limiting methods.
- Those who had more children and belonged to high wealth index group were more likely to have better access to FP methods.

Determinants of unmet need for family planning

- Women with higher education had a higher unmet need for spacing.
- Women with higher age, those who had more children, specifically more living sons, had a lower unmet need for spacing and higher for limiting.
- Women involved in making decisions about family planning were less likely to have unmet need for spacing.
- Participants who reported that they did not meet their husband in last three months (due to migrating husbands), were more likely to have unmet need for both spacing and limiting.
- Women who reported last birth being unintended had lower unmet need for spacing while higher unmet need for limiting.
- Women whose husbands did not allow them to use contraception were highly likely to have an unmet need for spacing.
- Surprisingly, both unmet need for spacing and limiting were higher among women who had FLWs interactions as compared to those that did not, even after additional adjustment for accessibility, media exposure and supply. Having better access to FP methods reduced the likelihood of unmet need for both spacing and limiting.

- ❑ Women who had some kind of media exposure had lower unmet need for spacing and higher for limiting even after additional adjustment for FLW interaction, accessibility and supply.
- ❑ Women living in blocks with better FP related supplies had lower likelihood of having unmet need for both spacing and limiting before and after adjustment for FLW interaction, media exposure and accessibility to FP methods.
- ❑ Being members of self-help group reduced the likelihood of having unmet need for both spacing and limiting.

Conclusion

Program and policy relevance

- ❑ The term "unmet need" implies that services have a further role to play in reducing mistimed and unwanted pregnancies.
- ❑ Improved access and availability of family planning products and services is key to contraceptive acceptance and use. However, equally important is that the program goes far beyond the provision of family planning and contraceptive services by addressing social obstacles to use.
- ❑ It will be useful to understand the potential and challenges to major interventions in strengthening spacing methods, considering that Bihar has a very low prevalence of spacing methods.
- ❑ A multi-pronged approach may be looked at – static v/s mobile services for family planning in hard to reach areas servicing the bottom of pyramid BoP population. The need to reach the last mile, the BoP population, with essential information and service linkages would be important to improve spacing method uptake.
- ❑ Improved service delivery of family planning program at the village level is also a key factor in reducing disparities between geographical regions for family planning thus moving towards equity in the program. The principal policy challenge is to design communications strategies that will reach the less privileged, rural and illiterate people who are by far the majority in Bihar.
- ❑ Despite media and front line workers' interactions, uptake of contraception seems low. Effective communication campaigns with well-trained front line workers is needed. There is a need to re-look at the media and FLW messaging in this regard, and re-design 'talking points' using both IPC and media.
- ❑ Male involvement in family planning is utmost vital to give impetus to the program. Introduction of male health workers to target men could be looked into.

- Reducing unmet need and serving current users of contraception well can help reduce unintended pregnancies that lead to abortions and unwanted births—both of which are unacceptably high in Bihar. Strategies to improve acceptance and use of spacing methods would prove useful.
- Reducing unmet need for family planning is important for both achieving demographic goals and enhancing individual rights. Policies that can direct programs need to be put in place, considering strengthening all factors that impact uptake of contraceptives, and thus reduce unmet need.
- From a demographic standpoint, reducing unmet need can lower fertility in Bihar that is struggling to cope with rapid population growth.

Introduction

Married or cohabiting women of reproductive age who are fecund, and want to delay or avoid child bearing are considered to have unmet need for family planning (FP). Total unmet need for family planning is the sum of unmet need for limiting (defined as currently married women aged 15-49 who are not using contraception and do not wish to become pregnant at all), and spacing (currently married women aged 15-49 who are not using contraception and do not wish to get pregnant within the next couple of years).

In principle a theoretical concept, unmet need for family planning gives an estimate of maximum potential demand for contraceptives and hence family planning services. It indicates the gap between women's reproductive intentions and their contraceptive behaviour. The indicator is useful to track progress towards the target of reaching couples' reproductive goals and thus achieving universal access to reproductive health. Information on contraceptive prevalence complements the indicator of unmet need for family planning. The sum of contraceptive prevalence and unmet need indicates the total demand for family planning.¹ Evidences from around the world clearly demonstrate that contraception is one of the most important proximate determinant of fertility.^{2,3,4,5} However, several surveys carried out during the last four decades or more have demonstrated the existence of a significant gap between the apparent need for contraception and actual levels of method use in low resource countries.⁶ Thus, the question of contraceptive non-use and their reasons become crucial. Despite the recognition that family planning is critical to improving maternal and child health, advocacy and policy to strengthen family planning program and services is still weak; and in light of this relationship, it becomes important to establish strategies to strengthen the family planning program so as to harness demographic dividends.

Some researchers maintain that the existence of unmet need is due, mainly to a lack of access to service facilities.⁴ Others argue that the causes of unmet need include "lack of knowledge, fear of side effects, and social and familial disapproval".⁵ A better understanding of the determinants of unmet need is essential to modify service delivery programs, and to assess their contribution toward satisfying the existing unmet need.^{7,8} Studies have also shown that the existence of an unmet need for contraception is taken as an indicator of deficiencies in accessibility⁸ and quality⁹ of family planning programs. As noted by Casterline and Sinding (2000), the extent to which programmatic interventions

can serve women having unmet need for contraception, depends on the women's reasons for non-use.¹⁰ Improvements in the quality of programs and services can go a long way toward addressing many of the concerns that women face in contraceptive use. Such improvements potentially even affect social and cultural opposition to family planning. Expansion of educational and economic opportunities for women over the long term can also affect the attitudes of women and their partners' and community values regarding the feasibility of fertility control. There has been an implicit assumption in the literature that unmet need can be greatly reduced through improvements in these program characteristics.⁸ It is therefore logical to ask whether unmet need can be used as an indicator of program performance. And if so, what are the determinants of unmet need and how best can they be programmatically managed.

India's latest National Family Health Survey (NFHS-4), which is an equivalent of the DHS around the world, estimates the unmet need for family planning to be 12.9% (5.7% for spacing). Over the last two rounds of the survey, 2005 and 2015, it has reduced by only one percentage point. At the same time, total fertility rate has reduced from 2.7 to 2.2.¹¹

Bihar's high unmet need for contraception (21.2%) and low contraceptive prevalence (24.1%) remains a challenge, especially in light of the country's expected contribution to the FP2020 goal of expanding family planning services to an additional 120 million women. This invites interest in exploring the determinants of contraceptive non-use among women with a desire to postpone or end childbearing (unmet need for spacing and limiting).

The study setting

With a population of 104 million, Bihar is the third most populated state in India.¹² It is also one of the states with the second largest rural population (around 90%). Most of Bihar follows Hindu religion (83%), followed by Islam (17%). In terms of caste structures, OBCs comprise 40%, 22% belong to the forward caste, 16% are *mahadalits*, the rest being Muslims, Adivasis and others. Among India's 32 states, Bihar ranks second last (last being Orissa) on the human development index (HDI=0.447/ All India: 0.504). (UNDP India, 2011). Bihar's current situation may be attributed to numerous factors including socio-political and economic ones. The region's economy depends largely on traditional agriculture, and most people live in rural areas and belong to underprivileged castes. The caste system is still powerful and deep-rooted; it hinders egalitarian access to resources and the development of skills necessary for social progress, and it reinforces continued poverty. Literacy is low, especially among women, although data from the National Family Health Survey indicate that it is increasing faster among young females than among young males.¹¹ Labour force migration, both within and outside of the state, is increasing. Finally, road networks and

availability of transportation are limited, hampering villagers' access to education, health care and modern goods.¹² As a result, Bihar falls below the national average on almost all indicators of health, fertility and socioeconomic development. Childbearing begins very early in life: About 39% women are already married before age 18 and about 12 percent are mothers before age 18.¹¹ The mean age at first birth is 18.8. Contraceptive prevalence, though still low, increased from 24% to 35% between 2005-2006 and 2015-16.¹¹

Data

The present study is designed to assess the prevalence, demographic characteristics and determinants of unmet need for family planning. The data for the current paper was taken from a state-wide study on Currently Married Women of Reproductive Age (CMWRA) in Bihar, conducted by Care India, whose objective was to understand the intent and practice of family planning among currently married women of reproductive age. The larger CMWRA study on family planning and contraceptive use intended to estimate the following indicators, namely, total fertility rate, intent of using family planning methods, unmet need for family planning, contraceptive prevalence rate – both modern and traditional, method mix of contraceptives (for spacing and limiting), and reasons for non-use of methods.

Study design

In this cross-sectional study, tablet-PC assisted face-to-face interviews were carried out across all 38 districts of Bihar among currently married women aged 15-49 years. A structured questionnaire was developed for the purpose, and all interviews were conducted by women data collectors. All investigators went through an initial 15 days training, followed by three-days field pilot followed by additional five days of in-house training, before finally moving to the field. Multistage sampling method was used. The study was conducted in all 38 districts of Bihar. Computer Aided Personal Interviewing (CAPI) technique was used to collect relevant data. The study was conducted during June-August 2016.

Sampling strategy

A multistage cluster sampling was adopted. The primary sampling unit was the block, followed by the *anganwadi centres* (AWC) in rural areas and wards in the urban areas as the secondary sampling unit and finally the structures as the tertiary units. Five blocks (Primary Sampling Units - PSUs) were selected from each district using stratified random

sampling while secondary sampling units were selected using probability proportional to size (PPS) sampling. The decision to select five blocks per district was due to the fact that there are two districts (Araval and Sheohar) that have only five blocks each. Thus, a total of 190 blocks were randomly selected. In blocks that had both urban and rural settlements (called mixed blocks), the numbers of AWC areas and wards (Secondary Sampling Units - SSUs) to be selected was determined on the urban – rural proportional allocation in those blocks, as per the census. From each SSU, 5 structures were selected using systematic sampling and only one respondent was selected from each selected structure. A total of 22,800 women, 600 per district, constituted the study sample.

The inclusion criteria for the study respondent was:

- Currently married women aged 15-49 years living in the selected household for at least 3 months.
- If a married daughter had been living at her paternal house for over 3 months, she was also eligible to be selected.

Data analysis: The data was analyzed at two levels among the currently married women of reproductive age (N=22800) –

- Percentage distribution of:
 - Socio-demographic characteristics
 - Unmet need for spacing and limiting methods
 - Unmet need across socio-demographic and other related factors
- Association (Adjusted* Odds Ratios) between potential determinants** and unmet need for both spacing and limiting

(*Adjusted for Religion, caste, respondent education, husband occupation.

**Socio-demographics, decision making, accessibility to FP methods, FP related FLW interactions, SHG membership and FP related supply situation)

Ethical approval: All research ethics were followed while carrying out the study. Verbal informed consent was sought by all survey participants before including them in the survey. For example, all respondents were informed about the purpose of the study, that their responses would be kept confidential and would be used only for research purpose. They also had the option of terminating the interview in between, if they did not feel like continuing. Only those respondents who agreed to participate in the survey were included.

Result

Socio-Economic and Demographic profile

Recruited women had a mean age of 30 years (not shown), and most belonged to Hindu religion (84.4%). They had, on an average, 2.95 and 1.39 living children and living sons respectively; most belonged to other backward caste (OBC) (60%) and were illiterate (60.34%). Half of their husbands were working as unskilled labourer. Mean number of living children at first contraception was 2.7, median age at first contraception was 25 years and median age at sterilization was 26 years. (Table 1).

Table 1: Percentage distribution of women by background variables

Variable	Category	N (%)
Religion	Others	3567 (15.64)
	Hindu	19233 (84.36)
Caste	SC/ST	6200 (27.19)
	OBC	13596 (59.63)
	Others	3004 (13.18)
Respondent Education	No education	13758 (60.34)
	Up to 8th grade	4444 (19.49)
	More than 8th grade	4598 (20.17)
Wealth Index	Lower	7637 (33.5)
	Middle	7573 (33.22)
	High	7590 (33.29)
Occupation of husband	Not working	486 (2.13)
	Skilled labour	3838 (16.83)
	Unskilled labour	11381 (49.91)
	Salaried/Business	7095 (31.11)

Discussion around family planning and decision making

While majority (91%) were part of the discussion around family size along with their husbands, only about 44% women participated in decision-making specifically about family planning. Only one in three currently married women reported access to family planning methods, essentially for male and female sterilization, IUD and injectable contraceptive, two out of five had interactions with front-line workers (FLWs) with regard to family planning, and a little less than one-fourth women had some kind of media

exposure in this regard. One in five women reported that they had not met their husbands in the last three months before the survey due to husbands' migration, one-third women reported their last birth as being unintended. (Table 2).

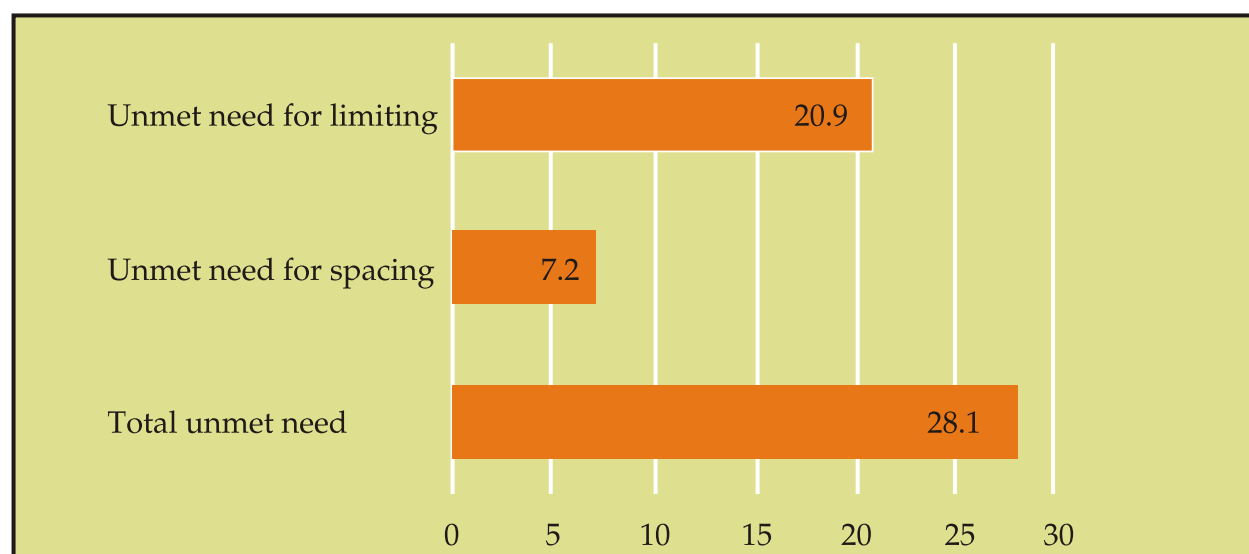
Table 2: Percent distribution of selected characteristics among currently married women in reproductive age (N=22,800)

Variable (Category- Yes)	N (%)
Involved in discussion regarding family size	20662 (90.62)
Participation in decision making regarding family planning	9968 (43.72)
Access to FP methods: Female Sterilization, Male Sterilization, IUD, Injectable contraceptives	6549 (33.07)
FLW Interaction	9276 (40.68)
Media Exposure	5358 (23.50)
Husband's migration	4570 (20.04)
Last birth unintended	6675 (33.76)

Estimating unmet need for contraception among CMWRA

Unmet need for contraception among this representative group of women was 28.1%, with unmet need for spacing and limiting being 7.2% and 20.9% respectively. (Figure 1).

Figure 1: Unmet need for family planning among currently married women in reproductive age – Bihar (2016)



Determinants of unmet need for family planning

For the current analysis, adjusted odds ratios to understand the association between potential determinants and unmet need for both spacing and limiting were studied. The model was adjusted for certain background variables like religion, caste, respondent education, and husband's occupation. Some of the potential determinants that were studied included the socio-demographic variables, decision making, access to FP methods, FP related FLW interactions, self-help group (SHG) membership and FP related supply situation.

Access and supply of FP methods

A good access to family planning methods, both terminal and spacing, plays an important role in method acceptance and use. We attempted to understand who among our respondent women had good access and supply of FP methods. This was specifically asked with regard to access to male and female sterilization, IUD and injectable contraceptive.

Better access to FP products and services was reported among women belonging to Hindu religion, having better education (at least 8th standard), and having relatively better socio-economic conditions (middle and higher SEC). Further, interactions with front line workers led to better opportunity for accessing limiting methods but the same was not true for accessing spacing methods.

Women with working husbands were less likely to have a better supply of spacing methods; those from middle and higher wealth index group had more access to spacing methods. Those who had more children and were from high wealth index group were more likely to access FP methods. Detailed analysis is shown in **Appendix -Table A1**.

Socio-economic and demographic (SED) characteristics and unmet need for spacing and limiting births

Hindu women and those belonging to non-marginalized caste were less likely to have an unmet need for spacing methods. Women who had completed more than 8th grade of education had a higher unmet need for spacing. This may be due to the fact that these women are more aware and therefore more likely to seek spacing methods. Older women, those who had more children, specifically more number of living sons, had a lower unmet need for spacing and higher for limiting. (**Appendix -Table A2**).

Women's agency and exposure to information campaigns and unmet need for family planning

Women involved in decision-making about family planning were less likely to have an unmet need for spacing. Participants who reported that they did not meet their husbands (due to the latter's migration) in the last three months were more likely to have unmet need for both spacing and limiting. Last birth unintended meant that the woman had a lower unmet need for spacing, while she had a higher unmet need for limiting. Women whose husbands did not allow them to use contraception were highly likely to have an unmet need for spacing. **(Appendix - Table A3).**

With regard to exposure to information campaigns in the villages, surprisingly, both unmet need for spacing and limiting were higher among women who had interacted with a front-line worker (FLW) as compared to those that did not, even after additional adjustment for accessibility, media exposure and supply. Having better access to FP methods reduced the likelihood of unmet need for both spacing and limiting with and without adjustment for FLW interaction, media exposure and supply. Women who had some kind of media exposures had lower unmet need for spacing and higher for limiting even after additional adjustment for FLW interaction, accessibility and supply. Women living in blocks with better FP related supplies had lower likelihood of having unmet need for both spacing and limiting and after adjustment for FLW interaction, media exposure and accessibility to FP methods. Being members of self-help group reduced the likelihood of having unmet need for both spacing and limiting. **(Appendix - Table A4).**

Discussion

Expanding family planning access has been a key aim of health and development programming for several years.² During that time, important gains have been made in addressing unmet need for family planning, increasing contraceptive prevalence, and preventing unintended pregnancies. Over the past two decades, however, the pace of these gains has slowed, especially in several countries in sub-Saharan Africa and south Asia.^{3,4} Policymakers, donor agencies, and social scientists rely on estimates of levels of unmet need for contraception to help make the case for policy and program interventions. Such policy and program actions can also benefit from information regarding the barriers faced by women having unmet need, how do they differ across population profiles, what policies need to be put in place to ensure equitable and overall program strengthening, and how can they be overcome programmatically.^{5,8}

The national family health survey (NFHS-4, 2015-16) estimates the unmet need for family planning in India as 12.9%.¹¹ The same survey estimates the unmet need in Bihar to be 21.2% (9.4% for spacing methods). The present study, relying on data from the currently

married women of reproductive age (CMWRA) study of Care India in Bihar, has specifically brought out determinants of unmet need in this resource-poor state, by studying currently married women aged 15-49 years. This study estimates the unmet need for family planning to be 28.1% (7.2% for spacing methods) for the state. One of the reasons for this difference between the estimates of the two surveys may be attributed to the fact that while NFHS reports last five years as its reference period, the CMWRA is more a point estimate at the time of the survey. Also, NFHS-4 has reported the contraceptive prevalence rate as 23.3 (2015-16) while CMWRA pitches this at 28.1. Looking at the trends from national family health survey (1999-2015), unmet need for family planning is steadily decreasing in the state. The decrease is however quite slow. For example, total unmet need for family planning reduced only by about 2.7 percentage point while the same for spacing methods reduced by only one percentage point between the last two NFHS surveys spanning a decade. Bihar has the highest Total Fertility Rate (TFR) in the country (3.4).¹¹ So, the question that one must ask is what is the reason for this drastic decline in the family planning program? Has the program failed to provide people with access, enough choices and range of contraceptives for spacing? What are the other factors that impacts service delivery and overall outcomes?

Analysis of the currently married women in reproductive age (CMWRA) study clearly demonstrates certain determinants of contraceptive non-use, contributing to unmet need for family planning in Bihar state of India. We analyzed socio-economic differentials for unmet need. The logistic regression clearly brings out that older women, those with more children and specifically more living sons, have lower unmet need for spacing and higher unmet need for limiting, as compared to those in the reference groups of the respective variables. Similar findings were seen elsewhere. For example, a study among a nationally representative sample of women of reproductive age in Jordan showed high unmet need in the young and old age categories compared to the middle age category of 25–35 years of age. A similar pattern was also seen when the number of living children was considered. The study advocates to pay special attention on age and region of stay as some of the main predictors of unmet need in a poor resource setting.¹³ In our study, women with higher education had better access of family planning methods, more so, improved supply of limiting methods. People who resided in rural areas had a higher unmet need as against those who resided in block headquarters of the districts, where access and availability as well as information flow was better. Thus, improved service delivery of family planning program at the village level is also a key factor in reducing disparities between geographical regions for family planning. Further analysis reveals that women belonging to Hindu religion were less likely to have unmet need for family planning, both spacing and limiting. A study conducted among similarly profiled women in Bihar (2013), which

looked at trends from first three rounds of NFHS data too had similar findings.¹⁴ The study clearly showed that unmet need for family planning among Muslims, rural, and younger age group is relatively higher than that among other groups. Also, women from other backward castes had lower odds of unmet need for family planning, which is corroborated by our study too (AOR=0.70, $p<.0001$). This was also found in a study from Uttar Pradesh in India using DLHS (2007-8) that indicated that women from scheduled caste and tribe are less likely to receive maternal health and family planning services and hence higher unmet need.⁷

Decision making in family planning is an important indicator when it comes to reducing unmet need. Our study clearly shows that women involved in their own decision about family planning were less likely to have an unmet need for spacing (AOR=0.76, $p<.001$). So clearly, women's agency and empowerment can lead to increased uptake of spacing methods among those having an unmet need. However, the same cannot be said about unmet need for limiting. Further, husband's play a very important role in decision to use contraceptives. Our study found a strong correlation between husband's opposition and unmet need for spacing (AOR=5.61, $p<0.0001$). Several studies have cited similar findings. In a study that analyzed first three rounds of NFHS in Bihar, "husbands opposed" was one of the main determinants of contraceptive use.¹⁴ Similar results were seen in a study from Karnataka,⁸ as well as in other studies that looked at measuring unmet need of wives, husbands and spouses based on DHS.¹⁰ The latter also reported that there is greater dissimilarity between husbands and wives regarding intention to practice contraception than there is regarding childbearing intentions.⁹ Casterline and Sinding (2000) have also focused on unmet need among women, and, not surprisingly, opposition on the part of the husband-real or perceived-has drawn the most attention.¹⁰ The woman's husband is one of many socially significant actors who might discourage or oppose a woman who wishes to use contraception, but clearly in most settings the husband is by far the most dominant influence. The husband's opposition is identified as a major reason for non-use in studies conducted in the Philippines, Guatemala, India, Egypt, Nepal and Pakistan.¹³⁻²¹ Women who were members of self-help groups were less likely to have unmet need for both spacing (AOR=0.54, $p<0.0001$) and limiting (AOR=0.86, $p=0.0076$), after adjusting supply of methods.

Reducing unmet need for family planning reduces unintended pregnancies and obviates maternal and new-born deaths. However, satisfaction of unmet need for contraception at one point in time does not necessarily imply that women subsequently do not have unintended pregnancies. Our study results indicate that women whose last birth was unintended had a higher unmet need for limiting (AOR=1.43, $p<.0001$) and a lower unmet need for spacing (AOR=0.83, $p<0.05$) after adjusting for socio-economic variables

(religion, caste, husband's occupation, wealth, and education). Both the Bihar and Uttar Pradesh study also had similar results that corroborate our findings.^{7,14}

It is evidenced that improved knowledge about contraceptives leads to better use of methods. One mode of improving information and knowledge is interaction with field level workers (FLW). The present study too evaluated the impact of FLW's interaction with community women, and their unmet need for family planning. Surprisingly, after adjusting for all socio-economic and demographic variables, increased exposure to FLWs resulted in increased unmet need for both spacing (AOR=2.05, $p<.0001$) and limiting (AOR=1.53, $p=0.014$). However, it was more pronounced with regard to spacing than limiting. The Jordan study also has similar findings.¹³ The study clearly brings out the fact that prevalence of unmet need remains high despite a wide network of comprehensive health centres and primary health centres, in addition to numerous projects that target Jordanian women as the recipients of information, education and communication materials.¹³ The Bihar and Uttar Pradesh studies too highlights the need for an effective implementation of information, education and communication activities in the communities and improvement in the quality of advice and care services related to family planning.^{7,14} On the contrary the Bangladesh study on the Matlab program highlighted the impact of concerted IEC by field level workers and reduction in unmet need for family planning.²² Another study that evaluated the Effect of Community-Based Reproductive Health Communication Interventions on contraceptive use among young married couples in Bihar (2008), also highlighted the need for culturally appropriate, community-based communication programs that target young people and those who influence their decisions that can create demand for contraception among young couples and lead to increased contraceptive use.²³ Contrary to FLW interaction with community women, mass media has been found to lower unmet need for spacing. (AOR = 0.82, $p = 0.016$). The Bangladesh study²² too indicates that although radio and television are two important mass media for disseminating family planning information in Bangladesh, access to them and exposure to family planning through them are still limited. This is also seen from our study where only 23% respondents reported being exposed to either TV or radio. The principal policy challenge is to design communications strategies that will reach the less privileged, rural and illiterate people who are by far the majority in Bihar.

One of the important determinants for unmet need for family planning is access to services and products. Our study too looked at access to family planning methods among our study women; after adjusting for socio-demographic and economic variables (religion, caste, age, number of living sons, education, husband's occupation), it was found that improved access to family planning methods (terminal and spacing methods) reduced unmet need for family planning as compared to those who did not have access. Other studies have

reported similar results and have stated that the most common reasons given by married women for not using contraception are associated with access to supplies and services.^{23,24} The Jordanian study¹³ also reports improving access to services at the regional level as one of the key factors in reducing disparities between geographical regions for family planning. Our study too found that women living in blocks had better access and therefore lower unmet need for family planning as compared to those living in villages.

A similar study of family planning programs in India's rural Bihar state indicated that improved access to services, expanded choice of available methods, and increased knowledge of family planning were important for the acceptance of contraception. However, opposition from husbands and in-laws, the desire for at least two sons, and lack of trust of voluntary health workers from a different caste or religion were obstacles to the acceptance of contraception.²⁵

The National Population Policy (2000) of the Government of India has an important mandate to meet the unmet need of family planning. However, in a state like Bihar, concerted efforts will have to be made to strategize the program effectively. Policies that can direct programs need to be put in place, considering strengthening all factors that impact uptake of contraceptives, and thus reduce unmet need. The need is to clearly focus attention on the poor and marginalized, those living in villages with focused information campaigns. Male involvement in family planning should be strengthened and men should be involved in counselling and be part of the communication campaign in the communities.

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APPENDIX
(TABLES)

Table A1: Determinants of access to FP methods-Bihar (2016)

Variable	Category	Accessibility of FP methods	
		AOR (95 % CI)	p-value
Religion (Ref: others)	Hindu	1.29(1.18-1.41)	< .0001
Caste (Ref: SC/ST)	OBC	1.00(0.93-1.08)	0.9427
	Others	0.97(0.87-1.08)	0.5737
Respondent education (Ref: No Education)	Up to 8th grade	1.11(1.03-1.21)	0.0104
	More than 8th grade	1.42(1.30-1.55)	< .0001
Wealth index (Ref: Lower)	Middle	1.08(1.00-1.17)	0.0498
	High	1.58(1.45-1.72)	< .0001
Husband occupation (Ref: Not working)	Skilled labour	1.09(0.88-1.36)	0.4198
	Unskilled labour	1.12(0.91-1.39)	0.2792
	Salaried/Business	1.19(0.96-1.46)	0.1125
No. of alive children	1.07(1.05-1.08)	< .0001	
FLW Interaction (Ref: No)	Yes	0.92(0.87-0.98)	0.0127

Table A2: Socio-economic & demographic characteristic and unmet need among currently married women aged 15-49 years - Bihar (2016)

Variable	Category	Unmet need for spacing		Unmet need for limiting	
		AOR (95 % CI)	p-value	AOR (95 % CI)	p-value
Religion (Ref: Others)	Hindu	0.53(0.44-0.65)	< .0001	0.53(0.48-0.59)	< .0001
Caste (Ref: SC/ST)	OBC	0.70(0.59-0.82)	< .0001	0.99(0.90-1.10)	0.8499
	Others	0.62(0.49-0.79)	< .0001	1.07(0.92-1.23)	0.3787
Respondent education (Ref: No education)	Up to 8th grade	1.12(0.93-1.35)	0.2317	1.01(0.91-1.13)	0.8184
	More than 8th grade	1.35(1.12-1.63)	0.0016	1.11(0.98-1.26)	0.1086
Respondent Age (continuous variable)		0.78(0.76-0.79)	< .0001	1.02(1.02-1.03)	< .0001
No. of living children		0.37(0.34-0.40)	< .0001	1.19(1.16-1.23)	< .0001
No. of living sons		0.41(0.39-0.44)	< .0001	1.10(1.06-1.14)	< .0001
Wealth index (Ref: Lower)	Middle	1.09(0.91-1.30)	0.3673	0.92(0.83-1.02)	0.1009
	High	0.85(0.69-1.04)	0.1103	0.91(0.81-1.02)	0.0975
Husband occupation (Ref:Not working)	Skilled labour	0.83(0.53-1.28)	0.4036	0.95(0.68-1.31)	0.7466
	Unskilled labour	0.70(0.46-1.07)	0.1008	0.83(0.60-1.14)	0.2479
	Salaried/Business	0.76(0.48-1.11)	0.1516	1.05(0.76-1.44)	0.7698

Table A3: Women's agency and unmet need for family planning – Bihar (2016)

Variable	Category	Unmet need for spacing		Unmet need for limiting	
		AOR (95 % CI)	p-value	AOR (95 % CI)	p-value
Respondent involved in decision making regarding family size (Ref: No)	Yes	0.96(0.74-1.26)	0.7851	0.88(0.76-1.01)	0.0724
Participation in decision making regarding family planning (Ref: No)	Yes	0.76(0.65-0.88)	0.0003	0.93(0.84-1.03)	0.1574
Migration (Ref: No)	Yes	1.58(1.36-1.84)	<.0001	1.53(1.39-1.69)	<.0001
Last birth unintended (Ref: No)	Yes	0.83(0.70-0.99)	0.0333	1.43(1.31-1.56)	<.0001
Husband opposed (Ref: No)	Yes	5.61(3.42-9.19)	<.0001	1.12(0.70-1.80)	0.6074

Table A4: Women's information exposure, access and supply and its impact on unmet need for family planning – Bihar (2016)

Variable	Category	Unmet need for spacing		Unmet need for limiting	
		AOR (95 % CI)	p-value	AOR (95 % CI)	p-value
FLW Interaction (Ref: No)	Yes	2.03(1.77-2.34)	< .0001	1.17(1.07-1.28)	0.0004
Accessibility of FP methods: Female Sterilization, Male Sterilization, IUD, Injectable contraceptive (Ref: No)	Yes	0.76(0.65-0.89)	0.0005	0.73(0.67-0.80)	< .0001
Media Exposure (Ref: No)	Yes	0.81(0.68-0.95)	0.0114	1.12(1.01-1.24)	0.0352
SHG Member (Ref: No)	Yes	0.54(0.42-0.69)	< .0001	0.86(0.76-0.96)	0.0076
Supply Score (Ref: Below Median value)	Median and above	0.76(0.66-0.87)	0.0001	0.80(0.74-0.87)	< .0001

The Centre for Health Policy (CHP) at the Asian Development Research Institute (ADRI) has been set up with support from the Bill & Melinda Gates Foundation to strengthen the health sector in Bihar with a multidimensional and multi-disciplinary approach. Its aim is to engage in rigorous analysis of the health system and inform policy makers to fine-tune interventions for even stronger outcomes.

- Research and Analytical Studies

It constitutes the core of CHP's activities. The areas of research include health infrastructure and delivery with emphasis on equity, health outcomes such as IMR, MMR, TFR and its predictors, health financing, private-public partnerships, regulatory framework and its implementation, and other issues which might emerge.

- Informing Policymakers on Strengthening the Existing Health System

CHP aims to be the trusted partner of the state Government in providing evidence-based inputs in making the health system stronger, resilient and equitable.

- Sustainable Health Solutions

CHP recognizes the need for establishing a strong health system which will be self-sustaining. It means immunity to natural disasters/calamities, financial uncertainties and other unanticipated factors. These pillars may be interrelated; CHP will provide a framework of synergy among actors working on these pillars.

- Collaboration

CHP engages in collaboration with an extensive network of academic and policy research institutions both in India and abroad in health and the broader social sciences.