

# Assessment of need for limiting family after two children: A cross-sectional study from a Northern State of India

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## ABSTRACT

**Background:** Success of a programme of free-choice participation, like Family Planning Programme, can be envisaged only when focus is on the needs of the people. Although India was the first country to introduce Family Planning Programme, total fertility rate of 2.1 has not yet been achieved, highlighting that the need of limiting family after two children is not yet felt by the people of India. Therefore, the study was undertaken to assess need for limiting family and permanent methods, and factors influencing it among couples with two or more living children. **Materials and Methods:** A community-based cross-sectional study was conducted in rural and urban areas of Haldwani Tehsil, Uttarakhand. Multistage sampling technique was used for selection of study sample. Data were collected using a pretested questionnaire. Statistical analysis was done using Epi Info version 7.2.2.6. **Results:** Out of 221 women interviewed, only one-third had adopted permanent methods of contraception for limiting family, one-third were using temporary methods, and remaining were not using any contraception. Merely one-third participants were willing to adopt permanent contraception in future. Unmet need for permanent methods was higher among women of younger age, literate woman, and/or husband and joint families. It was lower in women with three or more living children in comparison with women with two children. Unfelt need for limiting the family was 8.6%. **Conclusion:** Acceptance of permanent methods of contraception was low with temporary methods being equally preferred for limiting family. Unfelt need for limiting still remains in the community despite promotion of small family norm.

**Keywords:** Contraceptive behavior, family planning, family size, fertility rate

## Introduction

India was the first country to introduce the Family Planning Programme in 1952 as part of its first 5-year plan. Even after the efforts spread over more than half a century, the goal to slow population growth by achieving total fertility rate (TFR) of 2.1, which entails two children per couple, has not yet been achieved.<sup>[1]</sup> This points to the fact that the notion of the need of limiting the family after two children is either unmet or unfelt.

Unmet need for family planning refers to fecund women who are not using contraception but who wish to postpone the next

birth (spacing) or stop childbearing altogether (limiting).<sup>[2]</sup> It points to the gap between women's reproductive intentions and their contraceptive behavior. Around 214 million women have an unmet need for modern contraception in developing countries.<sup>[3]</sup> Limiting family by couples having two or more living children not only helps in sustaining two-child norm but also prevents the deleterious effects of a large family size on the health of mother and children.<sup>[4,5]</sup> Therefore, unmet need is said to be the central indicator for monitoring progress of family welfare programmes.

Since the inception of the Family Planning Programme, various strategies have been tried starting from a target-oriented approach to client-centered demand-driven approach focusing on fulfilling the unmet need. The demand for contraception is generated by the felt needs of the couples. It has been documented that

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the success of a programme of free-choice participation, like the Family Planning Programme, can be envisaged only when the focus is on what the people consider important, also termed as the “felt needs” of the people.<sup>[6]</sup> The TFR of 2.2 reported in National Family Health Survey-4 (NFHS-4) highlights that the need of limiting family after two children is not yet felt by the people of India.<sup>[2]</sup>

Analysis of the data of NFHS-3 and NFHS-4 for India shows 1% decrease (13.9% to 12.9%) in the total unmet need of Family Planning among currently married women aged 15–49 years; while the decrease in the unmet need for limiting was 0.6%.<sup>[2]</sup> This decrease may either be due to the fulfillment of the unmet need or due to a decrease in the felt need for contraception – the reason has not been elaborated in the surveys.

When considered as a discrete group, couples with two or more children may have different reasons for accepting or rejecting a particular method of contraception that may play an enormous role in the success of the Family Planning Programme. So, this study was undertaken to assess the unmet need for permanent methods and unmet needs for limiting the family size, and the factors influencing it, among couples with two or more living children. These aspects of family planning have remained unexplored, especially in the Kumaon region of Uttarakhand and this study is expected to throw valuable light on whether the programme has been successful in meeting the family planning needs and convincing people to adopt small family despite being in operation and carrying out different educational and behavior change activities for greater than fifty years.

## Materials and Methods

The present research analysis was based on the study planned for the assessment of the acceptance of permanent methods of contraception among couples with two living children. The criterion of having the study group with at least two living children was intended to assume increased likelihood that participants would consider family limitation by adopting the available permanent methods of contraception.

### Study design

A community-based cross-sectional study conducted during January 2018–July 2018.

### Study settings

Study was conducted in the Haldwani Tehsil of Nainital district in Kumaon Division of Uttarakhand state, India. As per census 2011, the Nainital district of Uttarakhand has the population of 9,54,605, with the population of Haldwani Tehsil being 3,64,129, which is highest among the eight tehsils of the Nainital district. Out of the total population of Haldwani Tehsil, 67.3% of people live in urban areas, whereas 32.7% live in the rural areas.<sup>[7]</sup> Government Medical College and Hospital, Haldwani is the only government tertiary care center in the Kumaon Division of Uttarakhand. The Department

of Community Medicine provides community outreach services in Haldwani through its three centers – one rural health training center situated in the rural area and two centers under urban health training center situated in urban areas of Haldwani.

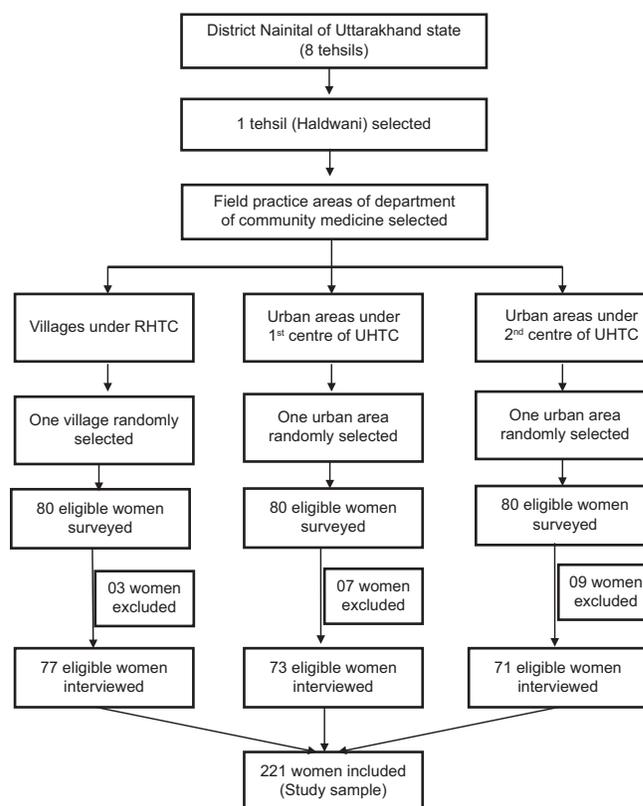
### Sample size

Assuming prevalence (p) of unmet need of permanent methods of contraception among married couples with two living children to be 50%, and taking absolute allowable error (d) as 7%, the sample size was calculated using the formula  $(Z_{1-\alpha})^2 p(1-p)/d^2$  at 5% level of significance. As it is a community-based study, 10% nonresponse rate was added and a final sample size of 216 was obtained. It was finally decided to include a sample size of 80 from three selected study areas.

### Sampling technique

A multistage sampling technique was used for the selection of the study sample [Figure 1].

- Stage 1: One tehsil (Haldwani) was selected purposively from the total eight tehsils in Nainital district of Uttarakhand
- Stage 2: One village or urban area was selected randomly from the villages/urban areas adopted by each of the three centers under the Department of Community Medicine
- Stage 3: From each selected village or urban area, the first house was randomly selected and from that household onwards, house-to-house survey was conducted for identification of eligible participants till the required sample was achieved.



**Figure 1:** Selection of study sample

Inclusion criteria: Women in the age group of 20–49 years having two or more living children and who gave consent were included.

Exclusion criteria: Women who were pregnant, had attained menopause, had undergone hysterectomy, or the ones not willing to participate were excluded from the study.

Data were collected using a pretested, semistructured questionnaire. Interview of the eligible participants was done by trained medical students doing an internship with the help of medical social workers in the Department of Community Medicine. To minimize different forms of bias, a training session was organized during which the staff involved in the survey were clearly explained the purpose of the research and trained in obtaining the consent and data collection procedure. Data collected included the information about sociodemographic characteristics of the participants, their current contraceptive practices, and unmet need for permanent methods of contraception.

### Statistical analysis

The data from all validated questionnaires were entered and cleaned in MS Excel. The statistical analysis was done using the software Epi Info version 7.2.2.6 after importing data from MS excel. Proportions and their 95% confidence intervals (CIs) were calculated for categorical variables. Univariate analysis was used to assess the likelihood of the total unmet need for permanent methods of contraception using logistic regression and presented as unadjusted odds ratios with 95% CIs. The multivariate analysis, using logistic regression, examined the independent effect of each factor after controlling for confounders. *P* value <0.05 was considered statistically significant.

### Ethical consideration

Due ethical clearance was taken from the Institute Ethical Committee of Government Medical College Haldwani, Nainital, India.

### Operational definitions

#### *Unfelt need for limiting*

A female of reproductive age with two or more children and want to have one or more children in the future.

#### *Unmet need for a permanent method of contraception*

A female of reproductive age wanting to limit children by adopting permanent methods of contraception but not using any method of contraception or using a temporary method of contraception.

## Results

In this study, 221 subjects with at least two living children were interviewed. The mean (SD) age of women interviewed was 31.21 (05.26) years and the median age was 30 years (range 20–43 years). More than half of the women belonged

to 30–39 years age-group and a majority (84.6%) were literate. Around 90% of couples were Hindu by religion. Fifty-nine percent couples had two living children and 40.7% had three or more living children at the time of the study [Table 1].

Out of the 221 interviewed subjects, only around one-third (34.4%) had adopted permanent methods of contraception for limiting their families, one-third (33.9%) were using temporary methods, and remaining were not using any contraception. Also, merely one-third of the participants wanted to adopt permanent contraception in the future. Unfelt need for limiting the family size was detected in 8.6% of the couples [Figure 1].

After further analyzing the data, it was seen that 57.0% of the participants felt the need for limiting the family. Out of 126 subjects with the need for limiting the family, 59.52% were using temporary methods and 40.48% were not using any contraception at the time of the study. Only around half (55.6%) of the couples planning to limit their families wanted to adopt permanent methods with a majority preferring tubectomy over vasectomy [Figure 2].

In this study, it was observed that the unmet need for limiting family with permanent methods of contraception decreased significantly with an increase in women's age. The unmet need was higher when the woman and/or husband were literate and among women living in joint families, but it was not significant when adjusted for other variables. The unadjusted odds ratio for unmet need for limiting family by permanent operative techniques was significantly lower when study subjects had three or more living children [Table 2].

As depicted in Figure 3, fear of complications was observed to be the most important reason for nonadoption of permanent methods of contraception. Last child being too young (20.0%) and time constraints (14.3%) were other common reasons for the unmet need for permanent methods for limiting families. The other common reasons given for not feeling the need for

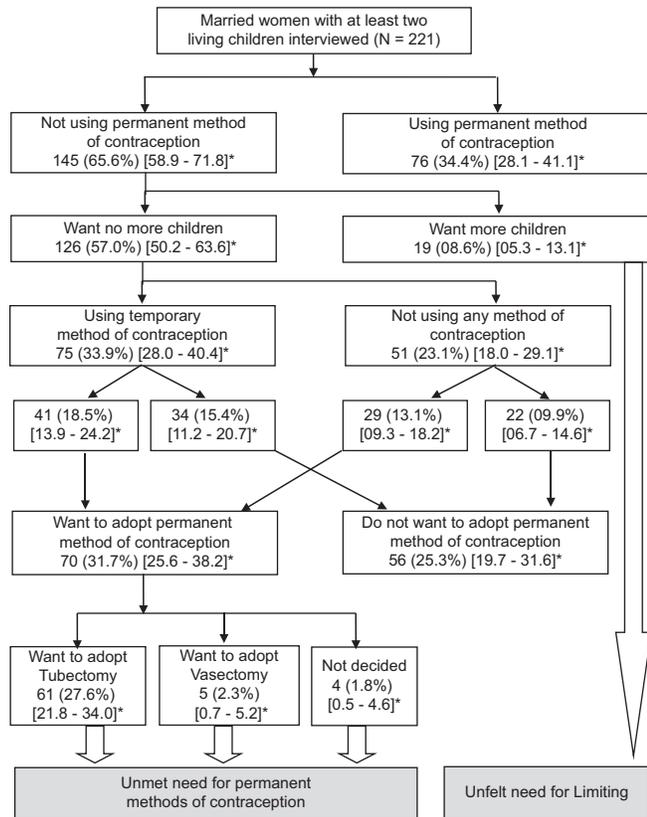
**Table 1: Sociodemographic profile of study participants**

Variables		Frequency	%
Age of wife (years)	20-29	82	37.1
	30-39	117	52.9
	40-49	22	10.0
Education status of wife	Illiterate	34	15.4
	Literate	187	84.6
Education status of husband	Illiterate	27	12.2
	Literate	194	87.8
Religion	Hindu	198	89.6
	Others	23	10.4
Residence	Rural	77	34.8
	Urban	144	65.2
Type of family	Joint	47	21.3
	Nuclear	174	78.7
No. of living children	2	131	59.3
	3 or more	90	40.7

**Table 2: Unmet need for permanent methods of contraception and its correlates**

Variables	n	Unmet need No. (%)	Crude OR (95% CI)	Adjusted OR (95% CI)
Age groups (years)	20-29	82	41 (50.0)	1
	30-39	117	27 (23.1)	0.30 (0.16-0.55)*
	40-49	22	02 (09.1)	0.10 (0.02-0.45)*
Literacy status of women	Illiterate	34	04 (11.7)	1
	Literate	187	66 (35.3)	4.10 (1.38-12.10)*
Literacy status of husband	Illiterate	27	03 (11.1)	1
	Literate	194	67 (34.5)	4.20 (1.22-14.51)*
Religion	Hindu	198	66 (33.3)	1
	Others	23	04 (17.4)	0.42 (0.14-1.29)
Residence	Urban	144	28 (36.4)	1
	Rural	77	42 (47.2)	1.39 (0.77-2.49)
Type of family	Nuclear	174	47 (27.0)	1
	Joint	47	23 (48.9)	2.59 (1.33-5.02)*
No. of children	2	131	51 (38.9)	1
	≥3	90	19 (21.1)	0.42 (0.23-0.77)*

\*P<0.05. CI: Confidence interval; OR: Odds ratio

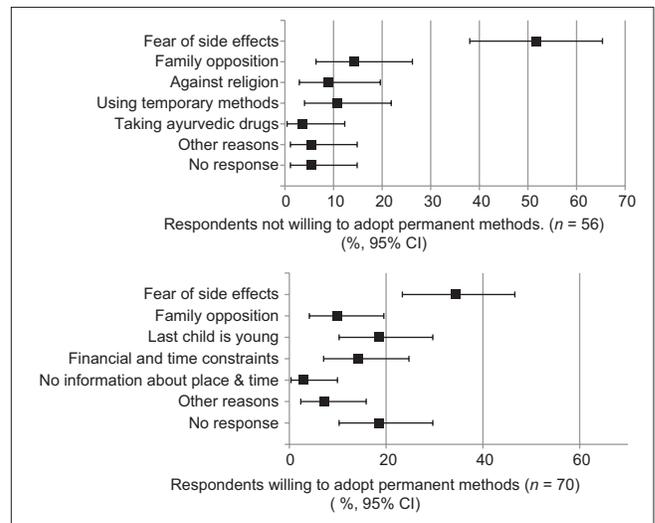


**Figure 2: Distribution of participants as per unmet and unmet needs. \*95% confidence interval**

sterilization operations for limiting family were lack of family support (14.3%) and being more comfortable with using temporary methods (10.7%) [Figure 3].

### Discussion

The understanding of magnitude and reasons for an increase in unfelt and unmet needs for contraception is crucial for the success of the Family Planning Programme. According to



**Figure 3: Reasons (multiple responses) for nonadoption of permanent methods of contraception. CI: Confidence interval**

NFHS-4, both the total unmet need for family planning and unmet need for limiting are higher in the state of Uttarakhand than the national average of India.<sup>[2,8]</sup> Also, in Uttarakhand, the unmet need has increased over the decade between the two NFHS, whereas the national average has shown a decline.<sup>[8]</sup>

In this study, we tried to assess the unmet need for limiting family size in couples with at least two living children and observed it to be 57%. The unmet need for limiting is 10.3% in NFHS-4.<sup>[8]</sup> Most of the studies done in different parts India quote the unmet need to be <30%.<sup>[9-12]</sup> The explanation for the wide variation from our findings is the fact that all these studies have included reproductive-age women irrespective of the number of living children as the denominator, while in this study, we have included women with at least two living children as the denominator for calculating the unmet need for permanent methods of contraception. Also, as per modeled estimates for 29 states and union territories in India, New *et al.*

have found a high level of heterogeneity in the unmet need across the country.<sup>[13]</sup>

Various studies conducted over the decades have pointed out that terminal methods have remained the dominant method of family planning. But in our study, only around one-third had adopted permanent methods of contraception, one-third was using temporary methods, and remaining were not using any contraception at the time of interview. The reasons for such findings, as assessed during the interviews in our study, were that some couples fear sterilization and feel to have better control over fertility with the use of reversible methods of contraception. In studies done by Mekonnen *et al.*<sup>[14]</sup> and Earsido *et al.*<sup>[15]</sup> to assess the prevalence of long-acting and permanent contraceptive methods in Ethiopia, acceptance of long-acting methods was observed to be higher than the permanent methods. In different review articles, Joshi *et al.*<sup>[16]</sup> and Kumari<sup>[17]</sup> had also pointed toward an increase in the use of long-acting reversible contraceptives, especially in low-income countries where childbearing begins at a young age. In fact, Singh *et al.*, on analyzing data of NFHS conducted in 2005–2006, observed a large proportion of women undergoing sterilization operations experiencing sterilization regret, thereby suggesting a delay in sterilization and increasing the availability of highly effective reversible contraceptives as more suitable options in India.<sup>[18]</sup>

In this study, the unmet need for permanent contraception was found to decrease significantly with an increase in women age. Similar results were depicted in studies done by Vishnu Prasad *et al.* and Haldar *et al.*<sup>[19,20]</sup> This decrease in the unmet need for permanent contraception in our study may be associated with most couples undergoing sterilization operations before 30 years of age (unmet need changing to met need);<sup>[21]</sup> contrarily the decrease may also be due to not feeling the need for permanent contraception due to the change in sexual activity in the perimenopausal period<sup>[22]</sup> – these reasons need further exploration with more detailed studies.

Education increases awareness that may, in turn, augment acceptance of permanent contraception. This increased need was found to be unmet among literate wife and/or husband in our study. These findings are similar to those of Sudha *et al.*<sup>[9]</sup> and Bhattathiry and Ethirajan.<sup>[11]</sup> The related cause may be associated with the loss of work days and time constraints as the more educated participants are more likely to be working.

Families have an effect on the decision-making of individuals – this is depicted by the higher unmet need for permanent methods of contraception in women living in joint families. Haldar *et al.* too found the unmet need for family planning to be more in women with joint families with hindrance from elder family members as one of the reasons.<sup>[20]</sup> But Sudha *et al.* have reported significantly less unmet need in women staying in joint families.<sup>[9]</sup> The difference may be explained by the wide-ranging cultural diversity and family values in different parts of India.

Although the study conducted by Haldar *et al.*<sup>[20]</sup> in West Bengal shows unmet need to be higher in the rural area, we had a different observation in this study. In this study, the unadjusted odds ratio of the unmet need for permanent contraception was found to be higher in women residing in rural areas, but after adjusting for other variables, the unmet need was seen to be higher in urban couples, although the difference was not statistically significant. Urban population is known to have higher literacy and, as discussed above, the education of women and husbands has shown to have a significant effect on the unmet need for permanent contraception.

In this study, the unmet need for permanent methods was seen to be less in couples with three or more children than the ones with two living children. Vishnu Prasad *et al.* too observed a significant decrease in the unmet need for family planning with an increase in the number of children.<sup>[19]</sup> The number of children is associated with an increase in the age of women, which explains the trend.

Unmet need for sterilization procedures for limiting family size was found to be more among Hindu women than among women of other religions, although the difference was not significant. Sudha *et al.* too found less unmet need in the Muslim population.<sup>[9]</sup> These findings are different from the results of the study by Haldar *et al.* in West Bengal where the unmet need was found to be more among Muslims.<sup>[20]</sup> The variation in results can again be associated with regional disparity across India.

Fear of operation and postoperative complications was seen to be the most important reason hindering acceptance in participants who were willing to adopt permanent contraception. Other reasons for the high unmet need, in our study, were young age of the last child and time constraints with no one to look after the family, especially children, during and after hospitalization for operation. Similar reasons for the unmet need are observed by Haldar *et al.*,<sup>[20]</sup> Shree *et al.*,<sup>[23]</sup> Sudha *et al.*,<sup>[9]</sup> Valekar *et al.*,<sup>[24]</sup> Durowade *et al.*,<sup>[25]</sup> and the RESPOND project in Nigeria<sup>[26]</sup> in their studies, but they have considered the total unmet need instead of unmet need for permanent methods only. Also, the studies have been conducted in different regions and cultural settings that can explain the different frequencies of the reasons specified.

In this study, fear of complications/operative intervention and hospitalization was also the most important reason for unwillingness to adopt permanent contraceptive techniques for limiting family. Opposition from family, medical conditions, and against religious/cultural beliefs were the other common reasons. Also, some study participants were more comfortable using temporary contraception for limiting. No need for hospitalization and option of reversal of fertility, if need be, was assessed to be the plausible reason for the choice.<sup>[16,17]</sup>

## Limitations

The study findings cannot be generalized beyond the study settings due to small sample size. While disclosing the

contraceptive behaviors, there is a possibility of desirability bias due to social factors. The reasons for the unmet need were not studied in detail that requires to be further elaborated through qualitative studies.

### Relevance to Family Practice and Primary Care

The family physician is the first point of contact for any illness or health concern for a majority of families and is relied upon and trusted. Women in the families also receive a majority of health advice from nongynecological family physicians. Thus, the family physicians are in a unique position to offer contraceptive services. Being a constant care provider for the whole family, the family physician advice for family planning and contraception is likely to be taken more sincerely than the same from other sources. Also, literature from different countries have confirmed a role of a family physician in influencing couple decision in choice of contraceptive and also inconsistency of use of the selected methods.<sup>[27]</sup> Moreover, for giving accurate advice about family planning to the couple, the physician should recognize that the choice of contraception differs among couples with different sociodemographic, economic, and cultural backgrounds. Our study tries to differentiate the demand of contraception in couples with more than two living children, which is a distinct group and has contraceptive needs different from other couples. It also tries to assess the need felt by the couples for different types of contraception for limiting their families and also the reasons for nonacceptance of permanent methods of contraception. This information is expected to help family physicians in providing need appropriate advice to the couples and help achieve the national targets in the long run.

### Conclusion

In this study, acceptance of permanent methods of contraception was found to be low among couples with two or more children, with temporary methods being equally preferred for limiting family. Age of the woman, literacy status, and type of family were all found to have a major effect on the willingness to accept permanent methods for limiting family. Most of the women did not adopt permanent techniques due to fear of side effects of the operation. Unmet need for limiting was observed to be still present in the community despite the promotion of small family norm for over half a century, with a desire for a male child being the reason.

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### Conflicts of interest

There are no conflicts of interest.

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