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Research Article

Study on prevalence of unmet need for spacing and limiting and their associated factors among reproductive age group women in rural areas: An analytical cross sectional study

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Abstract:
Background: Population growth rates are subject to momentum like railway trains. They start slowly and gain momentum. Once in motion, it takes long time to bring the momentum under the control. Objective was to estimate the prevalence of unmet need for spacing and limiting and to determine the association of unmet need for spacing and limiting with sociodemographic factors among married women between the ages of 15 – 49 years in rural areas.
Methods: A descriptive cross-sectional study was carried out over a period of one year in the rural areas of Venkatachalam Mandal, Nellore District. The study population comprised all married women aged 15-49 years residing in Venkatachalam Mandal. A total sample of 450 married women in the reproductive age group were included. The association between unmet need for spacing and limiting with sociodemographic factors was assessed using chi-square test.
Results: Among the study subjects (n=338), the unmet need for spacing is 10% (34). According to the study subjects (n=333), unmet need for limiting is 7.8%. Unmet need for spacing showed a statistically significant association with age group, education and occupation of both wife and husband, type of family, socioeconomic status, and age at first delivery, while no significant association was observed with religion, caste, or husband's occupation. Unmet need for limiting was significantly associated with age group, wife's education, occupation of wife and husband, type of family, age at marriage, and age at first delivery; however, it showed no significant association with religion, caste, husband's education, or socioeconomic status.
Conclusions: Unmet need for spacing and limiting was significantly influenced by key sociodemographic and reproductive factors, particularly age, education, occupation, family type, and timing of marriage and childbirth. Strengthening targeted, education-focused and life-stage–specific family planning interventions may help reduce unmet need and improve contraceptive uptake.

Keywords: Unmet Need, Spacing, Limiting, Socio-Demographic Factors, Rural Areas.

INTRODUCTION

The year 1921 is called the "big divide" because the absolute number of people added to the population during each decade has been increasing since 1921. India's population is currently increasing at the rate of 16 million each year. India's population numbered 238 million in 1901, doubled in 60 years to 439 million in 1961; doubled again this time in only 30 years to reach 846 million by 1991. It crossed 1 billion mark on 11th May 2000, and according to the current trends the population of India will increase from 1.210 billion to 1.4 billion during the period 2011 – 2026, an increase of 13.57 percent in 25 years at the rate of 1.2 percent annually and is projected to reach 1.53 billion by the year 2050. This will then make India the most populous country in the world, surpassing China.[1]

Population growth rates are subject to momentum like railway trains. They start slowly and gain momentum. Once in motion, it takes long time to bring the momentum under the control. This was the reason that Government of India launched a nationwide family planning programme in 1952 to control population

explosion, making it the first country in the world to do so.[1]

The United Nations Conference on Human Rights at Tehran in 1968 recognized family planning as a basic human right. The Bucharest conference on the world population held in August 1974 endorsed the same view and stated in its plan of action that " all couples and individuals have the basic human right to decide freely and responsibly the number and spacing of their children and to have the information, education and means to do so.[2]

In April 1976 India formed its first –'National Population Policy'. It called for an increase in the legal minimum age of marriage from 15 to 18 for females, and from 18 to 21 years for males. The policy was modified in 1977. New policy statement reiterated the importance of the small family norm without compulsion and changed the programme title to "Family Welfare Programme."[2]

The Socio-Demographic Goals of the National Population Policy-2000, those relevant to population control being**:**1. Addressing the unmet needs for reproductive and child health services, supplies and infrastructure and 2. Achieve universal access to information/counselling and services for fertility regulation and contraception with a wide basket of choice.[1]

According to WHO SEA health situation (2001-07), it is estimated that guaranteeing access to family planning could reduce the number of maternal deaths by 25 percent and child mortality by up to 20 percent. The decline in fertility levels in all countries of the South-East Asia region is a consequence of the increasing use of modern methods of contraception among women. The use of any method is usually influenced by availability, or the method promoted by the family planning program of the country.[3] According to the DLHS-IV (2012-13), Ministry of Health and Family welfare total unmet need in Andhra Pradesh is about 16.2 percent and in Nellore district it is 12.6 percent. The unmet need for spacing the births is about 8.0 percent and need for limiting births is 4.3 percent in rural India.[4]

Hence this study was conducted to estimate the prevalence of unmet need for spacing and limiting and to determine the association of unmet need for spacing and limiting with sociodemographic factors among married women between the ages of 15 – 49 years in rural field practice area of Narayana Medical College, Venkatachalam, Nellore.

MATERIAL AND METHODS

A descriptive cross-sectional study was carried out over a period of one year in the rural areas of Venkatachalam Mandal, Nellore District, Andhra Pradesh, India. The study population comprised all married women aged 15–49 years residing in Venkatachalam Mandal. A total sample of 450 married women in the reproductive age group who provided informed consent were selected from 10 villages, which were randomly chosen from the total of 25 villages in the mandal. All married women aged 15–49 years who were present at the time of the house visit and willing to participate were included in the study. Women who were absent during the visit or who did not provide consent for the interview were excluded.

The sample size was calculated based on data from previous studies on contraceptive practices among the rural population, using National Family Health Survey–IV (NFHS-IV) Andhra Pradesh data. The sample size was estimated using the formula $N = Z^2pq / l^2$, where N represents the sample size, Z is the standard normal variate corresponding to a 5% level of significance (Z = 2), p is the prevalence of unmet need for contraception in rural Andhra Pradesh (4%)[5,6], q = 100 − p, and l is the allowable error (absolute precision). After accounting for a 10% non-response rate, the calculated sample size was 422, which was rounded off to 450.

Methodology–Data Collection:

Out of the 25 villages in Venkatachalam Mandal, 10 villages were selected using simple random sampling by the lottery method. An equal number of participants (45 women) were selected from each village to achieve the desired sample size. Within each village, households were selected using systematic random sampling, with the first household chosen randomly. If a house was found locked, the adjacent house was visited, following the right-hand rule. One eligible woman aged 15–49 years who consented to participate was selected from each household. Household visits and interviews continued until 45 participants were enrolled from each village.

Data were collected through face-to-face interviews using a pre-designed and pre-tested structured questionnaire. The questionnaire captured information on sociodemographic

characteristics, contraceptive preferences, reasons for non-use of contraception, and reasons for not opting for sterilization. The collected data were entered into Microsoft Excel and analyzed. Results were summarized and presented in the form of tables and graphs.

Ethical Considerations:

Ethical approval for the study was obtained from the Institutional Ethics Committee of Narayana Medical College, Nellore. Informed consent was obtained from all participants, and confidentiality of the information was strictly maintained. Variables of interest were defined using appropriate operational definitions.

Operational definitions:

1. Age: Age of the subjects was recorded in completed years at the time of interview.
2. Education: Education of the women was grouped according to kuppuswamy's socio-economic status scale
3. Occupation: Education of the women was grouped according to kuppuswamy's socio-economic status scale
4. Type of family:
   (a) Nuclear family: It consists of married couple and their children while they are still regarded as dependents.
   (b) Joint family: it consists of a number of married couples and their children who live together in the same household. All the men are related by blood and the women of the household are their wives, unmarried girls and widows of the family kinsmen.
   (c) Three generation family: it consists of representatives of three generations.
5. Socio-economic status [7]: Modified BG. Prasad's socio-economic status scale was used to classify study subjects' socio-economic status. It was updated for per capita income according to All India Consumer Price Index.
6. Un-met need is defined as Women with unmet need are those who are fecund and sexually active but are not using any method of contraception, and not wanting any more children or wanting to delay the next child.[8]

The data was entered in MS excel and analyzed using SPSS version 22.0. Percentages and chi-square were calculated. A p-value of <0.05 was taken as statistically significant.

RESULTS

In the present study, among the 450 participants, the majority of women (83.6%) were in the 21–40 years age group, which represents the most important phase of the reproductive period. Most of the respondents were Hindus (88%), followed by Muslims (9.1%) and Christians (2.9%). With regard to caste distribution, 59.1% of the women belonged to backward castes. More than half of the respondents (55.1%) lived in nuclear families.

Based on the Modified B.G. Prasad socioeconomic classification, 45.3% of the women belonged to the upper socioeconomic class, while only 0.2% were from the lower class. In terms of educational status, 25.6% (115) of the women had studied up to high school, 24.2% (109) were illiterate, and 5.6% (25) were graduates. A majority of the study participants were unemployed (61.3%), whereas only 0.9% were engaged in semi-professional occupations.

Regarding the educational status of husbands, 32.2% (145) were illiterate, followed by 24.3% (109) who had completed high school. Occupationally, most husbands were unskilled workers (47.5%, 214), while 4% (18) were professionals and 2% (9) were skilled workers.

Table 1: Distribution according to unmet need for spacing and limiting

Unmet need		Frequency	Percentage
Unmet need for spacing (n=338)	Yes	34	10
	No	304	90
Unmet need for limiting (n=333)	Yes	26	7.8
	No	307	92.2

Among the study subjects (n=338), the unmet need for spacing is 10% (34). According to the study subjects (n=333), unmet need for limiting is 7.8%. (Table 1)

Table 2: Association between Socio-demographic variables and unmet need for spacing

Socio-demographic variables		unmet need for spacing n=338		Total No. (%)	P value
		Yes No. (%)	No (%)		
Age group (Years)	<20	0 (0)	3 (0.9)	3 (0.8)	<0.001
	21-30	24 (70.6)	147 (48.3)	171 (50.7)	
	31-40	8 (23.6)	114 (37.5)	122 (36)	
	41-50	2 (5.8)	40 (13.2)	42 (12.5)	
Type of Family	Joint	10 (29.4)	38 (12.5)	48 (14.2)	0.001
	Nuclear	14 (41.2)	187 (61.5)	201 (59.5)	
	3-generation	10 (29.4)	79 (26)	89 (26.3)	
Socio-economic status (Modified BG Prasad classification)	1	12 (35.3)	127 (41.8)	139 (41.2)	0.019
	2	18 (53)	111 (36.5)	129 (38.2)	
	3	4 (11.7)	60 (19.7)	64 (18.9)	
	4	0 (0)	6 (2)	6 (1.7)	
	5	0 (0)	0 (0)	0 (0)	
Education of wife	Illiterate	3 (8.8)	91 (29.9)	94 (27.8)	0.001
	Primary	8 (23.5)	76 (25)	84 (24.8)	
	Middle School	4 (11.8)	27 (8.9)	31 (9.2)	
	High school	10 (29.4)	71 (23.4)	81 (24)	
	Intermediate/diploma	4 (14.7)	27 (8.9)	32 (9.5)	
	Graduate	4 (11.8)	12 (3.9)	16 (4.7)	
	PG/Professional	0 (0)	0 (0)	0 (0)	
Occupation of the wife	Unemployed	25 (73.5)	173 (57)	198 (58.6)	0.045
	Unskilled	5 (14.7)	74 (24.3)	79 (23.4)	
	Semi Skilled	1 (2.9)	15 (5)	16 (4.7)	
	Skilled	0 (0)	5 (1.6)	5 (1.5)	
	Clerk/shop/farmer	1 (2.9)	32 (10.5)	33 (9.7)	
	Semi Professional	0 (0)	2 (0.6)	2 (0.6)	
	Professional	2 (5.9)	3 (1)	5 (1.5)	
Education of Husband	Illiterate	7 (20.6)	105 (34.5)	112 (33.1)	0.010
	Primary	4 (11.7)	44 (14.4)	48 (14.2)	
	Middle School	2 (5.9)	25 (8.2)	27 (8)	
	High school	9 (26.5)	79 (26)	88 (26)	
	Intermediate/diploma	4 (11.7)	21 (7)	25 (7.4)	
	Graduate	7 (20.6)	27 (8.9)	34 (10.1)	
	PG/Professional	1 (3)	3 (1)	4 (1.2)	
Age at 1st delivery	<20 years	16 (47.1)	169 (55.6)	185 (54.7)	<0.001
	20-30 years	18 (52.9)	135 (44.4)	153 (45.3)	

There is significant statistical difference between unmet need for spacing in relation to age groups. There is no significant statistical difference between unmet need in relation to religion, caste, occupation of husband. There is significant statistical association between unmet need for spacing in relation to education of wife. There is significant statistical difference between unmet need for spacing in relation to occupation of wife. There is significant statistical difference between unmet need for spacing in relation to education of husband. There is significant statistical difference between unmet need for spacing in relation to type of family. There is significant statistical difference between unmet need for spacing in relation to Socio economic status. There is significant statistical difference between unmet need for spacing in relation to age at 1st delivery. (Table 2)

Table 3: Association between Socio-demographic variables and unmet need for limiting

Socio-demographic variables		unmet need for limiting n=333		Total No. (%)	P value
		Yes No. (%)	No (%)		
Age group (Years)	**<20**	0 (0)	3 (1)	3 (0.9)	<0.001
	21-30	12 (44.4)	152 (49.7)	164 (49.2)	
	31-40	9 (33.3)	117 (38.2)	126 (37.8)	
	41-50	6 (22.2)	34 (11.1)	40 (12)	
Type of Family	**Joint**	3 (11.1)	43 (14.1)	46 (13.8)	0.019
	Nuclear	15 (55.6)	183 (59.8)	198 (59.5)	
	3-generation	9 (33.3)	80 (26.1)	89 (26.7)	
Socio-economic status (Modified BG Prasad classification)	**1**	12 (44.4)	127 (41.5)	139 (41.7)	0.088
	2	8 (29.7)	117 (38.3)	125 (37.6)	
	3	6 (22.2)	58 (18.9)	64 (19.2)	
	4	1 (3.7)	4 (1.3)	5 (1.5)	
	5	0 (0)	0 (0)	0 (0)	
Education of wife	**Illiterate**	11 (40.7)	82 (26.8)	93 (28)	0.008
	Primary	5 (18.5)	77 (25.2)	82 (24.6)	
	Middle School	1 (3.7)	29 (9.5)	30 (9)	
	High school	7 (26)	77 (25.2)	84 (25.2)	
	Intermediate/diploma	1 (3.7)	27 (8.8)	28 (8.4)	
	Graduate	2 (7.4)	14 (4.5)	16 (4.8)	
	PG/Professional	0 (0)	0 (0)	0 (0)	
Occupation of the Husband	**Unemployed**	3 (11.1)	6 (2)	9 (2.7)	0.001
	Unskilled	8 (29.6)	153 (50)	161 (48.4)	
	Semi Skilled	0 (0)	36 (11.8)	36 (10.8)	
	Skilled	2 (7.4)	5 (1.6)	7 (2.1)	
	Clerk/shop/farmer	13 (48.1)	91 (29.7)	104 (31.2)	
	Semi Professional	1 (3.7)	7 (2.3)	8 (2.4)	
	Professional	0 (0)	8 (2.6)	8 (2.4)	
Age at marriage	**<18 years**	17 (63)	139 (45.4)	156 (46.6)	0.001
	18-25 years	10 (37)	166 (54.3)	176 (52.5)	
	>25 years	0 (0)	1 (0.3)	3 (0.9)	
Age at 1st delivery (n=397)	**<20 years**	16 (47.1)	169 (55.5)	185 (54.7)	<0.001
	20-30 years	18 (52.9)	135 (44.5)	153 (45.3)	

There is significant statistical difference between unmet need for limiting in relation to age groups. There is no significant statistical difference between unmet need for limiting in relation to religion and caste. There is significant statistical difference between unmet need for limiting in relation to education of wife. There is no significant statistical association between unmet need for limiting in relation to occupation of wife and education of husband. There is significant statistical difference between unmet need for limiting in relation to occupation of wife and occupation of husband. There is significant statistical association between unmet need for limiting in relation to type of family. There is no significant statistical association between unmet need for limiting in relation to Socio economic status. There is significant statistical association between unmet need for limiting in relation to age at marriage. There is significant statistical association between unmet need for limiting in relation to age at first delivery. (Table 3)

DISCUSSION

The present study showed that there is significant statistical association between unmet need for spacing in relation to education of wife. In a study by Sapna S, Patil[9] et al (2010) done in 52 villages in Maharashtra showed that out of 363 study subjects there is a significant association between un-met need in relation to women education. Another study by Rini Raveendran[10] et al (2017) in Davangere taluk of

Karnataka showed that there is a significant association between un-met need for spacing and women's education out of 1020 married women.

The present study showed that there is a statistical difference which was significant between unmet need for spacing in relation to occupation of wife. A study by Pushpa[11]et al (2011) done in SDM college of Medical Sciences & Hospital. Dharwad, Karnataka also found that there is significant statistical difference between un-met need in relation women occupation. Another study done by Supriya Satish Patil[12] et al (2010) done in urban slum of Karad, Maharashtra found that there was no statistically significant association between un-met need and women's occupation.

There is significant statistical difference between unmet need for spacing in relation to education of husband in the present study. In a study study by Rini Raveendran[10] et al (2017) in Davangere taluk of Karnataka showed out 1020 married women, that there is a significant association between un-met need and husband's education. Another study by Amit Kaushik[13] et al (2017) done in a rural area of Etawah showed that there is a significant statistical association between unmet need and husband's education.

The present study showed significant statistical difference between unmet need for spacing in relation to type of family. Studies done by Pushpa[11]et al (2011) done in SDM college of Medical Sciences & Hospital. Dharwad, Karnataka and Amit Kaushik[13] et al (2017) done in a rural area of Etawah found that there is significant statistical difference between un-met need in relation to type of family.

In the present study there is significant statistical difference between unmet need for spacing in relation to socio economic status. In a study by Amit Kaushik[13] et al (2017) done in a rural area of Etawah showed that there is a significant statistical association between unmet need and socio economic status of the study subjects. Another study by Nabanita Chakraborty[14] et al (2016) done in a rural area of West Bengal found that there is no significant statistical association between un-met need and socio economic status.

The present study showed a significant statistical difference between unmet need spacing in relation to age at 1st delivery. A study conducted by Vasudevan k.[15] et al (2016) in the urban area of Puducherry also showed thathere is a significant association between unmet need and age at first delivery.

In the present study a significant statistical difference was seen between unmet need for limiting in relation to age groups. Studies by Vikas Gupta[16] et al (2016) in an urban area of Rohtak Dt., Haryana also showed that there is significant statistical association with advancing age and un-met need for limiting.

The present study showed no significant statistical difference between unmet need for limiting in relation to religion and caste. Studies by Supriya Satish Patil[12] et al (2010) done in urban slum of Karad, Maharashtra, Nabanita Chakraborty[14] et al (2016) done in a rural area of West Bengal and Amit Kaushik[13] et al (2017) found that there was no statistically significant association between un-met need and and religion.

In the present study there is significant statistical difference between unmet need for limiting in relation to education of wife. Studies by Nisha Ram Relwani[17] et al (2015) conducted in urban slums of Nagpur and Vikas Gupta[16] et al (2016) in an urban area of Rohtak Dt., Haryana showed that there is a significant statistical association with un-met need and women's education.

There is no significant statistical association between unmet need for limiting in relation to occupation of wife and education of husband in the present study. A study conducted by Supriya Satish Patil[12] et al (2010) done in urban slum of Karad, Maharashtra found that there was no statistically significant association between un-met need and and occupation of wife. In contrast to the present study, another study by Nabanita Chakraborty[14] et al (2016) done in a rural area of West Bengal found that there is significant statistical association between un-met need and education of husband.

The present study showed a significant statistical association between unmet need for limiting in relation to occupation of wife and occupation of husband. A study conducted by Malini M Bhattathiry[18]et al (2014) conducted in the urban area of Chidambaram showed there was a significant association between husband's occupation and unmet need for FP.

There is significant statistical association between unmet need for limiting in relation to type of family in the present study. Studies by Nisha Ram Relwani[17] et al (2015) conducted in urban slums of Nagpur and Rini Raveendran[10]

et al (2017) in Davangere taluk of Karnataka showed that there is a significant association between un-met need and type of family.

There is no significant statistical difference between unmet need for limiting in relation to Socio economic status in the present study. In contrast to our study, a study by Rini Raveendran[10] et al (2017) in Davangere taluk of Karnataka showed that there is a significant association between un-met need and socio economic status. Another study by Nabanita Chakraborty[14] et al (2016) done in a rural area of West Bengal also found that there is significant statistical association between un-met need and socio economic status.

In the present study, there is significant statistical association between unmet need for limiting in relation to age at marriage. A study conducted by Malini M Bhattathiry[18]et al (2014) conducted in the urban area of Chidambaram showed a significant association between age at marriage and unmet need for FP. In contrast to present study a study conducted by R.Vishnu Prasad[19] et al (2016) in rural area of Kanchipuram found that there is no significant association between age at marriage and un-met need for family planning.

In the present study, there is significant statistical association between unmet need for limiting in relation to age at first delivery. A study conducted by Vasudevan k.[15] et al (2016) in the urban area of Puducherry showed that there is a significant association between unmet need and age at first delivery.

The present study demonstrates a significant association between unmet need for spacing and several sociodemographic factors, including age group, education and occupation of the wife, education of the husband, type of family, socioeconomic status, and age at first delivery. However, no significant association was observed between unmet need for spacing and religion, caste, or husband's occupation. Unmet need for limiting was found to be significantly associated with age group, education of the wife, occupation of both spouses, type of family, age at marriage, and age at first delivery. In contrast, religion, caste, wife's occupation, husband's education, and socioeconomic status did not show a significant association with unmet need for limiting. These findings highlight the important influence of educational, occupational, and reproductive factors on unmet need for family planning. Addressing these determinants through targeted interventions may help reduce unmet need for both spacing and limiting methods among rural women.

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