International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2024: 7.101

Family Planning Practices and their Determinants Among Married Women in a Rural Setting in Meerut

Vandana Kain[1], Sanjeev Kumar[2], Tanveer Bano[3], Ganesh Singh[4]

[1]Junior Resident, Department of Community Medicine, Lala Lajpat Rai Memorial Medical College, Meerut, Uttar Pradesh

[2]Professor and Head, Department of Community Medicine, Lala Lajpat Rai Memorial Medical College, Meerut, Uttar Pradesh

[3]Professor, Department of Community Medicine, Lala Lajpat Rai Memorial Medical College, Meerut, Uttar Pradesh

[4]Professor (Statistician), Department of Community Medicine, Lala Lajpat Rai Memorial Medical College, Meerut, Uttar Pradesh

Abstract: ***This study offers a grounded perspective into the intricate dynamics of contraceptive use among rural married women in Meerut, Uttar Pradesh-an area that continues to reflect the nuanced intersection of demography, education, and cultural belief systems. Despite national efforts to strengthen family planning, the uptake remains uneven, and this research thoughtfully dissects those disparities. It is evident that age, religion, education level, family structure, and the husband's occupation meaningfully shaped contraceptive behavior, with usage peaking among women aged 25–29, those in joint families, and households led by unskilled workers. Interestingly, the high usage among illiterate women deviates from conventional assumptions, hinting at a possible shift influenced by increased grassroots-level awareness or improved service outreach. That said, the near parity between users (50.8%) and non-users (49.2%) suggests a persistent unmet need that goes beyond access-it may be about social comfort, familial endorsement, or even personal autonomy. This raises another point: why, despite greater awareness, do usage patterns still fluctuate so sharply by religion or education? The study's methodological rigor-through multistage random sampling and thoughtful statistical analysis-adds weight to its findings. Ultimately, the blend of permanent methods like tubal ligation and temporary ones like condoms suggests a pragmatic yet constrained choice spectrum. There is still work to be done in bridging knowledge with sustained behavior change, and perhaps, reshaping societal narratives around family planning might be the way forward.***

Keywords: contraceptive usage, rural women, family planning, socio-demographic factors, reproductive health

1. Introduction

The population of India is expected to increase from 121.1 crores to 152.2 crores during the period 2011-2036 - an increase of 25.7 percent in twenty- five years at the rate of 1.0 percent annually. Uttar Pradesh (UP) is the most populous state in India with an estimated population of 235 million, accounting for 17% of India's population, with a district- wide heterogeneity in socio-economic status.[1,2]

India launched its national family planning program several decades ago, yet it remains the second most populous country globally, following China. As per the 2011 Census, India's population stood at 1.21 billion, and projections suggest that it will surpass China's by the year 2050. Although India occupies only about 2.4% of the world's land area, it supports over 17.5% of the global population. Family planning continues to be a key public health strategy for preventing unintended pregnancies and reducing maternal mortality. In addition to its role in improving reproductive health outcomes, family planning also contributes significantly to broader social and economic development. Estimates suggest that making family planning services universally accessible in low- and middle-income countries could prevent up to 42% of maternal deaths. One study reported that an average of 24% of maternal deaths could have been averted through effective family planning interventions.[3]

According to the National Family Health Survey-4 (2015–16), the current use of any contraceptive method among currently married women aged 15–49 years in Uttar Pradesh was 45.5%, with 44.5% usage of modern methods. In rural areas of the state, the figures were even lower-60.8% for any method and 43.2% for modern methods-highlighting significant room for improvement. However, recent data from NFHS-5 (2019–21) reveal considerable progress. The overall current use of any method increased to 62.4%, while modern method use rose to 56.5%. In rural Uttar Pradesh, the use of any method reached 60.8%, and that of modern methods increased to 55.1%. In this study we tried to find out the prevalence, pattern and determinants of current use of family.[4,5]

Objectives

- To determine the prevalence of contraceptive usage (Both temporary and permanent) among the rural married women of age group 15-49 years.
- To assess the association between socio-demographic factors and the met need for family planning among currently married women of reproductive age (15–49 years) in rural areas.

2. Materials and Methods

This community-based cross-sectional study was conducted over one year (01 September 2023 to 30 September 2024) in the villages of Sholda and Darion, Machhra block, Meerut district, Uttar Pradesh. The study included married women aged 15–49 years residing in these villages, with all eligible women in this age group considered as study units.

Inclusion Criteria

- Married women (15-49 year) of age residing in the rural area for more than 6 months.
- Women enrolled in the eligible couple register.
- Married women who gave their consent for the study.

Exclusion Criteria

- All Unmarried women in that rural area.
- Married women who are temporary residents or living from less than six months in that rural area.
- who are severely ill.
- Married women who did not gave consent.
- Widow women of the rural area.

Study Tool: An interview schedule, based on a semi-structured questionnaire, was prepared for data collection

Sampling Technique: Multi-stage random sampling.

Sample Size Estimation

The sample size is calculated based on considering prevalence of unmet need for contraception in rural area is 60.8% from **NHFS-5 (2019-2021).**[5] Considering confidence interval of 95%, absolute precision of 6%, the sample size is calculated using the formula:

$$n = Z^2_{1-\alpha/2}\, p \times q/d^2$$

$$n = 4 \times p \times (1-p) / d^2$$

$$n = 4 \times 0.608 \times 0.392 / (0.06)^2 = 265$$

Allowing a 15% non- response rate the sample size comes around 265+40 = **305**

where $Z_{1-\alpha/2}$ is the standard normal deviate corresponding to the desired confidence level (for 95% confidence, $Z_{1-\alpha/2}$ = 1.96), p is the estimated prevalence of the outcome of interest,

q = 1 - p, and d is the absolute precision or allowable error, which in this case is 6%. Allowing a 15% non- response rate the sample size comes around 265+40 = **305**

A multi-stage random sampling technique was used to select participants from rural Meerut. CHC Machhra, PHC Amarpur, and SC Sholda were randomly selected. From the two villages under SC Sholda (Sholda and Darion), households were chosen proportionally using systematic sampling. A central village point was identified with ASHA's help, and the survey direction was randomly chosen. Kish sampling was applied to select one eligible woman per household when needed.

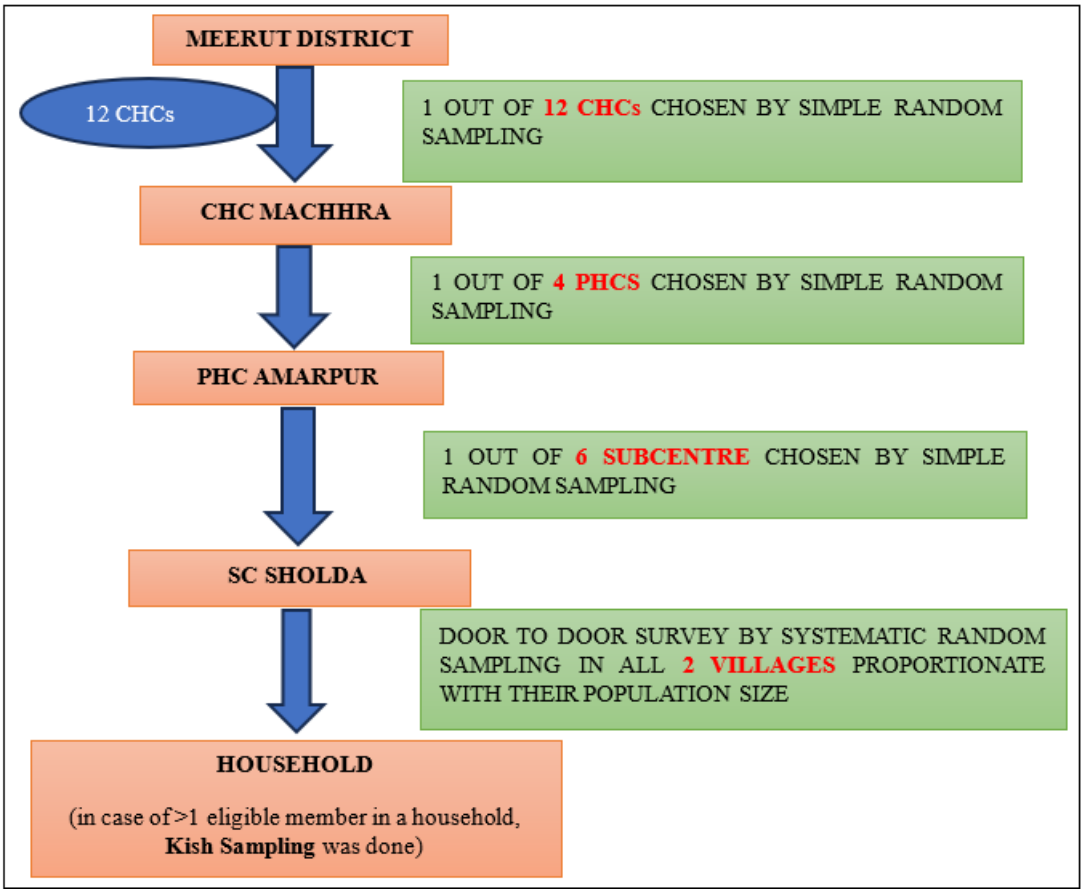

Figure 1: Multistage random Sampling in rural

Data collection: Data collection was done by house-to-house visit.

Data analysis: The collected data was systematically coded and entered into a master chart using Microsoft Excel. The association between variables was assessed using the chi-square test, and a p-value of <0.05 was considered statistically significant. Data analysis was conducted using Epi Info™ 7.2.6 statistical software.

3. Results

Table 1: Socio-demographic profile the participant

Socio-demographic profile	participants No. (%)	Use No. (%)	Non-user No. (%)	p-value
Age in years				
25-29	77(25.2)	62 (80.5)	15(19.5)	0.0151
30-34	63(20.7)	44 (69.8)	19(43.2)	
35-39	43(14.1)	33 (76.7)	10(23.3)	
40-44	28(9.2)	20 (46.5)	8(28.6)	
45-49	32(10.5)	19 (67.8)	13(40.6)	
Religion				
Hindu	241 (79.0)	191 (79.2)	50 (20.7)	0.0004
Muslim	64 (21.0)	37 (57.8)	27(42.2)	
Educational level				
Illiterate	70 (23.0)	54 (77.1)	16(22.9)	0.0057
Primary	108 (35.4)	81 (75.0)	27(25)	
High school	65 (21.3)	41 (63.1)	24(36.9)	
Secondary school and above	62 (20.3)	52 (83.9)	10(16.1)	
Occupation of husband				
Unskilled	131(43.0)	101 (77.1)	30(22.9)	0.0049
Semiskilled	112 (36.7)	69 (61.6)	43(38.4)	
Skilled	57 (18.7)	43 (75.4)	14(24.6)	
Unemployed	5 (1.6)	4 (80.0)	1 (20.0)	
Age at marriage (years)				
<18 yrs	84 (27.5)	65 (77.4)	19(22.6)	0.2031
18-21 yrs	157 (51.5)	119 (75.8)	38(24.2)	
>21 yrs	64 (21.0)	44 (68.7)	20(31.3)	
No. of living children				
Nil	35 (11.5)	26 (74.3)	9(25.7)	0.0000
1	47 (15.4)	16 (34.0)	31(66.0)	
2+	223 (73.1)	155 (69.5)	68(30.5)	
Type of family				
Nuclear	147(48.2)	109 (74.1)	38(25.9)	0.0000
Joint	139(45.6)	112 (80.6)	27(19.4)	
Extended family	19(6.2)	7 (36.8)	12(63.2)	
History of Abortion				
No	211(69.2)	161(76.3)	50(23.7)	0.3148
One	46 (15.1)	33 (71.7)	13(28.8)	
Two or more	48 (15.7)	34 (70.8)	14(29.2)	

The socio-demographic profile of the participants revealed several statistically significant associations with contraceptive use, as determined by the Chi-square test **(Table 1).** Age group, religion, education, husband's occupation, number of living children, and type of family were significantly associated with contraceptive use (p<0.05). Women aged 25–29 years had the highest usage (80.5%), while those aged 40–44 had the lowest (46.5%). Hindu women (79.2%) had significantly higher contraceptive use compared to Muslim women (57.8%). Higher educational attainment was associated with increased contraceptive use, with 83.9% usage among women educated up to secondary school and above. Contraceptive use was higher among women whose husbands were unskilled workers (77.1%) compared to those with semiskilled jobs (61.6%). Women with two or more living children reported greater usage (69.5%) compared to those with only one child (34%). Participants from joint families had higher contraceptive use (80.6%) compared to those from nuclear (74.1%) and extended families (36.8%). However, age at marriage and history of abortion were not significantly associated with contraceptive use (p>0.05), as per the Chi-square test.

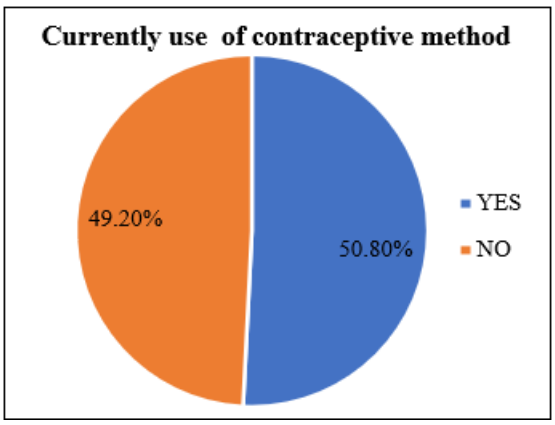

Figure 2: Current use of contraceptive methods among participants

Figure 2 display the Current use of contraceptive methods among participants Out of a total of 305 individuals, 155(50.8%) reported using some form of contraception, while 150(49.2%) were not using any contraceptive method at the time of the study.

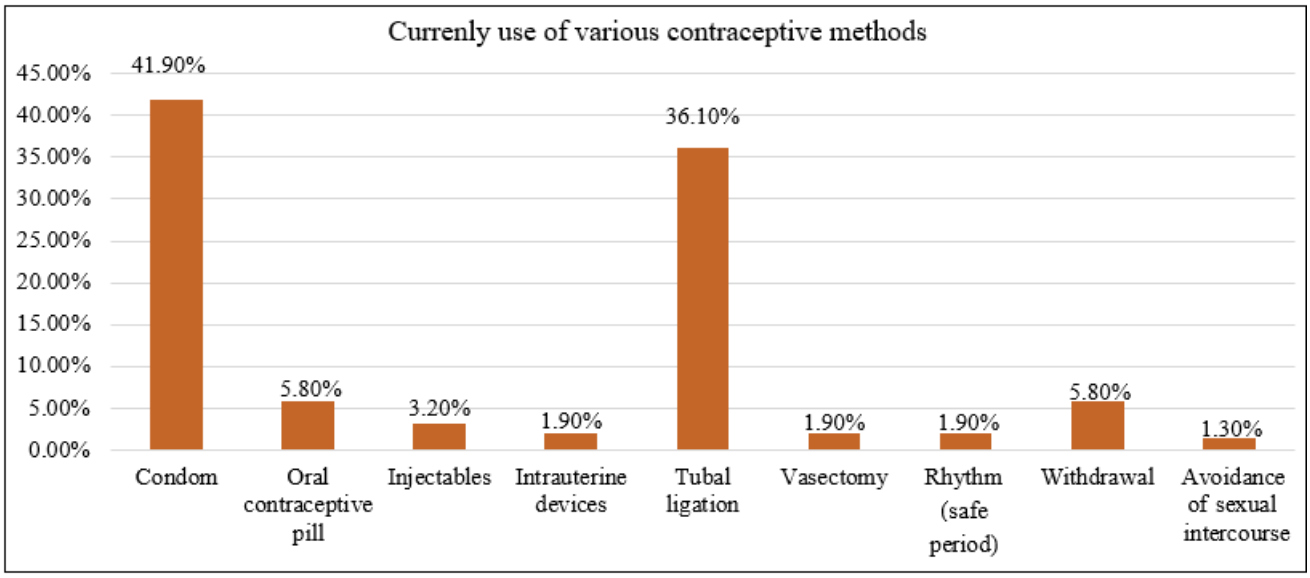

Figure 3: Current contraceptive choices among participants

Figure 3 demonstrates the current contraceptive choices among participants who reported using a contraceptive method. Among the 155 participants, condoms were the most commonly used method 41.9%, followed by tubal ligation 36.1%, indicating a significant preference for either temporary or permanent contraception. Other methods such as oral contraceptive pills 5.8% and withdrawal 5.8% were used by a smaller proportion of participants. Injectable contraceptives 3.2%, intrauterine devices (IUDs) 1.9%, vasectomy 1.9%, rhythm method 1.9%, and avoidance of sexual intercourse 1.3% were the least utilized methods.

4. Discussion

In the present study from rural Meerut, contraceptive use was highest among women aged 25–29 years (80.5%) and declined in the 40–44 years group (46.5%). Similarly, **Melkani D et al.**[6] reported peak use in the 31–40 years group (72.06%) with lowest use among 18–20-year-olds (31.73%). Both studies show a significant association between age and contraceptive use, with usage increasing with age up to a point, then declining in older age groups. In the present study, contraceptive use among Hindu women was 79.2%, compared to 57.8% among Muslim women. Similarly, in the study by **Fareha Khatoon et al.,**[7] 70.8% of Hindu women were users and 29.2% were non-users. Both studies show higher contraceptive use among Hindu women compared to Muslim women, indicating a possible influence of religious or cultural factors on contraceptive practices. In the present study, contraceptive use was highest among women with secondary school education and above (83.9%) and illiterate women also showed relatively high use (77.1%). In **Melkani D et al.**[6]**,** contraceptive use was lower among illiterate women (20.69%) but higher among those with secondary education (73.08%). Both studies show increased contraceptive use with higher education, though the present study reports notably higher use among illiterate women compared to Melkani D et al.[6]

In the present study, contraceptive use was higher among women married at a younger age (<18 years: 77.4%) compared to those married later (>21 years: 68.7%). In contrast, **Melkani D et al.**[6] reported lower overall usage, with 33.62% in women married before 20 years and 47.18% in those married after 20 years. While both studies show a trend of increasing contraceptive use with later age at marriage, the higher percentages in the present study may reflect improved awareness, accessibility, and uptake of family planning services over time.

In this study, contraceptive use increased with the number of living children, with 69.5% usage among those with two or more children. Surprisingly, 74.3% of women with no children were also using contraception, likely for spacing. In contrast, **Gupta et al.**[8] reported only 6.8% of users with no children and higher use after two children. This suggests better awareness and early adoption of contraception in the present study area.

Contraceptive use was significantly higher in joint families at 80.6% and nuclear families at 74.1% compared to extended families at 36.8% in the present study. Similarly, in **Gupta et al.**[8]**,** 49% of users belonged to nuclear families and 22% to joint families, showing a significant association between family type and contraceptive use. These findings indicate that family structure significantly influences contraceptive behavior in both studies.

In the present study, 50.8% of participants reported current use of contraceptive methods, while 49.2% were not using any contraception at the time of the study. Comparatively**, Sahasrabuddhe et al.**[9] found that 57% of participants had family acceptance for contraceptive use, whereas 43% experienced non-acceptance from family members. This suggests that although about half of women in the present study were using contraception, family acceptance as highlighted in Sahasrabuddhe et al. remains an important factor influencing contraceptive behavior. The slightly higher acceptance rate compared to actual use may indicate additional barriers such as availability, personal preference, or social factors impacting contraceptive uptake.

In the present study, condoms were the most commonly used contraceptive method (41.9%), followed by tubal ligation (36.1%), showing a balanced use of temporary and permanent methods. In contrast, **Sahasrabuddhe et al.**[9]

reported a strong preference for tubectomy (60.8%), with lower use of condoms (17.6%) and oral pills (13.5%). This comparison suggests that while permanent methods are favored in both studies, the present study reflects a higher reliance on condoms as a temporary method, indicating possible regional or cultural differences in contraceptive preferences.

5. Conclusion

The study found moderate contraceptive use among rural married women, with condoms and tubal ligation being the most preferred methods. Use was significantly higher among women aged 25–29, Hindus, those with higher education, more children, joint families, and husbands in unskilled jobs. No significant association was seen with age at marriage or abortion history. Targeted interventions are needed to improve awareness and access among underusing groups.

6. Recommendation

Based on the study findings, it is recommended to strengthen reproductive health education, especially for less educated women; involve male partners in family planning initiatives; and promote culturally sensitive outreach to address religious and social barriers. Expanding access to a variety of contraceptive methods, enhancing personalized counseling services, and leveraging support from family and community networks can further improve contraceptive uptake. Additionally, further research is needed to explore deeper behavioral and access-related factors influencing contraceptive choices.

7. Limitation of the Study

The study was conducted in a specific rural area of Meerut, which may limit the generalizability of the findings to other regions or urban populations. The data relied on self-reported information from participants, which might be subject to recall bias or social desirability bias.

Relevance of the Study
This study helps understand the factors influencing contraceptive use among married women in rural Meerut. The findings can support better family planning programs and improve reproductive health services in the community.

Authors Contribution
All authors have contributed equally.

Financial Support and Sponsorship
Nil

Conflict of Interest
There are no conflicts of interest.

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