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Patient Perspectives on Contraceptive use in North India: A Case for Increased Contraceptive Counseling by Providers

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Abstract

Background Given the underutilization of contraception in India, this study was undertaken to gauge cisgender female clients' knowledge of, attitudes toward, and barriers to contraceptive usage in North India.

Methodology The present study was done at a tertiary care Institute in North India, where 209 structured interviews were conducted with cisgender female patients attending the outpatient department. One-way chi-square tests for independence, Kruskal–Wallis test, and Wilcoxon test were applied to quantitative data. Themes from qualitative questions were coded and analyzed.

Results Differences in awareness among contraceptives were found to be highly statistically significant ($H(9) = 1022.3$, $p < 2.2\,e{-}16$). Friends or colleagues comprised the predominant information source for most contraceptive methods. Participants' contraceptive usage was low, with 27.27% stating no prior use and 47.47% indicating occasional use ($X2\,(3, N = 198) = 66.121$, $p < 2.89\,e{-}14$). Lack of perceived need, concern for side effects, fear and desire for children were top reasons for non-use of contraceptive methods. Majority of the participants (79.45%) expressed comfort speaking with their spouse about contraception, 47.18% with a medical provider, 32.82% with friends, 15.38% with family, 2.05% with a health educator, and 3.59% with no one. Participants indicated little prior contraceptive counseling experience.

Conclusion Our study shows differential levels of awareness, usage, and barriers on contraceptive methods among participants. Results also suggest the importance of spouses and friends in clients' contraceptive decision-making process and their limited counseling experience with health care providers.

Keywords Contraception · Knowledge · Attitudes · Contraceptive usage · Barriers

Introduction

Despite the expansion of modern contraceptive methods worldwide, estimates show that nearly 121 million unintended pregnancies, 48% of all pregnancies, occur every year [1]. In India, about 62 per 1000 of all pregnancies for

women[1] aged 15–49 from 2015 to 2019 were estimated to be unintended [1].

Underutilization of modern contraceptive methods is critical to high levels of unintended pregnancy [2, 3]. The UN Department of Economic and Social Affairs estimates that worldwide nearly 257 million women do not use safe, modern methods of contraception despite their interest in avoiding pregnancy, with 172 million not implementing any contraceptive [2]. In India in 2022, the modern contraceptive method prevalence rate was estimated to be 39% for all women aged 15–49 years and 51% for married or in union women [2].

Shifting away from explanations of limited access and knowledge, current research attributes contemporary

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1 [1]While language around the study sample specifies their gender identity as cisgender females, in other places terms such as "women," "men," "female," and "male" are used in accordance with the literature they refer to.

underutilization to concerns about side effects, myths, stigma, and others' opposition [2]. Such discrepancies highlight the need for further analysis into clients' motivation for using contraception and reasons for non-use. In turn, practices and policies can be framed according to the needs and varying cultural frameworks of contraceptive users within different communities.

The present study was undertaken to gauge cisgender female clients' knowledge of, attitudes toward, and barriers to contraceptive usage in India. This study aimed to understand how client perceptions may differ based on contraceptive method and analyze the factors responsible for non-use.

Methodology

Data Collection

This cross-sectional study was conducted from June 2022 to July 2022 in the Department of Obstetrics and Gynecology at Shri Guru Ram Rai Institute of Medical and Health Sciences, Dehradun, India. After approval from the research and ethics committee of the Institute, a total of 203 structured interviews were conducted with cisgender female patients attending the outpatient department. Eligibility was determined with questions related to marital and menstrual status. Inclusion criteria consisted of pre-menopausal clients in heterosexual marriages. Exclusion criteria consisted of unmarried, pre-menarchal, or post-menopausal clients. Informed verbal consent was obtained from each participant. The structured interviews were conducted with adherence to the pre-designed questionnaire to allow for uniformity. The questionnaire consisted of 25 questions (with various sub-questions) focused on participant demographic information; perceived knowledge of contraceptives; and attitudes, behaviors, and barriers toward contraceptive usage. If participants indicated no knowledge of a method, then questions focused on knowledge sources of that contraceptive were not presented. Similarly, if respondents indicated either prior usage or no knowledge of a method, then questions focused on barriers of that contraceptive were not presented.

Data Analysis

Questionnaire data were compiled via *Qualtrics* and input into R Statistical Software for statistical analysis. The mean, standard deviation, range, and total number of responses were determined for age, age at marriage, history of children/pregnancies/abortions/miscarriages, distance from clinic, ideal family size, and number of unintended pregnancies. The frequency of each response was tabulated for education level, occupation status, household income, and clinic visit frequency; for unintended pregnancy plans, usage

frequency, responsibility attitudes, and history of contraception conversations with providers, friends, family, and other patients; and for differential contraceptive knowledge, source of information, usage, and perceived barriers. Responses for perceived barriers were coded according to a condensed version of Sen et al.'s Perception Scale of Barriers to Contraceptive Use [4].

One-way chi-square tests for independence were conducted for categorical variables with non-overlapping data. Likert-scale data from questions related to contraceptive knowledge levels were converted to integers to determine average knowledge levels of each contraceptive. Kruskal–Wallis test was conducted on the mean from each question to test for differences among knowledge levels of each contraceptive. Wilcoxon rank sum test was conducted between each pair of contraceptive methods to test for differences in knowledge among paired methods. Themes from multi-response questions were analyzed and compared. *P* values of less than 0.05 were considered statistically significant and less than 0.01 were considered highly statistically significant.

Results

Sample Descriptive Data

Table 1 summarizes the demographic data of the 203 premenopausal participants included in the study. The mean age of the sample was 31.08 ± 6.09 years, with 50% of respondents falling between 27 and 33.75 years. The mean age at time of marriage was 23.43 ± 3.61, with 50% of respondents falling between 21 and 26. Of 145 respondents, 84.14% were unemployed, while 96.38% of 138 respondents' spouses were employed full-time. The average household annual income fell between Rs. 200,000 and 500,000 for 35.66%. Every question was not answered by all the respondents and hence the variation in total number of responses.

General Attitudes and Behaviors Related to Contraception

Table 2 summarizes respondents' general attitudes and behaviors related to contraception. Differences in responses were found to be highly statistically significant (*p* value < 0.01) for the following questions: participants' having self-initiated contraceptive discussion with a provider in the past, providers' having asked or advised the respondent about contraceptive use in the past, participant interest in receiving contraceptive education, participants' frequency of discussion of contraceptives with friends, family, or other patients, participants' frequency of contraceptive usage and perceptions of contraception responsibility. Differences

Table 1 Sample demographic information

	Mean ± standard deviation	Min., Q1, Q3, Max	Total
Age (years)	31.08 ± 6.09	21, 27, 33.75, 55	203
Age at marriage	23.43 ± 3.61	15, 21, 26, 35	199
Obstetric history			
Children	1.31 ± 1.03	0, 1, 2, 5	173
Pregnancies	2.45 ± 1.47	0, 1, 3, 10	155
Abortions	0.39 ± 0.91	0, 0, 1, 8	157
Miscarriages	0.44 ± 0.82	0, 0, 1, 4	156
Household composition			
Adults	4.90 ± 2.99	1, 3, 6, 22	197
Children	1.71 ± 2.03	0, 0, 2, 15	189
Distance from clinic (km)	12.52 ± 22.79	1, 2, 10, 150	157

Education level	None	Primary	Lower secondary	Upper secondary	Bachelors'	Masters'/doctoral	Total
Patient	5(2.98%)	2(1.19%)	21(12.50%)	40(23.81%)	54(32.14%)	46(27.38%)	168
Spouse	2(1.30%)	2(1.30%)	11(7.14%)	49(31.82%)	55(35.71%)	35(22.73%)	154

Occupation	Unemployed	Part-time	Full-time	Total
Patient	122(84.14%)	3(2.07%)	20(13.79%)	145
Spouse	2(1.45%)	3(2.17%)	133(96.38%)	138

Annual household income level	Less than Rs. 100,000	Rs. 100,000–200,000	Rs. 200,000–500,000	Rs. 500,000–1 million	More than Rs.1 million	Total
	36(19.46%)	58(31.35%)	66(35.66%)	21(11.35%)	4(2.16%)	185

Clinic visit frequency	Once a week	Once a month	Once every few months	Once a year	Once every few years	Total
	17(11.18%)	38(25.00%)	40(26.32%)	31(20.39%)	26(17.10%)	152

Every question was not answered by the all the respondents and hence the variation in total number of responses

in respondents' preferences for discussing contraception with social actors were also noted, with majority (79.45%) expressing comfort speaking with their spouse.

Contraceptive Knowledge and Source of Information

Table 3 shows respondents' knowledge, information source, usage, and perceived barriers for different contraceptives. Differences in knowledge among contraceptives were found to be highly statistically significant (H (9) = 1022.3, $p < 2.2$ e−16) (Table 4). Tables 5 and 6 show differences between knowledge levels of paired contraceptive methods, with highly statistically significant results in 35/45 tests.

Difference in participants' dominant sources of information among contraceptive types was also noted: 47.19% indicated their husband as source of knowledge of condoms, friends, or colleagues (for those employed) seemed to be the dominant source of information for oral contraceptive pills (44.14%), injections (41.46%), IUDs (39.85%), tubal ligation (40.25%), and vasectomy (41.79%).

Contraceptive Usage and Perceived Barriers

Only 113 (55.66%) women had ever used a contraceptive. Condoms had been used by majority (87.61%), oral contraceptive pills by 22.12% and tubal ligation by 10.62% and IUD by 7.08%. Participants' perceived barriers for contraceptive usage were also noted. Lack of perceived need (participants explicitly indicating limited sexual activity) seemed to be the dominant reason for not using condoms (34.43%) and injections (43.94%). Lack of perceived need (34.02%) and side effects (28.87%) were main reasons for avoiding oral contraceptive pills. Fear, side effects, and lack of perceived need were indicated as barriers for IUDs (33%, 35%, 30%, respectively). Participants' desire for children was indicated as the main reason for disinterest in tubal ligation (57.63%) and vasectomy (54.63%) followed by fear (14.41% and 8.33%, respectively).

Table 2 General attitudes and behaviors related to contraception

	Mean ± standard deviation		Min., Q1, Q3, Max			Total
Ideal family size	2.03 ± 0.62		1, 2, 2, 4			190
Number of unintended pregnancies	0.33 ± 0.83		0, 0, 0, 8			189

How did/would you deal with an unintended pregnancy?	Surgical abortion	Medical abortion	Surgical or medical abortion	Maintain pregnancy	Not sure	As per medical advice	Total
	2 (1.17%)	66 (38.60%)	13 (7.60%)	65(38.01%)	16(9.36%)	8(4.68%)	171

	Yes	No	Maybe	Total	X^2, df, p value
Self-initiated contraceptive discussion with provider	39(19.40%)	161 (80.10%)	1(0.50%)	201	208.6, 2, $p < 2.2$ e−16**
Provider asked about contraceptive use	73(36.14%)	126 (62.38%)	3(1.49%)	202	113.06, 2, $p < 2.2$ e−16**
Provider advised about contraceptive use	81(40.50%)	113 (56.50%)	6(3.00%)	200	90.49, 2, $p < 2.2$ e−16**
Interest in receiving contraceptive education	124 (62.31%)	63 (31.66%)	12 (6.03%)	199	94.804, 2, $p < 2.2$ e−16**

How often do you speak with any of your friends or family members about contraceptives?	Once a week	Once every few months	Once a year	Once/twice in my life	Never	Total	X^2, df, p value
	3(1.49%)	32(15.92%)	45(22.39%)	34(16.92%)	87(43.28%)	201	92.102, 4, $p < 2.2$ e−16**

Who do you feel comfortable speaking with about contraceptives?	Spouse	Friends	Family	Medical provider	Health educator	No one	Total
	155(79.45%)	64(32.82%)	30(15.38%)	92(47.18%)	4(2.05%)	7(3.59%)	195

When you visit the clinic, how often do you speak with other patients about contraceptives?	Always	Most times	Occasionally	Never	Total	X^2, df, p value
	2(1.32%)	4(2.65%)	18(11.92%)	127(84.11%)	151	285.37, 3, $p < 2.2$ e−16**

How frequently do you and your husband use contraceptives?	Always	Most times	Occasionally	Never	Total	X^2, df, p value
	31(15.67%)	19(9.60%)	94(47.47%)	54(27.27%)	198	66.121, 3, $p < 2.89$ e−14**

Who should be responsible for contraception?	Spouse	Self	Both	Neither	Total	X^2, df, p value
	21(10.77%)	4(2.05%)	164(84.10%)	6(3.08%)	195	366.83, 3, $p < 2.2$ e−16**

**Denotes $p < 0.01$

Discussion

Differential Awareness, Usage, Barriers Based on Contraceptive Method

Overall, the present study found participants' self-perceived knowledge to be low, with the average awareness of every contraceptive method falling between "none at all" and "moderately well." This result differs from current trends in contraceptive awareness. In their review of the literature, the United Nations Population Fund's State of World Population Report (2022) states that except in rural areas, lack of knowledge is the least common reason given for contraceptive underutilization [2]. This study sample then might be among the fewer areas where lack of knowledge still exists.

Table 3 Differential contraceptive knowledge, source of information, usage, and perceived barriers

	Condom	OCP	Inject	IUD	Implant	Patch	Cap	Ring	Tubal ligation	Vasectomy
Knowledge										
Not at all	10 (5.15%)	43 (22.16%)	112 (57.44%)	55 (28.35%)	186 (94.90%)	190 (96.45%)	183 (93.37%)	187 (95.90%)	26 (13.47%)	51 (26.29%)
Slightly well	53 (27.32%)	75 (38.66%)	49 (25.13%)	79 (40.72%)	8 (4.08%)	7 (3.55%)	11 (5.61%)	7 (3.59%)	66 (34.20%)	56 (28.87%)
Moderately well	68 (35.05%)	49 (25.26%)	25 (12.82%)	42 (21.65%)	1 (0.51%)	0 (0.00%)	1 (0.51%)	1 (0.51%)	72 (37.31%)	59 (35.57%)
Very well	55 (28.35%)	25 (12.89%)	8 (4.10%)	17 (8.76%)	1 (0.51%)	0 (0.00%)	1 (0.51%)	0 (0.00%)	27 (13.99%)	17 (8.76%)
Extremely well	8 (4.12%)	2 (1.03%)	1 (0.51%)	1 (0.52%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (1.04%)	1 (0.52%)
Total	194	194	195	194	196	197	196	195	193	194
Source										
Husband	84 (47.19%)	45 (31.03%)	15 (18.29%)	36 (27.07%)	0 (0.00%)	1 (16.67%)	1 (9.09%)	1 (16.67%)	51 (32.08%)	41 (30.60%)
Radio, TV	73 (41.01%)	52 (35.86%)	15 (18.29%)	34 (25.56%)	2 (25.00%)	1 (16.67%)	1 (9.09%)	1 (16.67%)	42 (26.42%)	35 (26.11%)
Medical provider	17 (9.55%)	25 (17.24%)	20 (24.39%)	33 (24.81%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	27 (16.98%)	22 (16.42%)
Colleagues, friends	62 (34.83%)	64 (44.14%)	34 (41.46%)	53 (39.85%)	1 (12.50%)	0 (0.00%)	4 (36.36%)	1 (16.67%)	64 (40.25%)	56 (41.79%)
Family	39 (21.91%)	34 (23.45%)	25 (30.49%)	35 (26.36%)	3 (37.50%)	1 (16.67%)	5 (45.45%)	2 (33.33%)	59 (37.11%)	51 (38.06%)
Health educator	5 (2.81%)	8 (5.52%)	2 (2.44%)	5 (3.76%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	4 (2.52%)	4 (2.99%)
Internet	29 (16.29%)	25 (17.24%)	11 (13.41%)	28 (21.05%)	2 (25.00%)	3 (50.00%)	1 (9.09%)	1 (16.67%)	19 (11.95%)	12 (8.96%)
Science readings	13 (7.30%)	7 (4.83%)	2 (2.44%)	7 (5.26%)	1 (12.50%)	2 (33.33%)	2 (18.18%)	2 (33.33%)	10 (6.29%)	9 (6.72%)
Newspapers, periodicals	22 (12.36%)	16 (11.03%)	6 (7.32%)	13 (9.77%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	13 (8.18%)	8 (5.97%)
Other patients	1 (0.56%)	1 (0.69%)	1 (1.22%)	3 (2.26%)	1 (12.50%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	3 (1.89%)	1 (0.75%)
Total	178	145	82	133	8	6	11	6	159	134
Usage										
Prior use (Total 113)	99 (87.61%)	25 (22.12%)	3 (2.65%)	8 (7.08%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	12 (10.62%)	1 (0.89%)

Table 3 (continued)

Perceived barriers	Condom	OCP	Inject	IUD	Implant	Patch	Cap	Ring	Tubal ligation	Vasectomy
Fear	3 (4.92%)	17 (17.53%)	14 (21.21%)	33 (33.00%)	0 (0.00%)	0 (0.00%)	2 (18.18%)	0 (0.00%)	17 (14.41%)	9 (8.33%)
Side effects	4 (6.56%)	28 (28.87%)	13 (19.70%)	35 (35.00%)	1 (14.29%)	1 (16.67%)	2 (18.18%)	1 (16.67%)	8 (6.78%)	7 (6.48%)
Desire for children	18 (29.51%)	21 (21.65%)	11 (16.67%)	18 (18.00%)	3 (42.86%)	1 (16.67%)	1 (9.09%)	1 (16.67%)	68 (57.63%)	59 (54.63%)
Inconvenience	2 (3.28%)	6 (6.19%)	4 (6.06%)	5 (5.00%)	2 (28.57%)	2 (33.33%)	1 (9.09%)	1 (16.67%)	5 (4.24%)	5 (4.63%)
Time (consuming	0 (0.00%)	0 (0.00%)	1 (1.52%)	1 (1.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Partner's wishes	10 (16.39%)	2 (2.06%)	0 (0.00%)	1 (1.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (0.85%)	3 (2.78%)
Affected pleasure	4 (6.56%)	0 (0.00%)	0 (0.00%)	1 (1.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Inconsistent with beliefs	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (0.17%)	2 (1.85%)
Cost	0 (0.00%)	1 (1.03%)	1 (1.52%)	1 (1.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Embarrassment	2 (3.28%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (0.85%)	0 (0.00%)
No need	21 (34.43%)	33 (34.02%)	29 (43.94%)	30 (30.00%)	1 (14.29%)	1 (16.67%)	4 (36.36%)	3 (50.00%)	21 (17.80%)	24 (22.22%)
Discomfort	2 (3.28%)	1 (1.03%)	1 (1.52%)	2 (2.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (0.85%)	1 (0.93%)
Limited Knowledge	0 (0.00%)	5 (5.15%)	6 (9.09%)	6 (6.00%)	0 (0.00%)	0 (0.00%)	2 (18.18%)	0 (0.00%)	3 (2.54%)	3 (2.78%)
Non availability	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (16.67%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Concern about effectiveness	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (0.85%)	0 (0.00%)
Total	61	97	66	100	7	6	11	6	118	108

Table 4 Results for Kruskal–Wallis tests on knowledge differences among contraceptive methods

Contraceptive	Knowledge mean ± standard deviation (1—"not at all," 5—"extremely well")	H, df, p value
Condoms	2.99 ± 0.97	1022.3,9, $p < 2.2$ e−16**
Oral contraceptive pills	2.32 ± 0.99	
Injectable	1.65 ± 0.89	
IUDs	2.12 ± 0.94	
Implant	1.07 ± 0.32	
Patch	1.04 ± 0.19	
Cap	1.08 ± 0.34	
Ring	1.05 ± 0.23	
Tubal ligation	2.55 ± 0.93	
Vasectomy	2.28 ± 0.97	

**Denotes $p < 0.01$

The present study also shows low levels of contraceptive utilization: Predominantly stated reasons for non-use include lack of perceived need and desire for children. The ambiguity of the former response suggests a need for better evaluating this lack of perceived need: Are clients using natural methods, such as abstinence or withdrawal? Or perhaps clients rely on medically induced abortion to address unintended pregnancies? At the same time, the latter indicates intention-based reasons for non-use, rather than lack of access or misconceptions.

Awareness of IUDs and oral birth control pills was higher than injectable methods. Nonetheless, usage levels differed among these methods, as 22.12% indicated prior use of oral contraceptive pills, while only 7.08% indicated prior use of IUD. The predominantly indicated reason for non-use of these devices is a concern for side effects. This result is in accordance with the State of World Population Report from 2022, which finds concern for side effects as a major barrier to contraception [2].

Participants demonstrated little-to-no awareness and usage of birth control implants, patches, diaphragm cervical caps, and vaginal rings which were the lowest ranked contraceptive methods. These results are expected given the lack of provision of these contraceptive methods in India. Nonetheless, these contraceptive methods are growing increasingly common in other areas [2].

Participant knowledge and usage of tubal ligation were higher than that of vasectomy. This discrepancy is in accordance with worldwide trends; despite its decreased invasiveness, riskiness, and chances of pregnancy compared to tubal ligation, only 30 million men had vasectomy, while 237 million women underwent tubal ligation in 2015 [2].

Spouse as Contraceptive Consultant

Our study results suggest the importance of spouses in contraceptive awareness and decision-making. The majority of participants also listed their spouse as someone they could comfortably discuss contraceptives with (79.45%). The importance of spouses to their partners' contraception usage is evident in the literature as well. A study evaluated the impact of CHARM, a three-session GE (gender equity) + FP counseling intervention delivered by male health care providers to married men, alone and with their wives [5]. The authors of this study suggested that men can be engaged in FP program in rural India as this approach may improve contraceptive practices and also reduce intimate partner violence in married couples. [5]. In a study of 2468 pregnant women in Nigeria, Ezeanolue et al. [6] found that women's desire to use contraception was associated with their spouse's awareness and support of modern contraception [6]. Another study of 1578 women in Ghana shows that participants with husbands supportive of contraception were more likely to use any contraceptive method but less likely to use modern contraceptive methods [7].

In a study of 7221 women in 14 European countries, Caetano et al. [8] found that participants identified health care professionals as their most trusted source of information during their contraceptive decision-making process [8]. In contrast, our results indicated that medical providers were named by only 47.18% of participants when asked with whom they could comfortably discuss contraceptives. These differences highlight the heterogeneous roles that social actors such as spouses or medical providers may play in the dissemination of contraceptive knowledge.

If husbands have such influence over their partners' contraceptive usage, then further research into the knowledge, attitudes, and behaviors of cisgender men is essential to improve family planning services. In a sample of 273 married women in Nepal, Khatri et al. [9] found that almost a quarter of participants did not use IUDs due to their husband's disapproval [9]. In Uganda, Thummalachetty et al. [10] found limited accurate knowledge and fear of side effects of contraceptive methods among their sample of 41

Table 5 Results for Wilcoxon rank sum test on knowledge differences among contraceptive methods

	Condom	OCP	Injectable	IUDs	Implant	Patch	Cap	Ring	Tubal ligation	Vasectomy
Condom										
OCP	$W=25{,}588$, $p=1.876$ e−10**									
Injectable	$W=31{,}598$, $p<2.2$ e−16**	$W=26{,}286$, p value=2.235 e−12**								
IUDs	27,519, $p=2.783$ e−16**	$W=20{,}864$, p value=0.0518	$W=13{,}255$, p value=5.288 e−08**							
Implant	$W=36{,}546$, $p<2.2$ e−16**	$W=33{,}059$, p value<2.2 e−16**	$W=26{,}348$, p value<2.2 e−16**	$W=31{,}814$, p value<2.2 e−16**						
Patch	37,012, $p<2.2$ e−16**	$W=33{,}570$, p value<2.2 e−16**	$W=26{,}348$, p value<2.2 e−16**	$W=32{,}332$, p value<2.2 e−16**	$W=19{,}612$, p value=0.4413					
Cap	$W=36{,}452$, $p<2.2$ e−16**	$W=32{,}882$, p value<2.2 e−16**	$W=26{,}107$, p value<2.2 e−16**	$W=31{,}612$, p value<2.2 e−16**	$W=18{,}917$, p value=0.5247	$W=18{,}704$, p value=0.1609				
Ring	$W=36{,}542$, p value<2.2 e−16**	$W=33{,}104$, p value<2.2 e−16**	$W=26{,}424$, p value<2.2 e−16**	$W=31{,}871$, p value<2.2 e−16**	$W=19{,}304$, p value=0.6325	$W=19{,}098$, p value=0.771	$W=19{,}596$, p value=0.2664			
Tubal ligation	$W=23{,}260$, p value=1.59 e−05**	$W=16{,}078$, p value=0.01194*	$W=9159$, p value<2.2 e−16**	$W=13{,}962$, p value=5.868 e−06**	$W=3195.5$, p value<2.2 e−16**	$W=2883$, p value<2.2 e−16**	$W=3333.5$, p value<2.2 e−16**	$W=2972$, p value<2.2 e−16**		
Vasectomy	$W=25{,}760$, p value=6.193 e−11**	$W=18{,}954$, p value=0.8977	$W=11{,}934$, p value=2.661 e−11**	$W=16{,}916$, p value=0.07174	$W=5701$, p value<2.2 e−16**	$W=5398$, p value<2.2 e−16**	$W=5861.5$, p value<2.2 e−16**	$W=5463$, p value<2.2 e−16**	$W=21{,}434$, p value=0.00981**	

*Denotes $p<0.05$

**Denotes $p<0.01$

Table 6 Results for Wilcoxon rank sum test on knowledge differences among contraceptive methods

Contraceptive Method	Methods with highly statistically significant difference in knowledge ($p < 0.01$)
Condom	All methods
OCP	All methods except IUD, vasectomy (Tubal ligation has $p < 0.05$)
Injectable	All methods
IUDs	All methods except OCP, vasectomy
Implant	All methods except patch, cap, ring
Patch	All methods except implant, cap, ring
Cap	All methods except implant, patch, ring
Ring	All methods except implant, patch, cap
Tubal ligation	All methods (OCP has $p < 0.05$.)
Vasectomy	All methods except OCP, IUD

married men [10]. A study of data from the National Family Health Survey in India found that women who experienced intimate partner violence were 8% less likely to report modern contraceptive usage and 14% more likely to undergo sterilization [11]. This literature suggests that the role that men in heterosexual relationships play in their partners' contraceptive decision-making can be subject to biases and may often be counter-productive to the well-being of the clients.

While our results do not show barriers specific to partners' preferences, participants' contraceptive awareness and usage patterns do differ between tubal ligation and vasectomy (Sect. "Differential Awareness, Usage, Barriers Based on Contraceptive Method"). In fact, using data from four sets of the National Family Health Survey from 1992 to 2016, Prusty and Begum [12] argue that the burden of implementing family planning methods in heterosexual couples largely falls on women in India, with the prevalence of vasectomies decreasing from 1992 to 2016 [12]. Despite this fact, in our study majority of participants (84.10%) felt that both partners should be responsible for implementing contraceptive methods even though the reality is different.

Friends as Sources of Knowledge

This study found that many participants indicated their friends and colleagues as sources of information for oral contraceptive pills (44.14%), injections (41.46%), IUDs (39.85%), tubal ligation (40.25%), and vasectomy (41.79%). Choudhary et al. [13] found that 30.25% of their 400 participants indicated friends and relatives as their source of contraceptives in Central India [13]. Similarly in Odisha, Nayak et al. [14] found that 44.6% of 215 participants receive their contraception information from friends or relatives [14]. Contrary to our results, only 9.7% of respondents indicated

friends or peer educators as a source of contraceptive information in a study conducted in Uttar Pradesh [15].

While disseminating contraceptive knowledge, peer relationships may have negative effects as well. In a study of IUD usage in Southern Ethiopia, for instance, Woldeyohannes et al. [16] found that misinformation on IUD health outcomes stemmed from friends and media, in turn leading to underutilization of this method [16]. Similarly, in a study by Thummalachetty et al. in Uganda, most interviewees received contraceptive information from peers or hearsay [10]. Sometimes friends may serve as an unreliable source of information leading to underutilization of effective forms of contraception.

Main barriers for oral contraceptive pills and IUDs included concern for side effects. Moreover, in our study, 59.79% and 69.07% respondents had less knowledge about oral contraceptive pills and IUDs. Therefore, only 22.12% and 7.08%, respectively, have used these methods. Considering that friends and colleagues served as the dominant source of knowledge for this sample, these results suggest that participants may have received limited accurate information about these methods.

Limited Contraceptive Discussion with Medical Providers

Our results show participants' limited contraceptive discussion with providers; the majority of respondents indicated no prior self-initiated discussion with a provider (80.10%). At the same time, the majority of respondents stated interest in receiving contraceptive education (62.31%).

Despite the trends in our study, existing literature highlights the importance of contraceptive counseling by health providers. In Nepal, Khatri et al. [9] found that those who had been counseled on IUDs by health workers were 2.83 times more likely to use an IUD than those who were not. Those with substantial knowledge on IUDs were 2.85 times more likely to use it as compared to those with limited or no knowledge [9].

Currently, in India, contraceptive counseling efforts seem to fall on public sector health workers mainly gynecologists. The authors of this paper encourage public as well as private healthcare providers of all disciplines to increase their family planning efforts in India to fill this gap. Every health care facility should consider having a dedicated family planning unit staffed with health care providers, including physicians, nurses, and counselors. In these units, clients, their partners, and other community members can partake in educational programs, engage in standardized counseling, and implement various contraceptive methods according to clients' values, preferences, and needs. To avoid perpetuating biases or coercion themselves, these units must use a patient-centered approach with a shared decision-making model [17].

Focus should also be on social workers and enlightening them so that they can spread awareness in the community.

Conclusion

Our study shows differential levels of awareness, usage, and barriers of contraceptive methods among participants. It also suggests the importance of spouses and friends in clients' contraceptive decision-making process and limited provider contraceptive counseling experience. Given the nuanced role that spouses can play in their partners' lives and potential for misinformation from both peers and spouses, health providers should increase contraceptive counseling for clients, their partners, and communities as a whole. The implementation of such widespread practice can significantly improve rates of unintended pregnancy for different communities.

Declarations

Conflict of interest Our study had no conflict of interest.

Ethical Approval Institutional ethical committee clearance was obtained for study. The study has been performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. The authors hereby declare that the article is original; neither the article nor a part of it is under consideration for publication anywhere else and has not been previously published anywhere. We have declared all vested interests. We have meticulously followed the instructions. The article if published shall be the property of the journal.

Informed Consent Informed consent was obtained from all patients included in study.

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