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Original Research Article

Study on the knowledge, attitude and practice of contraception in Kerala, centered around a tertiary care centre

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ABSTRACT

Background: Family planning is a public health cornerstone. In Kerala, India, despite high literacy, contraceptive use is dominated by female sterilization, with low uptake of spacing methods and minimal male participation. This suggests significant gaps in knowledge and attitudes. This study aimed to assess the awareness, specific knowledge and attitudes towards contraceptive methods in a mixed population of Kerala.
Methods: A cross-sectional, questionnaire-based study was conducted from May 2024 to September 2025 among 500 individuals (84.2% female; 48% healthcare workers) residing in Kerala, aged above 18 years. The sample size was justified using a 71.6% anticipated prevalence from a parent study. Data was collected via an online survey distributed at a tertiary maternity hospital and the wider community. Main outcome measures were awareness levels, specific knowledge, lifetime usage and attitudes towards intrauterine devices (IUDs) and male sterilization, analyzed using t-tests and Chi-Square tests.
Results: General awareness of contraception was nearly universal, but lifetime usage was low (22.8%). A significant knowledge-practice gap was identified. Participants who had used contraception had significantly higher mean awareness scores (7.35) than non-users (6.22) ($t=3.90$, $p<0.001$). Healthcare workers (Mean Score: 7.67) were significantly more knowledgeable than non-healthcare workers (Mean Score: 5.37) ($t=10.19$, $p<0.001$), but this did not correlate with higher personal use ($p=0.492$). Education level was highly associated with willingness to accept an IUD ($p<0.001$), but economic status was not associated with contraceptive use ($p=0.373$).
Conclusions: Despite high general awareness, significant gaps in detailed knowledge and low practical adoption persist. Misconceptions and reluctance, particularly towards male sterilization and long-acting reversible contraceptives (LARC), are prevalent. Targeted educational interventions addressing specific procedural fears-and specifically sensitizing healthcare providers to their own biases-are necessary to bridge this knowledge-practice gap.

Keywords: Awareness, Attitude, Contraception, Family planning, India, Kerala, Knowledge, Knowledge practice gap

INTRODUCTION

Family planning is a cornerstone of public health, essential for maternal and child well-being, women's empowerment and is a critical component in achieving the Sustainable Development Goals.[1] India was the first country to launch a national family planning programme in 1952, aiming to stabilize its population and improve health outcomes.[2] Despite decades of government initiatives and policy shifts, the landscape of contraceptive use in India is marked by significant regional disparities and a heavy reliance on a limited number of methods, predominantly female sterilization.[3] The state of Kerala in Southern India is often cited as a demographic and health model for the nation. It has achieved replacement-level fertility, high

literacy rates and strong health indicators that surpass national averages.[4] This success has been largely attributed to female education and empowerment, which led to increased awareness and acceptance of smaller family norms.[4] However, the latest National Family Health Survey (NFHS-5) data for Kerala reveals a nuanced and somewhat paradoxical picture. While the use of any modern contraceptive method is 61.5% among currently married women, this is disproportionately dominated by female sterilization (52.9%). The use of modern spacing methods like IUDs (2.9%), pills (0.6%) and condoms (4.6%) remains remarkably low.[5]

This heavy reliance on a permanent, female-controlled method suggests that choices may be limited and that male participation in family planning is minimal. This phenomenon is not unique to Kerala. Across India, there exists a significant gap between contraceptive knowledge and its practical application. Studies consistently show that while awareness of at least one method is high, the actual contraceptive prevalence rate (CPR) is often much lower due to deep-seated sociocultural barriers.[9] Misconceptions, fear of side effects and a lack of detailed knowledge about reversibility are frequently cited as reasons for non-use, even in literate populations.[16] Additionally, recent evidence suggests that knowledge regarding emergency contraception remains critically low among reproductive-aged women, further limiting their options.[18]

Particularly concerning is the low acceptance of male sterilization (vasectomy). Despite being a safer, simpler and more cost-effective procedure than female sterilization, its prevalence remains negligible. This is often linked to historical stigma and persistent myths about vasectomy causing physical weakness, loss of libido or a decrease in sexual performance.[8,14] Similarly, LARCs, such as IUDs, are globally recognized for their high efficacy, yet their uptake in India faces resistance due to fears regarding insertion and side effects.[17]

Furthermore, the role of the provider is pivotal. Healthcare workers are the primary source of contraceptive information and counselling. However, recent studies indicate that healthcare providers themselves often harbor misconceptions or biases against certain methods.[15] Research has shown that medical knowledge does not always translate to personal practice among nursing staff and health workers, creating a "healthcare worker paradox" that can significantly influence the quality of counselling a client receives.[13]

Given this context, this study was designed to conduct an in-depth assessment of the awareness, knowledge and attitudes towards the full spectrum of contraceptive methods in a mixed population of healthcare and non-healthcare individuals in Kerala. The primary objective was to identify specific knowledge gaps particularly regarding male sterilization and LARCs to inform targeted public health interventions.

METHODS

This cross-sectional, descriptive study was conducted from May 2024 to September 2025 among individuals residing in Kerala, India. The sample size for this study was calculated to be 500 participants. This determination was based on the formula for estimating a single population proportion, using an anticipated prevalence (P) of contraceptive use of 71.6%. This prevalence figure was adopted from a relevant parent study conducted in a similar Indian urban population.[17] Using a standard 95% confidence level, a sample of 500 yields a precise margin of error of approximately 3.8%. This empirically grounded approach ensures the study is adequately powered for robust and reliable conclusions. Inclusion criteria were age above 18 years and residence in Kerala for at least the preceding three years.

A pre-tested, semi-structured questionnaire was developed for this study based on a review of existing literature and expert consultation. The questionnaire was bilingual (English and Malayalam) and distributed electronically via Google Forms. The target population included patients and their relatives attending the Institute of Maternal and Child Health (IMCH) at Government Medical College, Kozhikode, as well as the wider community reached through social media platforms. The questionnaire consisted of sections covering sociodemographic details, general contraceptive awareness, specific knowledge on methods, usage and attitudes. Potential bias from self-reporting was mitigated by ensuring complete participant anonymity via the self-administered questionnaire, while selection bias was partially addressed by employing a dual recruitment strategy.

The study protocol was approved by the Institutional Human Ethics Committee of Government Medical College, Kozhikode. Electronic informed consent was obtained from all participants. Statistical analysis was performed using descriptive statistics. An independent t-test was used to compare the mean knowledge scores between groups. The Chi-square test was used to determine associations between categorical variables, with a p value of <0.05 considered statistically significant.

RESULTS

A total of 500 individuals participated in the study out of more than 1000 invitees. All participants confirmed residence in Kerala. The mean participant age was 28.6±8.7 years, with a range of 17 to 63 years (Table 2). The study population was predominantly female (n=421, 84.2%) (Table 1) and well-educated, with 46.4% (n=232) holding a professional degree (Table 4). Healthcare workers (n=240) comprised 48.0% of the sample (Table 3).

General awareness of at least one contraceptive method was nearly universal. However, lifetime contraceptive usage was low, with only 22.8% (n=114) of participants

reporting ever using a method, while 77.2% (n=386) had never used any. This demonstrates a significant knowledge-practice gap, as participants had heard of a mean of 5.86 methods but only used an average of 1.09.

Specific knowledge about methods varied significantly, as shown in Table 6. While awareness of the permanency of sterilization was high (71.4%), key knowledge gaps were evident. Less than half of the participants (43.8%) knew that a nulliparous woman could use a Copper T and only 52.2% were aware that male sterilization is a minor, painless procedure. Attitudes towards certain methods revealed significant reluctance.

A majority of participants (n=276, 55.2%) stated they would not accept a Copper T. Among the 79 male participants, a significant majority (n=56, 70.9%) were not willing to undergo a vasectomy. To further analyze these findings, a mean awareness score was calculated for each participant (Overall Mean Score: 6.47 out of 10). Inferential statistical tests revealed significant correlations.

A statistically significant difference in mean awareness scores was found between healthcare workers (Mean Score: 7.67) and non-healthcare workers (Mean Score: 5.37) ($t=10.19$, $p<0.001$). Furthermore, participants who had ever used contraception had a significantly higher mean awareness score (Mean Score: 7.35) compared to those who had never used a method (Mean Score: 6.22) ($t=3.90$, $p<0.001$).

However, Chi-Square tests showed that this higher knowledge did not necessarily translate to practice. There was no statistically significant association between being a healthcare worker and the likelihood of ever using contraception (Chi-Square=0.47, $p=0.492$) (Table 3). Similarly, there was no significant association between economic status (APL vs. BPL) (Table 5) and contraceptive use (Chi-Square=0.79, $p=0.373$). In contrast, a highly significant association was found between participants' education level and their willingness to accept a Copper T (Chi-Square=25.04, $p<0.001$), as detailed in Table 4.

Table 1: Sociodemographic profile of the study participants.

Category	Frequency (N)	(%)
Female	421	84.2
Male	79	15.8

Table 2: Age distribution of the study participants.

Category	Frequency (N)	(%)
Mean±SD	28.6±8.7	
Range	17-63	
<20 years	44	8.8
20-29 years	343	68.6
30-39 years	89	17.8
40-49 years	15	3.0
50+ years	9	1.8

Table 3: Distribution of participants according to occupation and use of contraception.

Occupation group	No	Yes
Healthcare worker	189	51
Non-healthcare worker	197	63

Table 4: Association between education level and willingness to accept Copper T.

Education	No	Yes
10 th	47	18
Degree	125	73
Professional	102	130
<10th	2	3

Table 5: Association between economic status (APL/BPL) and contraceptive use.

Income	No	Yes
APL	203	66
BPL	183	48

Table 6: Specific knowledge regarding contraceptive methods among participants.

Knowledge question	% Correct
Males can also sterilise themselves	74.8
Male/female sterilisation is permanent	71.4
Fertility returns immediately after Copper T removal.	67.8
Hormone tablets cannot be taken during lactation.	58.8
Copper T can last up to 10 years.	54.8
Copper T can be inserted immediately after delivery.	54.0
Male sterilisation is a minor/painless procedure.	52.2
Fertility may take time to return after stopping hormonal tablets	48.6
A nulliparous woman can use Copper T.	43.8

DISCUSSION

The Kerala paradox: high awareness vs. low uptake

The present study highlights a significant paradox inherent in the "Kerala Model" of health. Despite the state's high literacy and excellent health indicators, our findings reveal that general awareness does not automatically translate into effective contraceptive practice. While awareness of at least one method was nearly universal among our participants, the lifetime contraceptive usage rate was only 22.8%. This is notably lower than the usage rates reported in other regional studies. For instance, Sukumar et al and John et al reported a contraceptive prevalence of 67.5% in rural Vellore, Tamil Nadu and Alukal et al found a prevalence of 71.6% in a similar tertiary care setting in Kerala.[10,17] The finding aligns more closely with the trends observed by Thulaseedharan, who noted that among young married women in Kerala, the use of modern spacing methods remains surprisingly low despite high literacy, often due to a cultural prioritization of early childbearing and fears regarding side effects.[16] This suggests that while "awareness" (hearing of a method) is high, "functional knowledge" (understanding how to use it effectively) remains inadequate.

The knowledge-practice gap

Our study confirms a profound "knowledge-practice gap" that transcends educational boundaries. Although participants had heard of an average of 5.86 methods, they had used an average of only 1.09. This disconnect is consistent with recent findings from other Indian states. Singh et al reported in Jaipur that while 99% of women were aware of contraception, only 55% practiced it.[9] Similarly, Gupte et al observed in a tertiary care setting that high awareness levels did not correlate with high acceptance of postpartum contraception, primarily due to myths and lack of counseling.[7] The analysis indicated that participants who had ever used contraception had significantly higher mean awareness scores (7.35) than non-users (6.22) ($p<0.001$). This finding is supported by Sadhika et al who established a positive correlation between specific contraceptive knowledge and positive attitudes among primiparous women in Kerala.[6]

The healthcare worker paradox

A novel and concerning finding of this study is the disconnect observed among healthcare workers (HCWs). While HCWs demonstrated significantly higher specific knowledge scores than non-HCWs (Mean Score: 7.67 vs. 5.37, $p<0.001$), this superior knowledge did not result in higher personal contraceptive use ($p=0.492$). This challenges the conventional assumption that medical knowledge drives personal health behavior. Our results mirror the findings of Gothwal et al who studied nursing staff in AIIMS Jodhpur and found that despite having excellent knowledge, their practice of contraception was inconsistent and influenced by the same social myths as the general population.[13] Similarly, Wani et al reported that healthcare workers in Kashmir often failed to utilize family planning services effectively.[15] If providers themselves are hesitant to adopt modern methods, their ability to counsel patients effectively and dispel myths is significantly compromised.

Barriers to male sterilization (vasectomy)

Perhaps the most critical barrier identified is the profound resistance to male sterilization. In our study, over 70% of male participants were unwilling to undergo a vasectomy and nearly half of all participants (47.8%) were unaware that it is a minor, painless procedure. This finding is strongly supported by a 2024 systematic review by Vanvari et al and Prajapati et al, which identified the fear of physical weakness, loss of libido and loss of masculinity as the primary reasons for the decline in vasectomy rates across India.[8] Shafi et al similarly reported that 60% of men in Lucknow believed vasectomy would decrease their sexual performance.[14] The burden of family planning in Kerala remains disproportionately on women, a trend that has not improved despite the state's progressive social indices.[5]

Barriers to long-acting reversible contraceptives

The data reveals a clear class gradient in the acceptance of intrauterine devices (IUDs). We found a highly significant association between education level and willingness to accept a Copper T ($p<0.001$), with professionals being far

more accepting than those with lower education. This indicates that misconceptions about IUDs such as fear of migration or infection are deeply entrenched in less-educated demographics. This corroborates the work of Nair et al and Alukal et al who found that education was a key determinant in the acceptance of birth spacing methods among postnatal women in Kerala.[12] Furthermore, Singh et al noted that acceptance of immediate postpartum IUDs is often hindered by a lack of antenatal counseling.[11] Addressing these specific procedural fears through targeted educational interventions is essential to improving LARC uptake.

Limitations

The present study has certain limitations. First, the cross-sectional design allows for the assessment of associations but cannot establish causality between knowledge levels and contraceptive adoption. Second, the use of an online survey distributed partly through social media may have introduced a selection bias, favoring younger, more literate and technically savvy participants, potentially limiting the generalizability of findings to the rural or illiterate population. Third, as the study relied on self-reported data, there is a potential for social desirability bias, particularly regarding sensitive topics like reproductive choices. Finally, the study was centered around a single tertiary care center in Kerala, which may not fully represent the cultural diversity of other Indian states.

CONCLUSION

In our study population, contraceptive awareness is broad but lacks the necessary depth to inform practice. A significant disparity exists between knowing about a method and using it, driven by deep-seated knowledge gaps, prevalent misconceptions and significant attitudinal barriers, especially concerning LARCs and male sterilization. To improve reproductive health outcomes, public health strategies must evolve beyond promoting general awareness. Interventions must focus on providing detailed, accurate and context-specific information to both the public and healthcare providers, actively working to dismantle myths and promote shared reproductive responsibility.

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