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Awareness, Attitudes, and Determinants of Postpartum Intrauterine Contraceptive Device (PPIUCD) Acceptance among Antenatal Women: A Cross-Sectional Study

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Abstract

Background: The postpartum period is a crucial window for family planning. Despite its safety and efficacy, the uptake of the Postpartum Intrauterine Contraceptive Device (PPIUCD) remains low in many settings.

Methods: This observational study enrolled 150 antenatal women at a tertiary hospital's obstetric clinic. A validated, pre-designed interview schedule was administered to capture socio-demographic profiles, awareness levels, attitudes, and willingness to accept PPIUCD. Statistical associations were examined using Chi-square analysis; $p<0.05$ was set as the threshold for significance.

Results: General awareness of intrauterine contraception was high (74.7%), but specific knowledge of PPIUCD timing was only 45.3%. The overall acceptance rate was 36.0%. Acceptance was significantly higher among women with graduate-level education (60.5% vs. 26.2%, $p=0.001$), multiparous women (41.9% vs. 22.2%, $p=0.02$), and those who had received prior postpartum family planning counselling (48.8% vs. 20.6%, $p<0.001$). The primary barrier to acceptance was fear of side effects (72.9%), followed by a preference for other methods and insufficient information.

Conclusion: A significant gap exists between awareness and acceptance of PPIUCD. Acceptance is strongly influenced by education, parity, and, most importantly, dedicated antenatal counselling. To improve uptake, institutionalizing standardized counselling to address prevalent fears and misinformation is essential.

Keywords: PPIUCD; Postpartum contraception; Contraceptive uptake; Antenatal counselling; Observational study.

Introduction

The postpartum period represents a critical window for family planning, during which women and couples demonstrate heightened motivation and receptivity towards contraceptive methods [1]. This phase, defined as the six weeks following delivery, is pivotal for initiating contraception before hospital discharge, thereby eliminating the need for a separate visit and ensuring protection before the resumption of sexual activity [2]. Delays in adopting postpartum contraception are strongly associated with unintended and closely spaced pregnancies, which carry elevated risks for both maternal and child health outcomes, including preterm birth and maternal anaemia [3].

Among available contraceptive options, IUCDs stand out for their superior efficacy, sustained duration of action, and full reversibility, making them particularly suited for birth interval regulation. Postpartum IUCD (PPIUCD) insertion, performed within 48 hours of delivery including post-placental placement (within 10 minutes of placental expulsion) or intra-caesarean insertion offers a significant advantage by integrating contraception into immediate postpartum care [4]. Despite its safety, efficacy, and convenience, the acceptance of PPIUCD remains suboptimal in many settings, including India [5]. This low uptake is often attributed to a confluence of factors, including limited awareness among potential users, misconceptions about side effects, insufficient counselling by healthcare providers, and sociocultural barriers such as spousal disapproval [6].Government-led reproductive health initiatives in India have identified PPIUCD as a priority intervention to close the persistent gap in postpartum contraceptive coverage. However, a persistent gap exists between the availability of services and their utilisation [7]. Prior research indicates that antenatal education and counselling are instrumental in improving the acceptance of postpartum family planning methods [8]. There is a paucity of focused studies assessing the specific awareness levels and factors influencing the acceptance of PPIUCD among antenatal women in the local context. A detailed understanding of the knowledge gaps, informational sources, and determinants of acceptance, including the influence of socio-demographic variables is essential to design targeted interventions.

This study is therefore justified by the need to generate context-specific evidence to inform the strengthening of antenatal counselling programmes. By systematically assessing awareness, attitudes, and acceptance, alongside identifying key barriers and facilitators, the findings will contribute to developing more effective strategies to increase PPIUCD uptake. Ultimately, this can lead to improved maternal and child health outcomes by reducing unintended pregnancies and promoting optimal birth spacing.

Objectives

1. To assess the level of awareness and acceptance of the Postpartum Intrauterine Contraceptive Device (PPIUCD) among antenatal women attending a tertiary care facility.
2. To identify the socio-demographic, obstetric, and knowledge-based factors influencing the acceptance of PPIUCD.
3. To evaluate the sources of information and prevailing attitudes and perceptions towards PPIUCD among the study participants.
4. To determine the association between key socio-demographic variables (e.g., age, parity, education, occupation) and the levels of awareness and acceptance of PPIUCD.

Materials and Methods: This was an observational study of cross-sectional design, carried out over three months in 2025 following clearance from the Institutional Human Ethics Committee (IHEC Reg No: EC/NEW/INST/2025/TN/0690).

Study Setting and Population: The study site was the ANC of a tertiary-level referral hospital. Participants were pregnant women presenting for scheduled antenatal visits throughout the data collection period.

Sample Size and Sampling Technique: The required sample was calculated at 150 participants, and systematic sampling was used to select eligible women. Every woman who met the inclusion criteria and presented to the clinic on the days of data collection was invited to participate until the desired sample size was achieved.

Inclusion and Exclusion Criteria: Eligible participants were adult pregnant women (≥18 years) attending the ANC who gave voluntary written consent. Those with recognized medical contraindications to IUCD insertion, critically unwell patients, and women who declined to participate were not enrolled.

Study Tool and Data Collection: A pre-tested, structured questionnaire was used as the study instrument. The questionnaire was developed and comprised four main sections:

1. **Socio-demographic and obstetric profile:** This section collected data on age, education, occupation, socio-economic status, parity, and gestational age.
2. **Knowledge and Awareness:** This section contained questions to assess the participant's knowledge about PPIUCD, including its timing, effectiveness, mechanism, and reversibility. A score was calculated based on correct responses.

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3. **Attitudes and Perceptions:** This section used a Likert scale to gauge perceptions regarding safety, side effects, spousal approval, and the convenience of PPIUCD.
4. **Acceptance:** This section directly assessed the participant's willingness to accept PPIUCD in the postpartum period (Yes/No), along with reasons for acceptance or refusal.

Prior to data collection, the research assistants (nurses/medical interns) were trained on the study objectives, the process of obtaining informed consent, the administration of the questionnaire, and the maintenance of privacy and confidentiality. A standardized script was used during recruitment and for addressing basic queries to minimize interviewer bias.

Procedure: Women were identified and approached while waiting in the ANC. A participant information sheet was used to explain the study's aims, procedures, potential risks, and the right to withdraw at any stage. Consent was documented in writing; for illiterate participants, the document was read aloud before a neutral witness, and a thumb impression was accepted in lieu of a signature. Interviews were held privately and typically lasted 15–25 minutes, with responses recorded on structured paper forms.

Ethical Considerations: Institutional ethical clearance was secured before data collection began. Enrolment was entirely voluntary, and participant privacy was protected throughout. Data forms contained no identifying information; each participant was assigned a coded study number. All physical records were kept in a secured, access-restricted location. The study involved minimal risk, limited to the time and potential discomfort of an interview. Participants who expressed interest or were found to have significant misconceptions about family planning were provided with standardized counseling and were referred to the hospital's family planning services for further consultation.

Data Analysis: Completed forms were reviewed for accuracy and completeness before data entry. Analysis was performed using SPSS version 25.0. Socio-demographic and obstetric data were summarized through descriptive statistics including frequencies, proportions, means, and standard deviations. Awareness and acceptance levels were expressed as percentages. The Chi-square test, with Fisher's exact test applied where cell counts were small, was used to examine associations between categorical variables. Statistical significance was defined as $p<0.05$.

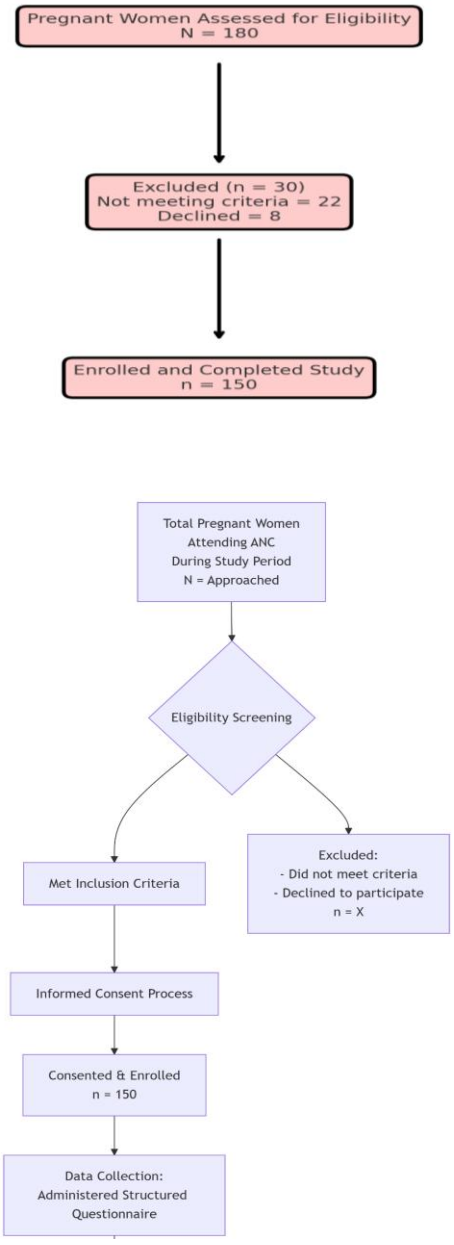

Figure 1: Study Flow diagram

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Results

A total of 150 antenatal women were enrolled in the study. The response rate was 100%, as all women who were approached and met the inclusion criteria consented to participate. The mean age of the participants was 26.4 years (±4.2 SD). The majority of the women were multiparous (had at least one previous child) and hailed from an urban background. The detailed distribution is presented in Table 1.

Table 1: Socio-demographic and Obstetric Characteristics of the Study Participants (N=150)

Age (Years)	18-24	58	38.7
	25-30	72	48.0
	>30	20	13.3
Residence	Urban	98	65.3
	Rural	52	34.7
Education	Illiterate/Primary	22	14.7
	Secondary	85	56.7
	Graduate & Above	43	28.6
Occupation	Housewife	112	74.7
	Employed	38	25.3
Parity	Primipara (First pregnancy)	45	30.0
	Multipara (≥1 child)	105	70.0
Gestational Age	Second Trimester (13-26 wks)	89	59.3
	Third Trimester (≥27 wks)	61	40.7

General awareness about PPIUCD was found to be moderate. While 112 women (74.7%) had heard of an IUCD as a family planning method, only 68 (45.3%) were specifically aware that it could be inserted immediately after delivery (PPIUCD). Knowledge regarding key attributes was limited, as shown in Table 2.

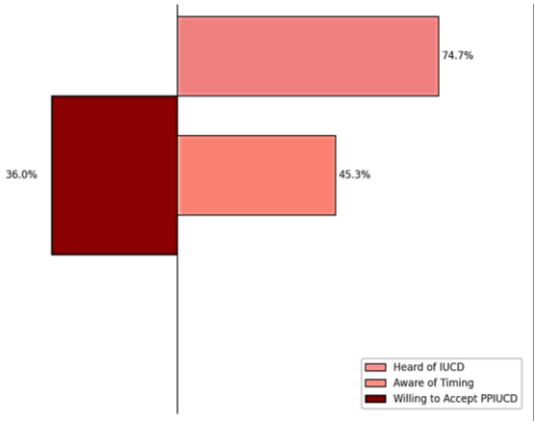

Figure 2: Awareness vs. Acceptance of PPIUCD

Table 2: Knowledge regarding PPIUCD among Study Participants (N=150)

Aware of PPIUCD (Timing)	68 (45.3)	82 (54.7)
Knows it is Long-acting (>5 years)	91 (60.7)	59 (39.3)
Knows it is Reversible	76 (50.7)	74 (49.3)
Knows it is highly effective	62 (41.3)	88 (58.7)
Knows insertion can be painless (e.g., during C-section)	41 (27.3)	109 (72.7)

The primary sources of information about family planning were healthcare workers (68.0%), followed by family/friends (18.7%) and media (13.3%).Out of 150 participants, 54 women expressed willingness to accept PPIUCD postpartum, yielding an acceptance rate of 36.0%. Table 3 analyzes the association between acceptance and selected socio-demographic variables.

Table 3: Association between Socio-demographic Factors and Acceptance of PPIUCD

Education	Secondary & below	28/107 (26.2)	**0.001**
	Graduate & above	26/43 (60.5)	
Parity	Primipara	10/45 (22.2)	**0.02**
	Multipara	44/105 (41.9)	
Previous Discussion on PPFP*	Yes	40/82 (48.8)	**<0.001**
	No	14/68 (20.6)	
Awareness of PPIUCD Timing	Aware	38/68 (55.9)	**<0.001**
	Not Aware	16/82 (19.5)	

*PPFP: Postpartum Family Planning; p-value calculated using Chi-square test.

Education: Acceptance was significantly higher among women with graduate-level education or above (60.5%) compared to those with secondary education or less (26.2%). **Parity:** Multiparous women showed a higher acceptance rate (41.9%) than primiparous women (22.2%). **Counselling:** Women who had previously discussed postpartum family planning with a provider were more than twice as likely to accept PPIUCD. **Awareness:** Specific knowledge about the postpartum timing of insertion was strongly associated with a higher willingness to accept the method.

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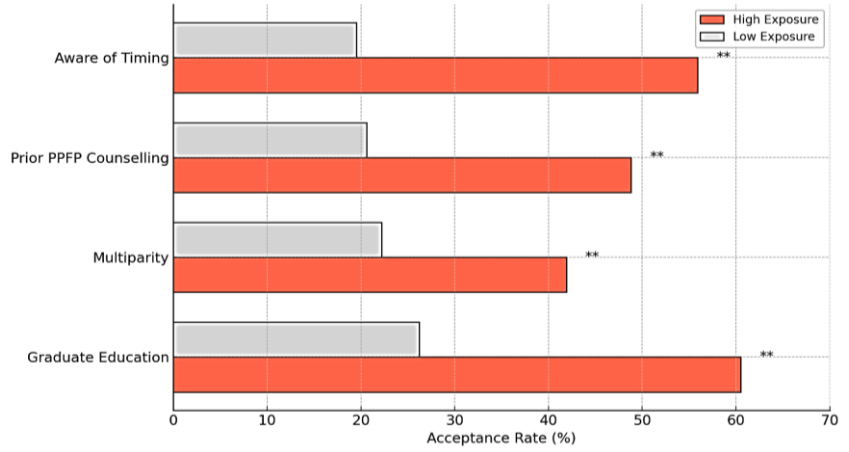

Figure 3: Factors influencing acceptance of PPIUCD

Among the 54 women willing to accept PPIUCD, the most common reasons were its long-acting nature (79.6%), convenience of immediate insertion (66.7%), and high effectiveness (61.1%).Among the 96 women not willing to accept it, the leading reasons were fear of side effects (pain, bleeding, infection) (72.9%), preference for another method (18.8%), and lack of sufficient information (15.6%). Spousal disapproval was cited by 8.3% of women.

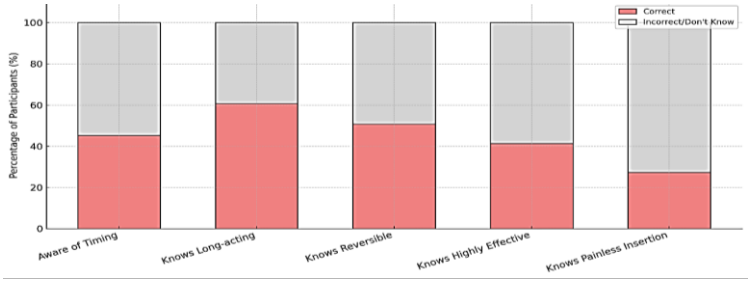

Figure 4: Knowledge profile of participants of PPIUCD

Attitudinal analysis revealed mixed perceptions. While 65.3% of women agreed that PPIUCD was a good option for spacing pregnancies, 58.0% were concerned about its safety. Only 34.0% felt they had received adequate information from their healthcare providers to decide on postpartum contraception.

Discussion

This cross-sectional study aimed to assess the awareness, attitudes, and determinants of acceptance for the Postpartum Intrauterine Contraceptive Device (PPIUCD) among antenatal women attending a tertiary care center. The findings reveal a critical gap between moderate general awareness and low actual acceptance, with an overall acceptance rate of 36.0%. The results underscore a complex interplay of knowledge, socio-demographic factors, and systemic counselling practices that influence postpartum family planning decisions.

The study found that while 74.7% of women were aware of the IUCD as a contraceptive method, specific knowledge about its postpartum application (PPIUCD) was substantially lower at 45.3%. This indicates that general awareness does not translate into actionable knowledge regarding timing, which is a crucial determinant of uptake. Similar disparities have been reported in other settings. A study in Ethiopia found that only 33.5% of postpartum women had knowledge about PPIUCD, highlighting a pervasive information gap in low-and-middle-income countries (LMICs) [9]. Furthermore, our data showed poor knowledge regarding key attributes: only 27.3% knew it could be inserted painlessly during a cesarean section, and less than half were aware of its immediate reversibility. This knowledge deficit aligns with findings from a qualitative study in Kenya, where myths about infertility and fear of complications stemming from misinformation were major barriers [10]. The primary source of information being healthcare workers (68.0%) is encouraging and points to the antenatal clinic as a pivotal platform for intervention. However, the fact that only 34.0% of women felt adequately informed by their providers suggests a significant failure in effective communication and counselling delivery within the existing healthcare interaction.The multivariate analysis of factors influencing acceptance yielded significant insights. The strong positive association between higher educational attainment and PPIUCD acceptance (60.5% vs. 26.2%) is a consistent finding globally. Educated women are more likely to seek health information, comprehend technical advice, and exercise autonomy in reproductive decision-making [11]. This underscores the broader social determinant of women's empowerment in achieving family planning goals.Multiparity was another significant predictor, with multiparous women showing nearly double the acceptance rate of primiparous women (41.9% vs. 22.2%). This is logical, as women with children have direct experience with childbirth and child-rearing, making them more motivated to space or limit future pregnancies and more receptive to long-acting methods [12]. Primiparous women may be focused on the immediate outcome of their first delivery and less contemplative of future contraception, or they may intend to conceive again sooner. The most modifiable and striking determinant was the role of structured counselling. The data showed that women who had previously engaged in a provider-led PPFP discussion were more than twice as willing to opt for PPIUCD (48.8% vs. 20.6%), a finding that is well corroborated by the published literature. A systematic review concluded that antenatal counselling interventions significantly increase the uptake of effective postpartum contraception, with counselling that includes specific method information being more effective than general advice [13]. Our study reinforces that awareness of the specific *timing* of PPIUCD insertion was the strongest knowledge factor linked to acceptance. This highlights a critical lesson: counselling must move beyond generic mentions of "IUCD" to explicitly detail the "postpartum" or "post-placental" option, its procedural simplicity, and its unique advantages in the immediate post-delivery context.

The predominant reason for non-acceptance was fear of side effects (72.9%), encompassing concerns about pain, bleeding, infection, and long-

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term complications. This is not a novel finding but remains the most formidable barrier worldwide. A study from Tanzania similarly identified fear of side effects and perceived health risks as the primary obstacles to PPIUCD uptake [14]. These fears are often rooted in misinformation, anecdotal experiences shared within communities, and occasionally, from healthcare providers themselves who may harbor unfounded biases against IUCDs [15].While spousal disapproval was reported by a smaller proportion (8.3%) in our study, its impact should not be underestimated, as it often underreports a deeper layer of socio-cultural constraint. In many contexts, male partner approval is a prerequisite for contraceptive use, and involving men in counselling sessions has been shown to improve acceptance rates [16]. The preference for another method (18.8%) and lack of sufficient information (15.6%) further emphasize the need for comprehensive contraceptive counselling that presents a full range of options, thereby enabling informed choice rather than passive refusal due to ignorance.he 36.0% acceptance rate observed here falls within the broad spectrum documented across studies, which fluctuates considerably depending on the healthcare setting, characteristics of the sample, and the depth of integrated counselling programs. A study from a tertiary center in North India reported a pre-counselling acceptance rate of 22.4%, which increased to 80.1% after structured antenatal counselling [8]. In contrast, a population-based survey in Bangladesh found a much lower current use of PPIUCD, emphasizing the gap between facility-based studies and community reality [17]. Our findings are closer to the lower pre-counselling benchmarks, suggesting that routine antenatal care at our center may not yet include effective, standardized PPIUCD counselling.The implications are clear. First, there is an urgent need to institutionalize and protocolize antenatal counselling on PPFP, with a specific module on PPIUCD. This counselling must be proactive, detailed, and address myths and fears directly. Second, training and motivating frontline healthcare providers—doctors, nurses, and accredited social health activists (ASHAs)—is paramount. Providers must be equipped not only with technical knowledge but also with communication skills to allay fears [15]. Third, integrating husband or partner counselling sessions into the antenatal visit schedule could help address socio-cultural barriers. Finally, leveraging the high credibility of healthcare workers as an information source requires ensuring that the information they provide is complete, accurate, and positively framed.This study has several limitations. Firstly, as a cross-sectional study conducted in a single tertiary care hospital, the findings may not be generalizable to the broader community, primary health centers, or other geographical regions. The clientele of a tertiary center often has distinct socio-demographic and health-seeking characteristics. Secondly, the acceptance measured was "stated intention" and not "actual uptake" post-delivery. The translation of intention into action can be influenced by intrapartum experiences, immediate postpartum provider availability, and renewed fears, leading to a potential overestimation of real-world uptake [18]. Thirdly, social desirability bias may have led some participants to over-report awareness or under-report barriers like spousal disapproval. Finally, the study did not quantitatively assess the quality or content of previous counselling received, which is a key variable.

Conclusion

This study concludes that among antenatal women at a tertiary care center, there is a significant gap between the awareness and acceptance of PPIUCD. While general awareness exists, specific, actionable knowledge is low. Acceptance is significantly higher among educated, multiparous women who have received dedicated counselling, with fear of side effects being the predominant barrier. These findings underscore that improving PPIUCD uptake is not merely a matter of increasing availability but requires a focused, multi-pronged strategy. This strategy must include standardized, high-quality antenatal counselling that demystifies the method, targeted provider training to ensure confident recommendations, and community engagement to address deep-seated myths. Prospective, longitudinal studies are needed to test and evaluate such multi-component interventions, with the aim of measuring their real-world effect on postpartum contraceptive adoption and closing the gap between expressed intention and actual method uptake during this critical period.

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