

DOI: <https://dx.doi.org/10.18203/2320-1770.ijrcog20262113>

Original Research Article

## Effect of dedicated antenatal counselling on insertion rate of post placental intrauterine contraceptive device

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**Received:** 07 May 2026

**Revised:** 10 June 2026

**Accepted:** 18 June 2026

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### ABSTRACT

**Background:** Post placental intrauterine contraceptive devices (PPIUCDs) are a safe, effective and long-acting reversible contraceptive method. However, their acceptance remains low due to limited awareness and prevailing misconceptions. Antenatal counselling offers an opportunity to improve acceptance. To assess the impact of dedicated antenatal counselling on PPIUCD acceptance and to evaluate knowledge, attitudes and factors influencing refusal among antenatal women.

**Methods:** This facility-based prospective study was conducted among antenatal women delivering at a tertiary care centre. Participants received structured counselling during the third trimester and early labour. Data on awareness, perceptions, decision-making and acceptance of PPIUCD were collected and analysed statistically. Patients were followed up till delivery to see for acceptance of post placental IUCD.

**Results:** Awareness of IUCDs was observed in 77.6% of participants. Following counselling, the acceptance rate of PPIUCD increased to 25.9% compared to 6.5% reported previously. Decision-making was predominantly influenced by husbands (50.4%). Major reasons for non-acceptance included fear of complications (22.6%), desire for more children (21.2%), preference for other methods (16.6%) and husband refusal (12.5%). Knowledge was significantly associated with factors such as age, education, occupation and gravidity ( $p < 0.05$ ).

**Conclusions:** Dedicated antenatal counselling significantly improves PPIUCD acceptance by addressing misconceptions and enhancing awareness. Integrating repeated counselling into routine antenatal care and promoting partner involvement can further increase uptake and improve maternal health outcomes.

**Keywords:** Antenatal counselling, Contraceptive acceptance, Postpartum contraception, Post placental IUCD, PPIUCD

### INTRODUCTION

India continues to encounter significant obstacles in optimizing contraceptive prevalence, resulting in a high incidence of unintended and closely spaced pregnancies that exacerbate maternal and neonatal morbidity and mortality. The postpartum phase offers a strategic clinical window for the introduction of effective family planning, as increased health service utilization during this period enhances patient receptivity. Consequently, immediate postpartum interventions are instrumental in addressing unmet contraceptive needs and improving overall

maternal-child health outcomes.<sup>1</sup> Inserted within the first ten minutes following placental expulsion, the PPIUCD serves as a highly efficacious, long-acting and reversible non-hormonal option that preserves breastfeeding and eliminates the need for daily adherence.<sup>2</sup> While acknowledged as a safe and economically viable intervention for resource-constrained environments, its clinical uptake remains suboptimal. Persistent barriers, including deficient patient education, prevalent misconceptions regarding adverse effects and entrenched sociocultural factors, continue to hinder widespread acceptance.<sup>3</sup> Prenatal counseling serves as a critical

facilitator for the adoption of postpartum contraceptive strategies. By providing structured education during the gestational period, clinicians afford patients and their families the necessary duration to evaluate the safety profile and clinical benefits of the PPIUCD, thereby enabling informed reproductive choices. Empirical data indicate that women who receive counselling during the antenatal phase exhibit markedly higher rates of acceptance and device insertion than those engaged solely in the postpartum period. Specifically, Agarwal et al observed an insertion rate of 43.9% among antenatally counselled participants, nearly doubling the 23.4% rate seen in the postpartum only cohort.<sup>4</sup> This trend is further supported by Raghuwanshi et al who noted that roughly one-third of women counselled during pregnancy proceeded with PPIUCD insertion, compared to a significantly lower acceptance rate of 15.1% among those counselled after delivery.<sup>5</sup>

Despite growing evidence supporting the role of antenatal counselling, there remains limited data specifically evaluating the knowledge, attitude, acceptance and effect of dedicated antenatal counselling involving structured, repeated and targeted counselling sessions on actual insertion rates of PPIUCD, particularly in the Indian context. Understanding this relationship is essential for designing effective strategies to improve postpartum contraceptive uptake.

The present study was conducted with the primary aim of evaluating the impact of dedicated antenatal counselling on the acceptance and insertion rates of post placental intrauterine contraceptive devices among antenatal women. Additionally, the study aimed to assess the level of knowledge and attitude of antenatal women towards the use of post placental intrauterine contraceptive devices, specifically CuT 380A.

## METHODS

This prospective hospital-based interventional study was conducted in the Department of Obstetrics and Gynaecology at Government Medical College and Hospital Chandigarh after obtaining Institutional Ethics Committee approval. Antenatal women in the third trimester likely to deliver at the institute and fulfilling inclusion criteria were enrolled after informed written consent.

The study was carried out over a period of one year and six months (July 2023 to January 2025). The sample size was calculated as 535 based on a prior CuT insertion rate of 6.5% and an expected increase to 10%, with 95% confidence interval and 95% power. Participants were proportionately selected according to institutional delivery patterns (45% vaginal, 55% caesarean).

Demographic and clinical data were recorded using a structured questionnaire. All participants received dedicated antenatal counselling by the investigator

irrespective of prior counselling exposure to eliminate bias. Counselling included benefits, safety, side effects and misconceptions regarding PPIUCD, particularly CuT 380A.

Counselling was conducted using the GATHER approach (Greet, Ask, Tell, Help, Explain, Return). Knowledge, attitude, acceptance and reasons for refusal were assessed using a pre-designed questionnaire. Participants were followed till delivery to document PPIUCD insertion and reasons for non-acceptance.

### *Inclusion criteria*

Pregnant women in the third trimester, likely to deliver at the study center and willing to participate.

### *Exclusion criteria*

Severe anaemia (Hb <8 g/dl), planned tubal ligation, postpartum haemorrhage, prolonged rupture of membranes (>18 hours), uterine anomalies or fibroids distorting cavity, genital malignancy, active genital infection, coagulopathy, copper allergy, menstrual disorders (heavy bleeding, endometriosis, severe dysmenorrhea) and refusal to participate.

### *Statistical analysis*

Data were analysed using SPSS. Continuous variables were expressed as mean±SD and categorical variables as frequencies and percentages. Chi-square test was used to assess associations, McNemar test to compare pre and post-intervention acceptability and logistic regression to identify factors influencing acceptance. A p value <0.05 was considered statistically significant.

## RESULTS

The socio-demographic profile of the participants showed that the majority belonged to the age group of 26–30 years (39.1%), followed by 21–25 years (29.4%). Most women had attained secondary education (42.5%), while a smaller proportion had no formal education (9.7%). A large majority were housewives (77.9%) and most participants resided in urban areas (65.9%).

In terms of obstetric characteristics, multigravida women constituted the majority (65.7%), while 34.3% were primigravida. Most participants (82.7%) had attended ≥4 antenatal visits, indicating good antenatal care utilization. A significant proportion of pregnancies were planned (69.7%), while 30.3% were unplanned. Regarding future fertility intentions, over half of the women (51.3%) did not desire further pregnancies, whereas 44.5% desired one more child. With respect to contraceptive history, 58.4% of participants had not used any contraceptive method previously. Among users, barrier methods (32.7%) were the most common, followed by oral contraceptive pills (6.9%) and IUCD (5.5%). Additionally, 55.3% of

participants reported receiving counselling during pregnancy, while 26.8% did not receive any counselling and 17.9% could not recall (Table 1). The study revealed that a majority of participants (77.6%) had heard about IUCD, indicating a relatively high level of basic awareness. However, detailed knowledge was comparatively lower, as only 53.3% were aware of postpartum IUCD insertion and 41.8% demonstrated overall good knowledge. While 65.1% of participants knew that IUCD is effective for more than three years and 73.4% had correct knowledge regarding its placement, awareness about its reversibility was poor, with only 26.5% responding correctly. Regarding attitudes and decision-making, husbands were the primary decision-makers in 50.4% of cases, followed by joint decision-making (29.9%) and women independently (19.7%). A significant proportion of participants (77.6%) perceived

IUCD to have side effects. In terms of specific perceptions, 26.3% believed IUCD insertion to be painful, while a large proportion (41.6%) were uncertain. Similarly, 37.2% associated IUCD use with irregular bleeding, whereas 33.9% were unsure. Religious barriers were reported by a smaller proportion (12.6%), although 23.4% remained uncertain (Table 2). 25.9% of participants expressed willingness to adopt PPIUCD at the time of delivery after targeted antenatal counselling in third trimester or early labour indicating low acceptance despite high antenatal care utilization (Table 3). The major reasons for non-acceptance included fear of complications (22.6%), desire for more children (21.2%) and preference for other contraceptive methods (16.6%). Additional barriers included husband refusal (12.5%) and religious beliefs (8.7%), highlighting the influence of sociocultural and informational factors on contraceptive uptake (Table 4).

**Table 1: Socio-demographic, obstetric and contraceptive profile of participants (n=548).**

Variable	Category	Frequency (N)	(%)
Age group (in years)	≤20	28	5.1
	21–25	161	29.4
	26–30	214	39.1
	31–35	115	21.0
	≥36	30	5.5
Education (woman)	No formal	53	9.7
	Primary	185	33.8
	Secondary	233	42.5
	College	77	14.1
Occupation (woman)	Employed	86	15.7
	Farmer	35	6.4
	Housewife	427	77.9
Residence	Urban	361	65.9
	Rural	187	34.1
Gravida	Primigravida	188	34.3
	Multigravida	360	65.7
Antenatal visits	≤3 visits	95	17.3
	≥4 visits	453	82.7
Pregnancy status	Planned	382	69.7
	Unplanned	166	30.3
Future pregnancy desire	None	281	51.3
	One	244	44.5
	>1	23	4.2
Previous contraceptive use	Yes	228	41.6
	No	320	58.4
Type of contraceptive used	None	287	52.4
	Barrier	179	32.7
	IUCD	30	5.5
	OCP	38	6.9
	Others	14	2.5
Received counselling during pregnancy	Yes	303	55.3
	No	147	26.8
	Don't remember	98	17.9

**Table 2: Knowledge, awareness, attitude, perception regarding IUCD/PPIUCD (n=548).**

Variable	Category	Frequency (N)	(%)
Heard about IUCD	Yes	425	77.6
	No	123	22.4
Knowledge of postpartum insertion	Yes	292	53.3
	No	256	46.7
IUCD effective $\geq 3$ years	Yes	357	65.1
	No	191	34.9
Correct placement knowledge	Yes	402	73.4
	No/Don't know	146	26.6
Reversibility knowledge	Yes	145	26.5
	No	403	73.5
Overall good knowledge	Yes	229	41.8
	No	319	58.2
Decision maker	Husband	276	50.4
	Wife	108	19.7
	Both	164	29.9
Perception of side effects	Yes	425	77.6
	No	123	22.4
Pain perception	Agree	144	26.3
	Disagree	176	32.1
	Don't know	228	41.6
Irregular bleeding	Agree	204	37.2
	Disagree	158	28.8
	Don't know	186	33.9
Religious barrier	Yes	69	12.6
	No	351	64.1
	Not sure	128	23.4

**Table 3: Acceptance of PPIUCD (n=548).**

Response	Frequency (N)	(%)
Yes	142	25.9
No	406	74.1

**Table 4: Reasons for non-acceptance.**

Reason	Frequency (N)	(%)
Fear of complications	94	22.6
Desire for more children	88	21.2
Prefer other methods	69	16.6
Husband refusal	52	12.5
Fear of dysmenorrhea	40	9.6
Religious beliefs	36	8.7
Interferes with intercourse	19	4.6
Heavy bleeding	11	2.6
Privacy concerns	7	1.7

## DISCUSSION

In the present study, 55.3% of participants reported receiving contraceptive counselling from healthcare workers, whereas 26.8% had not received any information, highlighting a gap in antenatal counselling services. Similar findings were reported by Gonic et al where

counselling significantly influenced awareness and acceptance of PPIUCDs.<sup>1</sup> However, a substantial proportion of women either did not recall counselling (17.9%) or remained inadequately informed, indicating the need for more structured and repeated counselling interventions. Despite relatively high awareness of IUCDs (77.6%), misconceptions and concerns remained

prevalent. A considerable proportion of women believed that IUCD insertion is painful (26.3%), causes irregular bleeding (37.2%) or leads to dysmenorrhea (28.6%), while many remained uncertain about these effects. These findings are consistent with previous studies that identified fear of side effects and inadequate knowledge as major barriers to IUCD acceptance.<sup>1,4</sup> Knowledge of IUCDs showed a statistically significant association with age ( $p=0.037$ ), with higher awareness among older women. Similar trends were reported by Gonie et al where increased age correlated with better contraceptive knowledge.<sup>1</sup>

Additionally, education demonstrated a highly significant association with knowledge ( $p<0.001$ ), although paradoxically, acceptance declined with higher education levels. This may be attributed to a preference for alternative contraceptive methods among educated women, a finding that contrasts with earlier studies suggesting higher acceptance among educated populations.<sup>1,5</sup> Gravity also showed a significant association with knowledge ( $p=0.005$ ), with multigravida women being more aware than primigravida women. This aligns with findings by Kant et al where previous pregnancy experiences enhanced contraceptive awareness and acceptance.<sup>2</sup> Similarly, employment status significantly influenced knowledge ( $p<0.001$ ), with working women demonstrating higher awareness, likely due to increased exposure to healthcare information. No statistically significant association was found between acceptance and factors such as age, religion, education, occupation or residence, indicating that acceptance of PPIUCD is multifactorial and not determined by a single demographic variable. However, gravity showed a significant association with acceptance ( $p=0.001$ ), with multigravida women being more likely to adopt PPIUCD, consistent with previous studies.<sup>2</sup>

The most common reasons for non-acceptance were fear of complications (22.6%), desire for more children (21.2%) and preference for other contraceptive methods (16.6%). Other factors included husband refusal (12.5%) and religious beliefs (8.7%). These findings are in agreement with multiple studies that identified fear, misconceptions and partner influence as key barriers to IUCD use.<sup>1,4,8</sup> Interestingly, although 12.6% of women believed religion discourages IUCD use, only 8.7% cited religion as a direct reason for refusal and no significant association was found between religion and acceptance. Similar observations were reported in studies conducted in Dehradun and Tamil Nadu, suggesting that religious beliefs may not be a major determinant of contraceptive use.<sup>9,10</sup> The study also found that prior contraceptive use was low, with only 41.6% of participants having used contraception previously, most commonly barrier methods (32.7%). This reflects a general underutilization of effective contraceptive methods in the population. The influence of counselling observed in the present study is further corroborated by the recent scoping review by Najan et al in 2025 which synthesized evidence from multiple

studies and concluded that focused antenatal family planning counselling consistently improves PPIUCD acceptance compared to routine counselling.<sup>11</sup> Decision-making regarding contraception was predominantly influenced by husbands (50.4%), while only 19.7% of women made independent decisions and 29.9% decided jointly. This reflects the strong sociocultural influence on reproductive choices in the Indian context. Comparable findings were observed in studies by Kant et al and other Indian researchers, where male partner involvement significantly affected contraceptive acceptance.<sup>2,3</sup> Similar observations by Gawade et al support the findings and indicate that sociocultural influences and misconceptions regarding the method remain important barriers to PPIUCD uptake. These findings underscore the need for effective counselling and greater partner involvement to improve acceptance rates.<sup>12</sup> The overall acceptance rate of PPIUCD in the present study was 25.9%, which represents a substantial increase compared to the institutional rate of 6.5% reported in 2022. This improvement highlights the positive impact of dedicated antenatal counselling. The acceptance rate in this study is higher than that reported by Gonie et al, (12.4%) and significantly higher than the 2.94% observed in a study from Kota.<sup>1,6</sup>

However, it remains lower than the rates reported in studies from Gwalior (45.55%) and Bangalore (51.3%), possibly due to differences in counselling strategies, sample size and sociocultural factors.<sup>4,7</sup> The findings of our study are comparable to the 23.39% acceptance rate reported by Achhava et al in 2026. Despite differences in study populations, both studies demonstrate a similar level of PPIUCD acceptance when services are readily available, highlighting the positive impact of counselling while emphasizing the need for continued awareness and educational strategies to further improve uptake.<sup>13</sup> The findings are further supported by the latest study by Kapse et al who identified PPIUCD counselling as a significant determinant of acceptance. In addition, contraceptive decision-making in our cohort was predominantly husband-driven, underscoring the important role of partner involvement in reproductive choices. Collectively, these findings over time suggest that antenatal counselling programs should actively engage husbands and family members alongside pregnant women to facilitate informed decision-making and further improve acceptance of PPIUCD.<sup>14</sup>

This study has certain limitations. As it was conducted at a single tertiary care centre, the findings may not be fully generalizable to other healthcare settings. The use of self-reported data carries the potential for recall and social desirability bias. Furthermore, long-term continuation rates of PPIUCD use and the reasons for discontinuation were not evaluated in the present study. Although dedicated counselling increased acceptance nearly fourfold compared with the institutional baseline, three-fourths of eligible women still declined PPIUCD. This suggests that information alone may be insufficient to overcome deeply rooted sociocultural influences. Future

interventions may need to move beyond counselling and incorporate family-centred approaches, community engagement and partner education.

The findings suggest a three-stage gap consisting of awareness, accurate knowledge and acceptance. While awareness was relatively high, substantial attrition occurred between knowledge acquisition and behavioural adoption. This indicates that interventions should not measure success solely through awareness indicators but should focus on behavioural outcomes. The findings suggest that PPIUCD uptake represent a modifiable health-system outcome. Unlike demographic factors such as age, religion or residence, counselling is an intervention that can be standardized, scaled and incorporated into routine antenatal services, making it a practical target for public health programmes. Overall, the findings demonstrate that while awareness of IUCDs is relatively high, knowledge gaps, misconceptions and sociocultural factors continue to limit acceptance. The significant improvement in acceptance following counselling underscores the importance of strengthening antenatal education, involving male partners and addressing myths and misconceptions to enhance PPIUCD uptake.

## CONCLUSION

This study demonstrates a significant improvement in PPIUCD acceptance following dedicated antenatal counselling, with rates increasing from 6.5% to 25.9%. Repeated counselling during the third trimester and early labour played a key role in enhancing awareness, addressing misconceptions and enabling informed decision-making. Incorporating structured, repeated counselling into routine antenatal care and encouraging partner involvement can further improve acceptance, ultimately contributing to better maternal health outcomes and increased utilization of effective postpartum contraception.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Mittal R, Mehra R, Pandher DK. Effect of dedicated antenatal counselling on insertion rate of post placental intrauterine contraceptive device. *Int J Reprod Contracept Obstet Gynecol* 2026;15:2622-7.