



## Frequency of Acceptability of Postpartum Intrauterine Device Insertion after Antenatal Counselling in Patients Presenting At Hayatabad Medical Complex Peshawar

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### Declaration

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### ABSTRACT

**Objective:** To evaluate the frequency of acceptability of postpartum intrauterine contraceptive device (PPIUCD) insertion after antenatal counselling among women attending Hayatabad Medical Complex, Peshawar. **Methodology:** A cross-sectional study was conducted starting December 12, 2023, and ending on June 12, 2024, involving 83 women aged 18-40 years. Consecutive non-probability sampling was used to select participants, and data on demographic characteristics, comorbidities, and PPIUCD acceptance were collected. Chi-square tests were applied to assess the relationship between various variables and the acceptance of PPIUCD. **Results:** The mean age of participants was 29.96 years (SD = 6.78). Of the 83 women, 42 (50.60%) accepted the PPIUCD, while 41 (49.40%) declined. The chi-square tests revealed no significant associations between PPIUCD acceptance and demographic variables such as age ( $\chi^2 = 3.81$ ,  $p = 0.28$ ), marital status ( $\chi^2 = 0.18$ ,  $p = 0.91$ ), socioeconomic status ( $\chi^2 = 0.92$ ,  $p = 0.63$ ), and comorbidities ( $\chi^2 = 0.41$ ,  $p = 0.94$ ). **Conclusion:** The study concluded that 50.60% of women accepted PPIUCDs, suggesting it is a feasible postpartum contraceptive option in Pakistan. The absence of significant demographic influences indicates the need for greater awareness and counselling efforts to increase PPIUCD uptake. Future research should explore factors influencing acceptance in a broader, multicentric context.

### INTRODUCTION

Postpartum Intrauterine Device (PPIUD) insertion is a vital strategy for addressing the high unmet need for contraception during the postpartum period, especially in countries like Pakistan where fertility rates remain elevated and access to family planning services is limited. Antenatal counselling has been shown to significantly influence the acceptability and uptake of PPIUD by providing women with timely, comprehensive information that supports informed decision-making before delivery.<sup>1,2</sup> The Department of Gynaecology at Hayatabad Medical Complex, Peshawar, serves a diverse patient population where understanding local acceptability patterns of PPIUD after antenatal counselling is crucial to improving postpartum contraceptive coverage and maternal health outcomes.

Research from Pakistan highlights that antenatal counselling positively impacts postpartum contraceptive use, yet challenges such as cultural barriers, myths, and limited male partner involvement persist. A study conducted in public health facilities in Pakistan found that

women who received antenatal counselling were more likely to accept PPIUD insertion, but overall uptake remained low due to fears about side effects and lack of spousal support.<sup>3</sup> Another investigation in Karachi reported that despite high awareness of PPIUD, actual acceptance was hindered by inadequate counselling quality and provider bias, underscoring the need for enhanced training and standardised counselling protocols.<sup>4</sup> These findings align with broader regional evidence suggesting that counselling quality and setting such as hospital-based versus community-based significantly affect PPIUD acceptance rates.<sup>3,5</sup>

The importance of antenatal counselling is further supported by studies demonstrating that early and repeated discussions about postpartum contraception increase women's autonomy and satisfaction with their contraceptive choices. For example, qualitative research from Pakistan revealed that women valued comprehensive, non-coercive counselling that addressed their concerns and included information on side effects and removal options, which in turn improved acceptability

of immediate postpartum IUD insertion.<sup>6</sup> However, gaps remain in ensuring consistent counselling delivery across healthcare providers, with some women reporting feeling pressured or inadequately informed, which can negatively impact uptake.<sup>6,7</sup> Addressing these issues through provider training and patient-centred communication is essential for improving postpartum contraceptive use.

National family planning programmes in Pakistan have recognised the potential of integrating PPIUD services into routine maternity care, but implementation challenges persist. Studies indicate that while antenatal counselling increases awareness, actual PPIUD insertion rates remain suboptimal due to systemic barriers such as limited provider skills, supply chain issues, and sociocultural resistance.<sup>8,9</sup> Research from tertiary care hospitals in Pakistan suggests that strengthening antenatal counselling and ensuring availability of trained staff for immediate postpartum insertion can enhance PPIUD uptake and reduce unmet contraceptive needs.<sup>10</sup> These efforts are critical in settings like Hayatabad Medical Complex, where high patient volumes and diverse populations require tailored interventions.

Globally, evidence supports the safety and efficacy of immediate postpartum IUD insertion, with benefits including convenience, long-term protection, and reduced risk of unintended pregnancies. The World Health Organization and international guidelines recommend offering PPIUD as part of comprehensive antenatal counselling to improve postpartum contraceptive coverage.<sup>7,10</sup> Studies from neighbouring countries such as Nepal and Sri Lanka demonstrate that integrating counselling and insertion services within hospital settings significantly increases PPIUD acceptance and use, providing models that could be adapted to the Pakistani context.<sup>1,3</sup> These findings reinforce the rationale for focusing on antenatal counselling as a key intervention point.

While antenatal counselling is recognised as a critical factor in increasing the acceptability of PPIUD insertion, challenges related to counselling quality, cultural factors, and healthcare system limitations remain in Pakistan. Addressing these barriers through targeted interventions at facilities like Hayatabad Medical Complex can improve postpartum contraceptive uptake and contribute to better reproductive health outcomes. The objective of this study is to determine the frequency of acceptability of PPIUD insertion after antenatal counselling in patients presenting at Hayatabad Medical Complex Peshawar.

## MATERIALS AND METHODS

### Study Setting, Design and Duration

The study was conducted at the Obstetrics and Gynecology Department of Hayatabad Medical Complex, Peshawar, a tertiary healthcare facility located in the region. This study employed a cross-sectional design to assess the acceptability of PPIUCD insertion following antenatal counselling. The study was carried out over a period of six months, from December 12, 2023, and ending on June 12, 2024, ensuring ample time for data collection and the inclusion of a sufficient sample size to achieve meaningful results.

### Sample Size

The sample size was determined using the WHO sample size calculator for prevalence studies, with the following assumptions: the frequency of acceptance of PPIUCD was 12% among women, based on previous studies; the margin of error was 7%; and the confidence level was set at 95%.<sup>11</sup> With these parameters, the calculated sample size was 83 participants.

### Sampling Technique

A consecutive non-probability sampling technique was used to select participants. All eligible women who attended antenatal counselling at the study site during the study period were invited to participate. This method ensured the inclusion of a diverse sample reflective of the patient population in the department.

#### Sample Selection

##### Inclusion Criteria:

- Women aged between 18 and 40 years.
- Both primigravida and multigravida women.
- Women who agreed to participate in antenatal counselling, as per the operational definition.

##### Exclusion Criteria:

- Women with a history of fibroid uterus.
- Women with severe anaemia (Hb < 7g/dl).
- Women with active genital tract infections.

### Data Collection Procedure

Data collection began after obtaining approval from the hospital's Ethics and Research Committee and the research department of Karachi CPSP. A comprehensive explanation of the study objectives was provided to all participants, ensuring they fully understood the purpose of the study. Written informed consent was obtained from each participant before their inclusion.

Demographic data, including age, marital status, residence area, socioeconomic status, occupation, and educational level, were collected using a structured proforma. In addition to demographic information, a thorough medical assessment was conducted, which included a physical examination and recording of any comorbid conditions such as diabetes or hypertension.

Each participant received antenatal counselling regarding postpartum contraception, specifically the PPIUCD. Following the counselling, the acceptability of the method was assessed by asking each woman whether she agreed to have the PPIUCD inserted postpartum. This decision was recorded immediately after the counselling session. The entire data collection process was supervised by a consultant with a minimum of five years of experience post-fellowship, ensuring that all clinical and research procedures were conducted to the highest standard.

### Data Analysis Procedure

Data were analysed using SPSS software version 23. Descriptive statistics were used to summarise continuous variables such as age, weight, and BMI, with means and standard deviations calculated. For categorical data such as PPIUCD acceptance, marital status, socioeconomic status, occupation, educational level, and comorbidities (diabetes, hypertension), frequencies and percentages were calculated.

To examine the relationships between various demographic and health-related factors and PPIUCD acceptance, chi-square tests were applied. A p-value of less than 0.05 was considered statistically significant. Effect modifiers such as age, marital status, BMI, socioeconomic status, education level, and comorbidities were assessed through stratification. Post-stratification chi-square tests were used to evaluate the associations between these effect modifiers and PPIUCD acceptance.

**RESULTS**

**Overview and Demographic Characteristics**

A total of 83 women were included in this study. The demographic characteristics of the patients are summarised in Table 1. The mean age of the participants was 29.96 years (SD = 6.78), with the majority of women falling into the 26-30 age group. The marital status of the participants was diverse, with 38.55% being single, 31.33% married, and 30.12% separated. The socioeconomic status distribution showed that 36.14% were classified as rich, 33.73% as poor, and 30.12% as middle class. Educationally, 28.92% had secondary education, 24.10% had a college education, and 20.48% had education above the college level.

The majority of the participants were from urban areas, which may reflect the healthcare access patterns of the population attending Hayatabad Medical Complex.

**Table 1**

*Demographic Characteristics of Study Participants*

Characteristic		Frequency	Percentage (%)
Age (mean ± SD)		29.96 ± 6.78	
Marital Status	Single	32	38.55
	Married	26	31.33
	Separated	25	30.12
Socioeconomic Status	Rich	30	36.14
	Poor	28	33.73
	Middle Class	25	30.12
Educational Level	No Formal Education	10	12.05
	Primary Education	12	14.46
	Secondary Education	24	28.92
	College Education	20	24.10
	Above College Level	17	20.48
Comorbidities	Diabetes	24	28.92
	Hypertension	20	24.10
	Both	17	20.48
	None	22	26.51

**Frequency of PPIUCD Acceptance**

The primary outcome of the study was the acceptance of postpartum intrauterine contraceptive device insertion. Out of the 83 participants, 42 women (50.60%) accepted the PPIUCD, while 41 women (49.40%) declined. This finding indicates a relatively balanced rate of acceptance and non-acceptance, which is crucial for assessing the feasibility of integrating PPIUCD insertion into routine postpartum care in the region.

**Table 2**

*PPIUCD Acceptance*

PPIUCD Acceptance	Frequency	Percentage (%)
Yes	42	50.60
No	41	49.40

**Stratification by Demographic Variables**

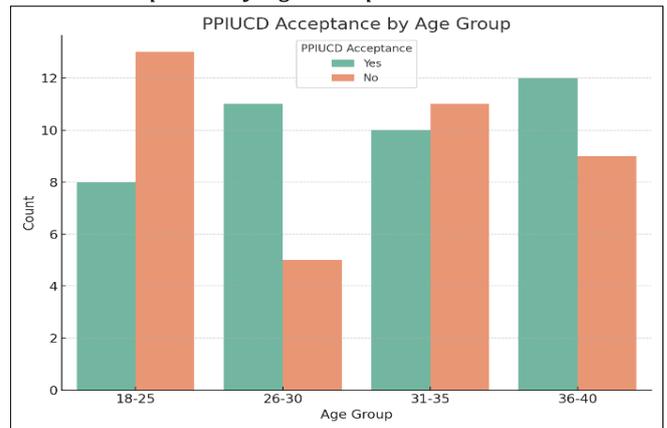
To assess the relationship between demographic factors and PPIUCD acceptance, the data were stratified by age, marital status, socioeconomic status, and comorbidities. The results were analysed using chi-square tests.

**Age and PPIUCD**

Acceptance: The chi-square test between age groups and PPIUCD acceptance showed no significant association ( $\chi^2 = 3.81, p = 0.28$ ). This suggests that age does not significantly influence the decision to accept postpartum contraception in this population. Figure 1 provides a visual representation of the distribution of PPIUCD acceptance across different age groups.

**Figure 1**

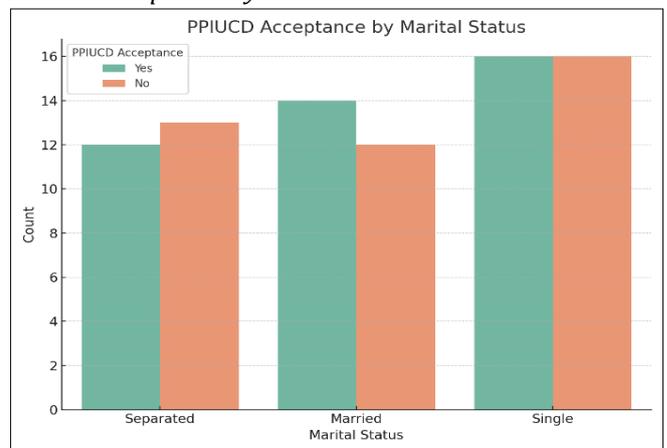
*PPIUCD Acceptance by Age Group*



Marital Status and PPIUCD Acceptance: Similarly, marital status did not significantly impact the acceptance of PPIUCD ( $\chi^2 = 0.18, p = 0.91$ ), indicating that being single, married, or separated does not appear to alter the likelihood of choosing postpartum contraception. Figure 2 illustrates this lack of association.

**Figure 2**

*PPIUCD Acceptance by Marital Status*



Socioeconomic Status and PPIUCD Acceptance: The chi-square test for socioeconomic status and PPIUCD acceptance yielded a non-significant result ( $\chi^2 = 0.92, p = 0.63$ ), suggesting that socioeconomic status does not play a substantial role in the decision to accept PPIUCD. This finding is consistent with existing literature that suggests factors such as education and awareness may be more influential than economic status.

Comorbidities and PPIUCD Acceptance: The relationship between comorbidities (diabetes, hypertension, both, or none) and PPIUCD acceptance was also explored. The chi-square test revealed no significant association ( $\chi^2 = 0.41$ ,  $p = 0.94$ ), suggesting that the presence of comorbid conditions does not significantly affect the decision to accept or decline the device.

### Statistical Significance

The chi-square test results indicated that none of the demographic variables age, marital status, socioeconomic status, and comorbidities showed a significant association with the acceptance of PPIUCD. The p-values for all tests were greater than the threshold of 0.05, indicating no statistically significant relationships.

**Table 3**

*Chi-Square Test Results for Stratified Variables*

Variable	$\chi^2$	p-value
Age Group vs PPIUCD Acceptance	3.81	0.28
Marital Status vs PPIUCD Acceptance	0.18	0.91
Socioeconomic Status vs PPIUCD Acceptance	0.92	0.63
Comorbidities vs PPIUCD Acceptance	0.41	0.94

## DISCUSSION

This study aimed to explore the frequency of acceptability of PPIUCD insertion after antenatal counselling among women attending Hayatabad Medical Complex, Peshawar. The results indicated that 50.60% of participants accepted PPIUCDs, while 49.40% declined. No significant associations were found between demographic factors such as age, marital status, socioeconomic status, and comorbidities with the acceptance of PPIUCD. These findings suggest that while antenatal counselling may play a crucial role in encouraging the use of postpartum contraception, factors beyond demographic characteristics may influence women's decisions.

This research is particularly significant in the local context of Pakistan, where limited studies have been conducted to assess the acceptability of PPIUCDs. While the findings in this study align with the general trend observed in other countries, they also highlight the unique challenges and opportunities present in Pakistan. The study provides an important insight into the real-world application of PPIUCD insertion and its acceptance by women in a tertiary care setting, reflecting a gap in local literature that this study aims to address.

In the global context, postpartum contraception, including the use of PPIUCDs, has been widely studied in different settings, but few studies have specifically investigated the socio-cultural and healthcare system factors that might influence contraceptive choices in Pakistan. This study adds to the body of literature by examining these factors in a local Pakistani context, contributing valuable data that can guide healthcare policies and practices.

The findings of this study are consistent with those of several studies conducted globally that have explored the acceptability of PPIUCDs. For example, a study in Nepal found that the acceptability of PPIUCDs was around 50%, which is in line with the results of this study.<sup>1</sup> This result also corresponds with the findings of Pradhan et al. (2019), who reported similar levels of acceptance in Nepal

when integrating postpartum IUD insertion into routine maternity care.<sup>2</sup>

In contrast, studies from Ethiopia and India showed slightly higher acceptance rates for PPIUCDs, with figures ranging from 60% to 70%.<sup>7,12</sup> These studies suggested that educational interventions, health system strengthening, and provider training were key factors contributing to the higher rates of acceptance in these countries. This discrepancy in acceptance rates might be attributed to differences in the level of healthcare infrastructure, awareness, and cultural attitudes towards family planning methods in different regions.

Internationally, PPIUCDs have been widely studied and their acceptance rates have been compared across various countries. In the United States, a study demonstrated that immediate postpartum IUD insertion was highly effective in preventing unintended pregnancies, with a significant portion of women choosing this method immediately after childbirth.<sup>13</sup> However, the acceptance rate in the US was typically higher among women with higher levels of education and access to healthcare.

In Europe, studies from countries like the UK and France have also shown positive trends in the acceptance of PPIUCDs, but with notable variations depending on the socioeconomic status and educational background of the women. The integration of PPIUCD services in postnatal care has been found to increase contraceptive uptake, especially when healthcare providers actively promote the method during antenatal visits.<sup>14</sup>

While many studies on postpartum contraception, including PPIUCD, have been conducted in neighbouring countries such as India and Nepal, the literature on PPIUCD acceptance in Pakistan remains limited. The current study is one of the few that specifically focuses on this issue within the context of a Pakistani hospital. This study addresses the gap in local knowledge and provides a foundation for future research on postpartum family planning in Pakistan.

The findings are important as they reflect the real-world scenario where healthcare providers in Pakistan face unique challenges in promoting family planning methods due to socio-cultural factors, limited access to healthcare, and a lack of awareness about available contraceptive methods. This research could serve as a stepping stone for future studies aimed at improving postpartum contraceptive uptake in Pakistan.

A few studies have explored postpartum contraception in Pakistan, albeit not specifically PPIUCD acceptance. For instance, a study examined the awareness and acceptance of various postpartum contraceptive methods among women attending a tertiary hospital.<sup>11</sup> This study found a relatively low level of awareness about postpartum IUDs, which could be one of the reasons for the lower acceptance rates observed in the current study.

Another study, looked at the safety and efficacy of postpartum IUDs compared to interval IUDs, but it did not focus on the acceptability aspect.<sup>15</sup> This gap in the literature regarding PPIUCD acceptability highlights the need for further studies to explore women's attitudes and preferences towards this contraceptive method in Pakistan.

Although the issue of family planning is well documented in Pakistan, studies focusing specifically on PPIUCD are sparse. Existing literature on contraception in Pakistan has generally focused on the broader spectrum of contraceptive methods, such as oral contraceptives, condoms, and sterilisation. This study provides much-needed insight into a less explored aspect of postpartum family planning and lays the groundwork for future research in this area.

The results from this study suggest that while PPIUCDs are an acceptable method of postpartum contraception for about 50% of women, there are no significant demographic factors influencing the acceptance rate. This finding may indicate that the decision to accept or decline PPIUCDs is influenced more by factors such as healthcare provider counselling, personal preferences, or knowledge about the method, rather than socio-demographic factors such as age, marital status, or socioeconomic status.

The lack of significant associations between these variables and PPIUCD acceptance highlights the importance of providing comprehensive information during antenatal counselling. Healthcare providers should focus on dispelling misconceptions and increasing awareness about the benefits and safety of postpartum IUDs, especially given the positive impact these devices can have on reducing unintended pregnancies.

**Study Limitations and Future Directions:** There are several limitations to this study. Firstly, the use of a consecutive non-probability sampling method means that the findings may not be fully generalisable to the wider population. Additionally, the study only considers women who attended antenatal care at Hayatabad Medical Complex, potentially limiting the diversity of the sample. Future research could use a more randomised sampling

method and include multiple sites to obtain a more representative sample of women in Pakistan.

Another limitation is the lack of qualitative data on the reasons behind the decision to accept or decline PPIUCDs. Future studies should explore women's perceptions, knowledge, and attitudes towards postpartum contraception through interviews or focus groups. This would provide a more in-depth understanding of the factors that influence decision-making, beyond the demographic characteristics assessed in this study.

## CONCLUSION

This study aimed to assess the acceptability of PPIUCD insertion following antenatal counselling at Hayatabad Medical Complex, Peshawar. The findings revealed that approximately 50% of women accepted the PPIUCD, indicating that it is a feasible and acceptable method of postpartum contraception in the local setting. The study also found no significant associations between demographic factors such as age, marital status, or socioeconomic status and the decision to accept the PPIUCD. This suggests that factors beyond demographic characteristics, such as knowledge, healthcare provider counselling, and personal preferences, may play a more significant role in shaping women's contraceptive choices. The results highlight the importance of improving awareness and counselling to increase the uptake of PPIUCDs, which could contribute to better family planning outcomes in Pakistan. For future research, larger, multicentre prospective studies are recommended to further explore the barriers and facilitators of postpartum contraception and to validate these findings on a broader scale.

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