# Acceptance Rate of Post-Partum Intra-Uterine Contraceptive Device and Factors Affecting its Uptake in a Tertiary Care Hospital in Pakistan

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## Abstract

**Objective:** To determine the frequency of acceptance of Post-partum Intra-Uterine Contraceptive Device and the factors affecting its uptake in a tertiary care hospital in Karachi.

**Methods:** This cross-sectional study was conducted in the Department of Obstetrics and Gynaecology of large public tertiary care centre in Karachi. 160 women in their immediate postpartum period were selected via consecutive non-probability sampling and counselled about the insertion of post-partum intra-uterine contraceptive device. Their willingness and the factors affecting their acceptance or refusal were documented. Women aged 20-40 years in their 36-40 weeks of gestation carrying a singleton foetus in-utero were included in the study. Past users of intrauterine devices, complicated pregnancies and emergency obstetric cases were excluded. Likewise, women carrying multiple foetuses or mal-positioned foetuses were not included. The study was carried out after due institutional approval.

**Results:** The acceptance rate for postpartum intrauterine contraceptive devices was 23%. About 86.49% of the women acknowledged that thorough counselling made them opt for this method. Other factors that favoured its uptake were long action duration with one-time placement (70.27%), husband's approval (59.46%) and accessibility (56.76%). The majority that refused (76.9%) rejected the device due to religious beliefs (57.72%), fear of side effects (56.10%) and lack of knowledge about contraception (46.34%).

**Conclusion:** The acceptance rate of postpartum intrauterine contraceptive devices remains low in our healthcare system. Healthcare workers and policy makers need to consider the factors responsible for its refusal for this means to be effectively utilized.

**Keywords:** Postpartum period, family planning services, contraception

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## Introduction

A population growth rate of 1.88%[1], infant mortality rate of 61/1000 live births[2] and maternal mortality rate of 276/100,000 live births[3] substantially elucidate the need for effective post-partum contraception. Studies link a short interpregnancy interval to increased incidence of still birth, preterm birth, and low birth weight. It can potentially affect maternal health owing to nutrient depletion with insufficient time to recover before the next conception[4].

Government hospitals of Karachi receive massive patient in flow from far off areas of the country with a lot of females visiting only at the time of urgency and neglecting any antenatal and follow up visits. This is mainly due to cost and transport constraints imposed by their location and socioeconomic status. Thus, the single visit might be the only chance for women to discuss contraception

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with their health care providers. This makes it pertinent for doctors to counsel them and provide them with an appropriate, long-acting and safe contraceptive measure with minimum complication rates.

Studies regarding the awareness and use of contraception from our very own city reveal a surprising disparity between knowledge of contraceptive measures and their usage i.e.,awareness among 81% and 84% women but usage among a mere 49% and 30% women, respectively[5,6]. This incongruity is attributable to a number of patient and social factors including fear of side effects, belief in various myths and lack of women's freedom over family planning decisions.

Intrauterine contraceptive device (IUCD) is an effective innovation meant for long term but temporary contraception with an extremely low percentage of women experiencing an unintended pregnancy within the first year of use. Failure rates approach 0.8% with typical and 0.6% with perfect use for Copper devices and 0.2% for hormone releasing devices. This is in contrast to oral contraceptive pills in which rates of unintended pregnancies are 9% with typical and 0.3% with perfect use[7].

The use of postpartum intrauterine contraceptive devices (PPIUCD) neither adversely affects breastfeeding nor causes a decrease in infant growth and weight. Both copper and hormonal devices have been shown to be equally safe in lactation[8]. PPIUCD is also deemed a cost-effective option[9]. This advantage is of paramount importance in the resource limited setting of our country.

Immediate and early PPIUCD placement has been associated with a relatively increased risk of expulsion compared to interval placement[10]. However, a study from Karachi reported the expulsion rates after immediate and interval placements to be 14% and 18% respectively[11], a difference insignificant enough to make early placement still a good choice for non-compliant clients.

Despite their advantages, there has been a huge disparity in the use of intrauterine devices throughout the globe. Within the Asian continent, the rate of IUCD usage varies from more than 40% in China to less than 2% in some countries[12]. Interestingly, studies reveal that this disparity is poorly understood; it is unrelated to human development index or strength of family planning programs[13]. However, some contributing 1factors include healthcare policies and funding, attitudes and misconceptions of healthcare providers, lack of IUCD services in remote clinics[14]. Superimposed on these issues are the misconceptions and religious sensitivities of clients and their families. With the objective to determine the frequency of acceptance of PPIUCD and the factors affecting its uptake in a tertiary care hospital, this study aims to find out the prevalent misconceptions among eligible women. Identifying such misconceptions will help devise the necessary counter mechanisms and thus, increase the use of PPIUCD.

**Subject and Methods**

This cross-sectional study was conducted at the department of Obstetrics and Gynaecology in a large public sector teaching hospital of Karachi. Institutional permission for the study was duly granted via letter (Ref no. CPSP/REU/OBG-2012-186-5306, Reu no. 12560 / 19-11=2015). The study population visiting the hospital consisted of reproductive aged women who belonged to the low and middle socioeconomic status. Taking the acceptance rate of PPIUCD in postpartum women at 14%[15], level of significance as 95%, margin of error at 5% and using the WHO's sample size calculator, the sample size calculated was 160.

We opted for non-probability, consecutive sampling which included women aged 20-40 years who were booked antenatal cases at gestational ages 36-40 weeks, carrying a single live foetus in utero as demonstrated by ultrasonography. Women who had previously used intrauterine contraceptive devices, emergency obstetric cases, those suffering from hypertensive disorder of pregnancy, antepartum or postpartum haemorrhage or having evidence of chorioamnionitis were excluded. Women having

multiple gestations, ectopic pregnancies and foetal malposition were also not included. All women in the sample were explained about the objectives of the study and written consent informed was sought from each participant. Women were thoroughly counselled regarding the insertion, benefits, possible side effects and complications of PPIUCD.

Standardized data collection procedure was employed to avoid bias in the study. Data were collected by the investigator herself and the main source of data were interviews conducted with the study participants. Eligible postpartum women were briefed as per the study protocol for the insertion of PPIUCD. The respondents were assured of the confidentiality of the information that they provided. The decision of clients regarding PPIUCD was respected and noted as it was. Willing clients were inserted with PPIUCD after delivery of placenta within 10 minutes to 48 hours. Reasons for acceptance or refusal were noted accordingly on structured proformas devised specially for the study. Besides the mode of delivery and parity, the basic demographic information such as age, occupation, education, income, and residential region were also recorded on a proforma. Regarding the factors affecting the acceptance or refusal of the PPIUCD, questions were asked about accessibility of the birth spacing product, husband's approval, religious reasons, and fear of side effects. Clients' knowledge level was assessed using simple questions.

Data was entered and analysed in SPSS version 19. The continuous variables were expressed in mean & standard deviation (Mean ± SD). Categorical variables were expressed in frequencies and percentages. To evaluate the effect modification, stratified analysis followed by application of chi-square with a $p \leq 0.05$ taken as significant was run. Relevant odds ratios with respective 95% confidence intervals and P-values were presented in tabular form.

**Results**

The mean ± SD age of clients was 28.7 ± 4.7 years (range 20-40years). The mean ± SD parity was 2.5 ± 1.1 children. Two thirds of all (n=160) clients 66.3% were of age between 20-30 years, remaining 33.7% were of age between 31-40 years. Mean monthly family income was 26,680 ± 8,432 (PKR). Only 21% of clients were educated till matric or higher. Among these, the highest education was masters and comprised only 1.9% of the sample.

Nearly half of the women 47.5% were housewives. Forty-eight (30%) were working as labour, 10% had private jobs, 8.8% had Government jobs and 3.8% had their own small business. Of these, 70.6% were living in urban areas Table 1. Of all the women, 77.5% women had delivered through normal vaginal delivery (NVD) while the remaining 22.5% had a Caesarean section.

About a quarter of the study sample 23.1%; n = 37 accepted PPIUCD. When asked about the factors which made them accept, 86.49% n= 32 attributed it to good counselling. Other factors were the long duration of action of PPIUCD, husbands' approval & accessibility.

Majority of women 76.9%; n = 123 refused to get PPIUCD inserted. Reasons for their rejection included religious restriction 57.72%, fear of side effects 56.10% and lack of knowledge about contraception 46.34% Table 2.

Table 3. shows that young women tend to refuse PPIUCD 1.5 times more than the older aged women. However, the relationship was not significant for the age of women and acceptance of PPIUCD. Women who refused PPIUCD had 2.4 times odds of being educated up to primary level or other than formal education than those who were educated secondary or above P =0.022. Those who refused PPIUCD had 3.0 times odds of having a monthly income of 40000 PKR or below than those who had above 40000 PKR/month income. Compared to the women who accepted PPIUCD, the odds of being labourers, self-employed or housewives were 3.4 in PPIUCD refusers.

**Table 1.** Socio-demographic characteristics of clients counselled for PPIUCD (n=160)

| Characteristic | Mean ± SD | 95% CI |
|---|---|---|
| Age (yrs) | 28.7 ± 4.7 | 27.9 - 29.4 |
| Parity (no.) | 2.5 ± 1.1 | 2.3 - 2.7 |
| Monthly Family Income (PKR) | 26680 ± 8432 | 25363.4-27996.6 |
| Education | | |
| Illiterate | 20.00 (32) | 14.54 - 26.87 |
| Primary | 28.80 (46) | 22.30 - 36.20 |
| Secondary | 20.00 (32) | 14.54 - 26.87 |
| Matriculation | 18.80 (30) | 13.46 - 25.50 |
| Graduate | 9.37 (15) | 5.764 - 14.89 |
| Other | 3.10 (05) | 1.342 - 7.106 |
| Occupation | | |
| House wife | 47.50 (76) | 39.91 - 55.20 |
| Labourer | 30.00 (48) | 23.44 - 37.50 |
| Government Job | 8.80 (14) | 5.284 - 14.15 |
| Private Job | 10.00 (16) | 6.25 - 15.63 |
| Self-Employed | 3.80 (06) | 1.73 - 7.939 |
| Residence | | |
| Urban | 70.60 (113) | 63.15 - 77.13 |
| Rural | 29.40 (47) | 22.87 - 36.85 |

**Table 2.** Determinants of PPIUCD acceptance and refusal according toc (n=160)

| **Factors Favouring Acceptance** | **% (n) Total= 37** | **95% CI** |
|---|---|---|
| Counselling | 86.5% (32) | 72.0 - 94.1 |
| Long Acting, One-time Placement | 70.3% (26) | 54.2 - 82.5 |
| Husband's Approval | 59.5% (22) | 43.5 - 73.6 |
| Accessibility | 56.8% (21) | 40.9 - 71.3 |
| **Factors Favoring Refusal** | **% (n) Total= 123** | **95% CI** |
| Religious Restrictions | 57.7% (71) | 48.9 - 66.5 |
| Fear of Side-effects | 56.1% (69) | 46.9 - 64.9 |
| Lack of Knowledge | 46.3% (57) | 37.8 - 55.5 |
| Finding it Unnecessary | 30.9% (38) | 23.4 - 39.5 |

*multiple response variables and the total percentage may not add up to 100%.

**Table 3.** Association of socio demographic and obstetric factors with the refusal of PPIUCD in a large tertiary care centre in Karachi (n=160)

| | Refused (n=123)% | Accepted (n=37)% | Odds ratio | 95% CI | P value |
|---|---|---|---|---|---|
| Age (years) | | | | | |
| 20-30 | 84 | 22 | 1.5 | 0.67, 3.1 | 0.32 |
| 31-40 | 39 | 15 | | | |
| Occupation | | | | | |
| Housewife/Labourer /self employed | 106 | 24 | 3.4 | 1.4, 7.9 | 0.006 |
| Salaried individuals | 17 | 13 | | | |
| Monthly Income in (PKR) | | | | | |
| ?40000 | 100 | 22 | 3.0 | 1.31, 6.6 | 0.009 |
| >40000 | 23 | 15 | | | |
| Education | | | | | |
| Up to Primary | 70 | 13 | 2.4 | 1.13, 5.3 | 0.022 |
| Secondary or above | 53 | 24 | | | |
| Residence | | | | | |
| Rural | 39 | 8 | 1.7 | 0.72, 4.2 | 0.24 |
| Urban | 84 | 29 | | | |
| Parity | | | | | |
| Up to 3 | 101 | 29 | 1.26 | 0.48, 3.1 | 0.60 |
| 4 to 5 | 22 | 8 | | | |
| Mode of Delivery | | | | | |
| C-Section | 29 | 7 | 1.3 | 0.54, 3.6 | 0.57 |
| Vaginal | 94 | 30 | | | |

## Discussion

In this study, less than a quarter (23.1%) of the total study participants expressed willingness to use PPIUCD. While Mohammed SA, et al., revealed a comparable acceptance rate of PPIUCD i-e 28.9%[16], rates as low as 14%[15] and as high as 87.8%[17] have been reported. In a country like Pakistan with a growth rate of 1.88%, the challenges of family planning are multi-fold. Despite decades of efforts made by the Government and private health sectors, achievement of adequate family planning has remained unsatisfactory, as manifested by a failure to observe any hallmark reduction in the population indicators including a total fertility rate of 3.4 births per woman[18] and contraceptive prevalence rate of 34%[19].

IUCDs have several advantages which make them a pre-eminent measure to achieve long term contraception. IUCDs placed in the immediate post-partum period are remarkably effective, cost efficient and safe during lactation. The time immediately after delivery is the most feasible period in which PPIUCD may be advocated and inserted upon consent from the women. This is the potential time in which women are quite motivated to achieve contraception and are in contact with the healthcare system so that their concerns, if any, can be addressed. To our dismay, several factors in our society render them underutilized. The current study was conducted to assess the prevalence of such factors which affect the uptake or refusal of PPIUCD.

Among the quarter of women that accepted PPIUCD, 86.49% acknowledged that thorough counselling made them opt for this method. Other factors that favoured its uptake were long duration of action with one-time placement 70.27%, husband's approval 59.46% and accessibility 56.76%. Comparable findings have been documented by R Joshi et al in which easy accessibility 94%, good counselling 63.6%, long acting/ one-time placement 80% and husband approval 75.5% serve as the main factors affecting PPIUCD uptake[20].

The study participants who refused to get PPIUCD inserted ascribed the rejection either to religious restrictions 57.72% or fear of side effects 56.10%. A substantial number of women 46.34% simply did not know enough about contraception to make an informed decision whereas some 30.89% deemed its use unnecessary.

Our study disclosed that the rate of PPIUCD acceptance was lower in the younger age group 20-30y compared to the older counterpart 31-40y. This may be because in a culture like ours, women tend to gain relative empowerment in their marital matters after several years of their marriage. Other studies have revealed varying trends between age and contraceptive uptake, with the women showing least interest in contraception when reaching the final years of their fertile period. However, it is worth noting that our study sample included clients between 20-40y, thus, falling short of at least a decade till the average age of menopause. This might be the cause of the difference mentioned above.

The level of client education was observed to be positively correlated with PPIUCD uptake. The refusal rate waning from 84.38% in the illiterate to 58.33% in clients with graduate degrees. This observation was consistent with some studies16, which ascertain that a higher education level is associated with better awareness regarding maternal and contraceptive health. It also allows women more freedom to opt for contraceptive measures such as IUCD. Others, however, showed no association between education and PPIUCD uptake[21].

A vast majority of the study sample had a poor socioeconomic status, as reflected by the following facts; 44.4% of the women had a monthly family income of <PKR 20,000, 47% of the women were housewives and another 30% worked in the labour force. While a poor socioeconomic background necessitates the need of adequate child spacing even more, multiple studies consistently reveal a higher fertility rate and lower CPR among people of that class. Our study also demonstrates a similar dilemma. It was found that women working on lesser paid jobs and those having lower monthly family income were less likely to accept PPIUCD compared to their wealthier equivalents.

Our study revealed that the uptake of PPIUCD increased with the rise in parity. This finding, however, was not associated with statistical significance. Moreover, women from rural backgrounds were slightly more likely to refuse PPIUCD compared to urban dwellers, yet the difference was statistically non-significant.

Celen S, et al., found that women delivering through NVD accepted PPIUCD more frequently 74% than the women delivering through caesarean section 22(26%). The current study also found a similar pattern, although the difference was not as marked i-e 24.2% vs 19.4% acceptance rate in NVD vs C-section, respectively. Besides, the finding was statistically non-significant.

This study has brought to limelight several factors affecting the acceptance or refusal of PPIUCD by women. Based on the results, we deem it pertinent to introduce new and comprehensive family planning programs to raise awareness. These efforts will surely remove the myths and apprehensions that prevail. It is important that counselling begins in the early antenatal period and is offered to both women and their partners. This will give them ample time to meditate upon their options and reach an enlightened decision with mutual consensus. Moreover, PPIUCD services need to be made available at grass root level and medical personnel be trained accordingly. This will provide women with follow up facilities in their localities, thus, saving

them from the trouble of frequent visits of tertiary care hospitals. Provision of adequate contraceptive services will save women from unplanned pregnancies and pregnancy related complications. This will surely serve as a leap step to improve maternal and child health in the country.

The main limitations of the study are a small sample size and the fact that it is not a follow-up study, owing primarily to our time and budget constraints. To incorporate a new intervention in our healthcare system, it is necessary to evaluate the success rate of PPIUCD uptake and record its safety and complication rates occurring in our setting. This, however, could only be done through a longitudinal study with a larger sample size, time duration and a bigger budget.

## Conclusion

Intrauterine device placed immediately after delivery is an effective mode of postpartum contraception, yet it is underutilized in our setting due to a multitude of factors. Addressing these factors will serve to improve the acceptance rate of PPIUCD.

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## Conflict of Interests

Authors have no conflict of interests and received no grant/funding from any organization.

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