

# POSTPARTUM INTRAUTERINE CONTRACEPTIVE DEVICE (PPIUCD) RETENTION RATE IN KANCHEEPURAM HEALTH UNIT DISTRICT (HUD) - A CROSS SECTIONAL STUDY

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## Abstract

**INTRODUCTION:** While there are numerous methods available for contraception, Post-Partum Intra Uterine Contraceptive Device has been the most used method in Tamil Nadu. However, over a period, the retention rate tends to be low for various reasons. Hence this study was conducted to estimate the retention rate of intrauterine device among PPIUCD users at the end of 6 months and the factors determining the retention of IUCD in Kancheepuram district of Tamil Nadu, which has the lower PPIUCD acceptors.

**METHODS :** A cross-sectional study was conducted in Kancheepuram Health Unit District in November 2019 among 260 PPIUCD acceptors between 6 months to 2 years after PPIUCD insertion. The required sample size was selected by multistage sampling method. After obtaining written informed consent, the participants were interviewed using an interviewer administered semi-structured questionnaire.

**RESULTS :** The retention rate was 81.5% (95% Confidence Interval -76.5% - 86.1%) Among those who discontinued to use IUCD, 64.5% had removed it intentionally. among women who did not receive any information on follow-up visit had higher proportion of discontinuation which was statistically significant. Bleeding and abdomen pain was the most common reason quoted for discontinuation, while considering IUCD as a safe option was the most common reason quoted for retention of IUCD.

**CONCLUSION :** PPIUCD retention rate has improved in Kancheepuram HUD. There should be a definite protocol on follow-up of PPIUCD acceptors and implementation of the same should be focused on to ensure the retention rate.

**KEYWORDS :** PPIUCD, retention.

## INTRODUCTION

Tamilnadu is a pioneer by not only performing better in health indicators but also in controlling population growth. When family planning in the form of spacing of pregnancies by more than 2 years is followed by couples, it can reduce child mortality by 10% and can prevent approximately 1/3rd of maternal deaths. Among the various methods of contraception available, the contraceptive method which is most commonly used in Tamilnadu is Postpartum Intrauterine Contraceptive Device (PPIUCD). The IUCD used in recent times has very few adverse effects, safe, lasts long, very much effective, independent of coitus, private, most cost-effective and rapidly reversible. Post-partum period is the period in which the mothers are more receptive to adopt family planning methods. It has 3 phases.

- The first 6–12 hours postpartum is known as the acute or initial phase.
- The sub-acute postpartum period lasting for 2-6 weeks is the second phase.
- The delayed postpartum period is the third phase lasting till 6 months.

PPIUCD is inserted during the first 48 hours after delivery. Intrauterine device can also be inserted after an abortion (Post Abortal) and after 6 weeks postpartum (Extended PP)<sup>2</sup>. Therefore, women tend to accept PPIUCD insertion readily and in some cases, they consent even before they completely understand about the method. However, over a period of time, the retention rate tends to be low for various reasons. As per NFHS-4 data (2015 – 16), in the age group of 15 – 49 years, PPIUCD usage in India is 1.5% and discontinuation of PPIUCD within 12 months is 26.4%. PPIUCD usage in Tamil Nadu is 1.9%, and discontinuation of PPIUCD within 12 months is 47.8%. Kancheepuram district is situated on the northeastern coast of Tamil Nadu and is adjacent to Chennai, the capital of Tamil Nadu. The PPIUCD usage rate in Kancheepuram is 1.7% which is lower than the state average and there is no data on retention rate. Hence, this study was conducted



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to estimate the retention rate of intrauterine device among PPIUCD users at the end of 6 months and study the factors which determine the retention of IUCD.

## OBJECTIVES

- 1) To study the retention rate of intrauterine device among PPIUCD users at the end of 6 months until 2 years.
- 2) To identify the factors associated with PPIUCD retention.

## METHODOLOGY

A cross-sectional study was conducted in Kancheepuram Health Unit District (HUD) in the month of November 2019 among PPIUCD acceptors between 6 months to 2 years after PPIUCD insertion. The number of sample size required to be included in the sample with 95% confidence was calculated using the following formula.

$$N = \frac{Z\alpha^2 pq}{d^2}$$

Assuming 95% confidence level, retention rate of 81.11% based on the study done by Mishra et al [2] and an absolute precision of 5%, the minimum sample size required was 236. Adding 10% non-response rate, the required sample size was 260. The required sample size was selected by multistage sampling method. Kancheepuram HUD has 7 blocks, of which 3 blocks were selected by simple random method. (Figure 1). The list of mothers who had inserted PPIUCD at least 6 months till 2 years prior to the survey from the three selected blocks was obtained from the Deputy Director of Health Services office of Kancheepuram HUD. The number of participants from each block were chosen unequally as the samples were taken proportionate to the population size of the postnatal mothers in the blocks. (Figure 1) Using simple random sampling technique, the required number of participants were chosen from each block. The selected study participants were located with the help of the concerned Village Health Nurses. After obtaining written informed consent, the participants were interviewed using an interviewer administered semi-structured questionnaire. The questions were on demographic profile, obstetric factors, details on PPIUCD insertion, the current status of PPIUCD usage, reasons for acceptance and removal of IUCD. Ethical clearance for the survey was obtained from The Institutional review Board, Madras medical College. Official permission to conduct the study was obtained from the DDHS, Kancheepuram HUD.

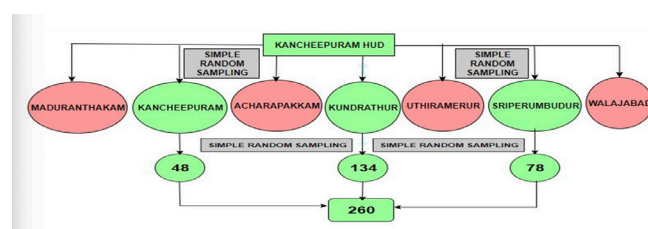


Figure 1: Sample allocation in Kancheepuram Health Unit District

The data was entered in MS Excel and analyzed using SPSS Version 16. Appropriate descriptive and inferential statistics were used to analyze the data.

## RESULTS

The basic demographic profile of the study participants is shown in Table 1.

Table 1: Socio-demographic profile of study participants

Socio-demographic factors	n	Percentage
<b>Age</b>		
18-26 years	201	77.3
27-35 years	59	22.7
<b>Religion</b>		
Hindu	234	90.0
Muslim	11	4.2
Christian	10	3.8
Others	5	1.9
<b>Education</b>		
No formal school education	2	0.8
Formal education	258	99.2
<b>Parity</b>		
Primipara	228	87.7
Multipara	32	12.3

Table 3: Association between Obstetric factors and PPIUCD retention rate

Obstetric factors (N = 260)	IUCD retained% (N = 212)	IUCD discontinued % (N = 48)	p value
Parity			
Primipara (228)	189 (82.9%)	39 (17.1%)	0.132°
Multipara (32)	23 (71.9%)	9 (28.1%)	
IUCD insertion time			
Within 10 mins (68)	59 (86.8%)	9 (13.2%)	0.546°
Within 48 hrs (85)	67 (78.8%)	18 (21.2%)	
Intra-CS (104)	84 (80.8%)	20 (19.2%)	
48 hrs-6 wks (3)	2 (66.7%)	1 (33.3%)	

Table 4: Factors influencing PPIUCD retention

VARIABLE	IUCD Retained (%)	IUCD Discontinued (%)	p value
No informed consent	13 (65%)	7 (35%)	0.067°
No motivation & counselling	7 (70%)	3 (30%)	0.399°
No information on follow-up visit	2 (33.3%)	4 (66.7%)	<b>0.012°</b>
Didn't attend follow-up visit	16 (72.7%)	6 (27.3%)	0.259*
Bleeding	33 (63.5%)	19 (36.5%)	<b>0.000°</b>
Abdominal pain	78 (82.1%)	17 (17.9%)	0.858°
Vaginal discharge	43 (86%)	7 (14%)	0.366°
Missing strings	7 (46.7%)	8 (53.3%)	<b>0.002*</b>

° - chi-square test

\* - Fisher's exact test

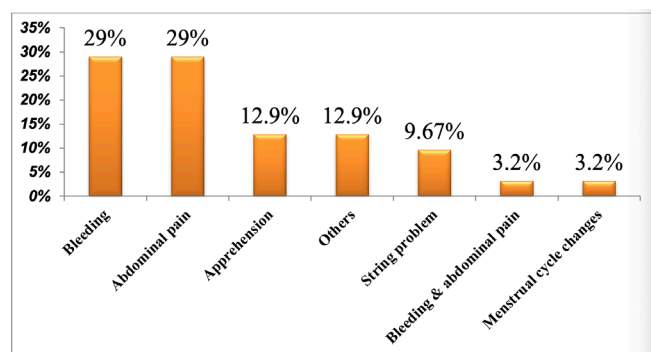


Figure 3. Reasons for PPIUCD removal

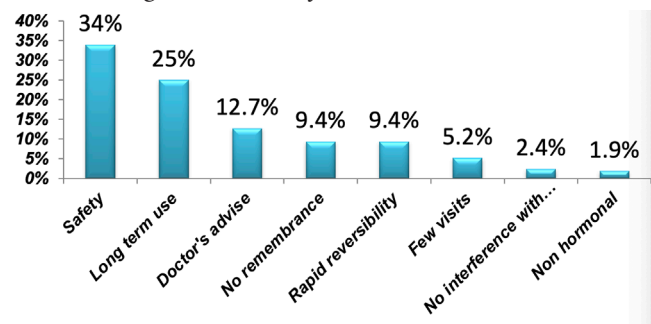


Figure 4. Reasons for PPIUCD retention

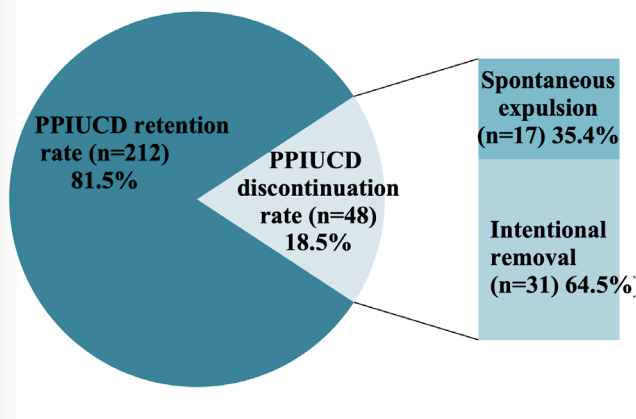


Figure 2. PPIUCD Retention Rate

PPIUCD retention rate was 81.5% with a 95% Confidence Interval of 76.5% - 86.1%. PPIUCD discontinuation rate was 18.46% with a 95% Confidence Interval of 13.94% - 23.72%. Among the 48 mothers who did not continue PPIUCD, 17 mothers (35.4%) had spontaneous expulsion and 31 mothers (64.5%) had removed PPIUCD intentionally. Spontaneous expulsion was observed maximally between 1-4 weeks following PPIUCD insertion. Only 20.8% of mothers in PPIUCD discontinued group were willing for re-insertion.

Table 2: Association between sociodemographic factors and PPIUCD retention rate

Socio-demographic factors (N = 260)	IUCD retained% (N = 212)	IUCD discontinued% (N = 48)	p value
Age group			
18-26 yrs (201)	159 (79.1%)	42 (20.9%)	0.062°
27-35 yrs (59)	53 (89.8%)	6 (10.2%)	
Religion			
Hindu (234)	195 (83.3%)	39 (16.7%)	0.061°
Muslim (11)	6 (54.5%)	5 (45.5%)	
Christian (10)	8 (80%)	2 (20%)	
Others (5)	3 (60%)	2 (40%)	
Education			
No formal education (2)	1 (50%)	1 (50%)	0.336°
Formal Education (258)	211 (81.8%)	47 (18.2%)	

° - chi-square test

\* - Fisher's exact test

## DISCUSSION

This study was conducted in Kancheepuram HUD which had PPIUCD insertion rate lower than the state average. The retention rate was 81.5%. Among those who discontinued to use IUCD, 64.5% had removed it intentionally. There was no significant difference between women continued to retain IUCD and discontinued to use based on socio-demographic characteristics and parity. Timing of insertion also did not determine the retention pattern. However, among women who did not receive any information on follow-up visit had higher proportion of discontinuation which was statistically significant. Bleeding and abdomen pain was the most common reason quoted for discontinuation, while considering IUCD as a safe option was the most common reason quoted for retention of IUCD.

As per NFHS-4 data (2015 – 16), the national average of PPIUCD discontinuation of within 12 months was 26.4% and the Tamil Nadu state average was 47.8%.<sup>4</sup> The discontinuation rate in Kancheepuram district was comparable to that of national average but much better compared to the state average. In a survey conducted by the Directorate of Public Health and Preventive Medicine among all IUCD acceptors from Government Medical College Hospital in the year 2013, showed that 50% and 22% had retained IUCD at the end of 1 and 2 years respectively. This shows that in Kancheepuram HUD, the retention rate is better than the state average. This could also be attributed to the temporality showing improvement over period of time. Also lack of information on follow up visit was significantly associated with discontinuation of IUCD. Hence, it should be ensured that all PPIUCD acceptors, should be informed on the follow up visit details like when to come. This will give time for the IUCD acceptors to clarify their doubts and also give space for the health care providers to reassure the patients and alleviate their misconceptions. This study reflects the retention rate of only Kancheepuram HUD and the results could be generalized to the entire state as the protocol followed in PPIUCD is uniform across the state. However, PPIUCD retention rate can be compared between districts which have higher proportion of high order birth. The limitation of this study is that the PPIUCD retention is self-reported and was not verified by the clinician. The other limitation is the recall bias.

## CONCLUSION

PPIUCD retention rate has drastically improved over period of time in Kancheepuram HUD. There should be a

definite protocol on follow-up of PPIUCD acceptors and implementation of the same should be focused on to ensure the retention rate.

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