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## Original Research Article

# Determinants of uptake of post-partum intra-uterine contraceptive device among women delivering in a tertiary hospital, Odisha, India

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### ABSTRACT

**Background:** IUCDs are used by only two percent of the contraceptive users in India. There is a need for identifying the factors which influence the uptake of PPIUCD, so as to plan ways for increasing its usage. To determine the uptake and factors influencing the uptake of PPIUCD among the women delivering in a tertiary care hospital of Odisha

**Methods:** This was a case control study conducted at the Obstetrics Department of M.K.C.G Medical College, Berhampur. All those who had agreed for and had undergone PPIUCD insertion were included in cases and those who did not undergo PPIUCD insertion were pooled into controls.

**Results:** 94 cases and 188 controls were recruited. Significantly higher proportions of cases belonged to nuclear families, had one or more male child, did not want any future pregnancies, had heard about it prior to pregnancy and also had received counselling for the same during the antenatal period. The adjusted odds of uptake of PPIUCD in women having at least one male child is 10 (4.3-22.6) times that of mothers with no male children. The most common reasons told by controls for not taking up PPIUCD was disapproval from family members (42.6%), followed by fear of complication (33%) and preference for other methods of contraception (20.2%).

**Conclusions:** In present study, we found that counselling in the antenatal period was a key point in increasing acceptance of post-partum IUCD. Desire for male child also influenced uptake of postpartum IUCD.

**Keywords:** Case-control, Determinants, PPIUCD, Uptake

### INTRODUCTION

India having 2.4% of the world landmass harbours 17.5% of the world population.<sup>1</sup> The annual growth rate of India in 2001-2011 was 1.2%.<sup>2</sup> It is projected that we will surpass China to become the most populous country of the world by 2020.<sup>1</sup> According to SRS 2012 our Total Fertility Rate (TFR) is 2.4, higher than the target of 2.1 set by National Population Policy 2000.<sup>3</sup> We have a high unmet need for contraception of 20.5%.<sup>4</sup> 61% of births in India occur at intervals that are shorter than the

recommended birth-to-birth interval of approximately 36 months.<sup>3</sup>

Less than half of the deliveries (40%) in our country are institutional deliveries.<sup>5</sup> This has been on the rise in recent years. In order to make best use of the opportunity provided by increased institutional deliveries and high motivation of the mother in the post-partum period for a reliable birth spacing or limiting method, adequate counselling should be done to ensure use of one or the other contraceptive method.<sup>6</sup> Unlike hormonal contraceptive which influences breast feeding ,Intra

uterine contraceptive device (IUCD) have no effect on breast feeding proving them to be a safe, reliable, inexpensive and long acting option to be used in the post-partum period.<sup>7</sup>

Despite all these strong points IUCDs are used by only two percent of the contraceptive users in India.<sup>5</sup> Total post-partum IUCD (PPIUCD) insertions for the year 2013-14 was only 3,24,974.<sup>6</sup>

According to AHS 2011-12 TFR of Odisha was 2.3 with only 46.8% of the women were using any modern method for spacing of pregnancies. Only 0.4% of women in Odisha were using IUCD.<sup>8</sup> HMIS report 2015-16 showed that total 1,94,884 IUD insertions were conducted in Odisha out of which only 63078 post-partum.<sup>9</sup>

Reasons like educational status, future desire for children, preference for another contraceptive method, and fear of complications have been found to influence the uptake of PPIUCD. This suggests the need for identifying the factors which influence the uptake of PPIUCD, so as to plan ways for increasing its usage.

Hence, the present study aims at determining the uptake and factors influencing the uptake of PPIUCD among the women delivering in a tertiary care hospital of Odisha.

## METHODS

This was a case control study conducted at the Obstetrics Department of M.K.C.G Medical College, Berhampur. The study duration was 3 months between September to November 2016. The study population were women aged 18 and above, who had delivered a live child and consented to be included in the study. Women less than 18 yrs of age, who had delivered a still born, intra uterine death (IUD) and/or had an abortion, who had a history of use of IUCD, who had uncontrolled PPH, chorioamnionitis, premature rupture of membranes (PROM) more than 18 hours, preterm premature rupture of membranes (PPROM) more than 18 hours and those who refused to give consent were excluded from the study. Among the study population, during the study period, all those who had agreed for and had undergone PPIUCD insertion were included in cases and those who did not undergo PPIUCD insertion were pooled into controls. Two controls were recruited by simple random sampling after each case. This resulted in a sample size of 282, i.e 94 cases 188 controls over a period of 3 months.

IEC clearance was obtained prior to the start of the study. Data was collected using a pre-designed pre-tested questionnaire administered by the investigators.

Analysis of data was done at the department of Community Medicine, MKCG Medical College using SPSS ver. 21.0. Chi-squared test was used to determine difference in proportions and logistic regression analysis

was performed for the predictors. All tests were done at a significance level of 0.05.

## RESULTS

Total 282 mothers delivering in M.K.C.G Medical College from September to November 2016 fulfilling the inclusion criteria were taken into the study. Out of these 282 participants 94 were cases i.e who had PPIUCD inserted and 188 were controls i.e they had not inserted PPIUCD.

The mean age of cases was  $27.8 \pm 2.39$  and significantly older than that of control  $25.36 \pm 3.07$  ( $t = 6.81$ ,  $p < 0.001$ ). Similarly, the age at marriage was significantly higher for cases than the controls (mean age at marriage cases =  $20.4 \pm 1.71$ , mean age at marriage controls =  $19.5 \pm 1.66$ ,  $t = 3.970$ ,  $p < 0.001$ ).

Table 1 shows the socio-demographic profile of cases and controls. Most of the study participants both cases and controls had completed some level of schooling. Majority of study participants in both the groups were from nuclear family. However, higher proportion of controls came from a 3-generation family (28.3%) as compared to cases (13.8%). Around 81% of both PPIUCD users and non-users were from rural areas.

**Table 1: Socio demographic profile of cases and control.**

	Cases (N=94)	Controls (N=188)
<b>Education</b>		
illiterate	26 (27.7%)	73 (39%)
primary	42 (44.7%)	63 (33.7%)
secondary	18 (9.1%)	40 (21.4%)
higher	8 (8.5%)	12 (5.9%)
<b>SES</b>		
upper	5 (5.3%)	12 (6.4%)
Upper middle	8 (8.5%)	41 (21.9%)
middle	29 (30.9%)	60 (32.1%)
Lower middle	31 (33%)	15 (7.5%)
Lower	21 (22.3%)	60 (32.1%)
<b>Type of family</b>		
nuclear	66 (70.2%)	110 (58.8%)
joint	15 (16%)	25 (12.8%)
3 generation	13 (13.8%)	53 (28.4%)
<b>Caste</b>		
Gen/OBC	71 (75.5%)	139 (74.3%)
SC	19 (20.2%)	33 (17.1%)
ST	4 (4.3%)	16 (8.6%)
<b>Residence</b>		
Rural	76 (80.9%)	153 (81.8%)
urban	18 (19.1%)	35 (18.2%)

In univariate analysis, significantly higher proportions of cases belonged to nuclear families as compared to controls ( $\chi^2=7.34$ ,  $p=0.02$ ). Following the same trend, significantly higher proportions of takers of PPIUCD had

one or more male child ( $\chi^2=55.4$ ,  $p<0.001$ ), did not want any future pregnancies ( $\chi^2=41.63$ ,  $p<0.001$ ) as compared to those who did not inserted PPIUCD. Significantly higher mothers who underwent PPIUCD insertion had heard about it prior to pregnancy ( $\chi^2=11.5$ ,  $p=0.001$ ) and also had received counselling for the same during the antenatal period ( $\chi^2=4.57$ ,  $p=0.03$ ).

In multivariate analysis, the adjusted odds of uptake of PPIUCD in women having at least one male child is 10 (4.3-22.6) times that of mothers with no male children. Women who had no further desire of pregnancy were 6 times (2.8-12.9) more likely to take PPIUCD than those with desire of future pregnancies.

**Table 2: Univariate and multivariate analysis for the factors influencing uptake of PPIUCD.**

Variable	Univariate Analysis			Logistic regression		
	Cases n, (%)	Controls n, (%)	Chi Sq (P-value)	Adjusted OR (95% CI)	p-value	
Education	Illiterate	26(27.7%)	73(39%)	$\chi^2=5.11$ P=.164	1 (Ref.)	-
	Primary	42(44.7%)	63(33.7%)		0.71(0.26-1.9)	0.50
	Secondary	18 (9.1%)	40(21.4%)		1.5(0.53-4.2)	0.44
	Higher	8 (8.5%)	12(5.9%)		2.23(0.43-11.5)	0.34
SES	Lower	21-22.3%	60-32.1%	$\chi^2=34.05$ P<0.001	1 (Ref.)	-
	Upper Lower	31-33%	15-7.5%		3.3(0.52-20.9)	0.20
	Lower Middle	29-30.9%	60-32.1%		1.6(0.33-8.1)	0.55
	Upper Middle	8-8.5%	41-21.9%		0.8(0.15-4.6)	0.83
	Upper	5(5.3%)	12(6.4%)		2.3(0.40-13.4)	0.35
Family Type	3-Gen	13(13.8%)	53(28.3%)	$\chi^2=7.344$ P=0.025	1 (Ref.)	-
	Joint	15(16%)	25(12.8%)		0.37(0.12-1.07)	0.07
	Nuclear	66(70.2%)	110(58.8%)		1.2(0.5-3.1)	0.65
residence	rural	76 (80.9%)	153 (81.8%)	$\chi^2 = 0.039$ p = .844	1(ref)	-
	urban	18(19.1%)	35 (18.2%)		0.89(.32-2.44)	.825
Male Children	No	30-31.9%	145-77.5%	$\chi^2=55.43$ P<0.001	1 (Ref.)	-
	Yes	64-68.1%	43-22.5%		9.9(4.3-22.6)	<0.01
Desire for future children	Yes	23(24.5%)	122(65.2%)	$\chi^2=41.63$ P<0.001	1(Ref.)	-
	No	71(75.5%)	66(34.8%)		6.1(2.8-12.9)	<0.01
Awareness of PPIUCD prior to pregnancy	No	20(21.3%)	79(41.7%)	$\chi^2=11.501$ P=0.001	1 (Ref.)	-
	Yes	74(78.7%)	109(58.3%)		1.6(0.66-3.9)	0.30
Counselling of PPIUCD during ANC	No	67(71.3%)	154(82.4%)	$\chi^2=4.57$ P=0.03	1(Ref.)	-
	Yes	27(28.7%)	35(17.6%)		6.5(2.3-17.8)	<0.01

**Table 3: Reason for non-uptake of PPIUCD in controls.**

Reason for refusal	N	%
Disapproval of family members	80	42.6
Fear of complication	38	20.2
Preference to use other method	41	22
Religious beliefs	6	3.1
Interferes with sexual intercourse	2	1.2
No reason	21	11.5

Pregnant women who have received counselling about PPIUCD in their ante natal period were 6.5 (2.3-17.8) times more likely to get IUCD inserted in their post-partum period. The most common reasons told by controls for not taking up PPIUCD was disapproval from family members (42.6%), followed by fear of

complication (33%) and preference for other methods of contraception (20.2%).

## DISCUSSION

Majority of the cases in our study had primary or secondary level of schooling. Similar findings were seen in the study conducted by Agarwal et al.<sup>10</sup> Most of the ppiucd user were of lower and middle income group. A study conducted by Sebastian et al had also similar findings.<sup>11</sup>

In our study counselling during the antenatal period was found to significantly increase the chances of uptake of IUCD in post-partum period. Similar results were also found in a study conducted in Uttar Pradesh India were 44% of the couples counselled underwent PPIUCD

insertion.<sup>8</sup> A prospective cohort study in India also found a significant increase (61.8% versus 30.6%) in contraceptive use in postpartum by women in the intervention group compared with the control group. The intervention included an educational campaign carried out by community workers using leaflets, posters, wall paintings and booklets.<sup>11</sup>

Similar to this study in another study the commonest reason for declining PPIUCD insertion was family refusal (53.6%) followed by preference for other methods (13.6%) in women counselled in antenatal period.<sup>10</sup> However, Sanskriti P et al found that predominant son preference and the belief that PPIUCD insertion might hinder their chance for future conception was the second most common reason for refusal in multipara (65%).<sup>12</sup>

## CONCLUSION

In present study, we found that counselling in the antenatal period was a key point in increasing acceptance of post partum IUCD. Desire for male child also influenced uptake of postpartum IUCD. Women having desire for future pregnancies did not choose IUCD as the preferred method.

Thorough counselling during the antenatal period involving family members is very essential for promoting the uptake of PPIUCD. Women and her family members need to be counselled that intra uterine devices are highly effective, safe method of contraception which does not interfere with future pregnancies. Gender equality needs to be promoted so as to remove the difference between male and female child.

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