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Compare The Epidemiological And Social Factors Between Acceptors And Non-Acceptors Of Post Partum Intrauterine Contraceptive Device Insertion As A Contraceptive Device

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A B S T R A C T

INTRODUCTION: According to the 2021 census, India has 140.76 crore people, making it the most populous country in the world. It adds over 25 million births annually, making up 17.76% of the world's population. Family planning is most effective during the postpartum period. Research indicates that giving birth fewer than two years apart can increase maternal mortality and obstetric problems. Therefore, using contraception is required. This study aids in identifying the demographic and socioeconomic variables related to post-placental and post-cesarean Copper-T implantation. Determining the elements linked to PPIUCD acceptability and non-acceptability is also beneficial.

METHODOLOGY : In order to determine eligibility, their labor event data were examined, and the woman was questioned regarding her acceptance or rejection of PPIUCD (Cu-T). In the postpartum and postoperative wards, women who qualified for PPIUCD were located and contacted. The parturient provided written informed consent to participate in the study. The researcher filled out questionnaires. The following variables were gathered through the use of a structured questionnaire: the women's social demographics, obstetric and gynecological characteristics, prior contraceptive methods, information source and awareness of the PPIUCD, reasons for accepting or declining PPIUD insertion, and their desires for future pregnancies.

RESULTS: Male condoms were the most widely utilized form of birth control among parturients (17.12%). Among the least popular techniques was interval IUCD (2.7%). Acceptance of PPIUCD was statistically substantially correlated with both previous interval IUCD users and parturients who had never used contraception ($p < 0.05$). A small percentage of women (5.86%) report extremely painful PPIUCD insertions, whereas around half (50.90%) report no discomfort at all. Over half (51.35%) of the women who accepted PPIUCD did so because of its long-term effects.

CONCLUSION: According to the study, the PPIUCD is especially safe and has low side effects. Even at the prenatal clinic, patients should be informed of the benefits of family planning, which can prevent 20–35% of maternal deaths and over 20% of newborn deaths.

Keywords: Contraception, Copper-T, PPIUD (Post-Partum Intrauterine Contraceptive Device)

INTRODUCTION:

India is the largest populated country in the world with 140.76 crore according to 2021 census. It contributes 17.76% of world‘s population by adding around 25 million births every year. Nearly 20.7% of the Indian population have unmet needs for family planning with 65% of the needs in the first year of postpartum period. [1] Postpartum period is the best time of family planning. Studies show that spacing less than 2 years of child birth can lead to obstetric complications and maternal mortality. Hence practice of contraception is mandatory.

This study helps to determine the socio economic and demographic factors associated with post-placental and post-cesarean insertion of Copper-T. It also helps to determine the factors associated with acceptability and non-acceptability of PPIUCD. The post-placental IUCD insertion is particularly suitable for our country where even paramedical personnel can insert the cu- T and delivery is the only time these patients come in direct contact with the hospital.

The national population as on May 2016 is 1.3 billion. Of this 20.7% have unmet needs of family planning. Intrauterine contra captive devices are ideal for the purpose of temporary family planning over contraceptive pills because of long term action, safety and reversibility. As per NHFS-5 the unmet needs for spacing and limiting in India were 4% and 5.4% respectively whereas unmet demand for family planning 9.4%. Notably 87.9% of demand for contraception was satisfied. Unmet needs for family planning in Madhya Pradesh is 12.1% (NFHS-5, 2020-21). [2]

Intrauterine Contraceptive Devices (IUCDs) to prevent pregnancy are among the oldest methods of contraception. The modern IUCDs are highly effective, safe, private, long-acting, coitus independent and rapidly reversible and most cost effective method of contraception with few side effects. Many women also find the IUCD to be very convenient because it requires little action once it is in place. [3]

The IUCD is a safe and effective contraceptive option for postpartum women who wish to either space or limit subsequent births. IUCDs provide effective and reversible contraception for up to 12 years.

Increasing numbers of women in the developing world are having their babies in hospitals. Many of these women welcome the opportunity to delay their next pregnancy. The postpartum insertion of an IUCD offers several advantages in such instances. For example, the delivery provides a convenient opportunity for the woman to receive IUCD services. This is particularly important for women who have limited access to medical care. Having just given birth, the woman is clearly not pregnant, and she may be very motivated to consider long-acting methods. [9]

Appropriate times for IUCD insertion in the postpartum periods include the post-placental IUCD insertion, the immediate postpartum IUCD insertion and the trans-cesarean IUCD insertion. The post-placental IUCD insertion is done within 10 minutes after expulsion of the placenta, following a vaginal delivery. The immediate postpartum IUCD insertion is done after the post-placental period, but within 48 hours of delivery and the trans- cesarean IUCD insertion is when the insertion takes place following a cesarean delivery, before the uterus incision is sutured. [9]

Immediate postpartum IUCD insertion has a higher retention rate if the IUCD is inserted post-placentally, but the IUCD can be inserted safely at any time during the first 48 hours after delivery. IUCDs can also be inserted after the fourth week postpartum and after an abortion.

These periods are recommended because it is possible to use instruments or manual insertion as the cervix is open and limp and an IUCD can easily be placed high in the fundus, either manually or using forceps. Furthermore, it continues to be possible to insert an IUCD with an instrument for up to 48 hours postpartum. After this period, the cervix is not open enough to allow for an easy and relatively painless instrument insertion. [9] IUCDs inserted post-placentally have a much lower expulsion risk than those inserted later in the postpartum period, although the expulsion is still higher than for interval insertions (about 42 days after childbirth). The risk of expulsion can be reduced significantly by properly insertion of the IUCD. No increased risk of pelvic infection occurs with postpartum IUCD insertion. The risk of uterine perforation for postpartum IUCD insertion is low. There is no effect on breast milk quantity or quality.

METHODOLOGY

A Cross sectional comparative Study carried out in the Department of Obstetrics and Gynecology, Kamla Raja Hospital associated with Gajara Raja Medical Collage, Gwalior, M.P. for a duration of two years from July,2022 – April,2024 sample size is of 222 cases (PPIUCD acceptors) and 222 controls (PPIUCD non acceptors). All women who were delivered either by per vaginal or by LSCS, at Kamla Raja Hospital Gwalior during study and subjects fulfilling the inclusion criteria and willing to participate in the study were included in the study.

INCLUSION CRITERIA

All the women who are delivered (vaginally or by caesarean section) counseled for PPIUCD insertion in pre-natal period or in labour and willing to participate in the study. Exclusion criteria: Women who are delivered at our institution but having, anemia (hemoglobin <8 g/dl), APH &PPH, premature rupture of membranes >18 hours, obstructed labour, sub mucosal fibroid, congenital malformation of uterus, active STD, lower genital tract infection, allergy to copper, history of fever in the last trimester, history of heart disease in the mother, manual removal of placenta, PLHA positive mothers.

Data was collected conveniently among the eligible parturients in post-natal and post caesarean wards. Eligibility was sought by checking their files for the labour events and by asking the woman about acceptance and non-acceptance of PPIUCD (Cu-T). Those women who were eligible for PPIUCD were identified and approached in the post-natal and post-operative ward. A written informed consent was given to the parturient on their participation in the study. Questionnaires were filled by the researcher. By the use of the structured questionnaire, the following variables were collected: social demographic characteristics of the women studied, obstetric and gynecological characteristics, previous contraceptive methods used, source of information and awareness of the PPIUCD, reasons for acceptance or decline to PPIUD insertion and their future pregnancy desires.

Counseling of the patients:
Women were sensitized about advantages and importance of family planning methods at the time of admission that is before delivery. Advantages of PPIUCD and complications were explained. At the time of study questionnaire was filled to know acceptance and rejection, reasons to inclination to other methods were also recorded. Acceptors were advised for regular follow up.

RESULTS
The total number of deliveries during the study period from September 2022 to March 2024 was 18823. Among these deliveries 8470 were normal vaginal delivery and 10353 were delivered by LSCS. During the study period all women were approached at post-natal ward and post caesarean ward and selected as 222 PPIUCD acceptors under case group and comparable 222 PPIUCD non acceptors under control group.

Table 1: Age wise distribution of Parturient included in study (N=444)

Age (Years)	PPIUCD insertion			P-value
	Total (N= 444)	Accepted (N=222)	Declined (N=222)	
	n(%)	n(%)	n(%)	
≤19	8 (1.80)	1(0.45)	7(3.16)	0.24
20 – 29	318 (71.62)	181 (81.53)	137(61.71)	
30 – 39	112 (25.23)	39 (17.57)	73(32.88)	
≥40	6(1.35)	1 (0.45)	5 (2.25)	

Majority of the parturient studied were in age range 20 – 29 yr (71.62%), mean age was 27.6 yr (SD= 5.68)

Table 2: Distribution of Parturient according to educational status included in study (N=444)

Educational Status	PPIUCD insertion			P-value
	Total N= 444	Accepted (N=222)	Declined (N=222)	
	n(%)	n(%)	n(%)	
No formal education	85 (19.15)	23 (10.36)	62 (27.93)	0.083
Primary	119 (26.80)	71 (31.98)	48 (21.62)	
Secondary	217 (48.87)	114 (51.35)	103 (46.40)	
Higher education	23 (5.18)	14 (6.31)	9 (4.05)	

Most of the study population had secondary level of education (48.87%).

Table 3: Distribution of Parturient as per occupational status included in study (N=444)

Occupation	PPIUCD insertion			P-value
	Total N= 444	Accepted (N=222)	Declined (N=222)	
	n(%)	n(%)	n(%)	
Housewife	417 (93.92)	205 (92.35)	212 (95.50)	0.051
Employed	27 (6.08)	17 (7.65)	10 (4.50)	

Majority of the parturient were house wife in both of the study groups.

Table 4: Distribution of Parturient as per parity included in study (N=444)

Parity	PPIUCD insertion			P-value
	Total N= 444	Accepted (N=222)	Declined (N=222)	
	n(%)	n(%)	n(%)	

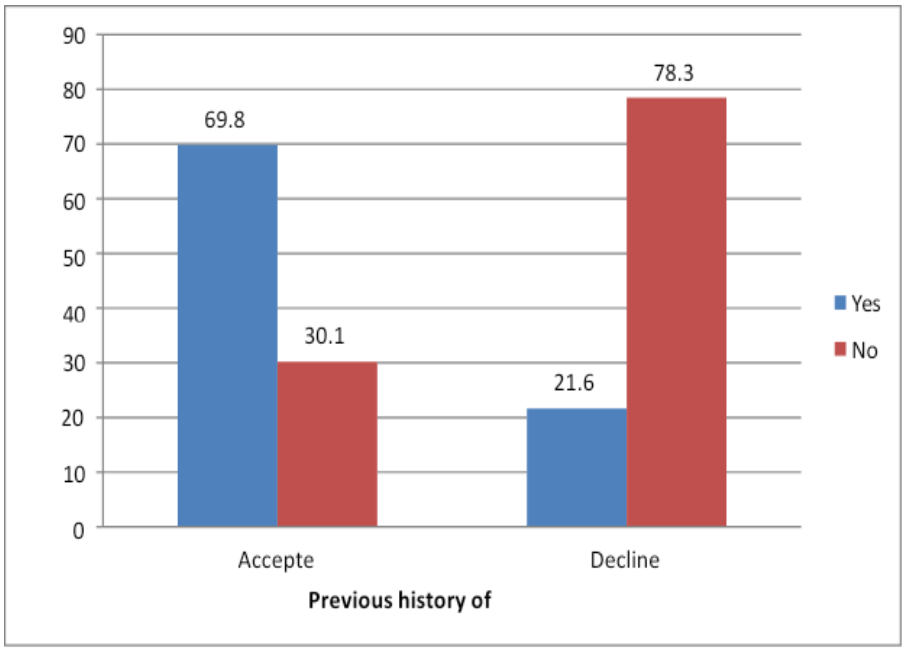
1	**72 (16.22)**	**33 (14.86)**	**39 (17.57)**	**0.593**
2	**158 (35.59)**	**105 (47.30)**	**53 (23.87)**	
3	**127 (28.60)**	**51 (22.98)**	**76 (34.23)**	
≥4	**87 (19.59)**	**33 (14.86)**	**54 (24.33)**	

Median parity was 2. Primiparous made up a small percentage (16.22%) of study population while the majority (35.59%) were para two.

Table 5: Distribution of Parturient as per Socio – economic status included in study (N=444)

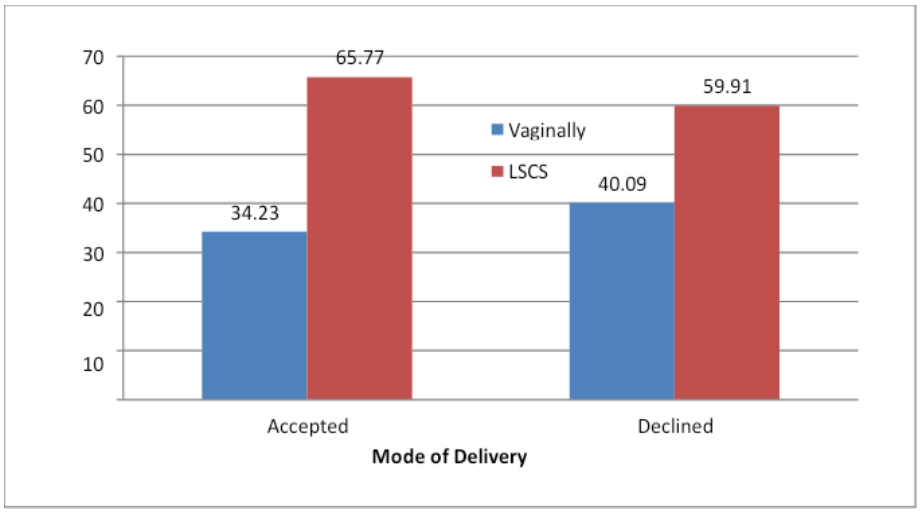
Socio-economic Status	**PPIUCD insertion**			**P-value**
	Total N= 444	**Accepted (N=222)**	**Declined (N=222)**	
	n(%)	**n(%)**	**n(%)**	
I (Upper)	**37 (8.33)**	**23(10.36)**	**14(6.31)**	**0.511**
II (Upper Middle)	**77 (17.34)**	**46 (20.72)**	**31(13.96)**	
III (Lower middle)	**267 (60.14)**	**129 (58.11)**	**138(62.16)**	
IV & V (Lower)	**63 (14.19)**	**24 (10.81)**	**39(17.57)**	

Majority of the study population lie in the lower middle category of the socio-economic group. Majority of the acceptors having previous history of contraception use



Graph 1: Distribution of Parturient as per Previous history of contraception use included in study (N=444)

Majority of the parturient were delivered by LSCS in both the groups.



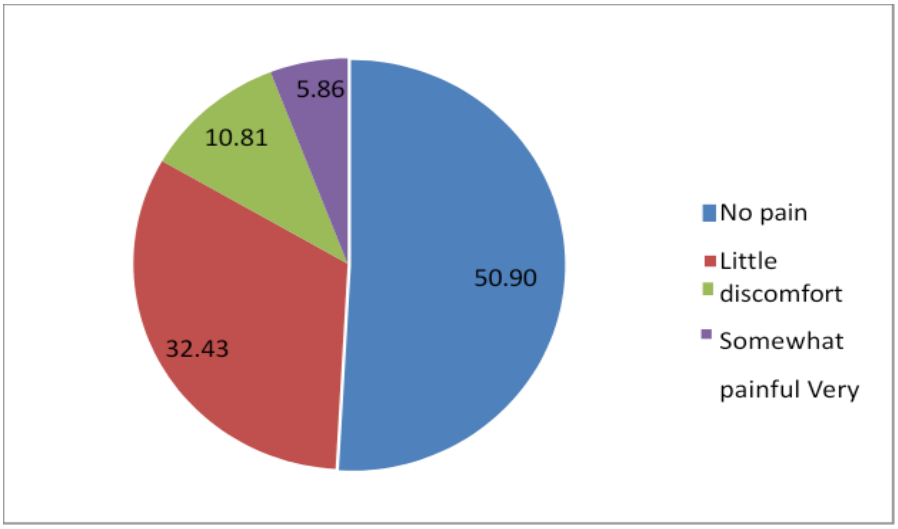
Graph 2: Distribution of Parturient as per Mode of delivery included in study (N=444)

Table 6: Previous contraceptive method used (N=444)

Method Used	PPIUCD			P Value
	Acceptors (N=222) n(%)	Non acceptors (N=222) n(%)	N=444	
Antara (DMPA)	24 (10.81)	9 (4.06)	33 (7.43)	0.360
OCPs	47 (21.17)	10 (4.50)	57 (12.84)	0.258
Natural	7 (3.15)	18 (8.11)	25 (5.63)	0.431
Male Condoms	69 (31.08)	7 (3.15)	76 (17.12)	0.253
Interval IUCD	8 (3.61)	4 (1.80)	12 (2.70)	0.005*
Never used	67 (30.18)	174 (78.38)	241 (54.28)	0.042*

*p<0.05statisticallysignificant

DMPA–Depot Medroxy Progesterone Acetate OCPs – Oral Contraceptive Pills
IUCD–Intrauterine Contraceptive Device Out of the total women studied, 203 (45.72%) had used at least one method of contraception. The most common method of contraception used previously by parturient was male condoms (17.12%). Interval IUCD was among one of the least used methods (2.7%). Previous interval IUCD user and parturient who had never used contraception were statistically significantly associated with acceptance of PPIUCD ($p < 0.05$).



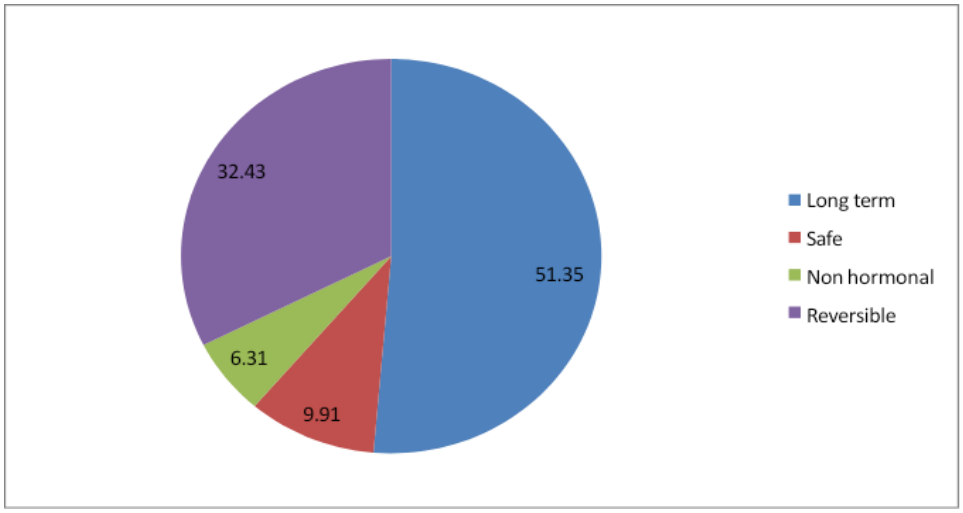
Graph 3: Perception of pain among PPIUCD acceptors (N=222)

About half (50.90%) of women complaint no pain after insertion of PPIUCD while a little percent women (5.86%) complaint very painful after insertion.

Table 7: Reasons for declining PPIUCD among non-acceptor group (N=222)

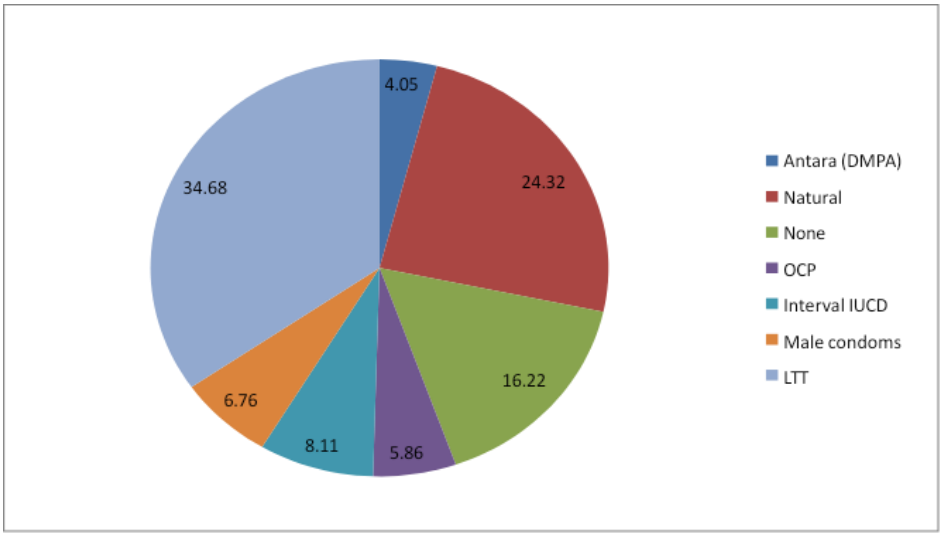
Reasons	N	%
Prefer to use another method	67	30.2
Partner / Peer refusal	57	25.7
Fear of pain	38	17.1
Fear of bleeding	23	10.4
Don't want contraception immediately	18	8.1
No reason	8	3.6
Not enough knowledge about PPIUCD	5	2.3
Fear of cancer	3	1.3
Others	3	1.3

Table-7: shows that among those parturient who declined the PPIUCD, majority of them were due to their preferences of other forms of contraception (30.2%). A large number (25.7%) of parturient declined because of partner / peer refusal.



Graph 4: Reasons for acceptance of PPIUCD among acceptor group (N=222)

More than half (51.35%) of those women who accepted PPIUCD were due to the reason of its long term effect.



Graph 05: Preferences for other forms of contraception, in non-acceptor group (N = 222)

DISCUSSION

In non-acceptors most common reason for refusal was prefer to use another method. No reason and no enough knowledge about PPIUCD also make a significant factor for refusal of PPIUCD among non-acceptor group.

Gunjan et al [4] study showed 41% women declined PPIUCD due to fear of complications, 35% as not accepted by their partners, 22% wanted to use other methods of contraception, 5% refused without any reasons, 1% refused on religious grounds.

Anjali et al [3] study showed 32% women preferred another method of contraception, 18% refused due to fear of complication, 8% had no reasons yet refused PPIUCD.

These women were not adequately counseled about the benefits of PPIUCD in their antenatal period and counseling before their delivery at our institute was insufficient to convince them to use PPIUCD.

Educational status of these mothers was found to play an important role in making women accept PPIUCD, as most mothers who refused to use PPIUCD were uneducated and unwilling to understand the benefits or voice out their concerns.

72 mothers (32.42%) preferred PPIUCD for the reversible nature. The long term contraceptive effect was the reason for acceptance in about 114 mothers (51.35%). 22 mothers (9.91%) preferred PPIUCD for their safety of usage devoid of medical adverse effects as associated with contraceptive pill, 14 mothers (6.31%) accepted PPIUCD as it does not interfere with breast feeding unlike the hormonal contraceptives, 40 mothers (18%) preferred due to multiple reasons as safe, long acting, fewer clinical visits for follow up as they could confirm the presence of PPIUCD by themselves by looking for the strings, easy to insert and easy to remove, no prolong residual effect, early reversal of fertility, coitus independent and lack of systemic side effect etc.
Satyavathiet al [9] analysed the reasons for IUCD acceptance and found 55.28% due to long acting nature, 20.73% due to safety.

Anjali et al[3] study proved that 28% women accepted PPIUCD for the long acting nature, 20% as they required reduced follow up visits, 17% as it is reversible, 10% due to safety because of PPIUCD being non hormonal, 11% accepted PPIUCD as it required minimal attention.

Sangeethaetal [11] study found 67% preferring PPIUCD as it is a reversible method, 19.7% as it is long acting.
Mishra Set al[8]study showed 9.04% preferred PPIUCD as a long term contraceptive method, 18.44% as it is a safe method, 2.66% because it being non hormonal without any side effects, 36.88% as it did not require frequent follow up, 17.91% as it is reversible, 2.3% as it did not interfere with breast feeding. Majority 49.29% accepted PPIUCD based on their antenatal counseling.

This is similar to Safwatet al[1] study were acceptance of PPIUCD was 9.4% in women without formal education and 19.4% among women with formal education.

As per a study in Zimbabwe [2], acceptance of modern contraceptive methods was two times more common in women who completed secondary education rather than those who had primary education. In our study there was threefold increase in acceptance among secondary schooling compared to primary schooling.

Anjali et al [3] found the acceptance of PPIUCD was 25% in those completed primary education, 38% in those with secondary education and 13% in illiterates.

Gunjanet al[4]found acceptance of PPIUCD was 23% in those with primary schooling, 49% in those with secondary schooling, and only 13% among illiterates.

Vidyaramanaet al [5] found acceptance was 15.7% among literates and 5.3% among illiterates.

All the studies and the present study prove that education plays an important role in acceptance of PPIUCD and the rate of PPIUCD coverage can be enhanced by improving the educational status of women.

Similar to a study conducted in Tamilnadu by the Directorate of Health, which showed 59% acceptors in 20-24 group, 31% in 25-29 group, 6.5% in 34-44 Group and 4% in the15-19 group [6].

Singalet al [12] study also found mean age of PPIUCD insertion to be 23.12 ± 2.42years.

This shows that PPIUCD usage is more among young females rather than among teenage pregnancies. Teenage mothers tend to fear complications more and are not willing to accept PPIUCD usage.

The group was then studied according to their parity and it was found 33 of them (14.86%) were primiparous, 105 (47.30%) were following their second child, 51 (22.98%) had three living children and 33 (14.86%) had four or more living children.
Contrary to the present study, Grimes et al [7] 65.1% acceptance in multiparous women.

But Mishra et al [8] found 20.73% acceptance among primigravida and 13.7% among multigravida. Anjalietal [3] found 48% acceptance in primigravida women and 20% acceptance in multigravida women.

This shows that women with higher parity prefer permanent mode of contraception unlike primiparous women who use PPIUCD to space out their pregnancy. PPIUCD is used in higher order births when the women or their family members are unwilling for permanent sterilization.

PPIUCD acceptance is significantly affected by gender of last childbirth.

Women after their first delivery prefer a long acting, reliable, reversible method of contraception. WHO report in 2006 showed that spacing of pregnancies and family planning services can improve maternal and neonatal outcome and reduce maternal mortality by about 32% and prevent 1 million of under 5mortalities.

Desire for future pregnancy remains the same among acceptors and non-acceptors. Pregnancy spacing has a positive effect on maternal health and outcome of the newborn. So it becomes of utmost importance to have effective antenatal counseling for PPIUCD by program counselors to bring about a change in trend of PPIUCD usage.
According to socio economic status of mothers in this study, 23 (10.36%) belong to socioeconomic class-1 (Upper class); 46 (20.72%) belong to socioeconomic class-II (Upper middle); 129 (58.11%) belong to socioeconomic class-III (Lower middle); 24 (10.81%) belong to socioeconomic class-IV & V (Lower class).

This is similar to Gunjanet al [4] study was 62% of acceptors were from lower socioeconomic group.

Satyavathiet al [9] found 675 acceptors belonging to lower socioeconomic group.

This high percentage of acceptance among lower socioeconomic group could be because these studies were carried out in government tertiary care hospitals which caters mainly to the needs of people belonging to lower socioeconomic groups.

In this study no parturient were divided and studied in religion and ethnicity.

Refusal of PPIUCD insertion on religious grounds was 1% in various studies. This shows that religious background and ethnicity does not affect PPIUCD coverage significantly.

Vidyaramana et al [5] study found PPIUCD insertion in 83.73% women following cesarean section and 16.26% women following vaginal delivery.

Manju et al [11] found acceptance of PPIUCD following cesarean section in 60.87%, following labour natural in remaining 39.13%.

Similar to other studies, in our study PPIUCD usage is more following cesarean section rather than labour normal as most mothers preferring PPIUCD for spacing of pregnancy
.
The perception of pain following PPIUCD following labour natural and cesarean section did not vary significantly.

113 women (50.90%) perceived no pain at all after insertion of PPIUCD, 72 women (32.43%) felt little discomfort, 24 women (10.81%) admitted somewhat painful, 13 women (5.86%) felt PPIUCD to be very painful after insertion. 35 (15.77%) women complaining of bleeding following insertion while majority of the acceptors 187 (84.23%) having no pain.
This is a cross sectional study hence no follow up done while the similar studies having follow up presents as.
Sangeetha et al [10] study reported17.15% of pain abdomen, 17.15% of bleeding, 6.8% of expulsion as main complications following PPIUCD insertion.
Anjali et al[3]study resulted 28% as lost followup, 22% expulsion rate, 8% pain abdomen, 6% menstrual irregularities.

Gunjanet al [4] reported 10% expulsion rate and 30% lost followup. 30% incidence of bleeding, 20% incidence of pain abdomen, 20% family pressure, 5% not willing to continue.

In the similar study, the complication rates were 10.41% of bleeding, 6.25% of expulsion, 2.08% of pelvic infection.

An ICMR study [13] reported 25% incidence of pelvic infection in women using PPIUCD which can be treated with antibiotics.

All studies prove that major complication following PPIUCD usage to be bleeding and pain abdomen. These complications can be medically managed and patients can continue the PPIUCD usage. But some patients do not accept reassurance and insist on removal of PPIUCD.

In the similar study spontaneously expelled 23 acceptors (4.77%), 5 women expelled within one week and the remaining 18 women expelled in the duration of follow up by 6 weeks.

Mishra et al [8] study found an expulsion rate of 6.4% at 4week interval. The expulsion rate in multi country study [14] in Philipines, Belgium, Chile was

4.6 to 16% at 4week interval. Tatum et al conducted this multicentre study and found the expulsion rate to be 19% in Philipines, 4% in Belgium, 7% in Chile at 12 months follow up.

In the similar study 42 women requested removal of PPIUCD for varied reasons. 6 women had extreme discomfort, 15 women had excessive menstruation following PPIUCD, 15 women feared continuation because of lost strings and 6 women preferred other method of contraception.

Satyavathi et al[8] reported removal of PPIUCD following bleeding in 27.27%, menstrual disturbance in 18.18%, family pressure in 27.27%, other unspecified problems in 18.18%, pain in 9% of women.

Celen et al [15] study reported 23.5% incidence of bleeding but only 14.71 % wanted removal, while the remaining retained IUCD with reassurance. Positive attitude of the patient plays a significant role in continuation of PPIUCD.

In this study, expulsion rate was 4.6%, removal rate was 8.4%, lost follow up was 3.6% and continuation rate was 83.4%. Ethiopian Multicentre study, [16] followed up at 6 weeks and reported 97% continuation rate, 2.3% expulsion rate, 9.16% removal rate, and negligible infection rate.

Indian study [17] reviewed PPIUCD acceptors at 6 weeks and found 990% continuation rate, 3.2% expulsion rate, 7% removal rate, 4.5% infection rate.

CONCLUSION

There is need to be nationwide strategies to improve the awareness of benefits of PPIUCD by increasing the skill of healthcare personnel, training the personnel for insertion techniques, promote public awareness campaigns to increase the PPIUCD usage and thereby reduce the unmet needs of contraception.

The PPIUCD is particularly safe with few complications as demonstrated in the study. The patients should be counseled regarding the advantages even in the antenatal clinic itself a successful family planning measures helps to avert 20-35% of maternal deaths and nearly 20% of neonatal deaths.

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