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Original Research Article

# Facilitators and barriers in acceptance of postpartum intrauterine contraceptive devices in Bihar

**Bhanu Shanker Singh**[1,*], **Dhananjay Srivastava**[1], **Jaswinder Kaur**[1]

[1] *International Institute of Health Management Research, New Delhi, India*

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ABSTRACT

**Background**: In India, Postpartum IUCD services were introduced in 2010, which is being scaled up, in a phased manner. Insertion of PPIUCD during the immediate postpartum period provides increased motivation and focuses on the prevention of unintended pregnancies along with spacing. Spacing more than 2 years reduces one-third of maternal mortality and 10% of child mortality. This study is an attempt to understand facilitating factors and barriers to using PPIUCD in Bihar.

**Materials and Methods**: A cross-sectional study using a mix-method approach was conducted in nine divisional headquarters districts of Bihar – in various level health facilities. A total of 1620 women, 18-49 years who had institutional delivery and 344 Healthcare providers were covered.

**Results**: Facilitating factors were awareness (53.2%), incentivization (50.5%), better quality of device/services along with incentivization, and proper training to ASHA/ANM (2.6%). The discontinuation rate of PPIUCD was 25.9% and the major reasons for discontinuation were health problems/side effects, husband/family member's disapproval, and preference for another method. Major barriers for non-acceptance were the preference for another method, Husband/Family member's disapproval, Health problems/side effects, and Lack of awareness.

**Conclusion**: Comprehensive counseling during ANC, Delivery and of husband/family members, publicity through mass media, educational campaigns, timely incentivization, regular follow-up check-ups, Promoting of PPIUCD by the healthcare providers are some of the ways to address the barriers and thereby facilitate the use of PPIUCD.



## 1. Introduction

Family planning is a crucial health care intervention throughout a woman's reproductive life.[1] It is a very useful tool for improving maternal health by decreasing induced abortion rates. In developing countries, low accessibility to health facilities and lack of awareness about contraception, time period around pregnancy (before, during and post partum) is the only chance to get to a health facility, in other words, it is 'crisis oriented'.[2] Postpartum IUCD (PPIUCD) is an intrauterine contraceptive device inserted during the immediate postpartum period (Post placental and within 48 hours after delivery), which specifically focuses on the prevention of unintended pregnancies and for spacing of pregnancies. Higher institutional delivery is an opportunity for PPIUCD insertion due to increased motivation and proper counselling at the appropriate time. PPIUCD offers advantages such as safety, fewer side effects, lesser discomfort, lower chances of infection, protection against unwanted pregnancy and consequently, from abortion. Furthermore, there is no interference with breastfeeding as well.[2]

In 1952, India was the first country among the developing countries to launch a nation-wide family

* *Corresponding author*.
*E-mail address*: bssingh@iihmrdelhi.edu.in (B. S. Singh).

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planning programme. Postpartum IUCD (PPIUCD) services were introduced in 2010 in facilities, which had high number of deliveries. Since then, these services have been scaling up throughout the country, in a phased manner. As per annual report 2018-19 (MoHFW) PPIUCD service use was first reported in 2015 as 43829, which increased to 2226499 by 2019. In 2018-19, out of total PPIUCD users, two-third users were reported in 6 states-West Bengal (16.9%), Uttar Pradesh (13.5%), Rajasthan (10.3%), Madhya Pradesh (10.1%), Tamil Nadu (8.1%) and Bihar (7.9%) whereas one-third reported in remaining 23 states and 7 UT.[3]

Studies conducted suggest that reasons for acceptance as appropriate and detailed counseling,[4,5] motivation,[6,7] awareness,[4,8–13] safety and effectiveness[7,13–22] and availability of trained service providers.[6,11,12,23] Some studies concentrated on counselling during ANC visits[10,13,24,25] and counselling of spouse and family members[9,13,16] whereas, others preferred this method due to sufficiently long duration[4,13,16,18,19,26] of action for meant for spacing between births. Few studies also suggested that PPIUCD being cost effective[7,18] is another reason for its acceptance while one of the studies said that incentivization to motivator[10] is a reason for acceptance.

Studies conducted on barriers in PPIUCD use show that reasons for non-acceptance of PPIUCD were lack of appropriate counseling,[1] health issues/side effects,[15,26] disapproval or lack of support from Husband/Family members,[1,4,8,9] lack of awareness,[2,8,9,27] fear of complications[4,8,24,25] and illiteracy.[2] A few other studies showed preference of another method[8] and social and religious taboos[2] to be barriers in acceptance of PPIUCD as a method of contraception.

Comprehensive counseling, publicity through mass media, promoting through primary community mobilizers such as ASHA and ANMs, and educational campaigns regarding PPIUCD are required to increase the acceptance of PPIUCD.[27]

In this study, we aim to find the facilitators and barriers for acceptance of PPIUCD from the perspective of beneficiaries and service providers along with suggestions for increasing PPIUCD use.

## 2. Materials and Methods

A cross-sectional study was conducted in nine divisional Headquarter districts of Bihar - Patna, Muzaffarpur, Chhapra (Saran), Darbhanga, Saharsa, Purnia, Bhagalpur, Munger and Gaya. It took place in 9 district hospitals, 27 community health centers (CHCs)/primary health centers (PHCs), 81 sub-centers and 162 villages in nine divisional headquarter districts of Bihar. The study population were women 18-49 years of age, who had delivery at an institution within past 3 years and provided informed consent to participate in the study and health service providers.

This study used quantitative and qualitative research techniques - Interviews among women including PPIUCD users, In-depth discussions among services providers (Table 1) were conducted to generate the required information.

Along with district hospitals from each of the nine divisional headquarters of Bihar, three blocks were selected based on performance in terms of institutional deliveries. From each block, three Subcenters were selected through purposive sampling, based on spatial location from concerned PHC's. In addition to 12 OBG Medical Officers (Labour Room) from District Hospital, 23 OBG Medical Officers (Labour Room) from block PHC/CHC were interviewed. Also, 24 OBG Nursing Staff (Labour Room) selected from District Hospital and Block PHC along with 8 FP Counsellor from District Hospital were interviewed. As and when Block managers and civil surgeons were available for the interviews, they were taken up as study participants. For household visits, one sub-centre village and one outreach village will be selected. From each sub-centre, one ANM and from each village, one ASHA were interviewed. From each PSU/village, listing of household where institutional deliveries occurred within 3 years from date of the survey was done from the records given by ASHA. Ten households were selected through systematic random sampling for home visits from the list of institutional deliveries. Proposed sample size and actual sample size i.e. number of interviews conducted is give Table 1.

The data was collected by trained field investigators under the supervision of field supervisors, research officer and project coordinators. Survey tools were translated in the local language i.e Hindi and pre-tested at Patna and finalized. Data collection was done during July- December 2019, and data was analyzed using SPSS.

Ethical clearance: The study protocol approval was obtained from the ethical committee of IIHMR, New Delhi; Individual consent was also obtained prior to the interview.

## 3. Results

### *3.1. Factors for the continuation of PPIUCD by Current-users*

Figure 1 shows the acceptance and satisfaction with the decision to choose PPIUCD and reasons for choosing it. Out of 269 women who chose PPIUCD as their choice of contraceptive method, Majority (83.3%) reported to be satisfied with this method. Out of these 224 women who are satisfied by PPIUCD, 37.9% said that they found this method to be safe and effective, 29.0% were satisfied with the reversibility, 20.5% said that their husband allowed it and only 12.1% of women highlighted its long duration of use.

**Table 1:** Sample size

| Particulars | Number Per District | Total proposed Sample size | Actual Sample size |
|---|---|---|---|
| Facility/Location | | | |
| District Hospital (DH) | 1 | 9 | 9 |
| Block PHC (BPHC) | 3 | 27 | 27 |
| SC (sub centre) | 9 | 81 | 81 |
| Sub-centre -Village | 9 | 81 | 81 |
| Outreach Village | 9 | 81 | 81 |
| Study Participants | | | |
| **A: OBG Medical Officer ( Labour Room)** | | | |
| 1. DH (District Hospital) | 1 | 9 | 12 |
| 2. BPHC/CHC (Block Primary Health Centre/Community Health Centre) | 3 | 27 | 23 |
| **B: OBG (Obstetrics and Gynecology) Nursing Staff ( Labour Room)** | | | |
| 1. DH | 2 | 18 | 19 |
| 2. BPHC/CHC | 3 | 27 | 5 |
| C: FPC (Family Planning Counsellor) | 1 | 9 | 8 |
| D: DPC (District Planning Co-ordinator) | | | 1 |
| E: CS (Civil Surgeon) | | | 7 |
| F: ANM (Auxiliary Midwife Nurse) | 9 | 81 | 101 |
| G: ASHA (Accredited Social Health Activist) | 18 | 162 | 159 |
| H: Block manager (BM) | | | 9 |
| Total Healthcare personnel | 37 | 333 | 344 |
| I: Eligible Women | 180 | 1620 | 1620 |
| Total Interview | 220 | 1953 | 1964 |

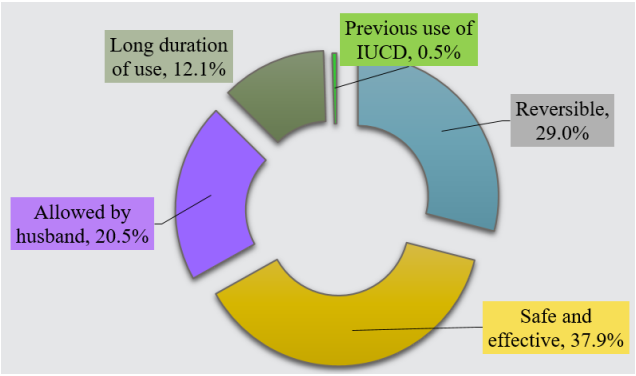


**Fig. 1:** Reasons for satisfaction by PPIUCD usage

Table 2 shows source of first information of PPIUCD, counselling by personnel and health facilities where PPIUCD was inserted. Majority of Current-users of PPIUCD were counselled by ASHA (86.2%) and ANM/Nurse (10.4%). Their first source of information on PPIUCD are ASHA/Anganwadi worker (91.8%) followed by hospital (4.5%), friends (2.2%), home (1.1%) and television (0.4%). 92.9% women using PPIUCD got it from PHC/CHC/Sub district hospital followed by District Hospital (7.1%).

Factors for acceptance of PPIUCD: Table 3 show factors for acceptance of PPIUCD by Never-users and Current-users of PPIUCD. Never-users of PPIUCD (766) said that spreading more awareness is a major acceptance factor for PPIUCD use (71.6%), followed by incentivization – in monetary or non-monetary form (30.2%). Current-users said that the acceptance factors were spreading more awareness (53.2%), incentivization (50.5%), Better quality of device or services/Incentivization and proper training to ASHA/ANM (2.6%).

Most of the women during focus group discussions (FGDs) pointed out that awareness of PPIUCD, proper counselling to the beneficiary as well as family members and incentives given to beneficiaries are the main facilitating factors for acceptance of PPIUCD. Some women have responded positively about the method in terms of providing a better opportunity to make desired appropriate gap between the births conveniently and have no side effects. They also pointed out the need for an awareness campaign and publicity to reach out the large number of potential users and suggested that the PPIUCD method should be more advertised and popularized among the masses and its proper availability and functionality should be ensured at the facilities.

### *3.2. Barriers*

#### *3.2.1. Factors for discontinuation of PPIUCD*

The number of women who have ever used PPIUCD and number of women who are currently using PPIUCD is 363 and 269 respectively in the sample. Thus, women who used

**Table 2:** Source of first information of PPIUCD, counselling by personnel and health facilities where PPIUCD was inserted, Bihar, 2019

| **Source of first information on PPIUCD (%)** | | **Counselled by personnel (%)** | |
|---|---|---|---|
| Family and friends | 3.3 | Self-decision | 2.2 |
| Television | 0.4 | ASHA | 86.2 |
| Hospital | 4.5 | Counsellor | 1.1 |
| ASHA/AWW | 91.8 | ANM/Nurse | 10.4 |
| Place for obtaining PPIUCD (%) | | | |
| SDH level facilities | 92.9 | District Hospital- DH | 7.1 |
| Number (n) | | | 269 |

**Table 3:** Facilitating factors for acceptance of PPIUCD by never-users and current-users of PPIUCD, Bihar, 2019

| **Facilitating factors** | **Never-users ( %)** | **Current-users ( %)** |
|---|---|---|
| Incentives should be given to users – monetary or grain/asset forms | 30.2 | 50.5 |
| More awareness should be spread among common people | 71.6 | 53.2 |
| Regular follow up checkups after PPIUCD insertion | 0 | .5 |
| Free treatment in case of post op complications | 0 | .5 |
| Better quality device/incentives and proper training to ASHA and ANM | 2.3 | 2.6 |
| Total (%) | 104.0^ | 107.4^ |
| Number | 766 | 269 |

^Percentages are more than 100 because of multiple choice questions.

PPIUCD in the past and are not currently using it are 94 and the discontinuation rate of PPIUCD is 25.9%.

Table 4 depicts the reasons for discontinuation of PPIUCD which are mainly due to health issues (48.9%) followed by want to conceive soon (27.7%) and side effects (19.1%). The remaining 2.1% each said Husband says so and want to try some other method (Figure 2).

**Table 4:** Reasons for discontinuation of PPIUCD, Bihar (n=94)

| **Reasons for drop-out** | **Percent** |
|---|---|
| Want to conceive soon | 27.7 |
| Health issues | 48.9 |
| Side effects | 19.1 |
| Husband says so | 2.1 |
| Want to try some other method | 2.1 |

Figure 2 depicts the extent and distribution of complications/side effects observed by women while using the PPIUCD method. Out of 94 women, 63 (67%) said that they observed complications/side effects while using PPIUCD method. Out of these 63 women, menstrual disturbances and pain in the abdomen (36.5% each), Infection (17.5%) and Expulsion of PPIUCD (7.9%) and perforation (1.6%) are the various complications observed while using the PPIUCD method of contraception.

### *3.3. Barriers for the non-acceptance of PPIUCD*

Table 5 depicts reasons for non-acceptance and discontinuation of PPIUCD by users who have never used PPIUCD and those who discontinued its use. Out of 766 women who have not used PPIUCD, 36.1% gave

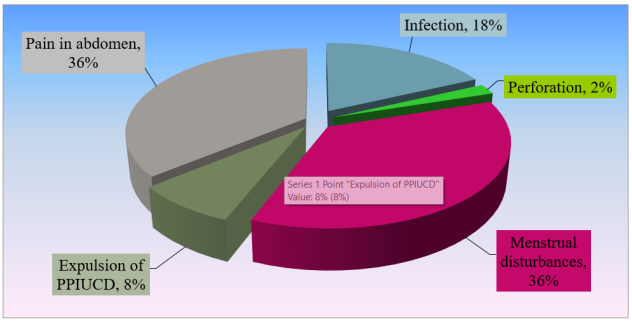


**Fig. 2:** Complications or side effects of PPIUCD, Bihar (n=94)

the reason for non-acceptance as the preference of another method followed by opposition from husbands and family members (35.9%), health problems and side effects such as heavy bleeding, being unfit for PPIUCD (23.4%), lack of awareness (19.3%), rumours/fears/misconceptions about cancer (13.5%), Religious barriers (1.8%), need to get pregnant (1.6%).

Out of 94 women who have discontinued PPIUCD, two-third (66.7%) believe that health problems and side effects such as heavy bleeding, and being unfit for PPIUCD is the major reason for the barrier in the continuation of PPIUCD followed by opposition from husband and family members (28.9%), preference of another method followed by (13.3%), Rumors/fears/misconceptions about cancer (8.9%), lack of awareness and desire to get pregnant (6.7% each).

As per FGD analysis, key barriers perceived by women are lack of awareness about PPIUCD, misconception among

**Table 5:** Barriers/reasons for non-acceptance and discontinuation of PPIUCD use in Bihar, 2019

| Barriers | Non-acceptance ( %), n=766 | Discontinued ( %), n=94 |
|---|---|---|
| Husband/Family disapproval | 35.9 | 28.9 |
| Health issues/side effects | 23.4 | 66.7 |
| Preference of another method | 36.1 | 13.3 |
| Fear/misconception about cancer | 13.5 | 8.9 |
| Lack of awareness | 19.3 | 6.7 |
| Husband away | 0.8 | 2.2 |
| Desire to get pregnant | 1.6 | 6.7 |
| Religious beliefs | 1.8 | 0.0 |
| Percentage | 134.3^ | 135.6^ |

^Percentages are more than 100 because of multiple choice questions.

beneficiaries regarding PPIUCD that it might cause cancer, side effects (problem of bleeding, infection, pain during periods and thread, which is visible through vagina due to improper placement of PPIUCD/IUCD at the time of insertion.). The other issues raised by the members of some FGD were the quality of services provided during PPIUCD insertion. It is also pertinent to highlight that a well-trained health staffs should be involved in PPIUCD insertion.

As mentioned by women during FGDs in Bihar, some difficulties related to PPIUCD create a negative message among the people and they avoid getting PPIUCD method. It has been noticed that in such circumstances even ASHA avoids to counsel the women due to fear of physical harm by the guardians of the women if anything goes wrong due to insertion of PPIUCD method. The discussion pointed out that these women need proper counseling and awareness by the top-level health officials like doctors to overcome the rumors and misconceptions about the PPIUCD.

### *3.3.1. Perception of service providers about factors for acceptance of PPIUCD*

Table 6 shows that various reason for acceptance of PPIUCD as perceived by service providers. Out of 344, 315 service providers gave facilitating factors/reasons for acceptance of PPIUCD. More than half (51.1%) of the healthcare personnel said that spacing between births is the reason for acceptance of PPIUCD whereas only 3.8% said that long duration of use is the reason for acceptance for PPIUCD. About two-fifth (41.6%) of health personnel said that counselling is the reason for acceptance of PPIUCD followed by no side effects (14%), awareness (7.6%), literacy (6.7%) and convenience/no need for regular use (5.1%).

Out of 159, 144 Accredited Social Health Activists (ASHAs) have given reason for acceptance for PPIUCD and out of these 64.6% perceive spacing between births are the reason as against counselling (25%), convenience (17.4%) and awareness (9%). Further, out of 101 Auxiliary Nurse Midwives (ANMs) surveyed, 95 have given the reasons of acceptance in the following order – counselling (47.4%), spacing (41.1%), no side effects (12.6%), awareness (7.4%).

As per gynaecologists, counselling (90%) followed by awareness (20%), Literacy and spacing (10% each) are some of the reasons for PPIUCD acceptance. According to 19 GNMs, counselling (78.9%), spacing (31.6%), Literacy and faith on service providers (10.5% each) are some of the reasons for PPIUCD acceptance. All 8 CSs reported counselling as main reason for PPIUCD acceptance followed by spacing (25%), no side effects, literacy, convenience/no need for regular use (12.5% each).

Table 7 depicts various barriers in PPIUCD acceptance as perceived by Health personnel in Bihar, Out of 344 personnel, 46.1% believe that Health problems/Side effects followed by Rumors/Fear/Misconceptions (36.8%), opposition from husband and family members (22.5%), are some of the major barriers in PPIUCD acceptance.

Out of 156 ASHAs who gave response, 53.2% perceive Health problem/side effects as main barrier for acceptance of PPIUCD followed by Rumors/Fear/Misconceptions (30.1%) and opposition from husband and family members (22.4%). ANMs also perceived Health problem/side effects (41.8%), Rumors/Fear/Misconceptions (41.8%) and opposition from husband and family members (21.4%) as main barriers for PPIUCD acceptance. Gynecologists perceived Rumors/Fear/Misconceptions (46.2%), Illiteracy (30.8%) and unavailable Service/Trained Staff/PPIUCD (23.1%) as main barrier for acceptance of PPIUCD.

Table 8 shows various suggestions for increasing the acceptance of PPIUCD as perceived by healthcare personnel in Bihar. Out of 329 personnel who have given response, 58.1% suggested that PPIUCD usage can be increased by increasing counselling at the time of delivery, since ANC along with that of family members followed by awareness and publicity (38%), Training of healthcare provider (28.6%) and providing incentives to beneficiaries (23.1%) and health care providers (7%). Regular post-operative check up and care and, free post-operative care in case of complications, were recommended by 4.3% and 3% respondents respectively.

## 4. Discussion

One-third of maternal mortality and 10% of child mortality can be decreased if the spacing between the two pregnancies is more than 2 years[1] and PPIUCD is the way to go for achieving spacing in a reversible fashion. Women preferred this method due to sufficiently long duration[4,13,16,18,19,26] of action for meant for spacing between births as per some studies. Many studies suggested that women being motivated and being aware with the use of proper counselling was a major reason for acceptance of this

**Table 6:** Reasons for acceptance of PPIUCD in Bihar, 2019

| Healthcare Providers | Spacing | Counselling | No side effects | Awareness | Literacy | Convenient | Long duration of action | Faith on service provider | Religion | Incentives | No other contraceptive method required | Free of cost | Number of personnel responded | Number of personnel surveyed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BM | 88.9 | 0.0 | 33.3 | 0.0 | 0.0 | 22.2 | 11.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9 | 9 |
| FPC | 12.5 | 100 | 12.5 | 0.0 | 37.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.5 | 0.0 | 8 | 8 |
| ASHA | 64.6 | 25.0 | 17.4 | 9.0 | 4.9 | 7.6 | 4.2 | 0.7 | 1.4 | 0.7 | 0.7 | 0.0 | 144 | 159 |
| ANM | 41.1 | 47.4 | 12.6 | 7.4 | 5.3 | 0.0 | 3.2 | 2.1 | 2.1 | 1.1 | 2.1 | 1.1 | 95 | 101 |
| MO/CMO / Doctor | 50.0 | 31.8 | 9.1 | 9.1 | 9.1 | 4.5 | 9.1 | 0.0 | 4.5 | 4.5 | 0.0 | 0.0 | 22 | 22 |
| GNM/SN | 31.6 | 78.9 | 0.0 | 0.0 | 10.5 | 5.3 | 0.0 | 10.5 | 0.0 | 5.3 | 0.0 | 5.3 | 19 | 24 |
| Gynecologist | 10.0 | 90.0 | 0.0 | 20.0 | 10.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10 | 13 |
| CS/DPC | 25.0 | 100 | 12.5 | 0.0 | 12.5 | 12.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8 | 8 |
| Total | 161 | 131 | 44 | 24 | 21 | 16 | 12 | 5 | 5 | 4 | 4 | 2 | 315 | 344 |
| Percent^^ | 51.1 | 41.6 | 14.0 | 7.6 | 6.7 | 5.1 | 3.8 | 1.6 | 1.6 | 1.3 | 1.3 | 0.6 | | |

^^Total of the percentages are more than 100 because of multiple choice questions.

**Table 7:** Barriers for non-acceptance of PPIUCD as perceived by Health personnel in Bihar, 2019

| Healthcare Providers | Health Problems/ Side effects | Rumors/ Fear / Misconceptions | Husband and Family members | Lack of awareness/ counselling | Cultural / religious barriers | Illiteracy | Expulsion of PPIUCD | Preference of other methods | Service / Trained Staff / PPIUCD unavailable | Inconvenien | Lack/ delayed incentives | Number of personnel responded | Number of personnel surveyed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BM | 88.9 | 0.0 | 11.1 | 11.1 | 0.0 | 0.0 | 11.1 | 0.0 | 0.0 | 0.0 | 0.0 | 9 | 9 |
| FPC | 62.5 | 75.0 | 37.5 | 0.0 | 12.5 | 12.5 | 12.5 | 0.0 | 12.5 | 0.0 | 0.0 | 8 | 8 |
| ASHA | 53.2 | 30.1 | 22.4 | 3.8 | 7.1 | 3.8 | 1.3 | 2.6 | 0.6 | 0.6 | 0.0 | 156 | 159 |
| ANM | 41.8 | 41.8 | 21.4 | 7.1 | 3.1 | 2.0 | 2.0 | 6.1 | 3.1 | 0.0 | 0.0 | 98 | 101 |
| MO/CMO/ Doctor | 40.0 | 30.0 | 15.0 | 20.0 | 0.0 | 0.0 | 15.0 | 5.0 | 5.0 | 0.0 | 5.0 | 20 | 22 |
| GNM/SN | 31.8 | 59.1 | 31.8 | 4.5 | 13.6 | 13.6 | 4.5 | 0.0 | 9.1 | 0.0 | 4.5 | 22 | 24 |
| Gynecologist | 0.0 | 46.2 | 15.4 | 15.4 | 7.7 | 30.8 | 15.4 | 0.0 | 23.1 | 0.0 | 0.0 | 13 | 13 |
| CS/DPC | 25.0 | 50.0 | 37.5 | 37.5 | 12.5 | 37.5 | 50.0 | 25.0 | 0.0 | 12.5 | 0.0 | 8 | 8 |
| Total | 154 | 123 | 75 | 24 | 20 | 19 | 16 | 13 | 11 | 2 | 2 | 334 | 344 |
| Percent^^ | 46.1 | 36.8 | 22.5 | 7.2 | 6.0 | 5.7 | 4.8 | 3.9 | 3.3 | 0.6 | 0.6 | | |

^^Total of the percentages are more than 100 because of multiple choice questions.

**Table 8:** Recommendations for increasing the acceptance of PPIUCD as perceived by Health personnel in Bihar, 2019

| Healthcare Providers | Counselling ( At the time of delivery, since ANC, of family members) | Awareness/ Publicity | Training of health care providers | Providing Incentives to Beneficiary | incentivizing ASHA, ANM and other health care providers | Better quality of device / service | Improving level of education | Regular post op checkups and care | free post op care in case of complications | Number of personnel responded | Number of personnel surveyed |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BM | 100.0 | 33.3 | 11.1 | 44.4 | 22.2 | 11.1 | 0.0 | 0.0 | 0.0 | 9 | 9 |
| FPC | 28.6 | 71.4 | 57.1 | 28.6 | 14.3 | 0.0 | 0.0 | 0.0 | 28.6 | 7 | 8 |
| ASHA | 50.7 | 36.8 | 29.6 | 30.3 | 7.2 | 4.6 | 3.3 | 6.6 | 4.6 | 152 | 159 |
| ANM | 59.2 | 35.7 | 26.5 | 19.4 | 5.1 | 8.2 | 2.0 | 2.0 | 1.0 | 98 | 101 |
| MO/Chief MO/Doctor | 55.0 | 45.0 | 45.0 | 20.0 | 10.0 | 10.0 | 5.0 | 5.0 | 0.0 | 20 | 22 |
| GNM/SN | 63.6 | 31.8 | 18.2 | 4.5 | 4.5 | 4.5 | 13.6 | 4.5 | 0.0 | 22 | 24 |
| Gynecologist | 76.9 | 46.2 | 23.1 | 0.0 | 7.7 | 0.0 | 15.4 | 0.0 | 0.0 | 13 | 13 |
| CS/DPC | 100.0 | 50.0 | 25.0 | 0.0 | 0.0 | 0.0 | 37.5 | 0.0 | 0.0 | 8 | 8 |
| Number | 191 | 125 | 94 | 76 | 23 | 19 | 16 | 14 | 10 | 329 | 344 |
| Percent^^ | 58.1 | 38 | 28.6 | 23.1 | 7.0 | 5.8 | 4.9 | 4.3 | 3.0 | | |

^^Total of the percentages are more than 100 because of multiple choice questions.

method.[4–14,28] A few other studies showed that women were more accepting of this method because of its safety and efficacy,[7,13–22] and some preferred it due to availability of trained service providers.[6,11,12,23] In this study, women who were currently using PPIUCD were satisfied with the method due to its safety, efficacy, reversibility, husband's approval, long duration of action, awareness, incentivization and proper training to ASHAs/ANMs. Women who never used PPIUCD that they would have used the method more if they were more aware and informed about the method, received incentives and service providers were well trained (ASHA, ANM, etc.). One of the studies showed that awareness of PPIUCD was low despite good education, which resulted in higher refusal rates.[1] Few studies showed that counselling during ANC visits, especially of spouse and family members went a long way in acceptance of this method[9,10,13,16,24,25] as imparting this knowledge to the mother in laws was as important as to the husband.[1] During our study, the health personnel believed the major reasons for acceptance to be spacing, counselling, safety, awareness, literacy, convenience, long duration of action and incentives.

Most studies regarding barriers in PPIUCD use show that most common reason for non-acceptance of PPIUCD were disapproval or lack of support from Husband/Family members[1,4,8,9] which can be attributed to lack of awareness,[2,8,9,27] inappropriate counseling[1] and sometimes, illiteracy.[2] As per our study, women who never used PPIUCD as their preferred method of family planning were discouraged from using this method due to husband/family's disapproval, lack of awareness along with fear or misconceptions regarding the health side effects. Few other studies suggested that health issues/side effects[15,26] along with fear of complications[4,8,24,25] is a hindrance in accepting PPIUCD. A few other studies showed preference of another method6 and social and religious taboos[2] to be barriers in acceptance of PPIUCD as a method of contraception. In our study, we found that some of the major barriers observed were health problems or side effects, husband/family's disapproval, preference of another method, lack of awareness and fear or misconceptions among those who discontinued the use of PPIUCD.

Health promotion by community mobilizers like ASHAs, ANMs and Anganwadi workers[4–14,28] in addition to using mass media for advertisement[29] of the method will be most helpful in removing any kind of fears or misconceptions in terms of the safety, health issues or side effects regarding the method, thereby increasing the acceptance of PPIUCD. Comprehensive counseling during ANC visits to women and their families[9,10,13,16,24,25] as well as educational campaigns regarding PPIUCD are required to increase its acceptance.[27] From this study, we conclude that counselling (in ANC visits, at the time of delivery and of Husband/Family members) about safety, efficacy and long duration of use of PPIUCD is required to address the issues of lack of awareness, rumors/misconceptions, cultural/religious barriers and husband/family's disapproval. Regular follow up check-ups after the insertion of PPIUCD will lead to early diagnosis of complications or health issues. Promoting of PPIUCD by the healthcare providers and through media will address the issue of preferring another method over PPIUCD. Service providers should be well trained and equipped for insertion procedure, managing complications well and providing complete information will help in maintaining faith of users in them. Increasing the literacy rate will also improve the acceptance of PPIUCD. As pointed by women during FGDs, awareness campaign and publicity should be done to reach out the large number of potential users.

## 5. Author Contribution

BSS: Concept formulation, Funding acquisition, investigation, project administration, protocol writing, manuscript writing, Full text appraisal

DS: Concept formulation, Funding acquisition, protocol writing, Full text appraisal JK: Data curation, Literature Search, analysis, manuscript writing

## 6. Source of Funding

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## 7. Conflicts of Interest

None

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## Author biography


**Bhanu Shanker Singh,** Associate Professor https://orcid.org/0000-0002-7004-2148

**Dhananjay Srivastava,** Associate Professor https://orcid.org/0000-0001-9040-0283

**Jaswinder Kaur,** Research Officer https://orcid.org/0000-0003-4864-5062


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