

Factors Associated with Intrauterine Contraceptive Device Choice: Literature Review

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Abstract: Long-acting reversible contraceptives (LARCs) are birth control contraception that prevent pregnancy over a protracted length of time without requiring user activity. The aim of current study was to inspect factors associated with intrauterine contraceptive device choice and to examine the factors associated with intrauterine contraceptive device choice throughout COVID-19 pandemic. **Methodology:** The current article was searched using a variety of key words such as "Family planning", "Modern contraceptives", "Postpartum", "Intrauterine device", "Contraception methods", "Reproductive health", "LARCs", "IUD", "IUCD" and "COVID-19 and/or Family planning". Those articles were conducted utilizing electronic databases (Google scholar, CINAHL, MEDLINE, ProQuest, PubMed, Scopus, Web of Sciences, Science Direct, and Cochrane) for studies published in various languages. The current study was conducted from June 2022 to October 2022. The findings of the review reveal that age, counselling, prenatal care follow-up, education level, knowledge of postpartum intrauterine contraceptive devices (PPIUCD), and spousal support all affected the choice. Additionally, during the COVID-19 epidemic the research demonstrates that counselling and education for postpartum family planning usage are crucial throughout the prenatal and postpartum stages.

Keywords: Family planning, Modern contraceptives, COVID-19, Postpartum, Intrauterine device, Contraception methods, Reproductive health, Long-acting reversible contraceptives, Post- Partum Family planning.

1. Introduction

1.1 Background

World Health Organization (WHO, 2014) defines the postpartum period (PPP) as a period starting immediately after childbirth and thus far the most neglected phase in the mothers lives due to various factors. It is also termed as fourth stage of labour, fourth trimester, puerperium, immediate PPP or puerperal period (Matambanadzo, 2014). Pregnancy is probable throughout the six weeks of puerperium because of different factors such as undefined ovulation and menstruation date; infrequent/improper/ no breast-feeding patterns, no use of contraception (Cunningham, et al., 2013).

Immediate LARCs placement is suggested from post-natal ward before discharge to prevent the risk of losing follow-up with using no family planning methods (FPM) and unplanned pregnancies difficulties (Bayer, et al., 2018). In the delivery of health care, neglecting the FPM needs of PP women is a missed opportunity to ensure that every woman and her family can enjoy the health, social, and economic benefits of FP (Tran, et al., 2018). Immediate PPFPM for women improves health outcomes, prevents unintended pregnancies with unmet needs and their repercussions, and reduces the likelihood of unintended pregnancies with (Shrestha, et al., 2022).

Germany published the first article on the intra uterine contraceptive device (IUCD) in 1909. Dr. Richard Richter reported insertions of rings made from silkworm intestine into the uterus. To preserve the possibility of inspection and

removal, he cut off the two ends at the level of the external cervical os (Margulies, 1975). Intrauterine contraceptive devices (IUDs) are widely used as reversible contraceptives. Copper & Levonorgestrel releasing IUD (LNG) is safe, cost-effective over the long term, and comparable to other family planning methods (FPM) in terms of efficacy (Stuart, 2016 and Azeez, et al., 2022). When compared to the various FPMs, IUCDs are broadly accessible and extremely efficient in terms of safety and efficacy (Desalegn, et al., 2022).

An IUCD (loop) is a small, "T-shaped," flexible plastic contraceptive device with a thin copper wire covering that is put into a woman's uterus. PPIUCD is also a contraceptive device put through the PPP (up to 48 hours after birth, preferably within 10 minutes of placenta delivery) (Kassa, et al., 2021). Fortunately, IUD insertion during the PPP is an appropriate FPM for certain women since it does not interfere with breastfeeding, is suited for both women and their healthcare providers, and enables women to receive safe, long acting, and highly effective contraception while already in the healthcare facility (Dagnew, et al., 2020).

In the present day, more women in the United States (US) rely on IUDs than ever before. This application may have considerably contributed to the decline of unintended pregnancies in the United States. Evidence-based practises (EBP) have raised the proportion of women who are medically eligible for intrauterine devices (IUDs) and facilitated quicker access to these treatments. Currently, three hormonal IUDs and one copper IUD are available in the United States. Each IUD is highly effective, safe, and appropriate. The novel IUDs have been validated in populations not typically included in clinical trials and

provide supportive answers to older concerns about IUD use in these women, including information about expulsion, infection, termination, and complications like perforation, especially in postnatal and lactating women (Nelson, et al., 2016 and Danna, et al., 2022).

Only 26% of women use any form of FP during the first PPP year. An active and risk-free way to space out and limit births is by using IUCD in the near PPP. PPIUCD is a reliable, practical, and safe type of contraception that ought to be promoted for both vaginal and caesarean deliveries (Sharma, 2022). Unfortunately, despite its significance, IUCD prevalence is still less than 1%. (Kassa, et al., 2021). Other minor risks for IUDs were linked to the placement and removal by a competent medical professional and the aseptic environment (Mohit, et al., 2021).

Post-placental IUCD insertion, immediate PPIUCD insertion, and trans-caesarean IUCD insertion are all appropriate IUCD insertion timings in the PPP (Hagos, et al., 2020). Literature supports its safety, representative low rates of infection, perforation, and expulsion that should not prevent a health care provider from introducing it as a contraception choice. Moreover, IUCD insertion should be considered a feasible choice for the nulliparous and as a choice during the PPP (Thapa, et al., 2018). But, PPIUCD insertion between 48 h up to 6 weeks PPP has been linked to a higher expulsion rate (Sonalkar, et al., 2015).

During an evaluation of the influence of the pandemic on the use of PP contraceptives by women who attended prenatal clinics, it was discovered that the acceptance of antenatal and FP facilities was diminished due to a decline in attendance at FP clinics and the closure of the facilities. Although the FPM acceptance rate among PP women decreased during the COVID pandemic, following the initial COVID peak wave and a brief lockdown period, the immediate IUCD was the approach most accepted by the women (Aslam, et al., 2022). This information was from the initial peak of the COVID epidemic, and it prompted concern that it may be difficult to reach the target goal set by sustainable development objectives (Ahmed, et al., 2021 and Kabagenyi, et al., 2022).

1.2 Statement of the problem

FP is the first pillar of maternal safety. The recent contraceptive prevalence rate (CPR) dropped from 26% in 2013 to 25% in 2018 (National Institute of Population Studies, 2019). Inadequate FPM management results in a shorter interval between pregnancies and unwanted pregnancies accompanied by abortion, preterm labour, postpartum haemorrhage (PPH), low birth weight infants (LBW), foetal loss, and maternal morbidity and mortality (Srivastav, et al., 2014 and Kanhere, et al., 2015). This highlights the critical need to enhance FP awareness and services (Malik, et al., 2022).

Postpartum family planning (PPFP) plays a crucial role in preventing unintended pregnancies to protect health outcomes. In developing nations, however, PPFP acceptability is minimal (Moore, et al., 2015 and Pokharel, et al., 2022). Postpartum women have one of the biggest

unmet needs for FP, resulting in unintended pregnancies and risky abortions (Apanga, et al., 2015). The World Health Organization estimates that approximately 830 women die every day from pregnancy and childbirth-related problems (WHO, 2014).

Unintended pregnancy is a global health concern. In several countries, pregnant underprivileged women are denied FPM care. LARCs, such as IUDs, were more effective for women than short-acting treatments, such as pills and condoms (Mohit et al., 2021). FPM is therefore regarded as a crucial strategy for reducing poverty and hunger, decreasing maternal mortality, protecting individuals from unintended births, and enabling couples to make healthier family decisions (Akinloye et al., 2022). Consequently, the purpose of the present study is to examine the factors related with intrauterine contraceptive device selection. Using evidence-based approaches, the current data will give information for the next decade of FPM use in the research population.

1.3 Research Question

- What are the numerous factors associated with intrauterine contraceptive device choice?
- What are the factors associated with intrauterine contraceptive device choice throughout COVID-19 pandemic?

1.4 Study Objective

- To inspect the factors associated with intrauterine contraceptive device choice.
- To examine the factors associated with intrauterine contraceptive device choice throughout COVID-19 pandemic.

2. Methodology

2.1 Research Design

The current study was designed as **integrated literature review** to stand on the factors associated with intrauterine contraceptive device choice.

2.2 Data collection

The current article was searched using a variety of key words such as “Family planning”, “Modern contraceptives”, “Postpartum”, “Intrauterine device”, “Contraception methods”, “Reproductive health”, “LARCs”, “IUD”, “IUCD” and “COVID-19 and/or Family planning”. Those articles were conducted utilizing electronic databases (Google scholar, CINAHL, MEDLINE, ProQuest, PubMed, Scopus, Web of Sciences, Science Direct, and Cochrane) for studies published in various languages from June 2022 to October 2022.

2.3 Study inclusion and exclusion criteria:

All studies about the factors associated with intrauterine contraceptive device choice were included. Likewise, the studies that explored the factors associated with intrauterine contraceptive device choice throughout COVID-19

pandemic. On the other side the studies were excluded if they were secondary works such as review papers, editorials, opinions, dissertations/theses, and conference abstracts that had not yet been published.

3. Discussions

Currently, family planning is an essential component of objectives for global access to sexual and reproductive health, and this is protected in sustainable development goals 3 and 5. (Barot, et al., 2015 and Dockalova, et al., 2016). Family planning is the process that enables a couple to have the desired number of children and to manage the interval between births via the use of contraceptives. This practise is supported globally in an effort to address the reproductive health issues of families and to slow the rapid population growth (Akinloye, et al., 2022).

India is the world's second most populated country. Unfortunately, approximately 20.7% of the Indian population has unmet FP needs, as opposed to 65.5% in the first year of PPP. The postpartum period is the best time for family planning (FP) adjustments since obstetric complications and maternal mortality can arise from a birth interval of less than two years. Consequently, FPM usage is essential (Prathibha et al., 2022). In addition, users probably arrive with predetermined methods in mind, inspired by factors such as their friends' past experiences (Akinloye et al., 2022).

FPM is being used at a rate of 23.3%, while FP was used at a rate of 28.6% over the past year. Nearly half of respondents (45.9%) did not receive FP counselling during their prenatal care (ANC) appointments. Significant factors include husband occupation ($p=0.004$), FP counselling during an ANC visit ($p=0.017$), understanding of the proper birth space ($p=0.017$), and IUCD use ($p=0.042$). The extraordinarily low contraceptive use rate among PP mothers eventually poses a threat to maternal health due to the possibility of unintended pregnancies (Pokharel, et al., 2022).

In the past, the hormone intrauterine device was a highly effective contraceptive treatment gaining popularity and accessibility in many societies (IUD). Users of the hormonal IUD in countries with a high standard of living report high levels of satisfaction and continuing use. Conclusions: According to the study's satisfaction and retention rates, adding the hormonal IUD to the list of accessible treatments would provide access to a highly effective, long-acting treatment for numerous population groups, particularly those with high unmet need (Margulies, 1975).

With the added advantages of high motivation, outstanding compliance, safety, and convenience of administration for the provider, the intra-caesarean approach is equally as effective as the interval strategy for contraception in caesarean births without additional difficulties (Prathibha et al., 2022). Women may accept PPIUCD when it is structured and numerous counselling sessions are spread during their pregnancy (Hamid et al., 2022). The research included 399 women (with a 100% response rate). In this research, 14.8% of people utilised IUCDs. Maternal age, educational level

with no formal schooling, fertility plans to control birth, monthly income of less than 600ETB, number of children surviving, and desire for additional children were all characteristics significantly associated with IUCD usage among women getting FP services (Desalegn et al., 2022).

Throughout the ten-year study period, many of the general clients who accessed FP services at the specified secondary and tertiary healthcare institutions chose IUCD, accounting for 51.5% and 45.5%, respectively. However, progestin injectable was the most popular (51.3%) among the chosen primary healthcare centres. Women between the ages of 30 and 39, as well as those with two or three children, are more likely to use traditional contraceptive techniques in Nigeria (Akinloye et al., 2022). This is comparable to the pragmatic trend identified by the Nigeria Demographic and Health Survey (NHDS) in 2013. With enhanced FPM usage by individuals between the ages of 30-39 during the height of their reproductive time and a decline in uptake by those between the ages of 45-49, (NHDS, 2013 and Ijarotimi et al., 2015).

In addition, many women delay having children until they are in their early 30s, maybe because they do not want the experience of raising children to impede their career progression. In addition, it was shown that women who had given birth were more likely to use FPM. According to NHDS statistics from 2013, there was a decline in FPM usage among nulliparous women (2%) but a rise among multipara women with three or four children (21%). This means that women who have had three deliveries in their peak reproductive years would prefer not to use FPM until they have had their desired number of children (NHDS, 2013 and Akinloye, et al., 2022).

PPIUCD is a reliable, safe, and efficient FPM that ensures an appropriate, long-term, reversible family planning approach before returning home when used in collaboration with mother and child health services. It is an effective intervention in both caesarean and vaginal deliveries with no apparent differences in safety and efficacy according to the insertion method. A somewhat higher frequency of expulsion after vaginal insertion can be managed by qualified staff by emphasizing the timing of insertion immediately after placement and the principles of fondling placement using long placental forceps. Therefore, PPIUCD should be promoted during vaginal and caesarean deliveries as it is an excellent tool in the family planning toolbox (Sharma et al., 2022).

Moreover, the study by Sharma et al., has revealed that there are no discernible changes between the safety (menstrual complaints, fever, and vaginal discharge; $p>0.05$) and efficacy of PPIUCD in caesarean and vaginal deliveries. Depending on the insertion method, as most clients (65.7%) were happy with the PPIUCD insertion, about 4.5% were unhappy with the process. There was no instance of perforation or failure, and there was little danger. Neither group had an infection (only 1.8% had vaginal discharge). The vaginal approach introduced three instances of spontaneous expulsion. Compared to vaginal insertion (25%), missing string incidence is higher in the caesarean group (48.5%) (Sharma et al., 2022).

Unfortunately, a study concluded that FP facility use, monitoring, and documentation were affected due to the COVID-19 crisis and the modification in effort to COVID-19 stoppage and control administration. There were no specific strategies formulated to improve FP supplies management at the local level. At the district level, the challenges that COVID-19 created were somewhat addressed by installing mobile and satellite clinics, adding human resources, sending FP supplies with the vehicles that transported COVID-19 supplies, shifting the use of LARCs to short-acting methods like condoms and pills, and accessing geographically difficult places by coordinating with supporting organizations that travelled to those sites. The COVID-19 pandemic led professionals working in FP to realize the importance of maintaining a proper stock of FP supplies, particularly in preparation for emergencies. Similarly, they felt the need to strengthen their monitoring, documentation, and systems management of FP supplies (Meckler et al., 2021, Khawaja et al., 2021 and Karmacharya et al., 2022).

The main finding of a study carried by Aslam, et al., (2022) was the significance of including FP services in tertiary care facilities. Despite the lockdown period having an impact on contraceptive uptake, the majority of patients used immediate FPM throughout the epidemic. The most popular technique was a LARCs one like IUCD (Aslam, et al., 2022). LARCs were used by female healthcare professionals at a 28.8% rate. Age 25–34, desire to have 0–2 children, knowledge of LARCs, being under 18 at the time of first sex, and training in FPM were all factors that were positively correlated with using LARCs (Ukalo et al., 2022).

In a study carried by Shrestha et al, (2022) 42% of postnatal and 28% of prenatal women had previously undergone an induced abortion due to an unplanned pregnancy. All women were aware of current contraceptive methods, although only 47% of prenatal and 58% of postnatal women used them in the past. 45% of pregnant and postnatal women selected IUCD as their LARC. the selection of LARC for birth spacing with a practical duration (5 years) and its safety profile while nursing. Twenty women rejected LARC in the PPP right away. Conclusions: women who previously underwent an induced abortion due to an unplanned pregnancy favour the single approach instant PP LARC due to its dependability, lengthy action time, and ease of use during breast-feeding. IUCD is preferred by most pregnant women over implants by postpartum women (Shrestha et al., 2022).

A study by Malik et al., (2022) of 448 women found that all of the women knew about at least one method of contraception, and 272 (65%) of them had used one. Male condoms were used the most frequently (33%) followed by IUCD (24%). 95% of individuals in the upper socioeconomic class utilized birth control, compared to 71% in the middle class and 48% in the lower socioeconomic class who had used any FPM. Only 39% of illiterate participants have used any method, compared to 67% of highly educated subjects who have used an FPM. The most frequent reason for rejecting contraceptive services was husband disapproval (28%) followed by a desire for

additional children (16%). Most of the people's awareness about contraception came from health care professionals (69%) followed by family members (31%), and the media (17%). Deduction: every lady was aware of several forms of birth control. Condoms are the most often used method, followed by IUCD, although usage has been constrained because of high levels of illiteracy, lower socioeconomic status, partner resistance, a desire for more children, and concern over adverse effects (Malik, et al., 2022).

With regards to the use of Misoprostol during IUCD insertion, Misoprostol has been shown in one clinical trial research to reduce the likelihood of IUD insertion complications. With a P value of 0.0135, it was discovered that women taking cervical misoprostol preparation experienced significantly more abdominal cramps than those taking a placebo. The misoprostol group found it simpler to insert the IUD than the placebo group, with a P value of 0.0018 (0.05) being considered very significant. The misoprostol group also had a higher incidence of side effects such vaginal bleeding, with a P value of 0.0381. Inference: The study discovered that giving women who hadn't given birth vaginally a misoprostol pill before inserting an IUD sped up the insertion procedure (Azeez, et al., 2022).

PPIUCD is evolving as a respectable choice for contraception with the help of counselling on FP immediately after the PP period. In developing countries, delivery is the only event when healthy women meet health care providers, and they may never return looking for contraception guidance, so IUCD insertion during this period may be the best choice to limit fertility rate (Mohamed, et al., 2003).

Strengths and limitations of the study

Only published articles were looked for in this review utilizing a variety of databases. The fact that the primary studies included in this evaluation were restricted to specific regions of the nation and that other regions might be underrepresented means that it has some limitations. Additionally, the evaluation only included a small number of main studies with modest sample sizes, which might influence how much PPIUCD is used.

4. Conclusions

PPIUCD was greatly underutilized. In order to increase the usage of PPIUCD, which further enhances mother and child health generally, women's educational status and Antenatal Counselling use must be scaled up. Both the individual promotion of reproductive health and the formulation of relevant policies may benefit from this discovery. Age of the women, wealth, and educational attainment were found to be variables that increased the chance of IUCD use. Additionally, it was found that characteristics such as age, counselling, antenatal care follow-up, educational status, good knowledge of PPIUCD, spouse or partner support, and awareness of IUCD affected the use of PPIUCD.

During the COVID pandemic, fewer postpartum patients were using contraceptives. But after the initial COVID peak wave and the partial lockup phase, the patients most frequently used the immediate IUCD approach. Few female

healthcare professionals used LARCs. Age 25–35 years, earning less than \$5,000 per month as a family, having strong awareness of LARCs, wanting 0–2 children, receiving FP training, and beginning sexual activity before the age of 18 were substantially linked to the use of LARCs. It is crucial to offer training and step-up information dissemination about LARCs.

The extremely low rate of contraceptive use among postpartum women raises the risk to maternal health by increasing the likelihood of unwanted births. Utilization of FP strategies among postpartum moms was found to be significantly influenced by husband's work, FP counselling during ANC, knowledge of a suitable delivery environment, and use of an IUCD. In order to increase the uptake of postpartum contraceptive usage, proper counselling and education regarding postpartum family planning use are extremely important during the prenatal and postnatal periods.

5. Recommendations

The most frequent advice for enhancing the management of FP commodities came from all levels, particularly in anticipation of a crisis where other stock would be required in addition to FP commodities. The following suggestions are additional:

- To aid clients in various population contexts who have particular contraceptive needs, initiatives and policies may need to be developed.
- Governments at all levels—local, provincial, and federal—should allocate more human resources to providing FP services. Items from the FP should be routinely checked at the central and provincial levels. Workers at these levels ought to act promptly to prevent problems with service delivery during emergencies like the COVID-19 epidemic.
- Municipal and provincial governments should act quickly to address the shortage of skilled human resources needed to supply FP services at the local and provincial levels.
- All three tiers of government should develop and strengthen a contingency plan to ensure proper FP services because there were no contingency plans for managing FP commodities, especially during emergencies like the COVID-19 crisis.
- The provincial government's incorporation and updating of digital technologies into health systems and FP services may make it easier to record and report data for decision-making. With contactless, on-demand FP information and referrals, this will improve logistics, decrease contraceptive stockouts, and increase provider-client capacity.
- Therefore, promoting women's education and alerting healthcare providers to the need of providing health education may increase the use of PPIUCD.
- Additionally, it is important to pay attention to improving adherence to concentrated ANC usage in order to encourage women to utilize contraception after giving birth, which will enhance overall mother and child health.

- Consequently, empowering women, FP counselling, and increasing female education should be implemented in order to increase the use of IUCD.

Finally, both the individual promotion of reproductive health and the formulation of relevant policies may benefit from this finding.

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