

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE OF
MATERNITY CARE PROVIDERS ON POSTPARTUM INTRAUTERINE
CONTRACEPTIVE DEVICES AND ASSOCIATED FACTORS IN SAINT
PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE AND GANDHI
MEMORIAL HOSPITAL

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Addis Ababa, Ethiopia

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Contents

LIST OF ABBREVIATIONS	V
LIST OF FIGURE.....	VI
List of table	VI
1.1. Back Ground	1
1.2. Statement of the problem	3
2. LITRATURE REVIEW	4
2.1. Literature Review.....	4
2.2. Significance of the study.....	8
2.3. CONCEPTUAL FRAME WORK	9
3. OBJECTIVE	10
3.1. General objective	10
3.2. Specific objective	10
4 Method and material	11
4.1 Study area.....	11
4.2 Study period	11
4.3 Study design.....	12
4.4 Populations.....	12
4.4.1 Source population	12
4.4.2 Study population.....	12
4.5. Inclusion and exclusion criteria	12
4.5.1. Inclusion criteria	12
4.5.2. Exclusion criteria.....	12
4.6. Sample size and Sampling technique.....	13
4.6.1. Sample size	13
4.6.2. Sampling technique	14
4.7 Data collection procedure and instruments	15
4.8 Data processing and analysis	15
4.9 Data quality assurance	16
4.10 Ethical considerations	16
4.11 Variable.....	16
4.11.1 Dependent variable	16

4.11.2 Independent Variables	16
4.12. Operational definitions.....	17
5. Result	18
5.1 Socio demographic characteristic of the study participant	18
5.2 Maternity care providers PPIUCD knowledge	19
5.3 Maternity care providers PPIUCD attitude.....	1
5.4 Frequency of Maternity care providers have ever inserted PPIUCD	3
5.5 Maternity care providers experience related to PPIUCD insertion	3
5.6 Factor associated with PPIUCD practice of Maternity care providers	7
5.7 Multivariable analysis.....	9
Discussion	11
Strength and limitation.....	13
Conclusion	13
Recommendation	14
REFERENCE.....	15
ANNEXES	18
QUESTIONNAIRES	18

LIST OF ABBREVIATIONS

ANC - Ante Natal Care

CPR- Contraceptive prevalence rate

CIRHT- Center for International Reproductive Health Training

EDHS- Ethiopian Demographic Health Surveys

EC- Evacuation and curettage

EGOPD- Regular Gynecology outpatient department

FMOH- Federal Minister of Health

FP- Family planning

HCP- Health care provider

JHPIEGO- Johns Hopkins Program for International Education in Gynecology and Obstetrics

KAP – knowledge, attitude, practice

OBGYN –obstetrics and gynecology

SPHMMC – Saint Paul Millennium Medical Collage

WHO – World Health Organization

LIST OF FIGURE

Figure 1: Conceptual frame work developed by the researcher after doing reviewing literatures-----	13
Figure 2: The magnitude of inserted PPIUCD by Maternity Care Providers working in SPHMMC and Gandhi Memorial hospital, Addis Ababa, Ethiopia, 2019 (n=136)-----	27
Figure 3: Reason for not counseling postpartum mother to use IUCD, 2019 (n=136).....	30

List of table

Table 1: Maternity Care Providers at SPHMMC and Gandhi memorial hospital -----	16
Table 2: Selected sample size from OBGYN residents and midwives in SPHMMC and Gandhi memorial hospital-----	18
Table 3: Socio-demographic characteristics of Maternity Care Providers participated in the study, Addis Ababa Ethiopia, 2019 (n=136) -----	22
Table 4: Variables used to assess PPIUCD knowledge of Maternity Care Providers at SPHMMC and Gandhi Memorial hospital, Ethiopia, 2019 (n=136).....	24
Table 5: Variables used to assess Maternity Care Providers attitude towards PPIUCD, at SPHMMC and Gandhi memorial hospital, Ethiopia, 2019 (n=136) -----	26
Table 6: Experience related to PPIUCD insertion among Maternity Care Providers, SPHMMC and Gandhi memorial hospital , Addis Ababa, Ethiopia, 2019.....	28
Table 7: Bivariate analysis of factors affecting PPIUCD practice among Maternity Care Providers on, at SPHMMC and Gandhi memorial hospital, Addis Ababa, 2019 (n=136)-----	31
Table 8: Bivariate and multivariate logistic regression analysis of factors associated with PPIUCD insertion practice of Maternity Care Providers on, SPHMMC and Gandhi hospital, Addis Ababa, 2019 (n=136).....	33

ABSTRACT

Although postpartum women may want either to space or limit subsequent births and would like to use contraception, most in developing countries are not using an effective modern contraceptive method. According to Ethiopia Demographic Health Survey (EDHS 2016) report among women less than 6 months postpartum, the overall unmet need is 86%. There is global resurgence of interest in PPIUCDs, as more women are delivering in facilities. Though earlier introduction of IUCD in the past one decade, PPIUCD generally suffers from unpopularity and scarcity of information in Ethiopia. There is also highly skewed use towards implants in postpartum.

In order to find out if there are factors from the providers' perspective propagating the low acceptance of PPIUD, this study was done to assess the knowledge, Attitude and Practice of Maternity Care Providers at SPHMMC and Gandhi Memorial Hospital on Postpartum intrauterine contraceptive devices

Cross sectional study was conducted in SPHMMC and Gandhi memorial Hospital from February 1 to March 31, 2019. Data was collected with pretested structured questionnaires and analyzed using SPSS version 23.

Among the 136 Maternity Care Providers who responded to the questionnaire, (64%) of Maternity Care Providers had ever inserted PPIUCD. The results showed that (66.6%) had good knowledge and 87.5% had positive attitude about PPIUCD. In addition, midwives [AOR= 0.27(95%CI: 0.08-0.84)], having positive attitude [AOR= 1.01(95% CI: 1.09-2.26)], availability of IUCD kit in the institution [AOR= 4.20(95%CI: 2.01-29.95)] and being trained [AOR=5.34(95%CI: 3.08-24.52)] were significantly associated with PPIUCD insertion practice.

Over all, the Maternity Care Providers ever inserted PPIUCD was high in SPHMMC and Gandhi memorial hospital. They had also good knowledge on PPIUCD and positive attitude about PPIUCD.

1. INTRODUCTION

1.1. Back Ground

In sub-Saharan Africa approximately 53% of women (58 million) who wanted to avoid a pregnancy were not using family planning or were using a traditional method in 2012. These women account for 91% of unintended pregnancies. For many of these women, childbearing begins at an early age, intervals between pregnancies are too short, and lifetime fertility is high. The resulting fertility patterns lead to excess mortality and morbidity for both mothers and offspring [1].

During the postpartum period, delay in initiating contraception is common because of many women are not aware of their risk for pregnancy. A study of postpartum women in 27 Demographic and Health Surveys (DHS, 2016) of developing countries for 6 years shows 40% of women who intend to use a contraceptive during the first year postpartum are not using. Moreover, although only a small percentage of women (3%–8%) want another child within 2 years of their last birth, 35% have children within this timeframe [2]. According to EDHS 2016, 13% want to delay childbearing, while 9% want to stop childbearing in Ethiopia [3].

Scaling up FP services is one of the most cost-effective interventions to reduce maternal, infant, and child morbidity and mortality globally. Family planning can prevent unintended pregnancy and thus reduce maternal deaths. Multicounty studies have shown that accessing family planning can reduce maternal deaths by as much as 40 percent, infant mortality by 10 percent, and childhood mortality by 21 percent. Currently, more than 200 million women in developing countries desire to space or limit pregnancies, yet they lack access to FP options. PPIUD integration into an existing family planning program will have huge impact in solving unmet need for FP [4, 5].

The PPIUCD refers to when both (IUCD) inserted post placental (within ten minutes after delivery of placenta) and immediate postpartum (after ten minutes to 48 hours post-delivery). Insertion of IUCD in postpartum period have various benefits over interval insertion.

Advantages includes high motivation of the woman for family planning, sure about being not pregnant, less discomfort during insertion, and insertion related bleeding will be masked by lochia. In 2015, the World Health Organization Medical Eligibility modified its classification of the PPIUCD as a Category One (generally used) contraceptive method during the first 48 hours. It is not used between 48 hours to six weeks postpartum as there is increased chances of expulsion and infection [6, 10].

The safety and efficacy of post-partum IUDs has been proven with large studies and well composed systematic reviews. Evidence from 15 studies showed no increased risk of complication among who had IUD inserted during immediate post-partum period. Research conducted in Pakistan in 2014 regarding PPIUCD insertion on 1238 women showed no severe complication with immediate postpartum IUCD insertion. Fear of side effects like Expulsion, misplaced and displaced insertion of PPIUCD is the main cause of its limited use mentioned by healthcare providers. The report also showed expulsion rate can be decreased from 10-15% to 4-5% when inserted by skilled provider. [7, 10]

Globally, IUD is the most widely used contraceptive method second only to sterilization. It is used in about 14.3% of women of reproductive age with strikingly non uniform distribution ranging from 2% to 40%. A large proportion of this use comes from China, Vietnam, Norway, Mexico and Peru. But, the proportions of women using IUCD are very low (2%) in the sub-Saharan, Eastern, Middle, Southern and Western regions, whereas they are high in Northern Africa 18.1% of women. PPIUCDs make up even small share of the method mix in sub-Saharan Africa countries. And currently, West and Central African countries are investing efforts to broaden the contraceptive method mix [8, 9].

In Ethiopia, despite the significant increase in CPR from single digit to 36%, the contribution of IUD is still very low. Most of the CPR is achieved by short term contraceptive methods such as depot. There is skewed method mix despite the very early introduction of IUD to the country. According to EDHS 2016, injectable are the most popular modern method (23%), followed by implants (8%), IUD (2%), and the pill (2%). PPIUCDs even represent negligible proportion of long-acting reversible contraceptive service. According to, desk review of 2017 family planning register book of SPHMMC, there had been 350 and 20 PPFP and PPIUCD per month respectively [11, 12].

1.2. Statement of the problem

In sub-Saharan Africa countries approximately 53% of women (58 million) who wanted to avoid pregnancy were either not using family planning or using a traditional method in 2012. This resulted in increased level of fertility which leads to excess mortality and morbidity both for mothers and offspring.

Postpartum women are unlikely to use contraception and vulnerable for unintended pregnancy because most are busy with taking care of their new babies, mistakenly believe that they cannot get pregnant as long as they are breastfeeding and not sure of their contraceptive options and services availability, especially in developing countries. When the next time they go to the health facility, it is often too late. They are pregnant again.

A study of postpartum women in 27 Demographic and Health Surveys (DHS, 2016) of developing countries for 6 years shows 40% of women who intend to use a contraceptive during the first year postpartum are not using. Moreover, though only a small percentage of women (3%–8%) want another child within 2 years of their last birth, 35% have children within this timeframe.

PPFP has potential to decrease dramatically maternal and child mortality and morbidity rates by enabling women to delay or limit their pregnancies. The most successful of this is PPIUCD program.

Since, it is inserted as soon as after birth, which is peak time of motivation for family planning), a woman can leave the birth facility with a safe and extremely effective, long-acting, private and coitus independent method already in place.

Despite tremendous benefits and potential opportunities for increasing use of PPIUCD, like increasing number of institutional deliveries, PPIUCDs still accounts for small share of contraceptive mix in Ethiopia. According to EDHS 2016 report, IUCD accounts only for 2 percent from 36 percent of modern contraceptive share in Ethiopia.

Given its high advantage profile, low PPIUD's uptake is concern so that FMOH in collaboration with JHPIEGO, integrated PPFP and PPIUD services into maternal care and designed national policies to support program expansion and sustainability. Furthermore, PPIUCD can contribute to Ethiopia's FP2020 commitments, which aimed to increase the contraceptive prevalence rate (CPR) to 55%. St Paul hospital in collaboration with CIRHT has provided training for midwives and has incorporated PPIUD in the trainings of both undergraduate and post graduate trainings.

Postpartum family planning uptake at SPHMMC is significantly better than anywhere else in the country ranging from 20-35%. Yet, the method mix skewed significantly towards to postpartum implant use.

2. LITRATURE REVIEW

2.1. Literature Review

A search conducted 2015 in many countries on systematic review of the global literature on provider and lay perspectives on the reasons for low use of IUC and on potential opportunities for the method's promotion showed similar findings across these areas. Many providers have low levels of knowledge on IUC and limited training. The study also showed limited progress in IUD is due to scarcity of trained and competent professionals in LARC. [13]

The cross-sectional survey on Obstetrician and Gynecologists' knowledge and attitudes on IUCD in 2010 in Saint Louis identified the reason for low rate of practice of IUD insertion is low counseling and inserting skill due to lack of formal and continuous training, misperceptions regarding appropriate candidates for IUC and inaccurate knowledge of IUC and possible side effects [14] .

A Survey done on National Sample of Midwives in 2017 in US revealed multiple knowledge gaps related to IUD expulsion rates and appropriateness of immediate postpartum LARC in certain clinic .Only 10.1% of respondents reported feeling confident to insert an immediate postpartum IUD. Many reported desiring additional training in immediate postpartum IUD (63.5%) and implant (22.8%) insertion; few reported access to such training (IUD, 19.9%; implant, 15.2%). Most respondents had never inserted an immediate postpartum IUD (90.7%) [15].

From of 82 Obstetrics providers at seven academic teaching hospitals in Massachusetts 2015 showed overall, knowledge and experience with PPIUD placement is relatively low. Thirty-five (42.7%) reported experience placing an immediate PPIUD with the majority of them having placed three to five PPIUDs. Of participants who had never placed a PPIUD, the most common reason for not doing so was ''feeling in adequately trained 73.3%.The next common reason not to do so was PPIUCD not being available at their institution 60%.The 3rd reasons not to do so was, not feeling comfortable in the procedure 50%.Fewer than one-half (43.4%) correctly identified the PPIUD expulsion rate, whereas 75.9% knew the correct expulsion rate for interval IUD placement. The majority of providers responded that PPIUDs are acceptable in certain clinical scenarios [16].

A descriptive, cross-sectional study was conducted between June 28 and July 15, 2018 on 400 doctors from government and private sectors practicing in Kuala Lumpur showed the knowledge

score was 'average' (as defined in Methods: score 10–14) with a mean score of 13.6 (SD ± 2.8) from 20 questions, and 39.2% had a 'good' score ($\geq 15/20$). Government doctors had a significantly higher knowledge score than those in the private sector (14.0 ± 2.8 vs. 12.7 ± 2.8 , $P=0.001$). Knowledge of doctors correlated well with the level of previous training (OR 0.318, 95% CI 0.16 to 0.64, $P=0.001$). More than half of the doctors (54.2%) would recommend and insert IUDs themselves. Multiple logistic regression analysis showed that doctors who were trained previously (OR 0.159, CI 95% 0.060–0.419, $P \leq 0.001$) and who perceived that they had sufficient knowledge would continue to recommend and insert IUDs themselves. This practice also was well correlated with the number of patients seen in a week and availability of IUDs in their working facility. [17]

The descriptive multi-centric post-training PPIUCD follow up study of providers in eight states of India in 2012 Showed 95% providers felt IUCD is a suitable method for postpartum women. According to 94% doctors, 55% nurses and 88% counselors, antenatal period was the most preferred period for counselling clients. 89% doctors and 69% nurses felt that ideal time of insertion was immediately after delivery of placenta and most preferred Kelly's placental forceps for insertion. Expulsion was the commonest perceived complication. More than 70% providers felt that clients were satisfied with their decision of choosing PPIUCD as a method with reasons [18]

Council of Academic Family Medicine Educational Research Alliance (CERA) omnibus survey of a national cohort of family medicine educators in 2015 in USA showed from 409 respondents who provide labor and delivery maternity care, fewer respondents felt adequately trained to insert an immediate postpartum IUD (36.4%) than an implant (58.7%; $P < 0.001$). Most respondents had never placed an immediate postpartum IUD (81.17%) or implant (80.1%). Device unavailability was the most commonly cited reason for never having placed an immediate postpartum IUD (67.8%) or implant (71.2%) at one's institution [19].

According Surveys completed by 135 participants in 2012 on Salvadoran providers showed lack of formal training, and even for the providers who are trained to insert IUDs there is an overall lack of experience. Only 46.6% of participants had ever received formal training in IUD placement, and 32.0% of them had ever inserted more than 10 IUDs. Additionally many of the providers surveyed believed they did not always have time to counsel patients about the IUD. The majority of providers (54.2%) believed that the IUD was associated with a higher rate of infection than is described in the literature [20].

The study done on service providers' perspectives, practice and experience with PPIUCD services in Embu, Kenya February 2011 showed the "ideal" counseling time was at the antenatal care (96%, 47/49). In terms of timing of insertion, over 80% (82%, 40/49) thought the ideal timing for postpartum women to have an IUCD inserted was post placental and the remaining 18% (9/49) immediate postpartum. On PPFPP Counseling practices, the majority of service providers (88%, 34/49) said they counsel pregnant or postpartum regularly on FP. Among these, most of them (85%, 29/34) said they talk about PPIUCD on a regular basis. Most pregnant and postpartum women made the decision for PPIUCD and FP during antenatal care (71%, 35/49 for PPIUCD and 57% for other methods, 28/49 for FP in general). The following were the top reasons for not being able to provide IUCD services at maximum level: clients changed their mind, myths and misconceptions about IUCD, no maternal ward at the deployment location and lack of insertion kits. Service providers were also asked to rank the pain level women experienced based on their understanding: the majority (88%, 43/49) of service providers thought it was not painful at all, 16% (8/49) thought a little bit painful or indifference. Only 4% (2/49) thought it was painful[21].

A descriptive, cross-sectional study conducted between June 28 and July 15, 2011 in Komfo Anokye Teaching Hospital (KATH), Kumasi, Ghana showed most maternity care providers had received training in contraceptive counseling, however, few felt confident in their ability to insert an IUD. Of 91 providers surveyed, 70 (77%) reported previous training in contraceptive counseling. Less than one in three respondents had ever inserted an IUD: 17 (44%) of 39 physicians and 9 (17%) of 52 midwives reported ever having inserted an IUD. A total of 33 (36%) respondents reported that they would recommend an IUD in the immediate postpartum period [22].

A prospective cohort intervention study done in 2014 at Tygerberg Hospital, South Africa on health care providers showed, though most have role in family planning 86%, only 28% received training the last 2 years. The methods they recommend within the first 48 hrs. Were post-partum were IUDs (76%), female sterilization (75%) and injectable contraceptives (66%). Most felt that there were sufficient space (76%) and clean/aseptic work place (58%), but there was a lack of privacy (65%). The majority indicated that they had the equipment and instruments, including supplies, for postpartum IUD insertion (66%) however nearly half of the participants did not to have enough time to offer a practical and manageable post-partum IUD service (56%) [23].

Engender Health, with the FMOH, developed and piloted a PPIUD package in 28 government facilities across 4 regions and in Addis Ababa, Ethiopia over a 2-year period (2014 to 2016). On average, a provider inserted 1.26 IUDs per month. With regard to timing of insertion, 81 % were performed within 10 minutes of delivery, 8% were performed between 10 minutes and 48 hours of delivery, and 1 % were performed during cesarean deliveries. Of 3,809 PPIUD clients, most (approximately 47%) received FP counseling during the postpartum period or (approximately 44%) during labor and delivery, while others (approximately 4%) received counseling during antenatal visits or (approximately 4%) during multiple visits [24]

2.2. Significance of the study

There was big lag in PPIUCD use because of barriers at Health Care provider, User and Health system level.

A literature search of articles published in English between 1990 and 2012 through Embase, PubMed and MEDLINE identified Health care provider, health system and user factors for limited use of IUCDs. These barriers are often interlinked. The most widely explored barriers in published studies are those at the Health Care provider level.

Despite their central role in service delivery and program improvement, health care provider perspectives on family planning have often been overlooked. Clients' attitudes toward the PPIUD are known in different contexts, little is known about providers' knowledge and perceptions of the PPIUD in developing countries.

In Ethiopia, though there were few researches done on barriers of PPIUCD provision from users' perspectives. But, so far, there was no research done on barriers of PPIUCD provision from health care providers' perspectives.

Assessing health care service providers' knowledge, attitude and practice of PPIUCD and associated factories helps to address the existence of unnecessary provider barriers of PPIUCD provision.

The research also helps to FMOH, Stakeholders and Saint Paul and Gandhi hospitals to focus on determining factories for improving PPIUCD service provision.

The study also could be also a baseline study for further studies to be done on the topic.

2.3. CONCEPTUAL FRAME WORK

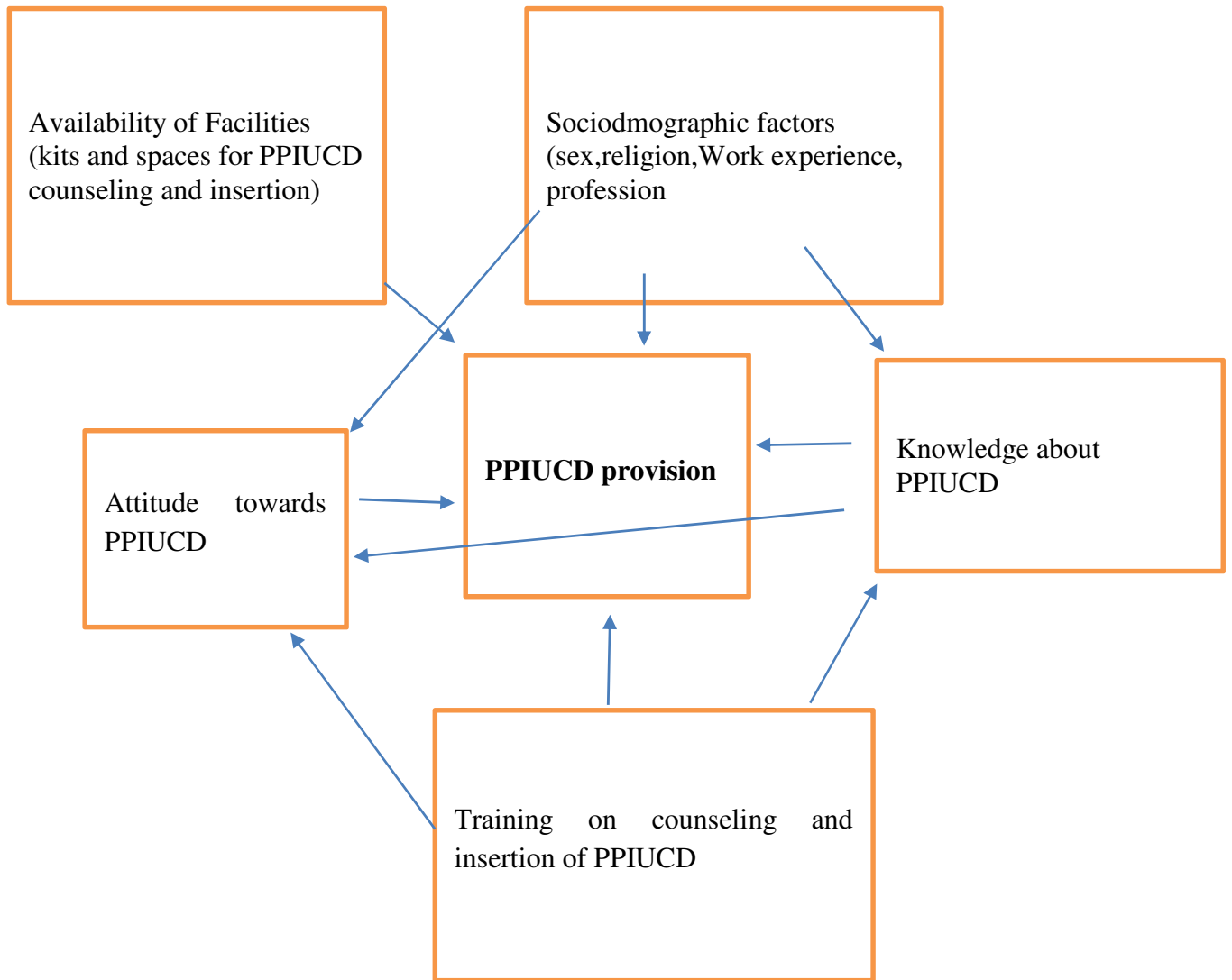


Figure 1: Conceptual frame work of PPIUCD provision developed by researcher after searching different sources related to context, 2018

3. OBJECTIVE

3.1. General objective

To assess knowledge, attitude and practice of *Maternity Care Providers on* postpartum intrauterine contraceptive devices and associated factors in Saint Paul's Hospital Millennium Medical College and Gandhi Memorial Hospital from February 1 to March 31, 2019, Addis Ababa, Ethiopia.

3.2. Specific objective

- To assess knowledge, attitude and practice of *Maternity Care Providers on* postpartum intrauterine contraceptive devices Saint Paul's Hospital Millennium Medical College and Gandhi Memorial Hospital
- To determine associated factors on postpartum intrauterine contraceptive devices provision at Saint Paul's Hospital Millennium Medical College and Gandhi Memorial Hospital

4 Method and material

4.1 Study area

The study was conducted in Saint Paul's hospital millennium medical college (SPHMMC) and Gandhi memorial hospital. SPHMMC and Gandhi memorial hospital are hospitals with the highest deliveries in Ethiopia, with an average of 800 monthly deliveries. These are also hospitals with highest number of maternity care providers. Both are serving as a referral and academic teaching center in Addis Ababa, Ethiopia.

St Paul provides care to referral patients from all over the country particularly from Addis Ababa and Oromia region. The college is training medical students since 2007 and has post graduate training on different specialties including OBGYN graduate training since 2012. **OBGYN** Department is running five fellowship programs of which Family planning fellow ship is brand new program launched in 2017 with goal of setting St Paul as center hub for **RH** in Ethiopia and in the region.

Gandhi memorial hospital provides biggest Maternity service for women particularly from Addis. The maternity service was provided by specialties in OBGYN, residents, midwives and medical interns

Both are centers who have benefitted from a CIRHT program to promote family planning and integrate FP to undergraduate and postgraduate training programs

4.2 Study period

The study was conducted from Feb 1st 2019 to March 31st 2019

4.3 Study design

Qualitative institutional based cross-sectional study design was used to assess knowledge, attitude and practice of Maternity Care Providers on postpartum intrauterine contraceptive devices and associated factors.

4.4 Populations

4.4.1 Source population

All Maternity Care Providers working at SPHMMC and Gandhi memorial hospital

Around 232 maternity care providers working at SPHMMC and Gandhi Memorial Hospital

4.4.2 Study population

All OBGYN residents and Midwives, delivering family planning service at SPHMMC and Gandhi memorial hospital during the study period and was selected.

232 Maternity Care Providers were eligible to participate, although exact numbers are unknown because providers rotate through several different sites during training

Table 1: Maternity care providers at SPHMMC and Gandhi memorial hospital, February 2019

Category of Health worker	SPHMMC	Gandhi memorial hospital	Total
OBGYN Residents	102	46	148
Midwives	56	28	84
Total	158	74	232

4.5. Inclusion and exclusion criteria

4.5.1. Inclusion criteria

Maternity care providers working at EGOPD, Labor and delivery unit for at least 3 months were included.

4.5.2. Exclusion criteria

Those who were out of clinical practice, those who were on annual leave, month off leave and rotation leave outside the hospitals during data collection period were excluded from study. OBGYN specialists were excluded from this study, because usually, they were not the one who

involve directly on counseling and insertion PPIUCD. Rather, they were involved on monitoring and mentoring of OBGYN residents on PPIUCD insertion

4.6. Sample size and Sampling technique

4.6.1. Sample size

The sample size was determined using single population proportion formula for cross-sectional study below. Since there was no similar study done in the country proportion is take as 50%.

$$SS = \frac{Z^2 pq}{d^2}$$

Where:

Z = Z value (e.g. 1.96 for 95% confidence level)

p = Expected frequency value that Maternity care providers regarding the practice of PPIUCD provision will be taken as 50%, since the prevalence was not known

$$q=(1-p)$$

d = confidence interval, expressed as decimal (e.g., .05 = ±5)

Since the source population was less than 10000 and sample size was >5% of population (384/232*100)

I used correction formula for adjusting sample size to make study scientifically sound

$$nf = \frac{n}{1 + \frac{n-1}{N}}$$

$$NSS = \frac{384}{1 + \frac{384-1}{232}}$$

nf=final sample size

n=calculated sample size

N=source population

Hence, with these assumptions a total of **145** Maternity care providers were included in the study.

4.6.2. Sampling technique

Convenience proportional sampling method was used to select the study participants, from Maternity care providers at **SPHMMC** and **Gandhi memorial hospital**. Total number of Maternity care providers listed above was obtained from Human resource office of the hospitals and number of participants from each hospitals and professions mentioned above was proportionately calculated to obtain the sample size. Participants were selected randomly in each profession by convenient non probability sampling method.

Study sample was taken from both hospitals and category of Maternity care providers on their proportion.

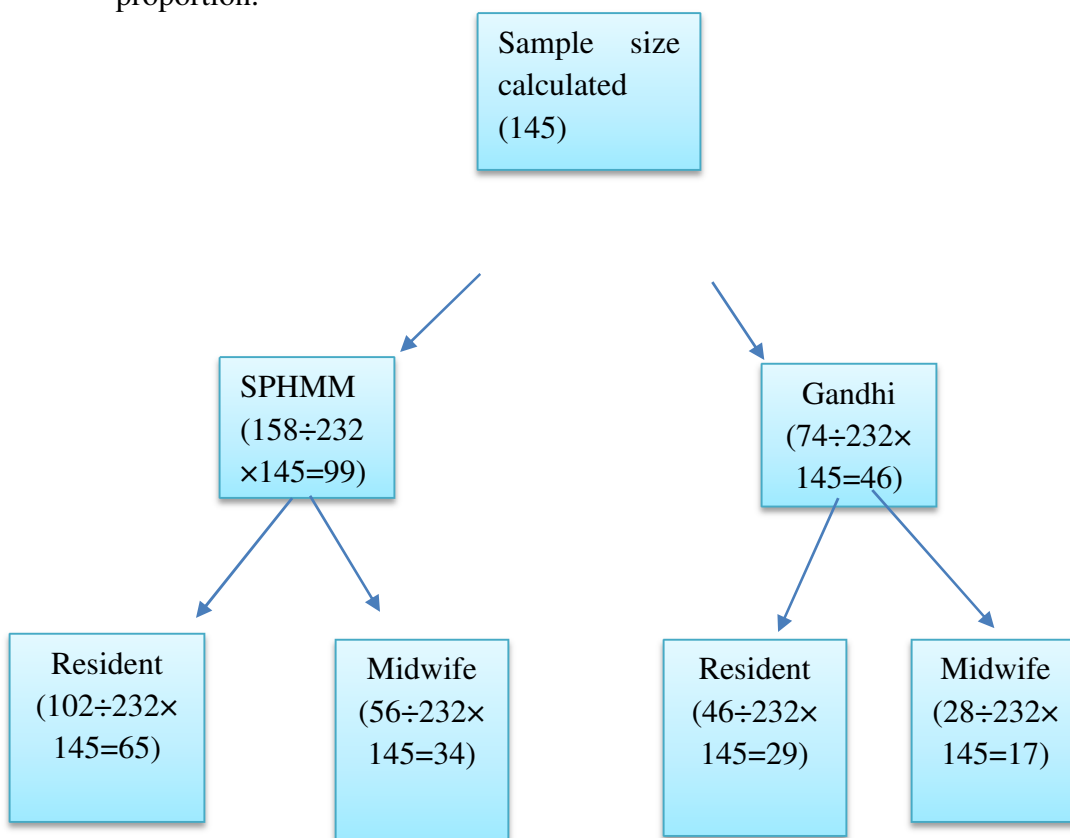


Figure 2: Selected sample size from OBGYN residents and midwives in SPHMMC and Gandhi memorial hospital, February 2019

4.7 Data collection procedure and instruments

- An **anonymous** self-administered structured questionnaire was developed to collect the data from respondents.
- Data from each provider was collected using questionnaires on socio-demographic characteristics, knowledge, attitude and practice of Maternity care providers on PPIUCD provision.
- Multiple choices were used. The data was collected by principal investigator and by two research assistants.

4.8 Data processing and analysis

- Coding of individual questionnaires was checked and data was entered into SPSS version 23 and analyzed.
- Descriptive analysis was used to characterize the dependent and independent variables.
- Association between category of *Profession*, year of experience, formal training on PPIUCD, level of knowledge and attitude towards PPIUCD versus practice of PPIUCD was analyzed using chi-square test. Bivariate and multivariable logistic regression was used to evaluate the relationship between the outcome variable (practice of PPIUCD provision) and independent variables. Variable with p-value<0.25 in the Bivariate analysis was entered in to multivariable logistic regression analysis to control the possible effects of confounders using backward regression technique. Odds ratio with 95% confidence intervals (CI) was computed to determine the presence and strength of association-value <0.05 was used as cut-off point for statistical significance.

4.9 Data quality assurance

- Pretesting of the questionnaire was conducted on Maternity care providers in Yekatit 12 hospital and necessary modifications had been applied.
- Two nurses were trained on data collection for one day.
- The collected data was checked for completeness and consistency by the principal investigator on daily bases.
- Once again finally after two months all filled questionnaire was rechecked for completeness, accuracy and consistency with the operational definitions correlated with the data entered to the SPSS by principal investigator.

4.10 Ethical considerations

- Ethical clearance & permission letter was obtained from the Institutional Review Board (IRB) of SPHMMC. Informed consent was obtained from each study participants after the objectives of the study are explained. Information collected was kept confidential.

4.11 Variable

4.11.1 Dependent variable

- Practice of PPIUCD

4.11.2 Independent Variables

- Socio-demographic characteristics (age, sex, marital-status, religion.)
- Profession
- Years of experience
- Formal family planning training
- Availability of facilities(kits and spaces for PPIUCD insertion)
- Knowledge on PPIUCD
- Attitude towards PPIUCD

4.12. Operational definitions

- **Maternity care providers:** Health professionals who provide labor and delivery-related care. In this setting it includes Midwives and residents in OBGYN.
- **Health care provider factors:** providers knowledge and attitude of PPIUCD which affect the practice of PPIUCD
- **User factors:** client factors which can affect the provision of PPIUCD
- **Health system factors:** institutional factors which can affect the provision of PPIUCD such as arranging time and space for counseling and inserting PPIUCD and actions taken by the facility in terms of personnel training, supplying equipment's.
- **Knowledge:** In this context, it includes the theoretical and practical knowledge of providers about PPIUCD. It will be categorized into good knowledge and poor knowledge. Respondents who score above the mean value of correct answer was considered as good knowledge and scored less than value of correct answer was considered as poor knowledge about PPIUCD. Knowledge of individual respondents about PPIUCD was assessed by 8 questions. Each has 1 mark.

Respondents who give the correct answer for each question scores 1, if not 0. The knowledge response of individuals was counted and summed up to give the overall knowledge score and the mean of knowledge score was calculated and labeled as good and poor knowledge.
- **Attitude:** Providers beliefs, acceptance and recommendation of PPIUCD to the clients. Likert scale measurement (strongly disagree, disagree, no opinion, agree, strongly agree)

Score equal to or more than mean: positive attitude, Score < mean: negative attitude
- **Practice:** is the maternity care provider's direct participation or personal encounter on counseling and inserting PPIUCD. It was measured using different questioners on counseling and inserting PPIUCD and experience of providers on PPIUCD

5. Result

5.1 Socio demographic characteristic of the study participant

From the total 145 study participant 136 completed and turned back the questionnaire and the respondent rate became 93.8%. From those 85(62.5%) were male and 51(37.5%) were female. Sixty one (44.9%) of the participants were in 25-29 age groups. Eighty seven (64.0%) of the respondent were working in SPHMMC while 49(36%) were working in Gandhi memorial hospital. Fifty two (38.2%) of the participants were married. Among the maternity care providers participated in this study 83 (61.3%) were OBGYN residents while 53 (38.7%) were midwives. (Table 3)

Table 3: Socio-demographic characteristics of health professionals participated in the study, Addis Ababa Ethiopia, 2019 (n=136)

Variable	Frequency	Percentage
Age		
20-24	21	15.4
25-29	61	44.9
30-34	27	19.9
>34	27	19.4
Sex		
Male	85	62.5
Female	51	37.5
Name of the hospital		
SPHMMC	87	64.0
Gandhi memorial	49	36.0
Religion		
Orthodox	80	58.8
Muslim	25	18.4
Protestant	24	17.6
Other	7	5.1
Marital status		
Single	84	61.8
Married	52	38.2
Profession		
Gynecology resident	83	61.3
Midwife	53	38.7

5.2 Maternity care providers PPIUCD knowledge

Participates were asked different question to assess their PPIUCD knowledge. PPIUCD knowledge assessed using different variables like specific time to insert PPIUCD, the best time to counsel women on PPIUCD, the chance of falling pregnant with PPIUCD and the comparison of PPIUCD expulsion rate with interval IUCD.

One hundred nine (80%) of Maternity care providers answered that the specific time to insert PPIUCD is within 10 minutes. Fifty five (62.2%) of OBGYN residents answered the specific time to insert PPIUCD within 48 hours, While only twenty three (43.4%) of midwives answered the specific time to insert PPIUCD within 48 hours. Forty six (56. %) of OBGYN residents answered specific times that PPIUDs can be inserted within after six week post-partum, While only 10(19.2%) of midwives answered specific times that PPIUDs can be inserted within after six week post-partum. One hundred twenty two (89%) of the participants answered as ANC to the question on the best time to counsel women about PPIUCD.

Overall, 91(66.9%) of the participant scored above the mean (11.4) on the questions used to assess the level of knowledge on PPIUCD.

Table 4: Maternity care providers, correct answers on Variables used to assess PPIUCD knowledge by cadre of profession in SPHMMC and Gandhi Memorial hospital, Ethiopia, 2019

Variables	Profession		Total(n=136) N (%)	P value
	OBGYN Resident (n=83)	Midwife (n=53)		
	N (%)	N (%)		
Specific times that PPIUDs can be inserted within 10 minute-Yes	67(81.7)	41(73.3)	108(80)	1.00
Specific times that PPIUDs can be inserted within 48 hours-Yes	51(62.2)	23(43.4)	74(54.8)	0.053
Specific times that PPIUDs can be b/n 48 hours of delivery to six week-No	76(92.7)	43(74.9)	119(83.8)	0.078
Specific times that PPIUDs can be inserted within after six week post-partum-Yes	46(56.1)	10(19.2)	56(41.8)	0.00***
The best time to counsel women on PPIUCD- ANC	77(93.4)	45(82.6)	122(88)	0.56
The chance of falling pregnant with PPIUCD- The same as sterilization	58(76.2)	16(31.4)	74(53.8)	0.08
How do you compare IUD expulsion rate? -Higher with immediate postpartum when compared with interval IUD placement	60(75.6)	30(61.2)	90(68.3)	0.63
Good knowledge	69(76)	22(56)	91(66.9)	
Poor knowledge	11(24)	34(42.2)	45(33.1)	

5.3 Maternity care providers PPIUCD attitude

Seventy 70(90.4%) of the OBGYN residents agreed on the use of PPIUCD in primeiparous, while only 29(78.5%) of the midwives agreed on use of PPIUCD in primeiparous. Ninety three 9(79.9%) Of the respondent agreed on use of PPIUCD in HIV positive patients. Eighty nine (93.8%) of the respondent think that most clients rate the pain they experienced during PPIUCD insertion as little bit painful. Sixty six 66(82%) of the Maternity care providers rated their client satisfaction on PPIUCD choice were unsatisfied. More than half of the respondents 90(66.2%) consider PPIUCD for themselves and for their family. As a whole 119(87.5%) of the Maternity care providers participated in this study scored more than the mean score (**13.7**) on the questions used to assess attitude.

Table 4: Maternity care providers, attitudes towards PPIUCD by cadres of Profession in SPHMMC and Gandhi Memorial hospital, Ethiopia, 2019

Variables	Profession		Total(n=136) N (%)	P value
	OBGYN Resident(n=83)	Midwife (n=53)		
	N (%)	N (%)		
How do you see the use of PPIUCD in primeparous?	70(90.4)	29(78.5)	99(84.4)	0.001***
How do you see the use of PPIUCD in HIV patients?	60(84.2)	33(75.7)	93(79.9)	0.23
How do you see the use of PPIUCD for patients with Rupture of membrane less than 18hrs?	36(82.2)	20(80.4)	56(80.9)	0.78
How do you think most clients would rate the pain they experienced during PPIUCD insertion?	50(93.6)	33(94)	83(93.8)	0.74
How do you see the Importance of PPIUD to your clients?	77(94.8)	49(96.1)	126(95.3)	0.45
How do you rate your clients 'satisfaction on their choice of PPIUD?	52(89.9)	14(74.1)	66(82)	0.60
Would you consider PPIUD for yourself and/or for your family?	59(93.9)	43(94.7)	102(94.3)	0.30
Positive attitude	75(90.6)	45(84.4)	119(87.5)	
Negative attitude	8(9.4)	8(25.6)	17(12.5)	

5.4 Frequency of Maternity care providers have ever inserted PPIUCD

Out of the 136 Maternity care providers participated in this study, 87(64%) of them had ever inserted PPIUCD while 49 (36%) of them had not inserted PPIUCD.

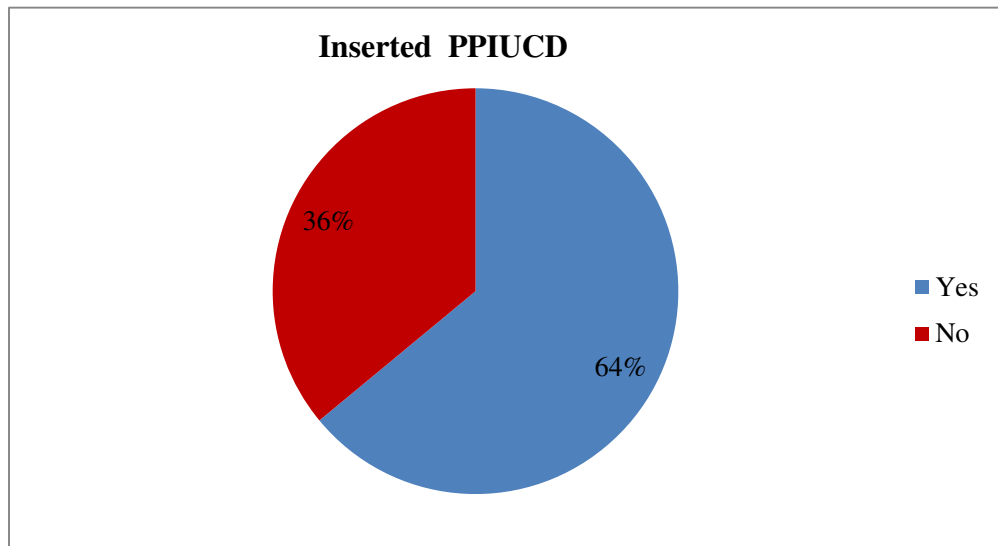


Figure 2: The frequency of Maternity care providers ever inserted PPIUCD in SPHMMC and Gandhi Memorial hospital, Addis Ababa, Ethiopia, 2019 (136)

5.5 Maternity care providers experience related to PPIUCD insertion

Sixty nine 69(50.7%) of the respondents worked as family planning provider for 1-5 years. Fifteen (11%) of respondent stated that their institution had no kit for PPIUCD. Sixty one (44.9%) of participate didn't have training on how to insert IUCD. From those who ever inserted PPUCD majority 62(75.6%) prefer instrumental IUCD insertion as compared to manual insertion. Of those who inserted both, Sixty nine (85.2%) of maternity care providers rated the procedure of PPIUCD insertion as easy as interval IUCD insertion and fifty nine (62.1%) of the respondent didn't see more complication in PPIUCD insertion compared with interval insertion. Of those who provided both, forty one (50.6%) of the participants said implanon was easier while eleven (13.6%) of the participant said PPIUCD was easier.

Table 6: Experience related to PPIUCD insertion among Maternity care providers in SPHMMC and Gandhi memorial hospital, Addis Ababa, Ethiopia, 2019

Question	Frequency	Percentage
For how many years have you worked as family planning provider?		
<1year	63	46.3
1-5 years	69	50.7
>6 years	4	2.9
Does your facility have kit for PPIUCD insertion?		
Yes	118	86.8
No	15	11.0
Have you ever been trained on postpartum IUCD insertion?		
Yes	71	53.8
No	61	46.2
On average, how many PPIUCD did you insert per month?		
None	5	6.1
1-5	68	82.9
6-10	4	4.9
>10	5	6.1
When you perform post-placental IUCD insertion, do you prefer manual or instrumental insertion?		
Manual	19	23.6
Instrumental	63	76.8
How comfortable are you to insert post-partum IUD using Kelly forceps		
Very comfortable	21	25.6
Comfortable	52	63.4
In between	7	8.5
Difficult	2	2.4
How would you rate the procedure of PPIUCD insertion compared with interval IUCD insertion?		
Very easy	22	27.2
Easy	47	58.0

	In difference difficult	10 2	12.3 2.5
Which one is easier for you to do? Implant or Postpartum IUD?			
	PPIUD	11	13.6
	Implanon	41	50.6
	Both are easy	28	34.6
	Both are difficult	1	1.2
How frequent do you counsel candidate clients on PPIUCD?			
	Usually	52	38.2
	Often	44	32.4
	Occasionally	26	19.1
	Rarely	14	10.3
How do you see the coverage of PPIUCD in your facility?			
	Minimal	21	12.5
	Below the average	52	38.2
	Average	46	33.8
	Above the average	17	12.5
Do you see more complication in PPIUCD insertion compared with interval insertion?			
	Yes	13	9.6
	No	100	73.5
	I don't have experience at least on one	23	16.9

Regarding the reason for not counseling and placing PPIUCD, 43.5% maternity care providers mentioned that” being busy with other activities and 35% of them mentioned “forget do so. On 14% of the case clients were not candidate to be counseled. The institution has no PPIUCD provision was reason for not counseling for 4.5% of Maternity care providers.

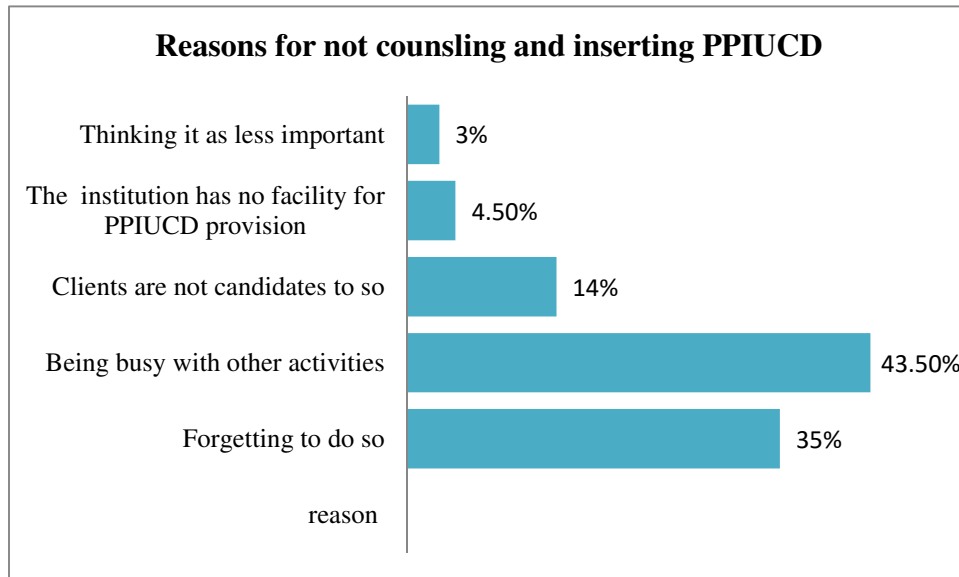


Figure 3: Reason for not counseling postpartum mother to use IUCD, 2019 (n=136) of maternity care providers, SPHMMC and Gandhi memorial hospital, 2019.

5.6 Factor associated with PPIUCD practice of Maternity care providers

Binary logistic regression was done to see the association of each independent variable with the outcome variable. Maternity care providers' age >34 years were 0.18 times less likely to insert PPIUCD than those aged 20-24 year [COR=0.18(95%CI: 0.02-1.32)].

As the result indicates, profession was found to be significantly associated with PPIUCD insertion practice. Midwives were 0.83 times less likely to insert PPIUCD than gynecology residents [COR=0.83(95%CI: 0.27-2.59)]. The other variable that had significant association was attitude. Maternity care providers that had positive attitude was 1.13 times more likely to insert PPIUCD than those had negative attitude [COR=1.13(95%CI: 0.96-1.34)].

The availability of kits in the hospitals for PPIUCD insertion showed a significant association for Maternity care providers to insert PPIUCD. Having kits for PPIUCD insertion in the hospitals increase the chance of insertion of PPIUCD by four times.

The other variable that showed a significant association was training. Maternity care providers who took training were 6.65 times more likely to insert PPIUCD than those didn't take training on counseling and insertion PPIUCD. [COR=6.65(95%CI: 2.33-19.00)].

Table 7: Bivariate analysis of factors affecting PPIUCD practice among health professionals, SPHMMC and Gandhi memorial hospital, Addis Ababa, 2019 (n=136)

Variable	PPIUCD inserted		COR (95% CI)	P-value
	Yes n(%)	No n(%)		
Age				
20-24	24(53.3)	21(46.7)	1	
25-29	37(60.7)	24(39.3)	0.84(0.15-4.64)	0.845
30-34	25(92.6)	2(7.4)	1.09(0.30-3.93)	0.887
>34	1(33.3)	2(66.7)	0.18(0.02-1.32)	0.012*
Sex				
Male	59(69.4)	26(30.6)	1	
Female	28(54.9)	23(45.1)	0.60(0.17-2.15)	0.437
Name of the hospital				
SPHMMC	57(65.5)	30(34.5)	1	
Gandhi memorial	30(61.2)	19(38.8)	0.66(0.22-1.95)	0.453
Marital status				
Single	51(60.7)	33(39.3)	1	
Married	36(72.0)	14(28.0)	0.84(0.27-2.59)	0.761
Profession				
Resident	63(76.8)	19(23.2)	1	
Midwife	24(45.3)	29(54.7)	0.83(0.27-2.59)	0.024*
Knowledge				
Good knowledge	64(70.3)	27(29.7)	1	
Poor knowledge	23(69.2)	22(30.8)	1.07(0.89-1.29)	0.429
Attitude				
Negative attitude	11(66.2)	6(33.8)	1	
Positive attitude	73(61.3)	46(38.7)	1.13(0.96-1.34)	0.018*
For how many years have you worked as family planning provider?				
<1year	26(41.3)	37(58.7)	1	
1-5 years	59(85.5)	10(14.5)	1.46(0.08-27.072)	0.79
>6 years	2(50.0)	2(50.0)	0.25(0.01-4.470)	0.34
Does your facility have kit for PPIUCD insertion?				
Yes	82(67.8)	39(32.2)	5.92(1.29-27.03)	0.022*
No	5(33.3)	10(66.7)	1	
Have you ever been trained on postpartum IUCD insertion?				
Yes	63(84.0)	12(16.0)	6.65(2.33-19.00)	0.00*
No	24(39.3)	37(60.7)	1	

5.7 Multivariable analysis

All variables associated at P value < 0.25 were under consideration in the bivariate analysis were also entered to multiple logistic regressions with the dependent variable. Among those variables entered, three of variables (profession, attitude, availability of kits and training) were found to have significant independent associations with PPIUCD insertion practice p value<0.05. The remaining variables had no independent effects on the practice of PPIUCD.

Health professional level of profession was significantly associated with PPIUCD insertion practice. Midwives were 0.27 time less likely to insert PPIUCD than those gynecology residents [AOR= 0.27(95%CI: 0.08-0.84)]. The other variable was attitude, participants with positive attitude were 1.01 times more likely to insert PPIUCD than those with negative attitude [AOR=1.09(95%CI: 1.01-2.26)].

Regarding training, health professionals who were trained were 5.34 times more likely to insert PPIUCD than those who were not [AOR=5.34(95%CI: 3.08-24.52)].

Having kits for PPIUCD insertion in the hospitals increase the chance of insertion of PPIUCD by four times.[AOR= 4.20(95%CI: 2.01-29.95)]. (Table 8)

Table 8: Bivariate and multivariate logistic regression analysis of factors associated with PPIUCD insertion practice of health professionals, SPHMMC and Gandhi hospital, Addis Ababa, 2019 (n=136)

Variable	PPIUCD inserted		COR (95% CI)	AOR (95% CI)
	Yes n(%)	No n(%)		
Age				
20-24	24(53.3)	21(46.7)	1	
25-29	37(60.7)	24(39.3)	0.84(0.15-4.64)	0.87(0.23-5.52)
30-34	25(92.6)	2(7.4)	1.09(0.30-3.93)	0.98(0.30-3.29)
>34	1(33.3)	2(66.7)	0.18(0.02-1.32)	0.23(0.03-1.50)
Profession				
Resident	63(76.8)	19(23.2)	1	
Midwife	24(45.3)	29(54.7)	0.83(0.27-2.59)	0.27(0.08-0.84)*
Knowledge				
Good knowledge	64(70.3)	27(29.7)	1	
Poor knowledge	23(69.2)	22(30.8)	1.07(0.89-1.29)	1.48(0.58-3.77)
Attitude				
Negative attitude	11(66.2)	6(33.8)	1	
Positive attitude	73(61.3)	46(38.7)	1.13(0.96-1.34)	1.09(1.01-2.26)*
For how many years have you worked as family planning provider?				
<1year	26(41.3)	37(58.7)	1	
1-5 years	59(85.5)	10(14.5)	1.46(0.08-27.072)	1.05(0.07-14.87)
>6 years	2(50.0)	2(50.0)	0.25(0.01-4.470)	0.20(0.01-2.99)
Does your facility have kit for PPIUCD insertion?				
Yes	82(67.8)	39(32.2)	5.92(1.29-27.03)	4.20(2.01-29.95)*
No	5(33.3)	10(66.7)	1	1

**Have you ever been trained on
postpartum IUCD insertion?**

Yes	63(84.0)	12(16.0)	6.65(2.33-19.00)	5.34(3.08-24.52)*
No	24(39.3)	37(60.7)	1	

*p value <0.05

Discussion

The postpartum period represents a critical window of opportunity for women to receive family planning services because many will access health services during pregnancy and childbirth at which point they can be introduced to and linked with PPFP services [5]. This health facility based cross sectional study was aimed at assessing knowledge, attitude and practice of maternity care providers on PPIUCD insertion and explore potential factors associated with PPIUCD insertion practice. In this study, 64% of the participant had ever inserted PPIUCD. Significant majority 87.5% were considered to have positive attitude and 66.9% had good knowledge regarding PPIUCD. The findings revealed that PPIUCD insertion practice had significant association with type profession, attitude, availability of kits for PPIUCD insertion and being trained.

The participants who ever inserted PPIUCD on this study was 64%. This is higher than a study from Kenya which found that 28.6% inserted PPIUCD [21]. A similar study done in USA showed an inserted PPIUCD rate as 10.1% [25]. The difference could be due to the difference in time that the studies has done. In early time people were not willing to use IUCD (long term contraceptive) due to lack of awareness but now a day a lot of women want to use IUCD. This could be supported by 2016 EDHS report which shows utilization of long term contraceptive is increasing from 2011 to 2016 [3].

On this study, 87(64%) reported experience of placing an immediate PPIUD with the majority of them 68 (82.9%) having placed one to five PPIUDs per month. The most common reasons mentioned by participates not to counsel and insert on PPIUCD was "being busy with other

activities 43.5% and “forgetting to do so 35 %”. While similar study done on academic teaching hospitals in Massachusetts showed the commonest reasons not to do so “feeling inadequately trained and PPIUCD not being available at their institution 60%. The difference on the reasons not to do so with this study might be due to difference of hospital setting with ours. [16].

On this study we found (66.9) % of maternity care providers had good knowledge about PPIUCD. This is much higher from study done in Malaysia which stated that only 39.2% of health professional had good knowledge about PPIUCD and in USA which found that there were notable knowledge gaps among the respondents about immediate postpartum [17, 25]. This might be due to the time difference of studies and since, this is an academic center with higher tendency to provide residents and midwives on updated knowledge on relatively newer time for IUCD insertion, post partial time.

Regarding, Maternity care providers attitude to PPIUCD, 87% of health professional had positive attitude. This study also found that 79.9% of health professional agreed that HIV positive women should use PPIUCD. This is higher than a result from South Africa study only 4.8% suggested PPIUCD for HIV positive mothers [26]. This study also found maternity care providers perceive that only 18% of the respondents think that their clients were unsatisfied on their choice of PPIUCD.

As this study indicate, Maternity care providers with positive attitude were more likely to insert PPIUCD than those with negative attitude. A study done on health workers attitude of PIUCD in Malaysia stated that addressing provider attitudes remains a key component in the approach to reducing barriers to IUD use [19].

Regarding profession type of Maternity care providers, Gynecology residents were more likely to insert PPIUCD than Midwives. A study done in Ghana found that 44% medical doctors insert while only 17% of midwives ever inserted PPIUCD [22]. This could be explained by gynecology residents may have more opportunity to be trained than midwives and difference in type of profession could also have difference in level of confidence on the service they are providing. They may have also more exposure for practice of PPIUCD when inserting Trans C/S IUCD while doing C/S. The type of profession can affect the practice of PPIUCD provision due to mentioned reasons.

The other variable that has significant association with PPIUCD insertion practice was availability of PPIUCD insertion kits in the hospital. This could be explained by it is known that without the availability of the service it is impossible to deliver the service. So the availability of kit is very important to talk about the practice.

This study found that training was one of the predictors for Maternity care providers to insert PPIUCD. Maternity care providers who trained were more likely to insert PPIUCD than those didn't trained. This is similar to the finding from El Salvador where lack of training was the major reason for health care providers not to insert PPIUCD [20]. Other study done in USA also found that health profession took training earlier were more likely to insert PPIUCD than those trained later [14]. Other qualitative study done in Uganda stated that lack of adequate training affect PPIUCD insertion practice [27].

Strength and limitation

Strength

- High response rate compared to the response rate of other similar studies.
- Included two different government hospitals with highest number of delivery and maternity care provider.

Limitation

- Not included private and other government hospitals.
- Not included other Maternity care providers like Gynecologists and Nurses
- Using non probability convince Sampling technique for selecting study unit

Conclusion

Overall, Maternity care providers had ever inserted PPIUCD was high both in SPHMMC and Gandhi memorial hospital. The study also revealed that the Maternity care providers who were working at SPHMMC and Gandhi Memorial Hospital during date collection period had good knowledge and had positive attitude PPIUCD provision. Type of Profession, attitude, availability of IUCD kit in the institution and training were significantly associated with PPIUCD insertion practice.

Recommendation

Hospital administrators and supervisors

- Evaluate the effectiveness of the training regarding PPIUCD that is given for Maternity care providers on Pre service and in service bases.
- Arrange in service trainings for OBGYN residents and Midwives to increase their skill on counseling and insertion of PPIUCD.
- Should be responsible to make sure the facilities had enough PPIUCD kits for insertion regularly.
- Assigning or increasing number of OBGYN residents and Midwives who involve primarily on provision of PPIUCD during busy times such as duty times

For health professional

- Those who had attended training or had more work experience related to PPIUCD should be willing to and train other health professional with less work experience

For stake holders

For those working on Family planning such as like CIRT, JIPGO

- To work in collaboration with hospitals by proving financial support for availing important kits needed for PIUCD and arranging trainings for Midwives and Residents

For researchers

- Further study with larger scope with the triangulation of qualitative methods from all maternity care providers of both government and private hospitals is recommended for more generalizable findings on the **KAP** among Maternity care providers and factories affecting the practice of PPIUCD insertion in this hospitals and others

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ANNEXES

QUESTIONNAIRES

Consent form

- Dear respondent, you are invited to participate in this research voluntarily and kindly requested to respond to the following questions that asks about your socio-demography, knowledge, attitude and practice of PPIUCD as well as your perception on barriers and solution of PPIUCD. You are selected randomly and your participation will contribute a lot for assessing provider barriers for PPIUCD provision
- Understanding that your honest and genuine response will have significant contribution to the success of this study, please take your time to respond to all questions. No name is going to be on the questionnaire and the information you give will be kept strictly confidential.
- The principal investigator and data collector is Me, Dr. Aregehagn Mulugeta , OBGYN resident at SPHMMC .
- This research project was reviewed and approved by the IRB saint Paulo's hospital millennium medical college. If you have any question you can contact me

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I hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating voluntarily in the research project. I understand that I am at autonomy to withdraw from the project at any time.

Signature of participants_____ date _____

Name and signature of data collector_____ date _____

Part I Sociodemographic characteristics		
1.1	Age	_____
1.2	Currently working Hospital	1. SPHMMC 2. Gandhi Memorial Hospital
1.3	Religion	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Others (specify)
1.4	Marital status	1. Single 2. Married 3. Divorced 4. Widowed
1.5	How many children do you have?	1. No child 2. 1 – 2 children 3. 3 – 4 children 4. 5 and more children
1.6	What is your Profession	1. OBGYN specialist 2. OBGYN resident 3. Nurse 4. Midwife
Part II Knowledge questions		
2.1	What are specific times that PPIUDs can be inserted? More than one response is possible?	1.Immediate post-placental (<10 min) , 2.Within 48 hours of delivery, 3.b/n 48 hours of delivery to six week 4.After six week post-partum 5.I am not sure about the time

2.2	When is the best time to counsel women on PPIUCD?	1. At ANC 2.In labor 3. Right after delivery 4. During PNC visits 5.Other, specify:_____
2.3	How do you compare IUD expulsion rate?	1. Higher with immediate postpartum compared to interval IUD placement. 2.The same 3.Lower with immediate postpartum compared to interval IUD placement 4.I m not sure
2.4	What is the chance of falling pregnant with PPIUCD?	1.No chance 2. The same as sterilization 3.Same as using condom 4.I am not sure
Part III Attitude questions		
3.1	How do you see the use of PPIUCD in primeparous?	1. Strongly agree , 2.Agree, 3.Indifferent, 4.Disagree,5. Strongly disagree
3.2	How do you see the use of PPIUCD in HIV patients?	1.Strongly agree , 2. Agree , 3.Indifferent, 4.Disagree,5. Strongly disagree
3.3	How do you see the use of PPIUCD in mothers with ROM?	1.Strongly agree , 2. Agree , 3.Indifferent, 4.Disagree,5. Strongly disagree
3.4	On a scale of 1-5, 1 as “the least” and 5 “the most painful”, how do you think most clients would rate the pain they experienced during PPIUCD insertion?	1.Not painful at all 2. A little bit painful 3.In between 4.Painful 5.Very painful
3.5	Can you estimate: out of 10 PPIUCD clients, how many of them are satisfied with their choice?	[__,_9_]/10 are satisfied

3.6	How do you see the provision of PPIUCD in your facility?	1.Universl, 2. Above the verge,3. Average , 4. Below the average ,5.Minimal
3.7	Can you estimate: out of 10 PPIUCD clients, how many of them use PPIUCD for spacing?	[__,__3]/10 for spacing
3.8	Can you estimate: out of 10 PPIUCD clients, how many of them use PPIUCD for limiting?	[__,__6_]/10 for limiting
3.9	How do you see the importance of PPIUCD to your clients?	1. Very important , 2.Important, 3.Indifferent, 4.Not important
3.10	Will you consider PPIUCD for yourself and/or for your family?	1. Strongly consider , 2.Consider, 3.Indifferent, 4.Not consider,5. Strongly not consider

Part I11 Practice questions.		
4.1	For how many years have you worked as family planning provider?	1.<1year 2. 1-5 years 3. 6-10 years 4.>10 years
4.2	Does your facility have kit for PPIUCD insertion?	1. Yes 2.No
4.3	Have you ever been trained on postpartum IUCD insertion?	1. Yes 2. No
4.4	Have you ever inserted PPIUCD?	1. Yes 2.No

4.5	On average, how many PPIUCD did you insert per month? –	1.none 2.1-5, 3.6-10, 4.11-15 5.>15
4.6	When you perform post-placental IUCD insertion, do you prefer manual or instrumental insertion?	1.Manual 2. Instrumental 3.No preference
4.8	How comfortable are you to insert post partum IUD using Kelly forceps?	1. Very comfortable 2.Comfortable 3.In between/in difference 4.Difficult 5.Very difficult
4.9	On a scale of 1-5, 1 as “easiest” and 5 as “most difficult”, how would you rate the procedure of PPIUCD insertion compared with interval IUCD insertion?	1.Very easy 2. Easy 3.In between/in difference 4.Difficult 5.Very difficult 6.I didn’t insert interval IUCD to compare
4.10	Which one is easier for you to do? Implant or Postpartum IUD?	1.PPIUD 2.Implanon 3. Both are easy 4.Both are difficult 5. I didn’t insert implanon to compare
4.11	How frequent do you counsel candidate clients on PPIUCD?	1. Usually 2.Often 3.Occsionly 4.rarely

		5.No
4.12	What do you think the reasons for not counseling pregnant & laboring mothers on PPIUD in your facility? ,More than one answer is possible	1. Forgetting to do so 2. Being busy with other activities 3. Clients are not candidates to so 4. The institution has no facility for PPIUCD provision 5. Thinking it as less important 6. Others, specify.....
4.13	In your experience, do you see more problems or complications in PPIUCD insertions compared with interval insertions?	1. Yes 2. No 3. I don't have experience on at least on one of them