

Research Article

Acceptance Level and Associated Factors of Immediate Post-Partum Intrauterine Contraceptive Device Among Women Delivered in Hospitals of North Shoa Zone, Ethiopia

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Abstract

Introduction: Regardless of the fact that it is highly effective, inexpensive, non-hormonal, and immediately reversible; in developing countries, including Ethiopia, the acceptance rate of postpartum intrauterine contraceptive devices was not well known. Hence, the goal of the study is to determine acceptance level and associated factors among women delivered in public hospitals of North shoa zone. **Method:** A Hospital based cross-sectional study was utilized. A pre-tested questionnaire was used to collect data. The collected data were entered into Epidata version 4.6.0.2 and then exported to SPSS version 26 for analysis. Binary logistic regression analysis was used to identify the independent effect of predictors on outcome variables. Those variables with a P-value of ≤ 0.25 during bivariable logistic regression analysis were the candidate for multivariable analysis. Adjusted odds ratio (AOR) at 95% CI was used to assure statistical significance association between acceptance level of immediate post- partum IUCD and associated factors with p-value ≤ 0.05 . Finally, findings of study were presented using narration, table, Chart and graph. **Results:** This study had included 534 delivered women to assess the acceptance level of immediate PPIUCD and its associated factors. Women's occupation (government employee) (AOR=3.23, 95% CI: (1.23-5.95)), Favorable attitude ((AOR = 10.93, 95% CI: (4.93-23.89)) and Knowledge toward IUCD (AOR=2.56, 95% CI: (1.70-8.26)) were factors identified to be associated with the acceptance level of immediate PPIUCD. **Conclusion and recommendations:** The acceptance level of immediate postpartum intrauterine contraceptive device was low. Maternal occupation, maternal knowledge about IUCD and attitude are associated with the acceptance level. Health education, a change in women's attitudes, and frequent training for healthcare workers are very important.

Keywords

Acceptance Level, Acceptance Rate, IUCD, Factors

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1. Introduction

Family planning is an essential basic human right for the well-being of women, families, and communities [1]. Programs for postpartum family planning and empowerment lead to improvements in reproductive health outcomes, including acceptance and use of contraception and safer sexual behaviors [2]. Rapid and unchecked population growth is one of the most urgent issues facing developing nations [3]. While focusing on women's actions and services in the context of maternal and child health, studies and campaigns on fertility and family planning in the past have disregarded the role of men [4].

The intrauterine contraceptive method is exceptionally successful during the postpartum period, quickly reversible after termination, non-hormonal, long-acting, and safe for the majority of postpartum women. It can be begun within 10 minutes or up to 48 hours after the third stage of labor. There were no specifics regarding immediate contraception use in the postpartum period, but the majority of women did not wish to become pregnant right away. The study found that 86% of unplanned postpartum pregnancies are brought on by women who don't use contraception, and that 88% of pregnancies end in abortion [5].

The second-most common birth spacing operation worldwide is using an intrauterine contraceptive device (IUCDs). IUCDs with copper can take on a variety of forms and dimensions. The WHO advises purchasing the "T"-shaped intrauterine device (IUD) TCU380A in large quantities [6]. Low complexity, reasonably priced, and Convenient [1-3]. Despite these advantages, there was limited knowledge on the acceptance of post-partum Intra Uterine contraceptive device (PPIUCD) in Ethiopia [7].

In the first year following delivery, the Postpartum Intra-Uterine Contraceptive Device is used to stop unwanted and close-spaced pregnancies. Intrauterine contraception is frequently offered in healthcare institutions; however IUCD is not well accepted because of spouse or family member denial, ignorance of the issue, or fear of the potential side effects. However, greater acceptance rates among multipara females have been noted (69%) and they want to become pregnant in the future when more than two years have passed since their last delivery (75%) [8, 9]. The WHO's medical eligibility requirements claim that PPIUCD doesn't bother nursing mothers. Furthermore, it is secure for women and their medical professionals to permit moms to receive very efficient contraception while they are under the care of the system during the postpartum period [1, 7].

While 59% of teenagers use effective methods like IUCD and implants, according to American College of Obstetricians and Gynecologists, 82% of teenagers who may be at risk of an unintended pregnancy use contraception like condoms and oral contraceptives, because they are short-acting methods, and have high discontinuation rate than long-acting reversible methods [10].

Unfairly and intolerably increasing numbers of maternal mortality are tied to pregnancy. Worldwide, 295,000 women per year died from pregnancy-related causes during pregnancy, childbirth, and the postpartum period in 2017. It accounts for 86% of maternal deaths worldwide, primarily in developing nations like South Asia and sub-Saharan Africa [11].

Premature labor, postpartum hemorrhage (PPH), low birth weight babies, neonatal deaths, and indications of malnutrition and growth and development are all associated with short birth interval as one of the most important causes of maternal death [5].

High population growth rates is a pressure and the key problem for developing countries infrastructure, expansion, housing, health care, educational facilities, employment opportunities, reducing maternal and infant mortality [12]. Unwanted pregnancy is high in developing countries compared to their counterpart. The unintended pregnancy can be prevented if sexual, family planning, and reproductive health services are provided [13].

The ratio of maternal mortality in Ethiopia was estimated at 401 per 100,000 live births in 2017, which is volatile during labor and delivery, and postpartum time [14]. In Ethiopia, the highest TFR (Total Fertility Rate) is 4.6%, given such unregulated population growth and its effect on society's socio-economic development, great emphasis has been put on family planning, which plays a major role in reducing fertility worldwide. However, the unmet need for FP is 22% [15].

A study carried out in India revealed that the acceptability and feasibility of immediate postpartum IUCD were 36% because of factors such as ignorance, low education, family pressure, and numerous misconceptions for IUCD insertion [1].

According to World Journal of Pharmaceutical and Medical Research's 2018 consecutive three-year study, the majority of the accepted PPIUCD age group was between 20 and 24 (49.5%), and vaginal births outnumbered cesarean deliveries by a ratio of 59.5% [16]. According to study done in India, the majority of the women advised were between the ages of 20 and 29 years, with 88.5% of them accepting PPIUCD insertion. However, after the age of 30, roughly 60% of the women refused IUCD insertion [17]. Another study conducted in Ethiopia's Bale zone found that roughly 30% of postpartum women in the 21–25-year age group were accepted PPIUCD insertion [3].

According to a study, the biggest cause for non-acceptance was the necessity to discuss the operation with the partner and family (35.93%), followed by their refusal (10.04%). In the current survey, women aged 20 to 29 years (64.60%), those from urban regions (57%), Hindus (51.44%), those with secondary or higher education levels (63%), and those from middle socioeconomic position (52%) were the most well-accepted groups [8].

Research done in Kenya found that 86.3% of postpartum women utilize contraception. Women under the age of 25 used contraception more frequently than other age groups. The mothers' ages, employment position, and marital status were the key indicators of contraceptive use among these women [18]. According to a study done in Ethiopia, having an IUCD was strongly correlated with having a supportive spouse or partner, having educated women, and learning about IUCD from the media [19].

The other important variable for the use of IUCD in the Bahir Dar trial was educational status. In comparison to women who couldn't read or write, these participants had IUCD rates that were higher, 8.08 times higher in elementary school, 8.89 times higher in secondary school, and 21.24 times higher in college and higher education [20]. Another study using PPIUCD on pregnant women in Ambo, Ethiopia, indicated that participants with a diploma or above were three times more likely to be involved than individuals with low education [21]. According to world journals and pharmaceutical and medical research, the proportion of acceptance of PPIUCD was higher in caesarian section (59.2%) than in vaginal deliveries (40.8%) and a sudden rise in acceptance of PPIUCD in vaginal delivery was observed during the study [22].

The other study carried out in India reveals that only 133 (16.4%) intra-caesarian PPIUCD insertions were performed, making up the majority of PPIUCD insertions, or 678 (83.6%) out of 811 vaginal deliveries [5]. On the other hand, in the study conducted in the same country, 48% approved PPIUCD. Just 27% of Grand Multipara has accepted the PPIUCD [1].

Women who gave birth naturally (SVD) were three times more likely to use PPIUCD than women who gave birth artificially (C-section); participants who received PPIUCD counseling from the provider were three times more likely to use PPIUCD than those who did not during the study; and the prevalence of PPIUCD use was 28.1% in a mixed study conducted in Rwanda [23].

According to South African obstetrics and gynecology journals, 2.7% of women who had used the IUCD had some familiarity with the injectable method of contraception, and 46% of women knew something about it. However, 75.3% of women believed that the IUCD causes heavy bleeding, and 70.7% knew that the system does not prevent HIV transmission. In the postpartum period, the IUCD could be implanted immediately after delivery, and 26.7% of respondents knew that its 10-year lifespan could be extended [24].

The majority of the mothers in mixed research done in Rwanda said they were aware of the PPIUCD (84.6%). Use of PPIUCD was motivated by its long-acting nature (9.1%), associated reduced side effects (14.9%), and absence of impact on nursing (10.2%). Some moms chose not to utilize the PPIUCD method because of their spouses' rejection (10%), a lack of understanding about the treatment itself (12%), or a fear of the negative effects (10%) [23]. Only 2.58% of moms were reportedly aware of PPIUCD, according to

another study. The overall acceptance rate was found to be 2.94 percent, and mothers' awareness of PPIUCD was low [25].

Additionally, compared to women who planned to become pregnant, women who became pregnant unexpectedly were less likely to take PPIUCD, according to a study carried out in the Sidama region of south Ethiopia. Women were less likely to use PPIUCDs if they had never heard of them. Women who did not receive PPIUCD counseling were less likely to utilize it than those who did [7].

IUCD may be mounted in the uterus (80.7%), has no risk of sexually transmitted illnesses (40.8%), and does not interfere with highly valued sexual intercourse (43.2%), according to another study carried out in Ethiopia's Bale region. The acceptance of instant PPIUCD was low, and the rejection of immediate PPIUCD with its distinct purpose—17.7% partner rejection, 24.8% fear of complications, and 19.8% religious' belief—was high. The mean score for correctly answered questions concerning information was (13.74 2.8 SD) [3].

According to South African obstetrics and gynecology journals, 40% of women reported worry about the discomfort of the insertion, 33.3% thought the IUCD would cause cancer, and 32.0% thought the device interfered with natural sexual conduct. During teaching and therapy sessions, 77.3% of the participants learned what they knew about the IUCD from the clinic [24].

According to a study done in Mekele, Ethiopia, the main reasons given for not using long-acting reversible contraceptives were the adverse effects (44.8%) and the fear of infertility (40.9%). Mothers who made up more than half of the sample lacked support for long-acting contraceptives. The only independent predictors of acceptability of long-acting contraceptives were women who had a favorable attitude toward reversible long-acting contraception [26].

Another study, also carried out in southeast Ethiopia's Bale region, revealed that mothers concurred that IUCD insertion and removal are extremely unpleasant (33.6%), IUCD insertion results in private revelation (33.6%), and that IUCD use hinders daily activities (27.4%). The average mark for successfully answering the attitude questions was (8.74 2.46) [3].

The prevalence of immediate PPIUCD was found to be 28.1% in the study done in Rwanda. Mothers who did not obtain counseling and spouse approval were contributing factors [23]. The study carried out in Bale, Ethiopia revealed that the acceptance of immediate PPIUCD was poor as a result of various variables including worry about complications, religious convictions, and spouse resistance [3]. This study considered high precision level than the others ($d=4\%$). There is also no study done related to this title in the study area. Because there is a lack of knowledge regarding the causes of the stagnation or decline in the use of IUCD in Ethiopia, the main objective of this study was to identify the rate of acceptance of PPIUCD and the factors that associated with it.

2. Method and Materials

2.1. Study Area and Period

The study was conducted at public hospitals in North Shoa zone; which is one of the zones in Oromia Regional State and its administrative town is Fiche town, which located 114 km away from Addis Ababa, the capital city of Ethiopia. The zone is administratively divided into 14 districts and two town administrations. As per the 2021 census, the zone has a total population of 1,786,067, of whom 876,252 were men and 909,815 were women [27]. In terms of health facilities, the North Shewa zone has six public hospitals, 63 health centers, and 267 health posts [28]. These Health facilities provide multidimensional health care services for the catchment's area population. The study was conducted from March 1–to April 30, 2023.

2.2. Study Design

A hospital based cross-sectional study was done.

2.3. Population

2.3.1. Source Population

The source population was all mothers who delivered in North shoa zone public hospitals.

2.3.2. Study Population

The mothers who gave birth in North shoa zone public hospitals during the study period.

2.4. Eligibility Criteria

2.4.1. Inclusion Criteria

All mothers who delivered in North shoa zone public hospitals.

2.4.2. Exclusion Criteria

Women who did not full fill WHO medical eligibility criteria for Intra-Uterine contraceptive device, women with 3rd and 4th-degree tear during delivery, and seriously sick were excluded from the study.

2.5. Sample Size and Sampling Techniques

The sample size required for this study was calculated based on a single population proportions formula. According to a study conducted in Rwanda on factors associated with the uptake of the immediate contraceptive devices, the prevalence of acceptance rate was 28.1% [23]. The total number of the three consecutive average monthly delivered women in Hospitals of the zone was 1350.

$$n = \frac{(Z_{\alpha/2})^2 \times pq}{d^2}$$

$$(1.96)^2 \times 0.281(1-0.281) / 0.04^2$$

Where,

n= the desired sample size q=1-p

p= the proportion = 0.281

Z= was the standard normal score set at 1.96 (95% confidence interval) d= the margin of error to be tolerated (4%)

2.6. Sampling Procedure

Four public hospitals provide labor and delivery service in the study area namely; Salale University comprehensive specialized hospital, Kuyu hospital, Muketuri hospital and Chancho hospital were included in the study.

The average total births during the study period were approximated to be 1350 as estimated from the preceding months' delivery flow of each hospital. The sampling interval was estimated by dividing the total study population of 1350 by the sample size ($n = 534$). The sampling fraction or K-value was 3. The first study participant was selected by lottery method for each hospital independently and the next participants were selected every 3rd mother. The total sample size (534) was allocated proportionally for the four public hospitals based on the number of delivered women in each hospital.

2.7. Data Collection Tool and Procedure, Data Quality Assurance, and Data Management and Analysis

A pre-tested and interview administered questionnaire was used. The survey questionnaire were taken and adapted from different literatures. The questionnaire was translated into local language for data collection before being returned to English by two language experts who were fluent in both English and local language to increase consistency, accuracy and made it easier to communicate with participants. Pretest was undertaken on 5% of the sample at Fiche Health centers, Degen Health center and Debretege Health center. Data collectors were trained on data collection tools and the principal investigator and field supervisor rechecked the completeness and clarity of the questionnaire immediately after the interview at the field level and during submission. Good contact was established between respondents and data collectors, questionnaires filed were reviewed for completeness regularly and errors were corrected.

The completeness of the questionnaire collected was manually reviewed, coded, and entered into Epidata version 4.6.0.2 statistical set, and then exported for further review to SPSS version 26. Descriptive statistics was carried out and summarized. Descriptive statistics including frequencies and percentages were measured to describe the sample population

with specific variables. In addition, dependent and independent variables were used to compute cross-tabulation.

Bivariable and multivariable logistic regression analysis was conducted to show the relative influence of the independent variables on the dependent variable. To control the impact of cofounders and not to miss associated factors on the outcome variable, the variables relevant in bi-variable analysis ($P < 0.25$) were entered into a multivariable logistic regression model. For those variables that display a statistically significant correlation in bivariable analysis, multiple logistic regression analysis was then conducted and examines independent predictors by monitoring for potential confounders.

The adjusted odds ratio was used to measure the strength of association at 95% CI to assess the existence and strength of association, and if $p < 0.05$, statistical significance was declared.

2.8. Study Variables

Dependent variable: -Acceptance level of immediate PPIUCD

Independent variable

Socio-demographic characteristics

Age, marital status, educational level, occupation, monthly income

Obstetrics characteristics

Parity, gravidity, desire children, previous use of FP method, mode of delivery

Knowledge and awareness

Source of information, inadequate knowledge, contraceptives

Attitude

Health care system and Contraceptive

2.9. Operational and Conceptual Definition

Acceptance level: Woman's verbal consent to use IUCD within 10 min to 48 h of delivery of placenta after they counseled about PPIUCD [29].

Knowledge of immediate delivered women about PPIUCD: The total number of responses to 6 information objects, with a minimum score of 0 and a maximum score of 6, were calculated. It was categorized as "high" to quantify the information based on the percentage of people who knew 80 percent or more of knowledge questions about immediate PPIUCD, "moderate" to those who knew 60-79 percent, and "low" to those who knew less than 60 percent [21, 30].

Attitude on PPIUCD: -The attitude of immediate PPIUCD was grouped and submitted by using the —Likert scale. To measure the attitude of immediate PPIUCD the items were assigned into two categories: favorable attitude- women who score above 60% of attitude questions and unfavorable attitude for those women who score below 60% of the attitude items [21, 30].

2.10. Ethical Consideration

An ethical clearance and approval was obtained from Salale University Institutional Review Board and permission was gained from Hospital administrators. The purpose of the study has been explained to the respondents selected for the interview informed and consent was gained.

3. Result

3.1. Socio-Demographic Characteristics of Acceptance Rate and Associated Factors of Immediate PPIUCD

A total of 534 participants were approached and responded to the questionnaires which account of 100% responses. About 167 (31.6%) of the respondents' age group was from 25-29 years. The study participants' mean age was 29.87 (SD (6.1 years)), with a minimum and maximum age of 16 and 41 years, respectively. Majority of the study participants were orthodox 382 (71.5%) and, 85 (15.9%) and 67 (12.5%) participants were Muslim and protestant respectively. Regarding marital status 502 (94%) participants were married.

Concerning participant's educational status 302 (56.6%), 190 (35.5%) and 42 (7.9%) were primary, secondary and College and above respectively. Regarding maternal occupation, 337 (63.1%) were housewives [Table 1](#).

3.2. Obstetric Characteristics of the Participants

Of 534 participants 464 (86.9 %) had ANC visits. Related to previous family planning methods, 405 (75.8%) were used any methods of contraceptives. The majorly used methods of contraceptives were Pills by 209 (39.1%) participants and Injectable by 78 (14.6%) participants [Table 2](#).

3.3. Awareness of the Participants Towards Immediate PPIUCD

The greater number 218 (64.9 %) of the participants reported that they had Ever heard about immediate PPIUCD and source of information for the majority of the participants were health professionals 136 (40.5%); and mass media and Neighbors/friends/relatives were used as source of information in 112 (33.3 %) and 44 (8.2%) mothers respectively. women who had ever heard IUCD Could be inserted immediately after delivery were 128 (38.1%).

3.4. Knowledge of the Participants Towards Immediate PPIUCD Usage

The study report showed that 341 (63.8%) of participants had low knowledge, One hundred- forty-five (27.2%) had

high knowledge and 48 (9%) women had moderate knowledge. Two hundred nine (39.1%) of women know that IUCD prevents unwanted pregnancy for at least 3 years. One hundred eighty three (34.3%) of women know that IUCD is immediately reversible after termination at any time.

3.5. The Overall Knowledge Level of the Women About Immediate PPIUCD

The majority of the participant's women 341 (63.8%) had low knowledge, One hundred- forty-five (27.2%) had high knowledge and 48 (9%) women had moderate knowledge Figure 1.

Table 1. Socio-demographic characteristics of acceptance level and associated factors of immediate postpartum intrauterine contraceptive device use among women who delivered in selected governmental hospitals of North Shoa Zone, Oromia, Ethiopia; 2023 (n=534).

| Residence | | |
|-----------|-----|------|
| Urban | 233 | 43.6 |
| Rural | 301 | 56.4 |
| Age | | |
| <19 | 24 | 4.5 |
| 20-24 | 74 | 13.5 |
| 25 -29 | 167 | 31.6 |
| 30-34 | 122 | 22.5 |
| 35 | 149 | 27.9 |

| Residence | | |
|-----------------------------------|-----|------|
| Marital status | | |
| Married | 502 | 94 |
| Single | 6 | 1.1 |
| Divorced | 16 | 3 |
| Widowed | 10 | 1.9 |
| Educational status of the husband | | |
| No education | 130 | 24.3 |
| Elementary (1-8) | 136 | 25.5 |
| High school (9-12) | 68 | 12.7 |
| College and above | 200 | 37.5 |
| Occupation | | |
| Housewife | 337 | 63.1 |
| Governmental work | 46 | 8.6 |
| Private worker | 93 | 17.4 |
| Farmer | 14 | 2.6 |
| Student | 44 | 8.2 |
| Monthly income (in ETB) | | |
| 3200 and below | 272 | 50.9 |
| 3201-5250 | 127 | 21.9 |
| 5251-7900 | 80 | 15 |
| 7901and above | 65 | 12.2 |

Table 1. Obstetrics characteristics of acceptance rate and associated factors of immediate postpartum intrauterine contraceptive device among women who delivered in selected hospitals of North Shoa Zone, Oromia, Ethiopia; 2023 (n=534).

| Variable | Category | Numbers | Percentage (%) |
|---|------------|---------|----------------|
| ANC visits | No visit | 70 | 13.1 |
| | <4 visits | 209 | 39.1 |
| | >=4 visits | 255 | 47.8 |
| Mode of delivery | SVD | 486 | 91 |
| | CS | 48 | 9 |
| History of previous FP method usage | Yes | 405 | 75.8 |
| | No | 129 | 24.2 |
| What types family planning you ever used (if ever used) | IUCD | 18 | 4.4 |
| | Pills | 234 | 57.7 |
| | Implants | 75 | 18.5 |
| | Injectable | 78 | 19.2 |

| Variable | Category | Numbers | Percentage (%) |
|---|-------------|---------|----------------|
| Decision on the Number of pregnancies to have | Wife | 250 | 46.8 |
| | husband | 59 | 11 |
| | Both | 225 | 42.1 |
| Number of pregnancies | 1-2 | 210 | 39.3 |
| | 3-4 | 188 | 35.2 |
| | 5 and above | 136 | 25.5 |
| Number of children alive | 1-2 | 239 | 44.8 |
| | 3-4 | 175 | 32.8 |
| | 5 and above | 120 | 22.2 |
| Status of pregnancy | Planned | 400 | 74.9 |
| | Unplanned | 134 | 25.1 |
| Number of future pregnancy desire | 1-2 | 74 | 22 |
| | 3-4 | 223 | 66.4 |
| | >=5 | 39 | 11.6 |

3.6. The Acceptance Level of Immediate PPIUCD

This study report showed that from the total participants 95 (17.8%) accepted to use PPIUCD immediately after delivery, on the other hand, the majority, 439 (82.2%) of participants rejected to accept PPIUCD.

The main reasons to reject immediate postpartum intra-uterine contraceptive device were due to not their preferred method, 160 (36.3%), fear of side effects, 83 (19%), and lack of awareness about PPIUCD, 65 (14.8%), husband disapproval, 46 (10.5%), religion prohibition, 38 (8.7%) and to have more children 47 (10.7%).

3.7. Women's Attitude Towards PPIUCD

According to this study, 159 (29.8%) participants had favorable attitudes, whereas, 375 (70.2%) of the participants had unfavorable attitudes towards immediate PPIUCD use.

3.8. Factors Associated with Immediate PPIUCD Acceptance Level

The logistic regression was run to detect the relationship among the dependent and independent variables. Binary logistic regression showed that the association of each independent variable with acceptance level which was at the P-value of below 0.25, and then entered into multivariate

regression to identify the independent variable prognosticates of the acceptance level and associated factors to use immediate PPIUCD. This was at a P-value less than 0.05. In bivariable logistic regression: participant's occupation, participant's monthly income, ever hearing of IUCD as family planning, Participant's knowledge towards IUCD and level of participant's attitude about immediate PPIUCD.

After multivariable regression: the participant's occupation, level of attitude and knowledge towards IUCD are significantly associated with acceptance level of immediate postpartum Intra-uterine contraceptive device.

In multivariable analysis result, maternal occupation was significantly associated with the acceptance level of immediate PPIUCD. Immediate post-partum women who were government employees were more often to accept PPIUCD than those women who were housewife (AOR=3.23, 95% CI: (1.23-5.95)).

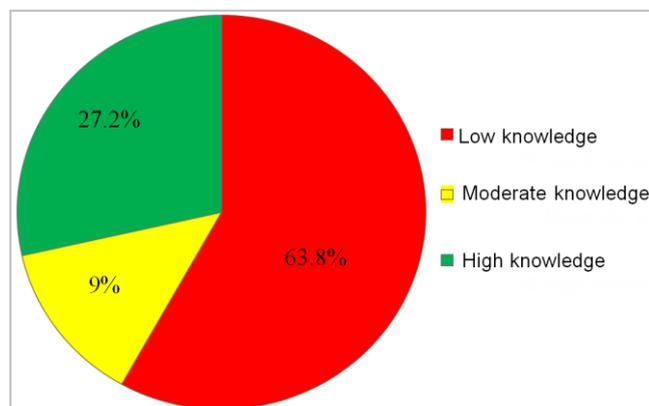
Participants Knowledge about IUCD is also a factor associated with the acceptance level of immediate PPIUCD. The women who were highly knowledgeable regarding IUCD were more likely to accept immediate PPIUCD use compared to those with low knowledge (AOR=2.56, 95% CI: (1.70- 8.26)).

Participant's attitude is other significantly associated factors with a PPIUCD, in which those participants with favorable attitude were 10.93 times more likely to accept PPIUCD than those with an unfavorable attitude. (AOR = 10.93, 95% CI: (10.93) [Table 3](#)).

Table 3. Factors associated with immediate PPIUCD acceptance level among women who delivered in selected public hospitals of North Shoa zone, Oromia, Ethiopia, 2023.

| Variables | Category | Accepted IUCD use n (%) | Not accepted IUCD use n (%) | COR (95% CI) | AOR (95% CI) | P-value |
|----------------------|--------------|-------------------------|-----------------------------|-------------------|----------------------|---------|
| Occupation | House wife | 48 (14.2) | 289 (85.8) | 1 | 1 | 1 |
| | Employee | 12 (26.1) | 34 (73.9) | 2.13 (1.03-4.40)* | 3.23 (1.23-5.95)** | 0.03 |
| | Private | 35 (37.6) | 58 (62.4) | 3.63 (2.16-6.11)* | 1.05 (0.25-3.34) | |
| Monthly income | <3200ETB | 52 (19.1) | 220 (80.9) | 0.26 (0.15-0.44)* | 0.47 (0.31-1.61) | |
| | 3201-5250 | 6 (5.1) | 111 (94.9) | 0.06 (0.02-0.15)* | 0.63 (0.16-2.87) | |
| | >7900 | 37 (48.1) | 40 (51.9) | 1 | 1 | 1 |
| Ever heard IUCD | Yes | 67 (24) | 212 (76) | 2.56 (1.59-4.14)* | 1.24 (0.78-4.65) | |
| | No | 28 (11) | 227 (89) | 1 | 1 | 1 |
| Knowledge about IUCD | High | 57 (39.3) | 88 (60.7) | 7.24 (4.35-12.06) | 2.56 (1.7-8.26)** | 0.002 |
| | Moderate | 10 (20.8) | 38 (79.2) | 2.94 (1.33-6.53) | 1.14 (0.87-12.26) | |
| | Low | 28 (8.2) | 313 (91.8) | 1 | 1 | 1 |
| Attitude toward IUCD | Favourable | 67 (42.1) | 92 (57.9) | 9.06 (5.49-14.84) | 10.93 (4.93-23.89)** | 0.008 |
| | Unfavourable | 28 (7.5) | 347 (92.5) | 1 | 1 | 1 |

Keys:*statistically significance at P-value <0.25; ** statistically significant at P-value <0.051 =reference of the category

**Figure 1.** The overall knowledge of women about immediate PPIUCD in public hospitals of North shoa zone, Oromia, Ethiopia.

4. Discussion

The population number control is very important for the country's both economic and social development. Hence, in developing nation like Ethiopia, the contraceptive methods, particularly long-acting like IUCD, are very feasible and cost-effective. The aim of this study is to identify the proportion of women in public hospitals who accepted to use PPIUCD immediately after birth and the factors related to it.

The acceptance level of immediate PPIUCD was found to

be low in this study compared to other previous studies that were conducted in the different study areas.

The overall acceptance level of immediate PPIUCD was 17.8% [95%CI: 14.5-21]. This finding was low than the finding from the study conducted in India, primary health center (39%), Marathwada region, India (25%) (Sharma and Gupta 2017) and in Rwanda a mixed- method study (28.1 %) [23]. This difference may be related to the study setting, health care education access, counseling at ANC regarding PPIUCD, level of understanding, sample size, and socio-demographic characteristics differences.

The acceptance level of immediate PPIUCD was influenced by maternal occupation. The finding of the study showed that women who were government employee were 3.23 times more likely to accept to use immediate PPIUCD than those who were housewife (AOR=4.269, 95% CI: (1.280-14.234) (P<0.018), 7 times more likely to accept to use immediate PPIUCD than women who were housewife (AOR=3.23, 95% CI: (1.23-5.95)). This finding was in line with the study from Ambo town [21].

This study revealed that the acceptance level of using immediate PPIUCD increased significantly among women with favorable (positive) attitude. Participants who had favorable (positive) attitude regarding PPIUCD were 10.93 times more likely to accept PPIUCD (AOR = 10.93, 95% CI: (4.93-23.89) than women with unfavorable (negative) attitude. This finding was in line with the study done in Mekele town [26].

As revealed by this study, Knowledge toward IUCD was

associated with the acceptance level of immediate post-partum Intra uterine contraceptive device. The women who had high knowledge were 2.56 times more likely to accept the use of immediate PPIUD. This was supported by the study from India and Rwanda [23, 31].

5. Conclusions

The acceptance level of immediate PPIUCD was low (17.8%), on the basis of this study's finding. The acceptance rate of immediate PPIUCD was significantly associated with the women's occupation, and level of participant's attitude and the knowledge of the participants.

Abbreviations

| | |
|-------|---|
| ANC | Antenatal Care |
| CORCS | Crud Odd Ratio Cesarean Section |
| CUR | Contraceptives Utilization Rate |
| EDHS | Ethiopian Demographic and Health Survey |
| IUCD | Intrauterine Contraceptive Device |
| IUD | Intrauterine Device |
| LARC | Long-Acting Reversible Contraceptive |
| MOH | Ministry of Health |
| PI | Principal Investigator |
| PPFP | Postpartum Family Planning |
| PPH | Postpartum Hemorrhage |
| SU | Supervisor |
| SVD | Spontaneous Vaginal Delivery |

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Author Contributions

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Conflicts of Interest

The authors declare no conflicts of interest.

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