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# Determinants of immediate uptake of Post-Partum Intrauterine Device among women delivered in hospitals in West Wolegga Zone, Ethiopia

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## Abstract

**Background** The use of immediate postpartum intrauterine contraceptive devices during the postpartum period supports women's need for spacing births and prevents them from unplanned pregnancies. However, in developing countries, utilization of immediate postpartum contraceptives is low. This increases the risk of maternal morbidity, maternal mortality, preterm birth, child mortality, low birth weight, and small gestational age in subsequent pregnancy with interpregnancy interval.

**Objective** To assess immediate postpartum intrauterine contraceptive device utilization and the associated factors among women who gave birth in Hospitals in West Wolegga Zone in 2020.

**Methods and materials** An institutional-based cross-sectional study was conducted in public hospitals in the West Wolegga Zone from 1 April 2020 to 30 April 2020 among 290 postpartum women. The sample size was proportionally allocated to six hospitals by considering their monthly delivery. Study subjects were taken by systematic sampling technique ( $Kth=N/n=1025/290=3.53$ ), thus every 4th woman who gave birth in the hospital was recruited in each hospital until the total sample size for this study was obtained.

Bivariable and multivariable logistic regression was used to assess the association of independent variables with immediate postpartum intrauterine device utilization. A significance level of 0.05 was used to assess the statistical significance of the study's associations.

**Results** In this study, the magnitude of the Immediate postpartum intrauterine contraceptive device utilization was 19.3%. Factors like Early initiation of antenatal care [AOR=4.46 95% CI: 1.84-10.78], Planning of future pregnancy [AOR=3.7(95% CI: 1.43-9.54)], Ever heard of the immediate postpartum intrauterine contraceptive device [AOR=2.67(95% CI: 1.08-6.58)] and Counseling about postpartum intrauterine contraceptive device [AOR=5.15(95% interval: 2.00-13.28)] were associated with immediate postpartum intrauterine device utilizations.

**Conclusion** The use of immediate postpartum intrauterine contraceptive devices is low compared to other studies conducted in Ethiopia. Age, early antenatal care initiation, pregnancy planning, hearing of the immediate postpartum intrauterine device immediately inserted after delivery, and counselling on the immediate postpartum intrauterine

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device were significantly associated with mothers' use of immediate postpartum intrauterine devices. Health Program directors should develop strategies to increase the use of immediate postpartum intrauterine contraceptive devices.

**Keywords** Immediate postpartum, Utilization, West Wolegga, Oromia, Ethiopia

## Background

Immediate Postpartum intrauterine contraceptive devices are postpartum contraceptives inserted into the uterus of women immediately after delivery of the placenta. They are made up of plastic copper T-380A and classified into Post-placental, immediate postpartum, early postpartum, and extended postpartum intrauterine devices, which are inserted starting from 10 minutes, 48 hours, 48 hours to 6 weeks, and 6 weeks to one year after delivery, respectively, client adequately and effectively space pregnancies preventing them from [1].

The World Health Organization (WHO) recommends that a healthy interpregnancy interval is at least two years. When pregnancies are spaced by at least two years it helps to reduce maternal and infant deaths by one-third, one in ten respectively. [2]. When pregnancy occurs less than two years after delivery low birth (LBW) increases by 30%, maternal anemia by 40%, and preterm birth by 50%. Among postpartum mothers, only 3-8% of them want to become pregnant within two years of birth, and 92% of mothers desire spacing and limiting of the next pregnancy. [2–4]. A study in Northern Ethiopia on the level of unmet need for contraception among women in the Postpartum period showed that the unmet need for postpartum contraception was 36.7%, with 29.6% for spacing and 7.1% for limiting the number of pregnancies. [5, 6].

Immediate postpartum intrauterine devices (IPPIUD) are safe and effective kinds of contraception which are a highly convenient option for postpartum mothers. The Postpartum period is an appropriate time for service providers to introduce immediate postpartum intrauterine contraceptive devices, in accessing postpartum family-planning services. [6, 7].

Immediate postpartum intrauterine devices can promote the health of women and children by preventing financial, psychological, obstetric, and other health and health-related complications associated with closely spaced pregnancies, and their insertion does not require repeated healthcare visits for contraceptive refills. [8, 9].

The inability to utilize immediate postpartum intrauterine devices leads to a high chance of having unplanned pregnancies, which has an adverse outcome like unsafe abortion, premature labor, postpartum haemorrhages (PPH), Low birth weight (LBW), fetal loss, maternal morbidity, maternal death. [3, 6, 10–12].

The immediate postpartum period is critical to prevent unintended pregnancies. However, its utilization is low compared to other contraceptive methods. Utilization of immediate postpartum during the postpartum period was especially low. Therefore, assessing the utilization of immediate postpartum intrauterine devices and the associated factors among mothers who gave birth in Hospitals in the West Wolegga zone is important for exploring associated factors and identifying the magnitudes of the immediate intrauterine devices in the West Wolegga zone.

Globally, amongst 1.9 billion reproductive-age women, 57.89% of them have the desire to use family planning, and 10% of them do not use any contraceptive method, In Eastern and Southeastern Asia contraception is used by 18.6 % of women, in Guatemala 1%, Zambia 3.4%, Rwanda 4%, in Kenya 1.1-2.4%, in Eretria 0.3% of mothers had utilized immediate postpartum intrauterine device [10, 13, 14].

In Ethiopia, the report of the Maternal and Child Survival Program (MCSP) project showed that 8.55% of mothers had utilized immediate postpartum intrauterine devices, from the study conducted in the Sidamo zone showed that 21.9% of mothers had utilized immediate postpartum intrauterine devices, also the study from conducted in Bale zone and Engender Health report of West Oromia project showed that immediate postpartum intrauterine device was utilized by 12.4% and 8% respectively. [2, 15–17].

Despite these efforts made by the government and stakeholders like engendering health utilization of immediate postpartum intrauterine device utilization So far, no study has been conducted on the immediate postpartum intrauterine device utilization in Western Ethiopia. Therefore, this study aimed to assess the magnitude of immediate postpartum intrauterine device utilization and its associated factors among mothers who gave birth in Hospitals in the West Wolegga zone, Western Ethiopia.

## Objective of the study

### General objective

- To assess the determinants of immediate uptake of postpartum intrauterine contraceptive devices among women delivered in Hospitals in the West Wolegga zone, Ethiopia

## Specific Objectives

- To determine the uptake of immediate postpartum intrauterine contraceptive devices among women who were delivering in Hospitals in West Wolegga Zone.
- To identify the factors associated with the uptake of immediate Postpartum intrauterine contraceptive devices among women delivering in Hospitals in the West Wolegga zone.

## Methods

### Study area

This study was conducted in Hospitals in the West Wolegga zone. The West Wolegga zone is one of the 21 zones of the Oromia national regional state. Gimbi is a town of West Wolegga located 420 KM from Addis Ababa to the west of Ethiopia. Administratively, the West Wolegga zone is divided into 20 rural and three town administrations and has 542 kebeles from these 54 town kebeles and 488 Rural Kebeles.

### Study design and period

This institution-based cross-sectional study was conducted from April 1-30, 2020, in Hospitals in the West Wolegga zone, western Oromia, Ethiopia.

### Source population

All Women who gave birth in Hospitals in the West Wolegga zone, western Oromia, Ethiopia.

### Study population

Women who gave birth in Hospitals in the West Wolegga zone during the study period.

### Sample population

All randomly selected women who gave birth during the data collection period in West Wolegga zone hospitals in western Oromia, Ethiopia.

### Inclusion and Exclusion criteria

#### Inclusion criteria

Women who gave alive or stillbirth to Hospitals in the West Wolegga zone during the study period were included.

#### Exclusion Criteria

Women who were seriously sick, post-abortion care, unable to respond, and those who did not fulfil the WHO medical eligibility criteria (Intrauterine infection or puerperal sepsis, active Sexually Transmitted Disease or other lower genital tract infections, ruptured membranes for more than 24 hours, ruptured uterus, unresolved

postpartum haemorrhage or uterine a tony, extensive genital trauma, or pelvic inflammatory disease) were excluded.

### Sample size determination and sampling procedure

#### Sample size determination

The sample size was calculated using the single population proportion formula based on the following assumptions: 95% confidence interval with a 5% margin of error by considering the prevalence of women who utilized immediate postpartum intrauterine device was 21.9%  $\{(P= 0.219), [16]\}$  in Sidama Zone [16]. The final sample size was determined by adding 10% of nonresponse rate

#### Sampling Technique (Fig. 1)

Six Hospitals in the West Wolegga zone were included for data collection and provide immediate intrauterine devices. The sample size for each hospital was allocated based on average monthly delivery flows. The final sample size of 290 was obtained by proportionally allocating to those six hospitals by considering their monthly delivery. Lastly, study subjects were taken by random sampling technique ( $Kth=N/n = 1025/290=3.53$ ), thus every 4th woman who gave birth in the hospital was recruited as a study subject in each hospital until the total sample size for this study obtained.

#### Data collection tool

A structured questionnaire was used to collect data from a study from participants during the postpartum period. The questionnaire was designed in English, translated into the Afan Oromo language by the translator, and then translated back into English by a third person to check for consistency.

#### Data quality assurance

Two days of training were provided for data collectors and supervisors on the research objective, data collection tools, procedures, and interview methods. The data collection instrument was pretested for its relevance and clarity to address the research problems and corrected before the data collection period. Pretests were performed at Dambi Dolo Hospital approximately 5% of the sample size to check the consistency of the questionnaire.

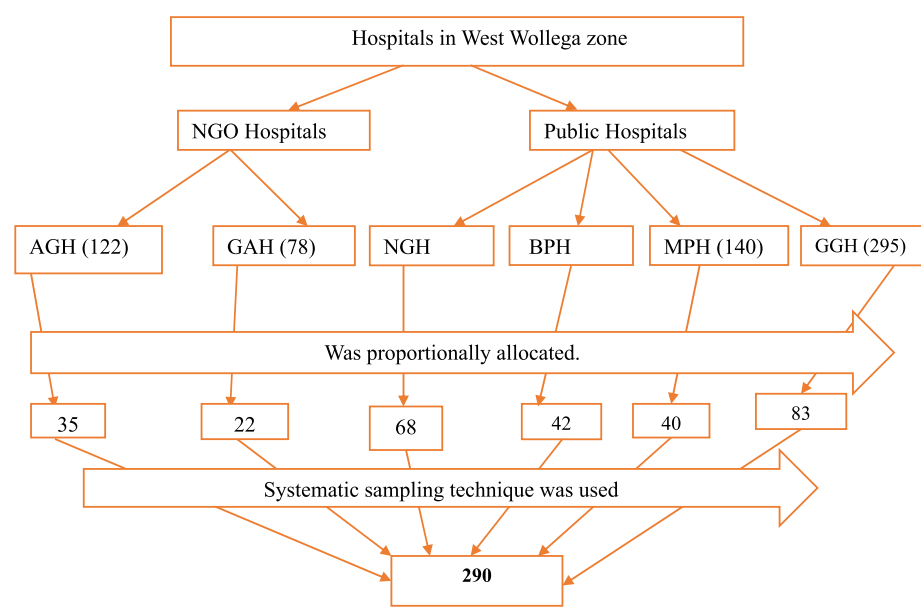
### Variables of the study

#### Dependent variable

Immediate postpartum intrauterine contraceptive device utilization

#### Independent variables

Socio-demographic characteristics:



**Fig. 1** Schematic representation of Sampling Techniques. Where: AGH: Ayira General Hospital, BPH: Begi Primary Hospital, GAH: Gimbie Adventist Hospital, MPH: Mendi Primary Hospital, NGH: Nedjo General Hospital, GGH: Gimbie General Hospital

- Age of mother's
- Marital status
- Educational status of women
- The educational status of her husband
- Occupation of mothers
- Occupation of husband
- Family Income
- Mother's residential area
- Living arrangement
- Family size
- Distance from Hospitals
- Reproductive health-related history of mothers on IPIUD
- Knowledge of mothers on family planning and immediate PPIUD.
- The attitude of mothers towards immediate PPIUD,
- Visit of mothers to healthcare professionals during ANC and FP counselling during pregnancy and after delivery.

**Data processing and analysis**

Data was cleaned, coded, checked, and entered in EPI-info version 7.2 and exported to SPSS version 24 for further analysis. Descriptive statistics were carried out to see the distribution of independent variables. Both bivariable and multivariable logistic regression analyses were computed. In the bivariable analysis, a *p*-value of less than 0.25 was used to select candidate variables for multivariable analysis. Variables with *p*-values less than

0.25 were entered into subsequent multivariable models using the backward elimination approach. Finally, the *p*-value and 95% confidence interval were used to measure the level of significance in the multivariable analysis, and those variables with a *p*-value of less than 0.25 in the multivariable analysis were considered as statistically significant

**Ethical clearance**

Wolegga University, Institute of Health Science Institutional Research Ethics Review Committee obtained an ethical clearance letter with ref No of 60/CHRT/2020. A formal letter was given to the West Wolegga Zonal Health Department, and an official letter was received from the West Wolegga Zonal Health Department and communicated to the respective public hospitals to get their permission.

**Results**

**Socio-demographic characteristics of study respondents among women who gave birth in west Wolegga Zone, Oromia, 2020**

All participants (290) responded to the questionnaire, with a response rate of 100%. The mean age of the respondent was 30.40 ± 6.082SD years. Of most of the study participants were in the age range of 25-34 years 170(58.6%), and 49 (16.9%) were in the age range of 15-24 years. (Table 1).

**Table 1** Socio-demographic characteristics of women who gave birth in Hospitals in West Wolegga Zone, Oromia, Ethiopia, 2020 ( $n=290$ )

| Variables                    |                     | Frequency | Percent |
|------------------------------|---------------------|-----------|---------|
| Age of the respondents       | 15-24               | 49        | 16.8    |
|                              | 25-34               | 170       | 58.6    |
|                              | 35-49               | 71        | 24.4    |
| Marital status               | Single              | 8         | 2.8     |
|                              | Married             | 257       | 88.6    |
|                              | Divorced            | 15        | 5.2     |
|                              | Widowed             | 10        | 3.4     |
| Ethnicity                    | Oromo               | 249       | 85.9    |
|                              | Amhara              | 11        | 3.8     |
|                              | Gurage              | 16        | 5.5     |
|                              | Tigre               | 8         | 2.8     |
|                              | Others*             | 6         | 2.1     |
| Religion                     | Orthodox            | 58        | 20      |
|                              | Muslim              | 40        | 13.8    |
|                              | Protestant          | 185       | 63.8    |
|                              | Catholic            | 7         | 2.4     |
| Maternal Educational status  | No formal education | 206       | 71      |
|                              | Primary education   | 35        | 12.1    |
|                              | Secondary education | 26        | 9       |
|                              | College and above   | 23        | 7.9     |
| Husband Educational status   | No formal education | 174       | 67.7    |
|                              | Primary education   | 30        | 11.67   |
|                              | Secondary education | 30        | 11.67   |
|                              | College and above   | 23        | 8.94    |
| Mothers' Occupational status | Housewife           | 124       | 42.8    |
|                              | Government employee | 57        | 19.7    |
|                              | Private employee    | 16        | 5.5     |
|                              | Merchants           | 31        | 10.7    |
|                              | Farmer              | 38        | 13.1    |
|                              | Others**            | 24        | 8.3     |
| Husband Occupational status  | Government employee | 20        | 7.8     |
|                              | Private employee    | 67        | 26      |
|                              | Merchants           | 31        | 12      |
|                              | Farmer              | 111       | 43.19   |
|                              | Others***           | 28        | 10.89   |

#### Reproductive characteristics of the study respondents among women who gave birth in the west Wolegga zone, Oromia, 2020

The mean age at marriage was 22.03 ( $\pm 3.094$ SD) years. 248(87.9%) were married at the age of greater than or equal to 18 years, and the rest were below eighteen. (94.5%) mothers' age at first delivery was at or above eighteen years. (Table 2).

#### Knowledge of mothers about immediate postpartum intrauterine contraceptive devices among women who gave birth at West Wolegga Zone, Oromia, 2020

Knowledge score is calculated by the mean score of 10 items and categorized as knowledgeable if the participants answered greater than the mean score of knowledgeable questions or less knowledgeable if the participant scored less than or equal to the mean score of knowledgeable questions for this study the knowledge mean status of the respondents was 58.6( $\pm 22.50$ SD). This showed that 149(56%) were knowledgeable and 117 (44%) of the respondents were found to be less knowledgeable of immediate postpartum intrauterine devices (Table 3).

#### Mother's attitude towards utilization of immediate postpartum intrauterine contraceptive device utilization among women who gave birth in West Wolegga, Oromia, Ethiopia, 2020 (Table 4)

Participants were asked eight questions regarding the use of immediate postpartum Intrauterine devices to reflect their attitude. A Likert scale was used, with scores ranging from 1 (strongly disagree) to 5 (strongly agree).

The mean score for the attitudinal status of respondents was 39.5( $\pm 21.47$ SD) after computing the attitudinal questions. One hundred thirty-one (49.2%) of mothers disagreed that immediate postpartum intrauterine device insertion inside the uterus did not lead to loss of privacy while strongly agreeing with the agreement 12.

#### Determinants of immediate uptake of Post-Partum Intrauterine Device among women delivered in hospitals in West Wolegga Zone, Ethiopia

This study showed that the utilization of an immediate postpartum intrauterine contraceptive device was 19.3%. Among study participants, 225 (77.6%) of respondents had accepted the use of immediate postpartum intrauterine devices. 110 (41.4%) of participants were counselled regarding immediate postpartum intrauterine devices.

#### Factors associated with determinants of immediate uptake of Post-Partum Intrauterine device among women delivered in hospitals in West Wolegga Zone, Ethiopia

A binary Logistic regression analysis was performed to assess the prediction between independent variables and immediate postpartum intrauterine device utilization. Age, educational status, occupation, age at marriage, age at first delivery, antenatal care initiation at or less than 16 weeks, the status of pregnancy, family planning used before birth, discussion with a partner on family planning, ever heard of the immediate postpartum intrauterine device immediately inserted after

**Table 2** Reproductive characteristics of the women who gave birth in Hospitals in West Wolegga zone, Oromia, Ethiopia, 2020 (n=290)

| Variables   |                          | Frequency | Percent |
|---|--------------------------|-----------|---------|
| Number of Delivery                                  | 1 <sup>st</sup> delivery | 82        | 28.3    |
|   | 2-4 Delivery             | 174       | 60      |
|   | >=5 delivery             | 34        | 11.7    |
| Antenatal care follows up <=16 weeks                | No                       | 142       | 53.6    |
|   | Yes                      | 123       | 46.4    |
| Number of Antenatal care attended                   | 1 time                   | 17        | 6.4     |
|   | 2-3 times                | 183       | 69      |
|   | 4 and above visits       | 65        | 24.5    |
| Inter pregnancy interval                            | <2years                  | 161       | 55.5    |
|   | >=2years                 | 59        | 20.3    |
| Mode of current delivery                            | Spontaneous Delivery     | 180       | 62.1    |
|   | Assisted Breach Delivery | 16        | 5.5     |
|   | Vacuum Delivery          | 63        | 21.7    |
|   | Cesarean section         | 31        | 10.7    |
| The outcome of the current birth                    | Alive                    | 265       | 91.4    |
|   | Dead                     | 25        | 8.6     |
| The current pregnancy was Planned                   | No                       | 217       | 74.8    |
|   | Yes                      | 73        | 25.2    |
| Number of children you want in your life            | <=3                      | 114       | 39.3    |
|   | >=4                      | 176       | 60.7    |
| Do you want to have a child within two years        | No                       | 263       | 90.7    |
|   | Yes                      | 27        | 9.3     |
| Had used contraceptives before this birth           | No                       | 112       | 38.6    |
|   | Yes                      | 178       | 61.4    |
| Who decides to make use of your family planning     | Respondent only          | 87        | 30      |
|   | Husband only             | 35        | 12.1    |
|   | Both                     | 150       | 51.7    |
|   | Others*                  | 18        | 6.2     |
| Who decides the number of children you want to have | Respondent only          | 68        | 23.4    |
|   | Husband only             | 25        | 8.6     |
|   | Both                     | 174       | 60      |
|   | Others **                | 23        | 7.9     |

delivery, and counselling on the immediate postpartum intrauterine device were a predictor for immediate postpartum intrauterine device utilization with P value less than 0.25

Variables having a *p*-value of less than or equal to 0.25 were added to multivariate logistic regression, to identify the association between independent variables and immediate postpartum intrauterine device utilization in West Wolegga zones hospitals. Variables like Age, Antenatal care initiation at or less than 16 weeks, status of pregnancy (planned or not), Ever heard of immediate postpartum intrauterine device utilization, immediate insertion after delivery, counselling on immediate postpartum intrauterine device were

significantly associated with immediate postpartum intrauterine device utilization.

Women who were counselled on immediate postpartum intra-uterine device utilization were five times more likely to utilize immediate intra-uterine devices than those who hadn't been counselled (AOR=5.15, 95% CI : ( 2.0-13.28) (*P*=0.001). Women who had started antenatal care visits at an early gestational age were four times more likely to utilize immediate intra-uterine devices than those who started later (AOR=4.44, 95% CI: (1.847-10.701) (*P*=0.001). Those mothers whose current pregnancy was planned were 4 times more likely to utilize immediate postpartum intrauterine devices than mothers whose current pregnancy was unplanned (AOR=3.701,



**Table 3** Knowledge of Participants about immediate postpartum Intrauterine Device method among women who gave birth in the west Wolegga zone, western Oromia, Ethiopia(n=290)

| Variables  | Category                  | Frequency | Percent |
|--|---------------------------|-----------|---------|
| Ever heard of IPPIUD as a family planning method             | No                        | 24        | 8.3     |
|  | Yes                       | 266       | 91.7    |
| Ever heard that IPPIUD can be inserted after delivery        | No                        | 115       | 43.3    |
|  | Yes                       | 151       | 56.7    |
| From whoever gets information on IPPIUD for the first time   | Health Care Professionals | 131       | 49.2    |
|  | Neighbour or friends      | 7         | 2.6     |
|  | Mass media                | 99        | 37.2    |
|  | Husband                   | 29        | 10.9    |
| Can Prevent pregnancy for more than 10 years                 | No                        | 142       | 53.4    |
|  | Yes                       | 124       | 46.6    |
| Not appropriate for females at high risk of getting STIs     | No                        | 95        | 35.7    |
|  | Yes                       | 171       | 64.3    |
| Has no interference with sexual intercourse                  | No                        | 124       | 46.6    |
|  | Yes                       | 142       | 53.4    |
| Immediately reversible                                       | No                        | 74        | 27.8    |
|  | yes                       | 192       | 72.2    |
| Does not cause cancer  | No                        | 121       | 45.5    |
|  | Yes                       | 145       | 54.5    |
| It can be used by breastfeeding mothers                      | No                        | 70        | 26.3    |
|  | Yes                       | 196       | 73.6    |
| May cause changes in the bleeding pattern                    | No                        | 102       | 38.3    |
|  | Yes                       | 164       | 61.7    |
| Can be used by HIV-positive mothers who adhered to treatment | No                        | 114       | 42.9    |
|  | Yes                       | 152       | 57.1    |
| Given free of charge in your hospital                        | No                        | 118       | 44.4    |
|  | Yes                       | 148       | 55.6    |
| It can be removed any time you want                          | No                        | 141       | 53      |
|  | Yes                       | 125       | 47      |

95 % (CI: (1.435-9.545) ( $P=0.007$ ). Again, Mothers who had heard of the immediate postpartum intrauterine device immediately inserted after delivery were 3 times more likely to utilize IPPIUD than their counterparts (AOR=2.67, 95 % (CI: (1.088-6.582) ( $P=0.032$ ) (Table 5).

## Discussion

In this study, more than three-fourths of the participants were using immediate postpartum intrauterine contraceptive devices. However, only 19.3 % (95% CI: 14.6-24.00) of the mothers used postpartum intrauterine devices within 48 hours of delivery. This finding is similar to the study conducted in the Sidama zone(21%), Southern Ethiopia. [16], Nepal, Sri Lanka, and Tanzania (20%) [18], and, India(14.4%) [19], a study conducted in Rwanda(16.7%) [14], a study conducted in Mahima Hospital, Rwanda(15%) [20].

This finding is higher than the study conducted in Bale zone(12.4%) [2], in Jimma University Medical

Center(10.5%) [21], Adama and Olen Chiti(12.4%, South-eastern Ethiopia (7.5%) [22], a study conducted in Saint Paul's Millennium Medical College(7.8%) [23], a study conducted in Han Health Center, Bahir Dar, North West Amhara(13%) [24], a study conducted at Mbagathi District Hospital in Kenya, Nairobi (5.1%) [25] These variations might be due to socio-demographic characteristic variation among study areas that might result from the existence of healthcare provider training and material support from a non-governmental organization in this study area, the time gap of the studies, differences in the study design, and improvement of the health facilities on the provision of the FP service with time variation.

The present finding is lower than studies conducted in Tanzania at Muhimbili National Hospital (27.6%) [26], in Rwanda (28.1%) [27], and in Tanzania(31.6%) [28]. These variations in immediate postpartum intrauterine contraceptive device utilization might be attributed to variations in sociodemographic characteristics among

**Table 4** Attitudes of women towards immediate postpartum intrauterine device utilization among women who gave birth at West Wolegga Zone Hospitals, western Oromia, Ethiopia, 2020(n=290)

| Variables  | Category          | Frequency | Percent |
|--|-------------------|-----------|---------|
| Insertion of IPPIUD inside the uterus does not lead to loss of privacy | Strongly disagree | 13        | 4.9     |
|  | Disagree          | 131       | 49.2    |
|  | Neutral           | 46        | 17.3    |
|  | Agree             | 64        | 24      |
|  | Strongly agree    | 12        | 4.5     |
| IPPIUD does not restrict normal activities                             | Strongly disagree | 10        | 3.75    |
|  | Disagree          | 4         | 1.5     |
|  | Neutral           | 149       | 56      |
|  | Agree             | 92        | 34.6    |
|  | Strongly agree    | 11        | 4       |
| IPPIUD does not move through the body after insertion                  | Strongly disagree | 13        | 4.9     |
|  | Disagree          | 115       | 43.23   |
|  | Neutral           | 28        | 10.5    |
|  | Agree             | 98        | 36.8    |
|  | Strongly agree    | 12        | 4.5     |
| IPPIUD interferes with sexual intercourse                              | Strongly disagree | 13        | 4.9     |
|  | Disagree          | 8         | 3       |
|  | Neutral           | 32        | 12      |
|  | Agree             | 183       | 68.8    |
|  | Strongly agree    | 30        | 11.3    |
| Insertion and removal of IPPIUD is not highly painful full             | Strongly disagree | 3         | 1.1     |
|  | Disagree          | 34        | 12.8    |
|  | Neutral           | 85        | 32      |
|  | Agree             | 52        | 19.5    |
|  | Strongly agree    | 92        | 34.6    |
| Using IPPIUD can cause irregular bleeding                              | Strongly disagree | 19        | 6.6     |
|  | Disagree          | 164       | 61.7    |
|  | Neutral           | 50        | 18.8    |
|  | Agree             | 25        | 9.4     |
|  | Strongly agree    | 8         | 3       |
| Using IPPIUD does not impair future fertility                          | Strongly disagree | 17        | 6.4     |
|  | Disagree          | 24        | 9       |
|  | Neutral           | 61        | 23      |
|  | Agree             | 154       | 57.9    |
|  | Strongly agree    | 10        | 3.8     |

study participants and due to the difference in the level of awareness and educational status of respondents, cultural beliefs, bad attitudes, and misconceptions of intrauterine devices in the study areas.

In this study, mothers who were counselled about Immediate postpartum family planning were five times more likely to use immediate intrauterine contraceptive devices than those who had not been counselled. This finding is consistent with a study conducted in Han Health Center, Bahir Dar, Ethiopia [24], a study conducted in Kebri Beyan, Somali Region [29], Jima

University Medical Center [21], a study conducted in the Sidama zone [16], a study conducted in Rwanda [27], and study conducted in Nepal [30]. The reason for this finding might be mothers who receive advice on immediate postpartum intrauterine device utilization at Antenatal care service points of contact within the health system, an awareness of the importance of IUCD will be improved, their motivation will be enhanced and will practice using these contraceptive methods.

In this study, mothers who had heard of immediate postpartum intrauterine devices inserted immediately



**Table 5** Factors associated with immediate postpartum intrauterine device utilization among women who gave birth in hospitals in West Wolegga zone, Western Oromia, Ethiopia, 2020(n=290)

| Variables                                  | IPPIUD utilization |     | COR (95% CI)         | AOR (95% CI)           | P-value |
|--|--------------------|-----|----------------------|------------------------|---------|
|  | Yes                | No  |                      |                        |         |
| Age of the respondents                     |                    |     |                      |                        |         |
| 15-24                                      | 14                 | 35  | 1                    | 1                      | 1       |
| 25-34                                      | 23                 | 147 | 0.39(0.183-0.836) *  | .139(.043-.445) **     | 0.001   |
| 35-49                                      | 19                 | 52  | 0.91(0.405-2.059)    | .297(.083-1.060)       | 0.062   |
| Maternal educational status                |                    |     |                      |                        |         |
| No formal Education                        | 35                 | 171 | 1                    | 1                      | 1       |
| Primary Educated (1-8)                     | 6                  | 29  | 1.01(0.39-2.617)     | 454(.120-1.710)        | 0.243   |
| Secondary educated (9-12)                  | 7                  | 19  | 1.8(0.703-4.607)     | .398(.100-1.582)       | 0.191   |
| College and above                          | 8                  | 15  | 2.606(1.02-6.61) *   | 3.665(.900-14.923)     | 0.07    |
| Women occupation                           |                    |     |                      |                        |         |
| Housewife                                  | 17                 | 107 | 1                    | 1                      | 1       |
| Government employee                        | 13                 | 44  | 1.86(0.83-4.15)      | 1.466(.521-4.128)      | 0.469   |
| Private employee                           | 8                  | 8   | 6.294(2.08-19.014) * | 2.519(.548-11.567)     | 0.235   |
| Merchants                                  | 8                  | 23  | 2.18(0.84-5.680)     | 2.813(.798-9.915)      | 0.108   |
| Farmer                                     | 7                  | 31  | 1.421(0.541-3.73)    | 0.723(.160-3.269)      | 0.673   |
| Others                                     | 3                  | 21  | 0.899(0.242-3.34)    | 0.441(.079-2.457)      | 0.35    |
| Age at marriage                            |                    |     |                      |                        |         |
| >=18 years                                 | 42                 | 212 | 0.311(0.147-0.657) * | 0.650(.139-3.027)      | 0.583   |
| <18 years                                  | 14                 | 22  | 1                    | 1                      | 1       |
| Age at first delivery                      |                    |     |                      |                        |         |
| >=18 years                                 | 48                 | 226 | 0.212(0.076-0.594) * | 0.755(.116-4.907)      | 0.769   |
| <18 years                                  | 8                  | 8   | 1                    | 1                      | 1       |
| Antenatal care initiation                  |                    |     |                      |                        |         |
| Yes  | 32                 | 91  | 2.769(1.434-5.347) * | 4.446(1.847-10.701) ** | 0.001   |
| No   | 16                 | 126 | 1                    | 1                      | 1       |
| Planned pregnancy                          |                    |     |                      |                        |         |
| Yes  | 23                 | 50  | 2.6(1.383-4.755) *   | 3.701(1.435-9.545) **  | 0.007   |
| No   | 33                 | 184 | 1                    | 1                      | 1       |
| Have you family planning before this birth |                    |     |                      |                        |         |
| Yes  | 44                 | 134 | 2.736(1.374-5.449) * | 2.401(.935-6.166)      | 0.069   |
| No   | 12                 | 100 | 1                    | 1                      | 1       |
| Do you discuss this with your family?      |                    |     |                      |                        |         |
| Yes  | 28                 | 159 | .472(.261-.852) *    | 0.588(.261-1.323)      | 0.199   |
| No   | 28                 | 75  | 1                    | 1                      | 1       |
| Ever heard about IPPIUD?                   |                    |     |                      |                        |         |
| Yes  | 43                 | 108 | 3.124(1.588-6.147) * | 2.676(1.088-6.582) **  | 0.032   |
| No   | 13                 | 102 | 1                    | 1                      | 1       |
| Counselled on IPPIUD                       |                    |     |                      |                        |         |
| Yes  | 39                 | 71  | 4.491(2.375-8.495) * | 5.155(2.000-13.285) ** | 0.001   |
| No   | 17                 | 139 | 1                    | 1                      | 1       |

IPPIUD -immediate intra-uterine device utilization

after delivery were three times more likely to use immediate postpartum intrauterine devices than their counterparts. This finding is consistent with studies conducted in the Sidama zone. [16], Nigeria [31], the study conducted

in Debre Berhan, Ethiopia [32], and Durban, South Africa [33]. A possible explanation for this finding is that as mothers obtain information on immediate postpartum intrauterine device utilization, their awareness about

IUCD will improve, their motivation will be enhanced, and then they will utilize an immediate postpartum intra-uterine device.

In this study, mothers whose current pregnancy was planned were four times more likely to use immediate postpartum intrauterine devices than their counterparts were. This finding is consistent with studies conducted in the Gamo zone of southern Ethiopia. [34], a study conducted in Meru Hospital, Kenya [35], a study conducted in Rwanda [27], a study conducted in Debre Berhan, Ethiopia [32], and Addis Ababa, Ethiopia [23].

This could be because mothers who have good experience with the timing and spacing of pregnancy can better utilize immediate postpartum intrauterine devices when compared with their counterparts.

## Strength and limitations

### Strength of the study

All hospitals providing immediate postpartum IUD service in this zone are included in this study.

### Limitations of the Study

This study was conducted in hospitals; women who gave birth at health centres were excluded.

The study used a facility-based cross-sectional design; data was collected from clients at one point in time regarding utilization of the IPPIUD. However, there were no follow-ups to assess the method's side effects or client satisfaction.

## Conclusion and Recommendation

### Conclusion

The utilization of the immediate postpartum intrauterine device was low. The age of respondents, initiation of antenatal care at or less than 16 weeks, pregnancy status (planned or not), ever heard of IPPIUD immediately inserted after delivery, and counselling on immediate postpartum intrauterine devices were significantly associated with mothers' utilization of immediate postpartum intrauterine devices.

### Recommendation

#### Healthcare

Program managers and coordinators need to develop strategies to encourage the utilization of immediate postpartum intrauterine contraceptive devices through the integration of immediate postpartum intrauterine device counselling in routine MNCH service areas to increase the uptake of IPPIUD in the immediate postpartum.

Researchers are also recommended to conduct mixed studies with qualitative studies with a stronger study

design on the utilization of immediate postpartum intra-uterine devices and associated factors.

## Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12905-024-03458-5>.

Supplementary Material 1.

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## Authors' contributions

Conceptualizations: LHD. Formal analysis: LHD, MDN. Funding acquisitions: LHD, TBW and GKJ. Investigations: LHD. Methodology: LHD, TBW, GKJ. Software: LHD. Supervision: LHD, GKJ. Validation: LHD, MDN. Writing: Original draft: LHD. Writing: Review & editing: LHD, GKJ and MDN LHD-Leta Hinkosa Dinsa, MDN-Melkamu Deraje Negassa, GKJ-Gemechu Kejela Jilo, TBW-Tilahun Bekele Wayessa.

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## Data availability

No datasets were generated or analysed during the current study.

## Declarations

### Ethics approval and consent to participate

Wolegga University, Institute of Health Science Institutional Research Ethics Review Committee obtained an ethical clearance letter with ref No of 60/CHRT/2020. A formal letter was given to the West Wolegga Zonal Health Department, and an official letter was received from the West Wolegga Zonal Health Department and communicated to the respective public hospitals to get their permission.

### Conflict of interests

The authors declare no competing interests.

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