

Prevalence and pattern of long acting reversible contraception (LARC) methods use in immediate postpartum period at Jimma University Medical Center, Ethiopia

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Abstract

Background: Postpartum family planning (PPFP) is defined as the prevention of unintended pregnancy and closely spaced pregnancies through the first twelve months following childbirth. The immediate postpartum period is particularly favorable time to provide long-acting reversible contraception (LARC) methods and postpartum provision of LARC methods is safe and effective. Despite the advantages of LARC methods, they are infrequently used in Ethiopia. **Objective:** This study assessed the prevalence and pattern of LARC methods use among counseled mothers in immediate postpartum. **Methods:** A cross-sectional study was conducted on 393 women who gave birth at Jimma University Medical Centre from 12 November 2016 to 21 January 2017. Data were collected by face-to-face interview and record review using pre-tested questionnaire and analysed using SPSS 20. Logistic regression was used to identify associated factors for LARC methods use. **Results:** Prevalence of LARC methods use among immediate postpartum mothers was 53.2% (209/393) and more than three-fourths (78.0%) of participants used implanon. The most common reported reason for not using LARC methods was preference of other method (25.5%). Having more than four alive kids (95% CI: 1.15,5.95), high monthly income (≥ 1000 ETB) (95% CI: 1.08,7.20), planning to delay next pregnancy by more than 2 years (95% CI: 1.60,9.28), completed family size (95% CI: 1.12,3.15), prior use of LARC methods (95% CI: 1.30,7.20) and receiving counseling during antenatal care (ANC) follow-up and before delivery (95% CI: 1.01, 4.73) were associated with immediate postpartum LARC methods use. **Conclusion:** Although the prevalence of LARC methods use in immediate postpartum was good, counseling mothers during ANC follow-up and before delivery can further increase its use. Therefore, the need for providing counseling during ANC follow up and before delivery to increase utilisation of immediate postpartum LARC methods use is emphasised. **Key terms:** Long acting reversible contraception (LARC) methods, Immediate postpartum, Ethiopia

Background

Globally, the contribution of unintended pregnancy to maternal morbidity and mortality is significant, especially in low and middle income countries(1). Family planning is essential for the health of women, their families, and the community. Modern contraception is highly effective in preventing unintended pregnancy and reducing maternal mortality(2). However, the job of family planning remains unfinished. Although there was great progress over the last several decades, more than 120 million women worldwide want to prevent pregnancy, but they and their partners are not using contraception. Reasons for unmet need are many; services are not yet available everywhere, choices are limited, fear of social disapproval, partner's opposition, worries of side effects and lack knowledge about contraceptive options and their use(3–5). In low and middle-income countries, 222 million women would like to delay childbearing but are not using any method of contraception. According to the World Health Organization (WHO) and the United States Agency for International Development (USAID), more than 120 million women and girls will access modern contraceptives by 2020. Among women and girls with an unmet need for family planning are those who have recently given birth(6). The primary reasons reported for non-use at postpartum are the protection afforded by lactational amenorrhea and abstinence. These vary by population and individual and made postpartum family planning programs difficult to design and administer(7).

Because resumption of ovulation may occur shortly after delivery, women are at risk of an unintended pregnancy in the period immediately after delivery(8). Between 40% and 57% of women reported having unprotected intercourse before the routine 6-week postpartum visit(8–10). Closely spaced pregnancies increase adverse outcomes such as preterm, low birth weight and small for gestational age in infants. Pregnancy occurring within six months of last delivery holds 7.5 fold increased risk of induced abortion, 3.3 fold increased risk of miscarriage and 1.6 fold increased risk of stillbirth. Currently, WHO and USAID recommend the minimal live birth interval of two years(11,12).

Postpartum contraceptive use is a primary strategy for reducing unintended pregnancy and optimizing birth spacing(13). Long-acting reversible contraception (LARC) methods, which include copper and progesterone-laden intrauterine devices (IUDs) and progesterone-only contraceptive implants as per the WHO(1), is the most effective method of modern contraception(14). LARC methods is user-independent and once the device is inserted, the woman does not need any action to support ongoing effective use of the contraceptive(14). It is more effective in preventing unintended pregnancy(15,16); has

higher continuation rates than shorter-acting methods(16) and the return of fertility is rapid when removed(14,16). American College of Obstetricians and Gynecologists (ACOG) guidelines revised in 2012 advises that adolescents at high risk of unintended pregnancy should be encouraged to consider LARC methods as a contraceptive option(17). The World Health Organization (WHO) also supports the use of LARC methods for women of all ages(18). LARC methods could prevent one in every three maternal deaths by allowing women to space births, avoid unintended pregnancies and abortions, and stop childbearing when they have achieved their preferred family size(19). Despite its numerous advantages, LARC methods utilization was only 18.9% globally(20) and 1.8% in Sub-Saharan Africa(21).

Immediate postpartum LARC methods insertion (i.e. before hospital discharge) is recommended as best practice, recognizing its role in preventing the rapid repeat and unintended pregnancy(22,23). The immediate postpartum period is particularly convenient for implant or IUD insertion. Despite the higher expulsion rate, cost-benefit analysis data strongly suggest the superiority of immediate placement in the reduction of unintended pregnancy, especially for women at greater risk of not attending the postpartum follow-up visit(24). Women who have recently given birth often are motivated to use contraception and are known not to be pregnant. The hospital setting offers convenience for the patient and the healthcare provider(8). Ideally, women should be counseled prenatally about immediate postpartum LARC methods option, advantages and disadvantages for enabling informed decision making(23).

Ethiopia is the second most populous country in Africa with high maternal mortality ratio of 412 per 100000 live births according to 2016 Ethiopian Demographic and Health Surveillance (EDHS) report(12). The Ethiopian Ministry of Health has undertaken the initiative for measures to reduce maternal mortality through most importantly family planning at all levels of the health care system. The Ethiopian government also has set the goal to achieve a total fertility rate (TFR) of 2.1(25) and to improve the national utilization rate of modern contraceptives specifically long-term reversible contraception (LARC) methods. For instance, the government has targeted 55% contraceptive prevalence rate by the year 2020, and 35% is expected to come from LARC methods (25,26). According to EDHS 2016 report, only 35% of married women and 55% of sexually active unmarried women used a modern contraceptive. From this figure, the share of LARC methods was 8% for implant and 2% for IUD among married women whereas 11% for implant and 1% for IUD among sexually active unmarried women(12).

Although immediate postpartum is the best opportunity for LARC methods insertion to prevent unintended pregnancy, studies that documented LARC methods utilization and associated factors during this period are very limited in Ethiopia. Almost all facility or community based studies conducted on prevalence of LARC methods utilization in different corners of Ethiopia were among family planning clients. Very few ones were among extended postpartum women. Hoping that LARC methods utilization will be higher among counseled immediate postpartum women, this study assessed prevalence and pattern of LARC methods utilization and associated factors among immediate postpartum mothers at one tertiary level teaching hospital in Ethiopia.

Methods And Materials

2.1 Study area and period

The study was conducted in Jimma University Medical Center (JUMC) at maternity ward from November 12, 2016 - January 21, 2017. JUMC is located in Jimma town at around 352 Km Southwest of Addis Ababa. It is the only teaching and referral hospital in the Southwestern part of the country, providing services for approximately 15 million people living in Jimma zone and Southwest Ethiopia. It is also serving as a clinical post graduate specialty teaching hospital for Obstetrics and Gynecology, Internal Medicine, Pediatrics and Child Health since 2005 and for Ophthalmology and Surgery since 2007. Department of Obstetrics and Gynecology has MCH unit, OPD, Family Planning unit, Referral unit, Gynecology and Maternity wards. The Maternity, Labor and Delivery ward has 60 beds in addition to seven first stage beds and four second stage couches. Services are provided by midwives, medical interns and resident physicians and consultant Obstetricians and Gynecologists.

2.2 Study design

Facility based cross-sectional study design was used.

2.3 Study population

All counseled immediate postpartum mothers except mothers with puerperal sepsis, chorioamnionitis, deep venous thrombosis (DVT), congestive heart failure (CHF), severe liver disease, and previous breast cancer.

2.4 Sample size determination and sampling technique

2.4.1 Sample size

The required sample size was determined by using single population proportion formula considering 36.7% prevalence (taken from community based study)(27), 5% level of significance, 5% margin of error and 10% non-response rate.

$$n = \frac{(Z_{\alpha/2})^2 \cdot P \cdot (1-P)}{d^2} = \frac{(1.96)^2 \cdot (0.367) \cdot (1-0.367)}{(0.05)^2} = 357$$

$$n_f = 357 + 10\% \cdot 357 = 357 + 36 = 393$$

2.4.2 Sampling technique

Convenience consecutive sampling technique was used. Beginning from the first date of data collection, all postpartum mothers who were candidate and counseled for LARC methods use were involved till the desired sample size was reached.

2.5 Study Variables

Dependant variable

- Postpartum LARC methods use

Independent variables

- Socio-demographic/economic variables (age, marital status, educational level, religion, ethnicity, occupation and residence, income, family size and husband support).
- Reproductive history of women (parity, number of live birth, prior outcome, mode of delivery, current birth outcome, previous history of LARC methods use)
- Prior counseling for LARC methods at ANC visit

2.6 Data collection process

Data were collected by face-to-face interview and record review using structured and pre-tested questionnaire and checklist respectively. The questionnaires were developed according to objective of the study after reviewing different literatures relevant to the study. The data collectors were two midwives working at maternity ward and one resident physician assigned to family planning unit who were also counseling about family planning. Data collectors and supervisors were briefed about the objectives of the study and the data collection tool by the principal investigator. The principal investigator and supervisors closely supervised the overall activities of the data collection on daily basis to insure the completeness of the questionnaire, to give further clarification and support data collectors.

2.7 Data analysis

Data were entered into EpiData, cleaned and analyzed using SPSS 20. A descriptive analysis was carried out for each variable. Bivariate logistic regression was performed for independent variables that have adequate cell count to identify candidate variables for the multivariable logistic regression. Variables with p-value < 0.25 in bivariate logistic regression were entered into multivariable logistic regression model to determine independent effect of each covariate. Multicollinearity was assessed in linear regression with variance inflation factor (VIF) and none was found. Interaction was also assessed with Breslow-Day test and none was found. Model fitness was assessed by Hosmer-Lomeshow test and percentage of correct classification.

2.8 Data quality management

The questionnaire was originally prepared in English and then translated to local languages (Afan Oromo and Amharic) and back translated to English to check for consistency of translation. The tool was pre-tested on 5% of the sample before actual data collection and necessary modifications were made based on nature of gaps identified. The midwife nurses who collect the data were briefed on objective of the study, contents of the tool and how to approach participants for interview. On site supervision was carried out every day during the whole data collection period. At the end of each day, filled questionnaires were reviewed for completeness and consistency by supervisor and principal investigator. The data were cleaned and explored before analysis.

2.9 Dissemination plan

The final results of this study will be submitted to the advisors, Jimma University research, graduate studies and CBE coordinating office and to publishers for possible evaluation and publication of the paper for local or international journals. A valuable recommendation will be made based on the result obtained at the end of the study that is going to be implemented during the clinical practice in these segments of the population throughout the country.

2.10 Operational and term definitions

- counseling is discussion between health professional and client on LARC methods options, advantages and disadvantages.
- Immediate postpartum period is the first 48 hours after delivery
- Instrumental delivery is delivery assisted by forceps or vacuum instrument
- Long acting reversible contraception (LARC) methods comprise intrauterine devices (IUDs) and hormonal implants (Implanon, Jadelle/Sino implant); not DMPA or combined injectables

Results

3.1 Characteristics of the study subjects

Out of 393 participant mothers, higher proportion (41.7%) was in age group 25-29 years and the mean age was 27. The majorities of participants were Muslims (239,[60.8%]), and Oromo (251,[63.9%]). Nearly all were married (373,[94.9%]) and near to one-third (31.6%) were housewives. and close to two third (63.1%) attended formal education of different levels and nearly half (185,[47.1%]) had monthly income between 1000 and 2500 ETB and the majorities (219,[55.7%]) of mothers were from rural (Table 1).

Table 1: Distribution of socio- demographic/economic characteristics of immediate postpartum mothers at JUMC, Nov 12, 2016 - Jan 21, 2017 (n = 393)

Variables		Number	%
Age of mother	15-19	24	6.1
	20-24	91	23.2
	25-29	164	41.7
	30-34	80	20.4
	35+	34	8.7
Residence	Rural	219	55.7
	Urban	174	44.3
Religion	Muslim	239	60.8
	Orthodox	81	20.6
	Protestants	60	15.3
	Catholics	11	2.8
	Others	2	0.5
Ethnicity	Oromo	251	63.9
	Amhara	55	14.0
	Dawro	32	8.1
	Gurage	30	7.6
	Others	25	6.4
Marital status	Married	373	94.9
	Single	9	2.3
	Divorced	7	1.8
	Widowed	4	1.0
Educational status	Can't read and write	112	28.5
	Only read and write	33	8.4
	Primary school (1-8)	105	26.7
	High school (9-12)	87	22.1
	College or university	56	14.2
Occupational status	House wife	124	31.6
	Farmer	88	22.4
	Merchant	76	19.3
	Gov't employee	64	16.3
	Private worker	19	4.8
	Student	17	4.3
	Other	5	1.3
Monthly income (ETB)	≤1000	108	27.5
	1001-2500	185	47.1
	>2500	100	25.4

3.2 Reproductive characteristics

Close to two-thirds (257,[65.4%]) of mothers were between para 2 and 4; almost all (98.7%) of participants have at least one alive kid; about 30.8% of mothers had two children; and the mean number of alive children of participants was 2.59. Nearly one-third (118,[30.0%]) of the current births were not planned for a time. Just two-thirds (66.2%) of the respondent had a plan to have children in the future whereas 102 (26%) will not have a plan to have baby for future and 31(7.9%) of respondents not yet decided about their future child birth. For those mothers who had a plan to have a child in the future, over three-fourths (200,[76.9%]) want to have a child after 2 years (Table 2).

Table 2: Reproductive information of mothers in immediate postpartum, JUMC, Nov 12, 2016 - Jan 21, 2017.

Variables		Number	%
Number of parity	1	84	21.4
	2-4	257	65.4
	5+	52	13.2
Mode of delivery	SVD	212	53.9
	Assisted breech	12	3.1
	Instrumental	40	10.2
	Cesarean section	129	32.8
Current birth outcome	Alive	364	92.6
	Dead	29	9.4
Number of alive kids	1	91	23.5
	2-4	254	65.5
	5+	43	11.0
Need more babies	Yes	260	66.2
	No	102	26.0
	Yet not decided	31	7.9
Next delivery plan within two years (n=260)	Yes	60	23.1
	No	200	76.9

3.3 Awareness, ANC and prior LARC methods utilization

Over three-fourths (309,[78.6%]) of the study participants ever heard about LARC methods from different sources. The main source of information was health workers (247,[79.9%]). Nearly 9 in ten (352,[89.6%]) of the study participant had at least one antenatal care visit (ANC) during the current last pregnancy. Only 106 (27%) had received counseling service on LARC methods during ANC visit. Ninety-two (23.4%) had previously used LARC methods. Out of these, 76(82.6%) used Implanon, 10(10.9%) used Jadelle/Sino implant and 6(6.5%) used IUD. Majorities of participants discontinued LARC methods because of the desire for pregnancy.

3.4 Prevalence of LARC Methods Utilization

The prevalence of current LARC methods use was (209,[53.2%]) (95% CI: 48.2-58.1). Over three-fourths (78%) used implanon, 11.5% used Jadelle/Sino Implant and 10.5% used IUD. Various reasons were reported for not using LARC methods during study period. The commonest reported reason was preference of other form of contraceptive methods (25.5%) and others were fear of side effects, religious prohibition, want to use LARC methods other time, opposition from partner and want to have more children (Figure 1).

3.5 Factors associated with LARC methods use

Bivariate and multivariate logistic regression analyses were done to identify factors associated with LARC methods use. The results of these analyses showed that being counseled at ANC, monthly income greater than 1000 ETB, family size more than four, completed family size, having plan to delay next pregnancy beyond two years and prior use of LARC methods have increased chance of current immediate postpartum use of LARC methods.

Mothers who had monthly family income of 1000 ETB or more were 2.4 times more (95% CI: 1.08, 7.20) likely to use LARC methods compared to mothers with monthly family income less than 1000 ETB. Mothers who had more than four alive kids were 2.6 times more (95% CI: 1.15, 5.95) likely to use LARC methods than mothers who had none or only one child. Women

who completed family size were approximately two times more (95%CI: 1.12, 3.15) likely to use LARC methods compared with women who need more children. Mothers who planned to extend next birth beyond two years were nearly four times more (95%CI: 1.60, 9.28) likely to use LARC methods than mothers who planned next birth within next two years. Mothers who previously used LARC methods were three fold more (95% CI: 1.30, 7.20) likely to use LARC methods than mother who never tried it. Most importantly, mothers counseled for LARC methods during ANC visits were two fold higher (95%CI: 1.01, 4.73) used LARC methods at immediate postpartum than mother who were not counseled (Table 3).

Table 3: Factors associated with current LARC methods use among mothers in immediate postpartum period, JUMC, Nov 12, 2016 to Jan 21, 2017.

Respondents' characteristics		Current LARC methods use			
		Yes	No	COR (95%CI)	AOR (95%CI)
Maternal age	15-24	52.2	47.8		1 [¥]
	25-34	52.1	47.9	1.0(0.64, 1.55)	1.1(0.56, 2.16)
	35+	64.7	34.3	1.7(0.76, 3.71)	1.2(0.34, 3.83)
Mode of delivery	Vaginal	50	50		1
	Cesarean	59.7	40.3	1.5(1.0, 2.27) *	1.6(0.82, 3.02)
Current birth outcome	Dead	41.4	58.6		1
	Alive	54.1	45.9	1.7(0.78, 3.60)	2.5(0.41, 15.35)
Number of Parity	1	55.9	44.1		1
	2-4	48.6	51.4	0.7(0.45, 1.22)	0.19(0.03, 1.48)
	5+	71.2	28.8	1.9(1.0, 4.06)*	0.50(0.11, 2.32)
Number of alive kids	≤ 1	50.5	49.5		1
	2-4	50.8	49.2	1.0(0.63, 1.62)	0.8(0.51, 1.41)
	5+	72.1	27.9	2.5(1.16, 5.52)*	2.6(1.15, 5.95) #
Completed family size	No	50	50		1
	Yes	66.7	33.3	2.0(1.24, 3.23)*	1.9(1.12, 3.15) #
Next delivery plan within two years	Yes	23.2	76.8		1
	No	59.7	40.3	4.9(2.61, 9.20)*	3.8(1.60, 9.28) #
Ever heard of LARC methods	No	28.6	71.4		1
	Yes	59.9	40.1	3.7(2.21, 6.31)*	1.2(0.47, 3.11)
Counseled at ANC	No	36.3	63.7		1
	Yes	63.2	36.8	3.0(2.00, 4.60) *	2.1(1.01, 4.73) #
Previous LARC methods use	No	46.2	53.8		1
	Yes	76.1	23.9	3.7(2.18, 6.30)*	3.1(1.30, 7.20) #
Monthly income	≤1000 ETB	36.1	63.9		1
	>1000 ETB	59.7	40.3	2.6(1.65, 4.14)*	2.4(1.08, 4.73) #

* COR significant at p-value <0.05; 1[¥] logical reference; #AOR significant at p-value <0.05

Discussion

We assessed the prevalence, pattern, reported reasons for refusal and associated factors for utilization of LARC methods among immediate postpartum mothers at JUMC, Southwest Ethiopia. The prevalence of current immediate postpartum LARC methods use was 53.2%. Over three-fourths (78%) used implanon followed by Jadelle/Sino Implant (11.5%) and IUD (10.5%). The commonest reported reason for not using LARC methods was preference of other methods. Being counseled at ANC,

monthly income greater than 1000 ETB, family size more than four, completed family size, having plan to delay next pregnancy beyond two years and prior use of LARC methods have increased chance of current immediate postpartum use of LARC methods.

The prevalence estimated in our study was much higher than national estimates where only 10% of women used LARC methods as reported in EDHS 2016(12). This could be because of the fact that national estimate was for all reproductive age group women whether married or unmarried. But, our study was limited to specific group of women (immediate postpartum women) who are more likely to accept LARC methods. The proportion of women who used IUD in our study was much lower than 21.9% prevalence of immediate postpartum IUD use reported by facility based cross-sectional study conducted in Southern Ethiopia(28). Though there was similar proportion of ANC use (89.6% vs 84.2%), there was significantly lower proportion of counseling for LARC methods at ANC (27% vs 72.3%) and all were counseled at postpartum in our study. Hence, the lower percentage of IUD use could be because of the combination of lower proportion of counseling at ANC and availability of alternative LARC methods options in our study but, only IUD in the case of study conducted in Southern Ethiopia(28). However, it was similar to 12.4% prevalence of immediate IUD use reported by facility based cross-sectional study conducted in Bale zone, Southeast Ethiopia which reported similar proportion (87.6%) of ANC use(29).

Our finding was also higher than 36.7%(27) prevalence of LARC methods use in the extended postpartum period (42 days to 1 year) reported by community based cross-sectional study conducted in Southern Ethiopia. But the proportion of women counseled for LARC methods was significantly lower in our study (27% versus 51.5%). This indicates that LARC methods acceptance is better at immediate postpartum and mothers may change their mind and reject LARC methods offer at extended postpartum even if they were willing to use it at immediate postpartum.

Our finding was also higher than 22.9%(30) and 16%(31) prevalence of LARC methods use among family planning attendees of public health facilities in Jimma town, Southern Ethiopia. It was also higher than 38%(32), 29.1%(33), 37.7%(34), 25.2%(35), 28.3%(36), 30.3%(37) and 23.8%(38) prevalence of LARC methods use among family planning clients reported by community based studies conducted in different parts of Ethiopia. It was also higher than 33.7%(39), 16.4%(40), 33.7%(41), 16.3%(42), 28%(43), 17.6%(44) and 9.24%(45) prevalence of LARC methods use among family planning clients reported by facility based cross-sectional studies conducted in different parts of Ethiopia. The finding was also higher than 37.4%(46) prevalence of LARC methods use among HIV positive family planning attendees of public health facilities in Bahir Dar town, Northern Ethiopia. We also calculated 23.84% pooled prevalence from eighteen facility or community based cross-sectional studies conducted in different corners of Ethiopia(27,30–46) and found that our finding was higher than pooled prevalence.

Regarding pattern of LARC methods use, birth control Implant was the method used by almost 9 out of ten mothers. This finding was in line with findings of most previous studies conducted in different parts of Ethiopia where Implant was used by at least three-fourths of mothers(27,30–36,38,40,42,43,45–47) and higher than findings of some studies(37,39,41). This could be because of convenience and privacy as implants are inserted under the skin into the upper arm area whereas IUDs are inserted into the uterus. Thus, women may think that it's painful while inserting IUDs into uterus especially during immediate postpartum and/or during sexual intercourse and/or while walking. They may also think that it can cause damage to the uterus. In facility based cross-sectional study conducted in Bale zone, Ethiopia, one-third of study participants agreed and only one-fifth disagreed that insertion and removal of IUD is highly painful. In the same study, more than one-third (37.6%) agreed that insertion of IUD causes loss of privacy and 41.6% agreed that IUDs may impair future fertility(29). In another community based study cross-sectional study, nearly one-third (31%) of study participants disagreed with the statement "insertion of intrauterine contraceptive devices does not lead to loss of privacy". Similarly, nearly half (46%) disagreed with the statement "using intrauterine contraceptive devices does not restrict normal activities"(38).

In this study, counseling at ANC was significantly associated with immediate postpartum LARC methods utilization. Studies conducted in different corners of Ethiopia reported that women counseled at ANC and/or during delivery and/or postpartum and/or received postnatal care were more likely to use LARC methods(27,36,48). This could be because women who received postnatal care were likely to be counseled for LARC methods and counseling increases women's knowledge of LARC methods

including its advantage and disadvantage and clears misconceptions increasing chance of LARC methods use. Previous studies have reported that women who heard(48), had awareness(42), had information(35) about LARC methods, had moderate or high knowledge of LARC methods(33,39,41,47) or previously used it(27,30,43) were more likely to utilize it now. Prior use of LARC methods was also positively associated with current use of LARC methods in our study which was in line with literature. Studies have also reported that women with misconception(33,38) and who heard myths(46) were less likely to use LARC methods. On the other hand, positive/supportive attitude towards LARC methods(33,40), not hearing myths(31), health professionals being source of information(47) and discussion of LARC methods with providers(31) were positively associated LARC methods use. Similarly, maternal literacy was also positively associated with LARC methods use(27,29,30,32–34,36,39,41,42,44) because education is likely to enhance women's autonomy and confidence to make decision regarding their own health and demand higher quality of life. The association between prior use of LARC methods and current acceptance is an indication of knowledge influence.

In general, counseling builds knowledge of LARC methods, clears misconception and myths about LARC methods, develops positive/supportive attitude and finally leads to increased use of LARC methods. However, although counseling for postpartum family planning is also acceptable during early labor and immediately postpartum, it should optimally begin during ANC according to WHO recommendations(49) and it is the ideal time to counsel women. In this study, however, only 27% of participants were counseled at ANC follow up though all were counseled at immediate postpartum. This finding indicates the importance of integrating counseling for post-partum family planning into ANC and/or early labor and/or the immediate postpartum period to increase postpartum LARC methods utilization.

Limitations of study

This study was institution based and the respondents were immediate postpartum mothers (48 hours before hospital discharge) who were counseled for LARC methods. Therefore, the study findings may be not be generalized to all reproductive age women in the community. Counseling for contraception options was done after delivery but is better addressed before delivery especially for IUD to be inserted just post-placental delivery in either vaginal or cesarean delivery. Another limitation of this study was some mothers might have been discharged from the hospital before counseled and interviewed though we were actively looking for all postpartum mothers.

Conclusion

The advantages of postpartum contraceptive use for wellbeing of mother and child cannot be overemphasized. The prevalence of immediate postpartum LARC methods use was promising with implant the most preferred method by mothers. Counseling during ANC follow-up and previous LARC methods use were important factors associated with increased chance of uptake of LARC methods at immediate postpartum period. This is the indication of importance of knowledge on LARC methods that clears misconceptions or myths and builds positive/supportive attitude, ultimately leading to increased utilization of LARC methods. Therefore, it is recommended to consider counseling for LARC methods in continuum starting at ANC follow-up through postpartum period.

Abbreviations And Acronyms

ACOG - American College of Obstetricians and Gynecologists

ANC - Antenatal Care

CHF - congestive heart failure

CBE - Community based education

DVT - Deep venous thrombosis

EDHS - Ethiopian Demographic and Health Survey

ETB - Ethiopian Birr

IUDs - Intrauterine Devices

JUMC - Jimma University Medical Centre

LARC – Long-acting reversible contraception

MCH - Maternal and child health

OPD - Outpatient department

PPFP - Postpartum family planning

TFR - Total fertility rate

USAID - United States Agency for International Development

WHO - World Health Organization

Declarations

Ethics approval and consent to participate

Approval of the study was obtained from Institutional Review Board (IBR) of Institute of Health, Jimma University. Before interview, informed verbal consent was obtained from study participants after telling them objective and procedure of data collection. Participants were also told that they can withdraw from the study at any time. Name and other personal identifiers were not requested and participants were given unique code to assure confidentiality. Collected information was not disclosed to anyone who is not member of research team.

Consent for publication

Not applicable

Data availability

All datasets on which the conclusions of the paper rely were presented in the main manuscript.

Conflict of interest

The authors declare that there was not any financial or non financial conflict of interest.

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Author Contributions

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Disclosure

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Figures

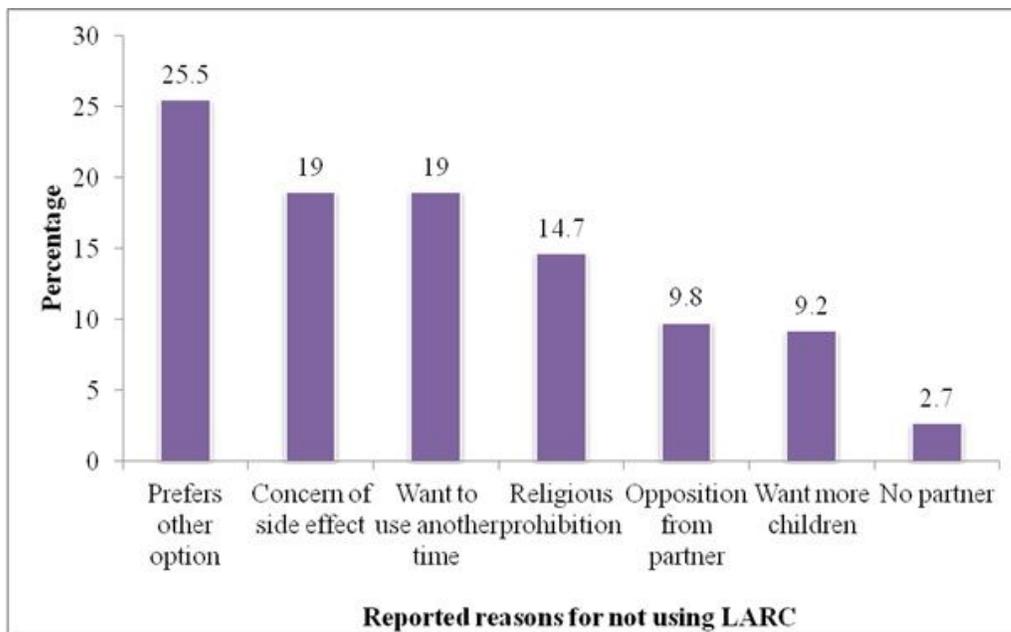


Figure 1

Distribution of reasons reported by immediate postpartum mothers for not using LARC methods, JUMC, Nov 12, 2016 - Jan 21, 2017.