Factors Associated with Long-acting Reversible Contraceptive Use in the Immediate Postpartum Period in Ethiopia

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Abstract

Background: Factors influencing commitments to postpartum family planning such as the use of reversible contraceptives taken immediately after childbirth (within 10 minutes to 48 hours) have not been adequately studied. This study aims at contributing towards evidence, based on factors that influence long-acting reversible contraceptives use during immediate postpartum period among women who delivered in health facilities.

Methods: A cross-sectional study design was used to collect quantitative data from a sample of 884 women who delivered in selected health centers during 12 months prior to the survey. Women who delivered in the facility were traced by community health workers and interviewed in their homes with the communities. Data was analyzed using descriptive statistics (graph and table) and logistic regressions with 95% confidence intervals was computed using Stata version 14.

Results: Immediate postpartum contraceptive use among women who delivered in studied health facilities was 39%, while 36% used LARC. The study found that prior postpartum family planning information (AOR=0.46, 95% CI, 0.30-0.71) and counselling (AOR=0.23, 95% CI, 0.14-0.37), staying in a health facility maternity waiting homes before delivery (AOR=0.67, 95% CI, 0.49-0.91), and getting child immunization services (AOR=0.38, 95% CI, 0.21-0.67), were significantly associated with immediate postpartum LARC use.

Conclusion: Immediate use of long-acting reversible counteractive after childbirth was influenced by different factors such as family planning information and counselling, staying in maternity waiting homes before delivery and getting child immunization services. Stakeholders working in family planning programs need further investigation about why women prefer long-acting reversible counteractive following a childbirth in health facilities. [*Ethiop. J. Health Dev.* 2021;35(SI-5):11-19]

Keywords: Ethiopia, Family Planning, Postpartum Family Planning, Long-Acting Reversible Contraception

Introduction

Contraceptive prevalence rate has increased substantially worldwide in the past decade; however, the pace of change has varied among countries (1-3). Despite the rapid increase in contraceptive prevalence, unmet need for postpartum family planning (PPFP), including long-acting reversible contraceptives (LARCs) remains high (3,4). Most postpartum women (95%) want to delay or avoid future pregnancies, but 70% still do not use any modern contraceptive methods (4) ―a situation referred to as "unmet need" for FP (5,6). Previous evidence has shown a high level of unmet need for contraception among postpartum women in the Sub-Saharan Africa (3). Postpartum period is a critical time to address unmet need for FP and to reduce risks related to closely spaced pregnancies (spaced less than 12 months apart) (6,7). However, many postpartum women do not know their risk of close pregnancy, and often fail to start contraceptive use immediately after childbirth.

Sensitization and counselling on PPFP are important for helping women determine spacing after giving birth, limit their number of pregnancies, decide whether to use a contraceptive, and, if they do, choose which contraceptive they want to use (8,9). Evidence has shown that some women become pregnant early during postpartum period (10) because of early resumption of sexual activity (11). The World Health Organization (WHO) recommends that women should receive information on family planning, health and social benefits associated with birth spacing during antenatal care (ANC), immediately after delivery, and during postpartum visits (12). Each visit to a health care provider should offer counselling and family planning services. Health care providers should therefore be urged to use every opportunity they have to provide counseling on PPFP throughout pregnancy and during postpartum period (13,14). The use of contraceptive including LARC during postpartum has several benefits because women who just delivered are always in contact with health providers. The information provided to them will help eliminate potential barriers that hinders access contraceptives, including the need for an additional hospital visit (9, 15). Many women are interested in avoiding short interval pregnancies (15), which are often unintended and increases risk for pre-term delivery and adverse neonatal outcomes (16). Scheduling LARC counselling during immediate postpartum period is additionally important because many women, including those at highest risk of short pregnancy intervals, have low postpartum visit follow-up rates (9).

In Ethiopia, the rate of contraceptive usage during the first year of postpartum period indicates that immediate postpartum contraceptive provision remains a challenge due to low acceptance by women. Only 9% of postpartum women received a contraceptive method during the first month after childbirth, and 25% of women received a method within six months postpartum (17). These factors contribute to non-use of contraceptives during extended postpartum period: limited information on the variety of available FP choices, failure to effectively integrate PPFP counseling with other maternal and child health services, misconceptions about PPFP, and lack of supplies for PPFP service delivery (6,18). There is also a significant difference in postpartum contraceptive

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available based on place of delivery, which is an advantage to women who delivered in a facility that have this service available (17). Moreover, use of LARCs postpartum is low in Ethiopia: 12% of women who delivered in the health a facility received PPFP during the 12 months after delivery in eastern Ethiopia (10), 22% of women who receive immediate PPFP (within 10 minutes to 48 hours after delivery) received intrauterine devices (IUDs) (19), and about 45% of women in western and central Ethiopia accepted LARCs or permanent contraception during immediate postpartum period before discharge (20,21).

United States Agency for International Development (USAID)-funded program, transform: Primary Health Care Activity, began supporting the Ethiopian government in 2017 to implement an immediate PPFP initiative in primary health care facilities across six regions in the country. The initiative aimed at reducing the gap in providing immediate postpartum family planning (IPPFP) to postpartum women through a multipronged approach, which includes training health care providers, promoting institutional delivery, improving integrated postnatal care services, availing PPFP supplies, and expanding contraceptive choice, and LARCs, in health facilities. Postpartum women who used LARC reported the highest satisfaction rates, and lowest rates of unintended pregnancy (23). Long-Acting Reversible Contraceptives were reported to be the most effective forms of reversible contraceptive methods and have the highest continuation rates among reversible methods (24). However, the adoption of LARC during the immediate postpartum period has been impeded by multiple factors, such as the inability to obtain LARC counseling and services. However, evidence on factors that drive the persistent unmet need for immediate postpartum LARCs is limited. Therefore, there is a need to generate evidence on what determines immediate postpartum LARC utilization and the underlying factors for women's choices to use one contraceptive over another, particularly during immediate postpartum (13). The aim of this study was to contribute to the evidence base factors that influence LARC use among women of reproductive age who adopted PPFP during their immediate postpartum period.

Methods

Study area and period

The study was conducted in primary health care facilities located within USAID 'Transform: Primary Health Care's' implementation regions (Amhara, Tigray, Oromia and SNNP[1®]) and focuses on women who delivered within 12 months prior to carrying out the study. Data were collected from October to December 2019.

Study design

The study employed a cross-sectional study design with a quantitative approach to assess utilization of IPPFP among women who delivered in health centers within 12 months prior to the study and its associated factors. The study population was women of reproductive age (15 to 49 years) who delivered in selected health centers during 12 months prior to the survey.

Sampling technique and sample size

The sampling frame was all health centers with MWH facilities, who provides childbirth services and IPPFP services under the project catchment areas. While 143 health centers are listed under the project areas, only 44 have a functional MWH, and provide skilled delivery and IPPFP services. One in every three health centers with a functional MWH, skilled delivery and IPPFP services were randomly selected (n=15 health centers) for this study. Four health centers were selected from Amhara, Oromia and SNNP, and three health centers from Tigray region. The second sampling frame included a list of all women who delivered in the selected 15 health centers in the 12 months prior to the study, as recorded in the health center delivery registration book. A total of 9,275 women had delivered within 12 months (January 2019 to December 2019) prior to the survey (on average 681 women per health center). From these women, 62 eligible study participants were randomly selected from each health center (10% of the total deliveries) for a total of 930 women were sampled. The sample consisted of women who met the following inclusion criteria: i) had delivered in the last 12 months (to obtain recent delivery data and reduce recall bias); ii) 15 years of age or older; and iii) lived in a village that was 10km or more from one of the selected health centers. Women who experienced stillbirth or new-born death in their last delivery were excluded from the study.

After identifying potential study participants, women were traced from the community through Health Extension Workers (HEWs), who informed them about the purpose of the study. All women willing to participate in the study were invited to engage in an interview at a proposed time and place through the HEWs. The data collectors conducted the interviews with the support of HEWs. Of those eligible, 46 did not participate: 17 (1.8%) were unavailable during their scheduled time and place, 13 (1.4%) refused participation, 9 (1%) withdrew after beginning the interview or had incomplete surveys, and 7 (0.8%) had stillbirths and had been wrongly recorded in the delivery registration books and were therefore dropped from the analysis. The final data were analyzed with a sample of 884 postpartum women (95% response rate) who delivered in the 15 selected health centers.

Data collection process

The data was collected using a structured questionnaire developed based on review of existing literature (19,20), previous studies on postpartum intrauterine devices (PPIUDs) research (20). The questionnaire consisted of three sub-sections designed to assess: (1) socio-demographic characteristics; (2) women's experience with health education and counseling on immediate PPFP; and (3) practice of health service utilization during pregnancy, and birth and utilization of immediate PPFP. The questionnaire was first prepared in English, translated into local languages

[1] ®*During the time of data collection, Sidama and South-west region was part of SNNP and in this study, the term "SNNP" is used to refer three regions (Sidama, SNNP, South-west)".*

(Amharic, Tigrigna, and Afan Oromo) and then back translated to English to check the accuracy of the translation prior to the start of the fieldwork. All interviews were conducted in local languages. Twenty research assistants with experience in RH/FP-related data collection and fluent in the local language(s) were recruited and collected the data under the supervision of four study coordinators. Data collectors and supervisors received a three-day training on the content of the questionnaire, issues of confidentiality, ethical conduct of human-subject research, and data-collection techniques. The training included pre-testing the questionnaire in adjacent health centers that were not included in the study. Pre-testing the data collection instrument was aimed at assessing: (1) how well the instruments elicited the information needed; (2) the usefulness of the information collected; and (3) the competency of the data collectors. The researcher modified the final questionnaire based on the pre-test results, then assigned two data collectors and one supervisor to each of the regions.

Data processing and analysis

The research team assessed the quality, accuracy, and completeness of the collected data using range plausibility and cross-validation checks. The data clerk entered the data using Epi-Data version 3.2 and then exported the data to STATA version 14 for coding and further analysis. Descriptive statistics were computed for each study variable, and logistic regression was used to identify factors associated with immediate postpartum LARC use. Variables with a p-value ≤0.25 in the bivariate analyses were entered into a multivariable logistic regression to identify significant variables independently associated with immediate postpartum LARC use. Adjusted odds ratios (AORs) with 95% confidence interval (CI) were used to identify factors associated with immediate postpartum LARC use.

Ethical considerations

Ethical approval was obtained from the Amhara, Oromia, SNNPR and Tigray Regional Health Bureau Institutional Review Board (IRB) committees, and permission letters were secured from the Woreda Health Offices. Each respondent gave informed verbal/oral consent after being told the purpose and procedures of the study. We were kept strictly all information they shared during our conversation confidentially within the principal investigator of the study, and not connected and attributed anything they said to anonymize the data.

Results

Characteristics of postpartum women

The mean age of the 884 respondents was 28 years (SDs ±5.6), and 46% were between 25 and 30 years of age. Most (81%) were married and 81% lived in rural areas. Four hundred Fifty-Eight (53%) had some level of education (able to read and write), of which 69% had completed primary education. The mean number of living children per woman was three (SDs± 1.7) (Table 1).

Table 1. **Selected characteristics of postpartum women who had a recent live birth and were using reversible contraception in Ethiopia in Amhara, Oromia, Tigray and Southern Nations, Nationalities and Peoples regions**

Characteristics	Postpartum women with recent live birth using PPFP within 2 days after delivery		
	Total N = 884, (%)	**Use of any PPFP** n=346, (39.1%)	**Did not use PPFP n=538, (61%)**
Residence(n=872)			
Semi-Urban	164 (18.8)	54 (33.1)	110 (67)
Rural	708 (81.2)	287 (40.7)	421 (59)
Age group, Year (n=884)			
<25	252 (28.5)	78 (30)	174 (69)
25-30	416 (47.1)	178 (42.8)	238 (57.2)
>30	216 (24.4)	90 (41.7)	126 (58.3)
Marital status (n=873)			
Married	706 (80.9)	255 (36.1)	451 (63.8)
Unmarried	167 (19.1)	83 (49.7)	84 (50.3)
Educational status (n=884)			
Can't read and write	426 (48.2)	177 (41.5)	249 (58.5)
Primary (1-6)	318 (36)	130 (40.8)	188 (59.1)
Secondary and above (7+)	140 (15.8)	39 (27.8)	101 (72.1)
Number of live children **(**n=877)			
1-2	389 (44.4)	135 (34.7)	254 (65.3)
3-4	312 (35.6)	140 (44.9)	172 (55.1)
>4	176 (20.1)	69 (39.2)	107 (60.8)
Ever use of FP (n=882)			
No	140 (15.9)	43 (30.7)	97 (69.3)
Yes	742 (84.1)	301 (40.6)	441 (59.4)
PPFP information (n=883)			
No	280 (31.7)	44 (15.7)	236 (84.3)
Yes	603 (68.2)	302 (50.1)	301 (49.9)
Received PPFP counselling (n=884)			
No	241 (27.3)	25 (10.4)	216 (89.6)

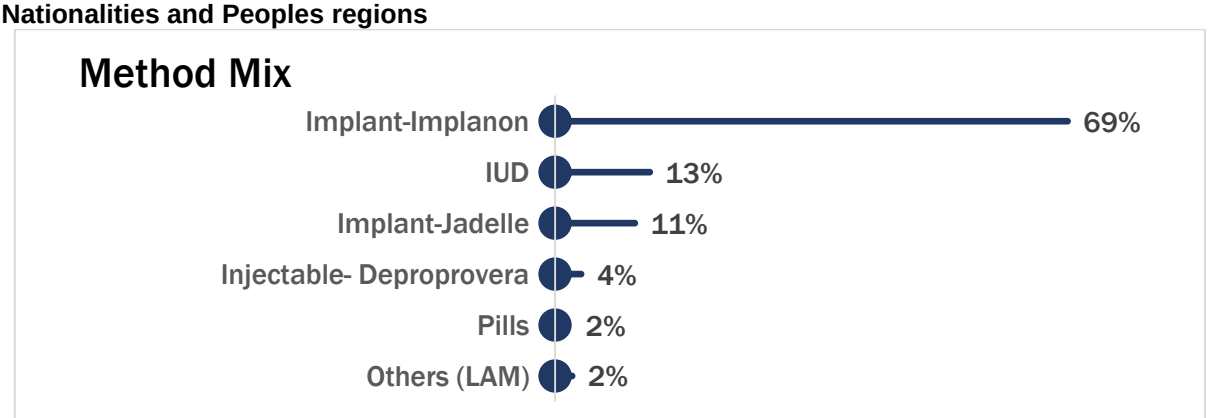
Characteristics	Postpartum women with recent live birth using PPFP within 2 days after delivery		
	Total N = 884, (%)	**Use of any PPFP** n=346, (39.1%)	**Did not use PPFP n=538, (61%)**
Yes	643 (72.7)	321 (49.9)	322 (50.1)
ANC follow-up visits(n=861)			
<4	275 (31.1)	94 (34.2)	181 (65.8)
4+	586 (68.1)	246 (42.0)	340 (58.0)
Use MWHs (n=877)			
No	516 (58.5)	181 (35.1)	335 (64.9)
Yes	361 (40.8)	162 (44.9)	199 (63.0)
Mode of delivery (n=882)			
Normal	792 (89.8)	308 (38.9)	484 (61.1)
Assisted (Surgical and other)	90 (10.2)	36 (40.0)	54 (60.0)
Child immunization (n=875)			
No	115 (13.1)	20 (17.4)	95 (82.6)
Yes	760 (86.0)	322 (42.4)	438 (57.6)

The analysis of birth spacing for women with more than one birth indicated that 14% of the last two births occurred at less than 24 months apart, and 53% of births were spaced by more than 36 months. Almost 90% of respondents had spontaneous vaginal delivery, while 8% had vacuum-assisted delivery. Most (87%) reported their children from their last delivery were immunized. Overall, 68% attended four or more ANC visits, and 41% stayed in the maternity waiting homes (MWH) within the health facilities prior to their delivery, a home prepared for expecting mothers who need to be closer to a health facility for timely and life-saving delivery service.

Of the 773 (88%) women who had visited a health facility for a health care service and received information about PPFP, 122 (20%) did so during routine family planning service, 255 (42%) during ANC service, 153 (25%) during delivery, and 21 (4%) during child vaccination. Six hundred thirty-seven (72%) received counselling specifically on immediate PPFP, of which 107 (17%) were counselled during regular family planning service, 152 (24%) during delivery, 130 (21%) immediately after delivery, and 175 (28%) after delivery before going home.

Among 361 (41%) women who used MWH before delivery, 272 (75%) received immediate PPFP counselling. Of these women, more than half 148 (54%) adopted immediate PPFP and these 144 (97%) opted for postpartum LARC (76% implant and 21% IUD). Of all 884 respondents, 346 (39%) received immediate PPFP within 10 minutes to 48 hours of delivery, and 321 (36%) received a LARC. This indicates that 321 (93%) of respondents who used any immediate PPFP adopted LARC. While out of 148 women who received immediate PPFP, 36% received services within 10 minutes of delivery. Among all immediate PPFP users who chose LARCs, 80% used implants (Implanon=69% and Jadelle =11%), and 13% used IUD (Figure 1).

Figure 1. **Method-mix among postpartum women who took up a method in the immediate postpartum period (within 10 minutes to 48 hours of delivery, n=346) in Amhara, Oromia, Tigray and Southern Nations, Nationalities and Peoples regions**



Factors determining immediate postpartum LARC use among postpartum women

In the multivariable logistic regression analysis, PPFP information, counselling on PPFP, stay in an MWH, and having their child immunized were identified to independently associate with immediate postpartum LARC use. Women who had information about PPFP were 47% more likely to report immediate postpartum LARC use than those who did not have information (AOR=0.46; 95% CI, 0.30-0.71). Women who received PPFP counselling were 23% more likely to use a LARC method than those who did not (AOR=0.23; 95% CI, 0.14-0.38). Women who stayed in MWH were 67% more likely to use a LARC compared to those who did not use MWH (AOR=0.67; 95% CI, 0.49-0.91). Women who experienced child immunization services were 38% more likely to use a postpartum LARC than those who did not (AOR=0.38, 95% CI, 0.21-0.67) (Table 2).

Table 2. **Logistic regression results for factors associated with immediate postpartum LARC use among postpartum women in Amhara, Oromia, Tigray and Southern Nations, Nationalities and Peoples regions**

Characteristics	Immediate postpartum LARC user vs non-users				
	LARC user (%)	non-users (%	COR (95% CI)	AOR (95% CI)	P-Value
Residence (n=872)					
Semi-Urban	48(5.5)	116(13.3)	1		
Rural	268(30.7)	440(50.5)	0.682 (.47-.98)	1.049(.67-1.64)	0.833
Age group, Year(n=884)					
<25	75(8.5)	177(20)	1		
25-30	165(18.7)	251(28.4)	0.65(.46-.90)	0.80(.52-1.24)	0.314
>30	81(9.2)	135(15.3)	0.71 (.48-1.04)	0.85 (.48-1.49)	0.562
Marital status (n=873)					
Married	243(27.8)	463(53)	1		
Unmarried	70(8)	97(11.1)	0.72 (.51-1.02)		
Educational status (n=884)					
Can't read and write	157(17.8)	269(30.4)	1		
Primary (1-6)	126(14.3)	192(21.7)	0.89 (.66-1.2)	0.85 (.59-1.22)	0.374
Secondary and above (7+)	38(4.3)	102(11.5)	1.56(1.02-2.37)	1.27(.755-2.15)	0.366
Number of live children (n=877)					
1-2	126(14.4)	263(30)	1	1	
3-4	129(14.7)	183(20.9)	0.68 (.50-.93)	0.95 (.63-1.44)	0.803
>4	64(7.3)	112(12.8)	0.85 (.58-1.23)	1.05 (.60-1.81)	0.874
Ever use FP (n=882)					
No	42(4.8)	98(11.1)	1		
Yes	277(31.4)	465(52.7)	0.72 (.48-1.06)		
PPFP information (n=883)					
No	42(4.8)	238(27)	1		
Yes	279(31.6)	324(36.7)	0.21 (.14-.29)	.47 (.30-.71)	<0.000
Received PPFP counselling (n=884)					
No	24(2.7)	217(24.5)			
Yes	297(33.6)	346(39.1)	0.128 (.08-.20)	.23 (.14-.38)	<0.000
ANC follow-up time (n=861)					
<4	89(10.3)	186(21.6)	1		
4+	227(26.4)	359(41.7)	0.76 (.56-1.02)		
Use MWHs (n=877)					
No	167(19)	349(39.8)	1		
Yes	151(17.2)	210(23.9)	0.66 (.50-.87)	0.67(.49-.91)	<0.010
Mode of delivery (n=882)					
Normal	288(32.7)	504(57.1)	1		
Surgical and other	31(3.5)	59(6.7)	0.93 (.59-1.48)		
Child immunization (n=875)					
No	18(2.1)	97(11.1)	1		
Yes	299(34.2)	461(52.7)	0.28 (.17-.48)	.37 (.21-.67)	<.001

Discussion

This study highlighted factors that describe immediate postpartum contraceptive uptake within 10 to 48 hours of delivery, as well as drivers for postpartum women's choices to use LARCs for immediate PPFP. The finding of low immediate postpartum contraceptive use including LARC indicates that unmet need for FP remains high, confirming that postpartum women have more unmet need than any other women (25,26). The study also found that most women who delivered in the

studied facilities were discharged without adopting any contraceptive method: since only 36% of postpartum women used an immediate postpartum LARC within 48 hours of childbirth. The lower use of immediate PPFP among those who do not deliver in health facilities (17), coupled with this study's finding that showed less than half of the women who delivered in facility received PPFP immediately after birth, reveals the missed opportunity to provide contraceptives to postpartum women wo delivered in health facility.

Among postpartum women who used contraceptives, method choice was skewed toward LARCs. Of the women who adopted any immediate PPFP, significantly high proportion of postpartum women opted to use implants (80%) and IUDs (13%). Multiple reasons can influence a woman's decision to opt for a LARC, including less frequent facility visits, interest in limiting births, health providers' advice, and partner approval (27, 28). Indeed, expanding method choice to include LARCs in a setting where there is high unmet need is encouraged, because LARCs can be more effective at providing longer protection with limited need for user adherence or risk of incorrect use (29-31).

The study found that the most important factors that determined use of LARCs immediately after childbirth were previous of information about PPFP, counselling on PPFP, staying in a health facility MWH prior to childbirth, and having had their recent child immunized. The common thread among these determinants is multiple opportunities to reinforce PPFP information and counselling by health care providers. However, information on LARCs should be part of counselling on a full range of contraceptive choices (32,33).

Integration of PPFP services with other maternal and child health services increases postpartum contraceptive uptake (34). Although, any health behavior change counselling strategies, immediate PPFP use requires repeated counselling sessions to ensure that the woman is ready to adopt a contraceptive method immediately after childbirth (35,36).

Postpartum women younger than 25 years who were urban residents and had above a secondary level of education had higher uptake of immediate PPFP than their counterparts (37). While the use of LARCs, has been reported to be low in multiple low- and middle-income countries among women younger than 24 (38). Education and urban residence have been shown to positively influence immediate PPFP across multiple low- and middle-income countries (39). This might be due to more exposure to PPFP information and counselling during the postpartum period. However, in this study did not find significant relationship with age, residence, and educational status as contributing factors to the use of immediate postpartum LARC, because the study was conducted in USAID Transform: Primary Health Care Activity implementation districts, which are primarily rural. This setting might provide more equal opportunities for women to access contraceptive methods. In addition, most of the study participants have less educational exposure (attend primary level and illiterate) and younger age group, this might be due to less attainment of educational exposing women to a better understanding of PPFP information and counselling during the postpartum period.

Previous experience with family planning and ANC services can influence immediate PPFP use (37,38). However, this study did not find a relationship between four or more ANC visits and immediate PPFP use. Service provider might not be properly utilized this opportunity to counsel and offer family planning. This could be as a result of the quality of immediate PPFP counselling during ANC, as the success of integrating family planning services with other maternal and child health services such as ANC and childbirth is affected by the quality of counselling and emphasis given to family planning services (40-43). Similarly, this study did not find a relationship between history of ever using family planning services and immediate PPFP use.

Limitation

This study highlighted important findings to support already established evidence about immediate postpartum contraceptive particularly LARC use and suggested associated factors, but the study was not without limitations. This study is limited by its focus on USAID Transform: Primary Health Care Activity implementation districts, which constrains generalization beyond the intervention districts. Women accessing care in the Activity areas likely received better opportunities to access expanded contraceptive options than other districts. Finally, limitations result from the study design, which relied on the respondents' capacity to recall services they received.

Conclusions

The study concluded that, most postpartum women who delivered in the studied health facilities did not adopt any contraceptive method, but those who adopted a method opted for LARCs. Use of LARCs immediately after childbirth was influenced by multiple opportunities for counselling on immediate PPFP. The underlying factors for overall low use of immediate postpartum LARC following a childbirth in health facilities need further investigation, including the quality of integrating immediate PPFP counselling into other services especially MNCH such as antenatal care and childbirth services. Providing a comprehensive integrated package of services, including FP information and counselling with MNCH service can have a positive impact on improving IPPFP use. By designing and implementing holistic approach to MNCH services in primary health care facilities, MNCH service create an opportunity to increase contact between health care providers and pregnant women to counsel and offer family planning services. Moreover, immediate PPFP counselling should promote information on a full range of contraceptive method choices to facilitate postpartum women's ability to make informed choices tailored to their specific needs.

Declarations:

Competing interests

The authors declare they have no competing interests.

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