



## Determinants of Contraceptive Utilization Among Pregnant Mothers Started Antenatal Care Early at Jimma Medical Centre, 2024

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### Abstract

**Background:** The provision of postpartum family planning counselling which is initiated during antenatal care can significantly reduce the incidence of closely spaced pregnancies. However, there is lack of comprehensive data regarding the effectiveness of family planning counselling during antenatal care in promoting the use of modern postpartum family planning methods, especially in developing countries.

**Objective:** This study aims to investigate the determinant factors for postpartum family planning contraceptive use.

**Methods:** A prospective cohort study with purposive sampling technique was conducted from April 15 to December 31, 2024. Mothers with a gestational age of less than 16 weeks were enrolled and interviewed during their initial antenatal care visit. Follow-up interviews were conducted via phone at six weeks postpartum to assess the usage of postpartum family planning methods using Kobo software. Generalized Estimating Equations were employed to identify predictors of postpartum family planning utilization.

**Results:** The study included 145 mothers, with a mean age of 25.4 years (SD  $\pm$  5.3). From total 74.5% of the participants resided in urban areas, and 94.5% were married. The findings indicated that the utilization of modern postpartum family planning methods within six weeks after delivery was 33.1%. The likelihood of postpartum family planning utilization was significantly higher among mothers who received counselling on birth spacing (p-value 0.04), those who attended postnatal care at least once (p-value <0.01), mothers who underwent caesarean delivery (p-value 0.03) and good birth outcome. Inadequate postnatal care, unavailability of preferred family planning methods, absence of menstruation, and indecision regarding family planning choices were contributing factors for low uptake of postpartum family planning.

**Conclusion:** Counselling on birth spacing and postnatal care follow-up identified as independent risk factors influencing the utilization of postpartum family planning. So, mothers should receive counselling starting from antenatal care that they reach in decision when and which method to use regardless of waiting for menses. Continuous Supply chain should be available, to increase utilization leading to reduction of complication associated with short pregnancy interval.

**Keywords:** Postpartum Family Planning; Contraceptive; Ethiopia; Counselling

Abbreviation

ANC: Antenatal Care; DHS: Demographic Health Survey; EDHS: Ethiopia Demographic Health Survey; FP: Family Planning; IPPMFP: Immediate Postpartum Modern Family Planning; IPPP: Immediate Postpartum Period; IUD: Intra Uterine Device; KAP: Knowledge, Attitude and Practice; PPFP: Postpartum Family Planning; LARC: Long-Acting Reversible Contraceptive; LMIC: Low and Middle-Income Country; LTPC: Long Term and Permanent Contraceptive; PI: Principal Investigation; PNC: Postnatal Care; PPFP: Postpartum Family Planning; PPIUCD: Postpartum Intra Uterine Device; PPLARC: Postpartum Long-Acting Reversible Contraceptive; SSA: Sub Saharan Africa; WHO: World Health Organization

Introduction

Family planning constitutes the reproductive rights of couples, allowing them to determine the number of children they wish to have through the use of contraceptive methods. Postpartum family planning (PPFP) refers to the application of contraceptives following childbirth, beginning from the point of viability. This can be categorized as immediate postpartum if initiated within 48 hours, PPFP if commenced within 42 days, or extended family planning if adopted within 12 months after delivery [1,2].

The World Health Organization (WHO) advocates for the incorporation of family planning as a fundamental aspect of antenatal care (ANC) and postnatal care following childbirth or abortion. ANC serves as an optimal setting for providing education and counselling on family planning, as clients engage with healthcare providers consistently throughout their pregnancy. The increase in ANC visits from four to eight is viewed as a valuable opportunity to discuss the healthy timing and spacing of pregnancies, the return to fertility after childbirth, and the selection of safe and effective contraceptive options for postpartum women [1,2,28].

PPFP is instrumental in preventing unintended pregnancies, reducing short inter-pregnancy intervals, and mitigating complications such as preterm birth, low birth weight, and small for gestational age. Furthermore, extending the inter-pregnancy interval by at least 24 months can lead to a 30% reduction in maternal mortality and a 10% decrease in child mortality. The WHO and the Ethiopian Federal Ministry of Health (FMOH) have integrated family planning with other maternal and child health services, including ANC, postnatal care, well-baby care, immunization, and growth monitoring, to enhance the utilization of postpartum family planning and reduce the incidence of unintended pregnancies [5,6].

WHO advocates for PPFP as a crucial element of healthcare, which has the potential to fulfil women’s contraceptive needs and thereby reduce maternal and child mortality rates. However, despite these strategies, unintended pregnancies affect 35% of women in low-income countries. In Ethiopia, the coverage of postpartum family planning stands at 27% [7]. The low utilization of PPFP in resource-limited countries can be attributed to a lack of awareness regarding the benefits of birth spacing, cultural beliefs surrounding family planning, insufficient supply, past experiences with family planning, and various birth outcomes. These can be addressed during antenatal or postnatal care services [4-6].

In Ethiopia, there has been a scarcity of research regarding the impact of ANC counselling on the adoption of modern PPFP methods, including long-acting, short-acting, and barrier methods. This study aims to investigate the factors that affect ANC counselling and the subsequent use of PPFP at Jimma Medical centre, which may serve to inform future focal points and provide baseline data for subsequent research endeavours.

Method and Material

Study, design, area and periods

This prospective Cohort study was conducted from April 15- to December, 31 2024, focusing on antenatal care and followed until six months of the postpartum period Jimma university medical centre (JUMC). JUMC was established in 1930 E.C and located 354km southwest of Addis Ababa, within the Jimma Zone of the Oromia region. This university hospital ranks among the largest and most comprehensive public hospitals, serving as a centre for teaching and research. The facility employs over 4,000 staff members, including clinicians, academicians, and support personnel. The gynecology and obstetrics department is one of the key departments within the hospital, featuring several sub units, including the gynecology outpatient department, antenatal care clinic, labor and delivery unit, maternity ward, and gynecology ward staffed by nurses, midwives, medical interns, residents, senior clinicians and researchers.

Source population

All mothers who had antenatal care at JUMC during the study period.

Study population

All Pregnant mothers who began care at a gestational age of less than 16 week at JUMC.

Eligibility criteria

Inclusion criteria

All pregnant mothers with gestational age <16wks during their first ANC visit and continued their ANC follow up, delivered at JUMC who gave willingness to participate in the study were included in the study.

Exclusion criteria

- Pregnant women whose pregnancies end up with an abortion (defined as birth occurring before 28 weeks).
- Pregnant women who started antenatal care at JUMC then transferred to other facilities.
- Pregnant mother whose GA> 16 Wks. during first ANC follow up.

Sample size determination and sampling technique

The sample size was calculated by a single proportion formula using a p value of 50%, a 95% CI, and a margin of error of 5%. Where n = number of sample sizes, Z, statistics for a 95% confidence interval (1.96), and p = 50%.  $q = 1 - p$ ;  $p = 0.5$ ; hence,  $q = 0.5$ ,  $d = 0.05$  level of precision at a 95% confidence interval. Pretest was done prior to starting the study, the number of mothers who started ANC < 16wks and planned to continue ANC at JUMC were small. The study period of this research were eight months, putting the above factors into consideration, Purposive non probability sampling technique was used.

Data collection tools

Data was gathered and analyzed using structured and pre-tested questionnaires. The development of the questionnaires was guided by the study's objectives, following a thorough review of relevant literature. Eligible pregnant women were approached for consent, with a clear explanation that the data collected was utilized solely for this research (two midwives) attended a one-day training session that covered the goals of the study and the instruments utilized for data collection. Their daily activities were monitored to guarantee the completeness of the questionnaires and to provide additional clarification and support to the data collectors.

Eligible mothers were identified and Socio-demographic data were collected. Then In-depth interview about ANC counselling and service was done around 34-37wks. Then exit interviews regarding ANC counselling were rechecked and data regarding mode of delivery, out come and PNC coverage were interviewed by phone call.

Study variable

Dependent variable

- Post-partum Contraceptive usage (yes/no).

Independent variables

- Sociodemographic/economic variables (Age, Marital status, Education level, religion, Ethnicity, Occupation, residence, income, family size)
- Reproductive history (Parity, number of live births, previous use of contraceptive).
- ANC follow-up (Number of ANC visits, postpartum family planning)
- Contraceptive utilization (type of contraceptive used, duration of contraceptive intake).

Operational definitions

- **Immediate postpartum:** Issues pertain to the mother immediately following delivery (up-to 2days) regarding use of contraception.
- **Modern family planning:** Modern methods include female sterilization, male sterilization, the intrauterine contraceptive device (IUD), implants, injectable, the pill, male condoms, female condoms, emergency contraception, standard day's method and LAM.
- **Utilization of Postpartum Family Planning:** Family planning taken after delivery to 6 weeks.

Data analysis procedure

Data was collected with Kobo tools then exported to SPSS version 20 for analysis. Descriptive statistics method was utilized to summarize and describe the characteristics of the data. To identify predictor variables for postpartum modern family planning use at 6 weeks after birth, a Generalized Estimating Equation (GEE) logistic regression analysis was performed using a p-value of < 0.2 as the criterion for retaining variables. This analysis was incorporate a robust estimator and an exchangeable working correlation matrix to account for the clustered effect of women receiving ANC services within the same health facility. This approach allows for the inclusion of additional potential predictors that may warrant further investigation. For identifying statistically significant predictors of postpartum modern family planning use, a p-value of < 0.05 was considered significant.

Data quality management

Initial questionnaires were undergoing pre-testing with post-partum mothers prior to the commencement of data collection; this pretest data wasn't incorporated into the final study. Adjustment was made based on any identified gaps. The questionnaire was translated into both Amharic and Afan Oromo to enhance comprehension. On-site supervision was implemented during the data collection phase. Furthermore, the questionnaire was thoroughly reviewed and cross-verified for completeness, accuracy, and consistency in collaboration with an advisor.

Result

Sociology-demographic characteristics

A total of 145 mothers were included to follow-up and were monitored for six weeks to assess the acceptance rate and associated risk factors. The mean age of the respondents was 25.4 years ( $\pm 5.3$  SD), with 40% of mothers aged between 20 and 24 years. A significant portion of the mothers, 108 (74.5%) were from urban areas and 90 (62.1%) were Muslims. 137 mothers (94.5%) were married, and 107 (73.2%) belonged to the Oromo ethnic group. Majority of the respondents, 115 (79%) had received formal education out of which 45 (31%) having completed up to secondary school (Table 1 and Figure 1).

Table 1: Sociology-demographic characteristics of ANC attendants at JMC (n = 145).

Variables	Frequency (N)	Percentage (%)
Age Categories (Yrs)		
15-19	10	6.9
20-24	58	40
25-29	50	34.5
30-34	19	13.1
35-39	5	3.4
>=40	3	2.1
Total	145	100
Residence		
Urban	108	74.5
Rural	37	25.5
Total	145	100
Religion		
Muslim	90	62.1
Orthodox	31	21.4
Protestant	23	16.5
Total	145	100
Ethnicity		
Oromo	107	73.8
Amhara	18	12.4
Gurage	5	3.4
Dawro	13	9
Others	2	1.4
Total	145	100
Marital Status		
Married	137	94.5
Divorced	1	0.7
Single	1	0.7
Widow	6	4.1

Total	145	100
Educational Level		
Can't Read or Write	16	11
Only Write or Read	14	9.7
Primary School (1-8)	37	25.5
Secondary (9-12)	45	31
College or University	33	22.5
Total	145	100
Monthly Income (ETB)		
<1500	14	9.6
1500-4500	30	20.7
4500-10000	93	64.1
>10,000	8	5.6

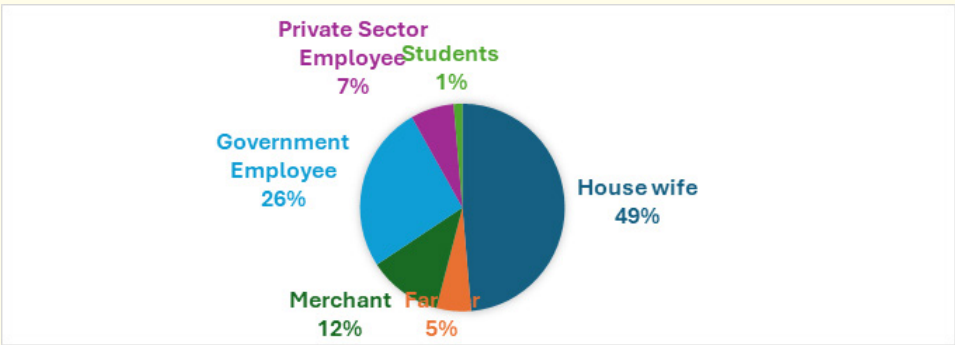


Figure 1: Occupational status of Pregnant mothers ANC attendants at JMC (n = 145).

Reproductive history

A majority of the mothers, 57 (39.3%) were classified as para one, while only 4 (2.8%) were grand multiparous. Among the nulliparous group, which comprised 39 (26.9%) of the total, 30 (76.9%) were first-time pregnant women, with the remaining individuals having a history of abortion.

Table 2: Distribution Parity among ANC attendants at JMC (n = 145).

Parity	Frequency (N)	Percentage (%)
0	39	26.9
1	57	39.3
2-4	46	31
>=5	4	2.8
TOTAL	145	100

Last previous pregnancy outcome

Majority, 91 (79.1%) of parous mothers had living children. Conversely, 6 (5.2%) experienced stillbirths, 7 (6.08%) faced infant mortality, and the remaining 9 (7.8%) underwent abortions. Among the mothers who became pregnant following their last delivery after reaching the age of viability, 38 (36.8%) conceived within 18 months, while 65 (62.3%) conceived between 18 and 60 months after their previous delivery. Only 1 (0.9%) mother conceived more than 5 years after her last delivery.

Of the mothers who conceived within 18 months of their last delivery, 11(61.1%) had bad obstetrics history either still birth or neonatal death. A significant portion of the pregnancies, specifically 80 (55.2%), were planned. Furthermore, 138 (95.2%) of the mothers expressed a desire for future fertility, while 5 (3.4%) had not yet made a decision, and 2 (1.4%) had completed their family



size. Among those mothers who intended to pursue future fertility, all planned to conceive within a time frame of 24 to 60 months following the postpartum period. Reproductive goal of participants was 138 (95%) need more child while 2(1.4%) mother completed family size.

Contraceptive history and integration of PPFP during ANC

A total of 33 (22.7%) mothers reported no prior experience with modern contraceptive methods. Furthermore, 97(66.9%) mothers indicated they had not previously utilized PPFP, while 48(33.1%), mothers had received in PPFP within the six weeks following childbirth. Among those who received PPFP, 26 (54.2%) opted for injectable, 19 (39.6%) Implanon, and the remaining 3 (6.2%) selected the intrauterine contraceptive device (IUCD).

Counselling regarding PPFP during ANC was provided to 63 (43.4%) mothers, while 82 (56.6%) did not receive such counselling. Of those who were counselled, 20(41.7%) received guidance before their fourth ANC visit, whereas the remainder were counselled afterward. Notably, 35(72.9%) mothers received counselling more than twice during their ANC follow-ups.

The majority of mothers received counselling on PPFP for a duration of 1 to 3 minutes, with only 10 mothers (15.9%) receiving counselling for more than five minutes. In terms of involvement, 25 (17.2%) included their partners in the decision-making process regarding family planning methods, while the majority, 120 (82.8%), did not take this opportunity. Among the mothers who participated in the study, only 47 (32.4%) received counselling on birth spacing for a minimum of 18 months, and 30 of these mothers (63.8%) were informed about PPFP. Additionally, 28 mothers (19.3%) received counselling on essential PNC. However, a significant majority, 138 mothers (95.2%), were counselled about birth danger signs, potential complications, and birth preparedness.

The satisfaction of pregnant mothers with the services they receive is a significant determinant influencing the uptake of PPFP. This satisfaction was evaluated using a Likert scale that encompassed factors such as privacy, confidentiality, laboratory and medication costs, the interaction of service providers in addressing concerns, waiting times, counselling on danger signs, and birth preparedness. A Likert score exceeding 73.2% was deemed indicative of client satisfaction. According to this analytical approach, 110 mothers, or 75.9%, expressed satisfaction with the ANC services provided. Conversely, 35 (24%) mothers, reported dissatisfaction with the services they received. Notably, among those satis-

fied with the ANC services, only 41 mothers (37.3%) had opted for PPFP.

Table 3: Mode of delivery ANC attendants at JMC (n = 145).

Mode of Delivery	Frequency (N)	Percent (%)
CD	23	15.9
Operative Delivery	2	1.4
VD	120	82.8
Total	145	100.0

Pregnancy outcome, PNC and PPFP utilization

Pregnancy outcome of mothers until six weeks of postpartum, majority 129 (89%) were alive, 10 (6.9%) were complicated with ENND/LNND/Infant death, while 6 (4.1%) pregnancy were complicated with still birth. All mothers who took PPFP had alive birth outcome.

Table 3: Mode of delivery ANC attendants at JMC (n = 145).

Mode of Delivery	Frequency (N)	Percent (%)
CD	23	15.9
Operative Delivery	2	1.4
VD	120	82.8
Total	145	100.0

The majority of mothers, 120 (82.8%), underwent vaginal delivery, while 23 (15.9%) had caesarean deliveries. Among the 23 mothers who delivered via caesarean section, 20 (86.9%) received postpartum family planning (PPFP), compared to 28 (23%) of those who delivered vaginally. Among 48 mothers who took modern PPFP 17(35.4%) had took within 48hrs of delivery and 16(94.1%) of IPPFP users were delivered by CD (Table 3).

The postnatal period also presents an additional opportunity for re-counseling and the provision of PPFP. Within the target group, only 29 (20%) mothers received PNC. The acceptance of PPFP among the target demographic is recorded at 48 individuals, representing 33.1%, who adopted modern contraceptive methods within six weeks. Among this 65.3% accepted contraceptive methods after 48 hours postpartum, extending up to six weeks, while 34.7% opted for contraception during the immediate postpartum period.

Among the various methods employed, injectable contraceptives were the most commonly used, with 26 individuals (53.1%) selecting this option. This was followed by Implanon, utilized by 10 individuals (20.4%), and the intrauterine contraceptive device (IUCD), chosen by 9 individuals (18.4%). Both bilateral tubal ligation and oral contraceptive pills (OCP) were each used by 2 individuals (4.1%) (Figure 2).

Factors attributed for Low PPFP intake

A significant portion of mothers, 34.1% cited the anticipation of menstruation as primary reason for not engaging in family planning. This was followed by 23.7% of mothers who did not visit health facilities during the postpartum period. Additionally, 18.6% of mothers had not made a decision regarding their family planning options, while 11.3% reported an inability to find their preferred family planning method, contributing to the lack of PPFP uptake (Figure 3).

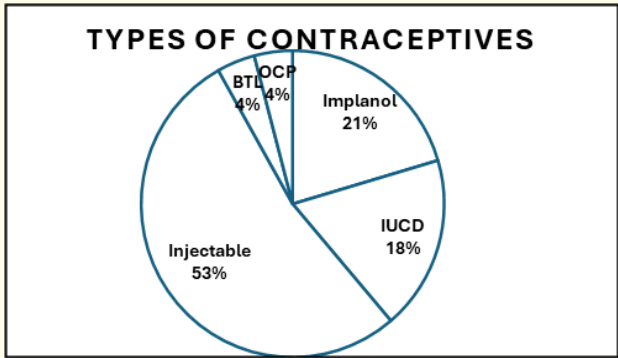


Figure 2: Type of Postpartum Family planning utilized among attendants at JMC (n = 145).

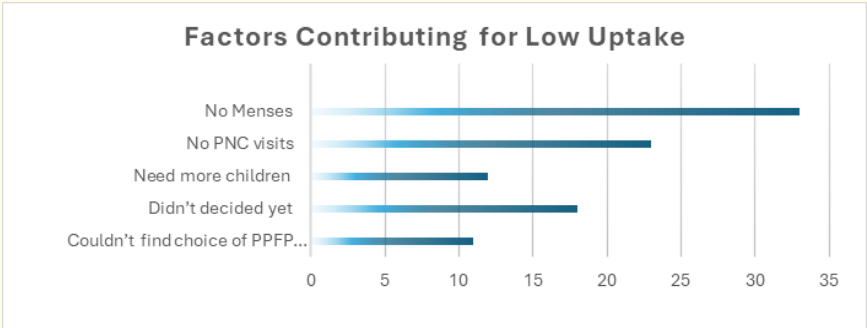


Figure 3: Factors for low PPFP among ANC attendants at JMC (n = 145).

Factors associated with PPFP utilization

Multivariate analysis indicates that mothers who received counseling on birth spacing for a minimum of 18 months exhibited a 1.67 times greater likelihood of engaging in PPFP compared to those who did not receive such counseling (AOR 1.67; 95% CI: 1.64, 17). Furthermore, mothers who underwent caesarean delivery demonstrated a 1.97 times increased probability of utilizing contraceptives (AOR 1.97; 95% CI: 1.14, 40.24). Additionally, mothers who attended at least one PNC visit within six weeks had a 2.97 times higher likelihood of engaging in PPFP compared to those who did not attend any visits (AOR=2.97; 95% CI 4.6-82.8) (Table 4).

Discussion

According to the EMDHS 2019, the acceptance rate of modern family planning among families is approximately 41%, showing a gradual increase over time. This study revealed that 33.1% of the mothers involved in this research utilized modern postpartum family planning methods. This figure is slightly above the national coverage of postpartum family planning in Ethiopia, which stands at 27%, yet it is lower than the rates observed in studies conducted in Addis Ababa (92.8%) and Arba Minch (44%). Conversely, this rate is significantly higher than findings from studies in the Da-

**Table 4:** Multivariate GEE logistic regression results to assess determinants of contraceptive utilization and counselling of PPFP of ANC attendants at JMC (n = 145).

Variables		Postpartum family planning usage		COR (95% CI)	AOR (95% CI)	P-value
		Yes (%)	NO (%)			
Counselling about birth spacing at least for 18 months	Yes	13(27.1)	13(13.4)	2.8(7.3,41.3)	1.6(1.6,17)	0.04
	No	35(72.9)	84(86.6)			
Visited health facilities for Post-natal care at least once.	Yes	25(52)	6(6.25)	3.2(7.8,78.2)	2.9(4.6 82.8)	<0.01
	No	23(48)	91(93)			
Mode of delivery	CD	28(58.3)	94(96.9)	3.11(6.193,80.9)	1.9(1.1, 40.2)	0.04
	VD	20(41.7)	3(3.1)			
Parity	<=4	42(87.5)	96(99)	2.6(0.01-0.6)	1.3(0.2-4.4)	0.343
	>4	6(12.5)	1(1)			
Previous family planning usage	Yes	23(47.9)	25(25.8)	0.9(1.3-5.5)	0.6(0.6-4.6)	0.24
	No	25(52.1)	72(74.2)			
Did you get counselled about PPFP during ANC?	Yes	32(66.67)	31(32)	1.4(0.4-8.9)	0.8(0.6-8.6)	0.25
	No	16(33.3)	66(68)			
Client satisfaction on ANC follow service	Satisfied	41(85.4)	69(71.1)	0.8(0.9,5.9)	0.3(0.3-5.2)	0.48
	Unsatisfied	7(14.6)	28(28.9)			
Involvement of partners/Husband on decision for PPFP	Yes	19(39.5)	6(6.2)	2.3(3.6,27.2)	0.8(0.4-13.5)	0.45
	No	29(60.5)	91(93.8)			
Decided for PPFP during ANC	Yes	42(87.5)	53(54.6)	1.74(2.2-14.6)	0.3(0.3-5.2)	0.81
	No	6(12.5)	44(45.4)			

bat area (10%), the Somali region (15%), and Bahir Dar (19.1%) [14,16,17]. The higher results in this study can be attributed to the fact that JMC is a tertiary hospital, where there is a greater availability of knowledgeable human resources and counseling skills compared to the above facilities. Additionally, the sample size in this study was smaller than those in other health facility studies.

Among the participants who engaged in postpartum family planning, Depo-Provera was the most commonly used method, accounting for 53.1%, followed by implants (20%). These findings align with the DHS 2019 report, which indicated that Depo-Provera and implants are the most frequently utilized methods, with Depo-Provera at 27% and implants at 9%. This discrepancy can be attributed to the number of mothers participating in the study [2].

A significant portion of participants, specifically 43.4%, did not receive counseling regarding PPFP during their ANC follow-up periods, which notably impacted the utilization of contraceptives. These findings are considerably higher than those reported in studies conducted at Bahir Dar and Mizantepi Teaching Hospital [16,32].

Numerous studies indicate that the adoption of PPFP contributes to improved birth spacing and mitigates complications associated with short interpregnancy intervals. This research revealed that mothers who were advised to postpone pregnancy for at least 18 months had a 1.67 times (P = 0.049) greater likelihood of utilizing PPFP. The results underscore the benefits of counseling on delaying pregnancy, suggesting that such guidance leads to higher rates of PPFP adoption compared to traditional family planning counseling methods, thereby empowering mothers to make informed choices. Additionally, counseling on birth spacing is more prevalent among mothers with a history of caesarean sections, as they are often advised to wait at least 18 months before conceiving again to reduce the risk of uterine rupture in the event of an early pregnancy [1,3,16].

PNC visits serve as a crucial entry point with a strong correlation to PPFP, showing 3 times (P = 0.001) higher likelihood of PPFP utilization compared to those who do not attend PNC follow-ups. A study conducted at SSNP similarly indicated that individuals receiving postnatal care had a 2.3 times greater chance of engaging in PPFP than those who did not [16,17].



The mode of delivery is believed to influence PPFP, particularly concerning immediate PPFP. Research from Saint Paul Hospital indicated that women who delivered vaginally were 56.2% less likely to accept immediate PPFP [16,31]. This finding aligns closely with the current study, which demonstrated that those who underwent caesarean delivery had a 2 times higher likelihood of utilizing PPFP compared to those who delivered vaginally or instrumentally. This trend may be attributed to the fact that mothers who had caesarean deliveries are often counselled to delay subsequent pregnancies during either the ANC or PNC periods.

ANC counseling should emphasize birth spacing and its benefit, the importance of PNC for mothers and informing them that pregnancy can occur as soon as four weeks after delivery before menstruation starts. This approach will assist mothers in making informed decisions during the ANC and PNC periods.

### Limitation of the Study

The research involved a limited number of participants in comparison to other studies addressing similar subjects. This limitation arises from the fact that many mothers seek ANC later in their pregnancies and some were transferred to other facility at some point of pregnancy time. In addition, study period is eight months, which was inadequate to get adequate sample size, need long time of study as follow up to six weeks of postpartum is needed.

### Conclusion and Recommendation

Oly one-third of mothers engaged in family planning discussions during their ANC visits; however, the majority did not receive counseling regarding postpartum family planning. Counseling on birth spacing and postnatal care follow-up identified as independent risk factors influencing the utilization of PPFP. Caesarean section mode of delivery was strongly associated with PPFP utilization merely due to most of them were counselled on birth spacing compared with vaginal mode of delivery. Poor counselling on PPFP, need of PNC, birth spacing and postnatal visit are seen while counseling about danger sign and birth preparedness is high. This showed integration of PPFP counselling within ANC is low.

Consequently, all stakeholders including medical students, antenatal care staff, residents, senior medical personnel, hospital management, and regional or federal health offices must work collaboratively to ensure the continuity of family planning services. This includes maintaining a reliable supply chain, integrating family planning with antenatal care, counseling mothers on postnatal care services, and continuous supply chain to effectively meet the high demand for postpartum family planning.

### Ethical Approval

An official letter was obtained from the Jimma University Research and Graduate Studies coordinating office and permission to conduct this research was granted by hospital authorities. Informed consent was obtained after telling the purpose, objectives, and benefits of the study to participants. Participants were told that they have the right to withdraw from the study at any time.

### Funding

The study was funded by Jimma University.

### Availability of Data and Materials

The data that support the findings of this study are available from the corresponding authors upon reasonable request.

### Conflict of Interest

The authors declare that there is no conflict of interest.

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### Consent for Publication

Not applicable.

### Authors' Contributions

DY, BK and DTD were responsible for data collection, statistical analysis and interpretation, wrote the manuscript. DY, BK, ZA and DTD interpreted and supervised statistical analysis and edited the manuscript. All authors have read and approved the manuscript.

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