

# Modern Postpartum Family Planning and Associated Factors Among Postpartum Women in a Rural District of Ethiopia, 2021: A Cross-Sectional Study

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## Abstract

The first year after a woman has given birth is critical for use of contraceptives although many women do not realize that they are at a risk for pregnancy. The main objective of this study was to assess the utilization of modern Postpartum Family Planning (PPFP) and associated factors among postpartum women in a rural district, Ethiopia. A cross-sectional study involving randomly selected 389 postpartum women was conducted in Ambo rural district from May 20, 2021 to June 10, 2021. Data were collected through face to- face interviews, entered into EPI Data version 3.1, and analyzed by SPSS version 25.0. In multivariable binary logistic regression, adjusted odds ratios (AOR) with 95% confidence interval (CI) were computed and statistical significance was declared at  $p < 0.05$ . The prevalence of modern PPFP was 72.5% (95% CI: 68%, 77%). Utilization of PPFP was significantly associated with women's self decision making (AOR = 6.43, 95% CI: 1.98, 20.90), counseling during antenatal care (AOR = 9.71, 95% CI: 3.83, 24.61), visit health facility after delivery (AOR = 5.24, 95% CI: 2.32, 11.84), ever heard of modern family planning (AOR = 5.17, 95% CI: 1.88, 14.23), perceived partner approval (AOR = 4.31, 95% CI: 1.62, 11.47), and the lowest income (AOR = 0.12, 95% CI: 0.02, 0.68). The use of modern PPFP in the study area was encouraging, which helps to prevent unplanned and unwanted pregnancies and spacing pregnancies. Therefore, family planning providers should focus on raising women's awareness and counseling their partners as part of a continuum of points of contact to encourage women to use the service.

## Keywords

Modern contraceptives, family planning services, postpartum, Ethiopia, rural district

### What do we already know about this topic?

- 95% of women in low and middle-income countries want to avoid pregnancy within the next 2 years, but 70% are not using contraception.
- Pregnancies occurring closely spaced are associated with higher risks of abortions, bleedings, anemia, and poor pregnancy outcomes like preterm babies, small for gestational age babies.
- The first 12 months after giving birth concerning family planning use is the time which is often given less attention by health care managers, health service providers, and users.
- Most women do not realize that they are at risk for subsequent pregnancy during this period.
- Due to this, there is an increased substantial risk of unwanted conception and an often-frustrated desire for contraceptive protection.

### How does your research contribute to the field?

Despite studies conducted on postpartum family planning in certain towns of Ethiopia, there has been limited locally available evidence in the rural part of the country and hence this study provides locally available evidence on the magnitude of postpartum family planning and associated factors from a rural district in the central part of the country which helps health service providers and program managers to focus on appropriate interventions to mitigate the problem locally; moreover, it provided evidence for other rural districts in a similar situation, especially for developing countries.



### What are your research's implications toward theory, practice, or policy?

Ethiopia is currently striving to become one of the fastest-growing economies in Africa. Postpartum family planning is an effective way of dealing with this situation as it offers women in the reproductive age group (15-49 years) a means of effectively spacing or limiting their births and consequently avoiding complications of unwanted pregnancies. This will lead to an improvement in the health of women and their children, families will be more productive, save more and have better prospects for their children.

## Introduction

Family planning (FP) is an important life saving intervention for mothers and their children throughout an individual's and couple's reproductive life.<sup>1</sup> Modern contraceptive methods are technological products or medical procedures that affect natural reproduction and include intrauterine contraceptive device (IUCD), contraceptive pills, condoms, sterilization, injectables, diaphragms, spermicidal agents, and emergency contraception.<sup>2,3</sup>

Initiation of modern contraceptive use during the postpartum period is most critical to improving maternal and child health. Postpartum family planning (PPFP) is defined as the prevention of unintended pregnancy and closely spaced pregnancies through the first 12 months following childbirth.<sup>4</sup>

The World Health Organization (WHO)<sup>1,4</sup> recommends PPFP counseling during antenatal, immediate postpartum, and postnatal services as a critical component of health care that has the potential to meet women's desire for contraception and save millions of maternal and infant lives in low and middle-income countries.

The postpartum period is an important intervention for improving access to family planning services. Postpartum women are among those with the greatest unmet need for family planning. PPFP helps to address the needs of those women who have an unmet need to space and limit future pregnancies while helping to lower rates of maternal and child death.<sup>4,5</sup>

During the postpartum period, family planning can prevent about 30% of maternal mortality and 10% of child mortality if couples space their pregnancies more than 2 years apart. On the contrary, closely spaced pregnancies within the first-year postpartum increase the risks of preterm birth, low birth weight, and small-for-gestational-age babies. Short inter-pregnancy intervals can result in negative health outcomes for mother and child. The timing of the return of fertility after childbirth is variable and unpredictable. Women can get pregnant before the return of menstruation.<sup>4</sup>

According to an analysis of Demographic and Health Survey data from 27 countries, 65% of women who are 0 to

12 months postpartum want to avoid pregnancy in the next 12 months but are not using contraception.<sup>6</sup> The uptake of PPFP remains low in Sub-Saharan Africa.<sup>7</sup> Level of education, antenatal and postnatal family planning counseling, menstrual cycle return, breastfeeding status, and return of sexual activity are likely to be significant determinants of family planning uptake.<sup>6-8</sup>

During this extended postpartum period, 95% of women in low and middle-income countries want to avoid pregnancy within the next 2 years, but 70% are not using contraception.<sup>9-11</sup> Closely spaced pregnancies are associated with higher risks of abortion, hemorrhage, anemia, and unfavorable pregnancy outcomes such as preterm birth and small for gestational age newborns. Despite this, health care managers, health service providers, and users often pay less attention to the first year following childbirth when it comes to family planning use. Even, most women do not realize that they are at risk for subsequent pregnancy.<sup>12</sup>

Ethiopia is currently striving to become one of Africa's economies with the quickest growth rates. However, if steps are not taken to lower the fertility rate, this trend won't last. An effective solution to this problem is postpartum family planning, which gives women in the reproductive age (15-49 years) an opportunity to limit or successfully space their pregnancies, preventing difficulties from unintended pregnancies in the process. Women's and their children's health will improve as a result, and families will become more productive, save more money, and have better prospects for the future.<sup>12</sup>

Over the past 20 years, married Ethiopian women have steadily increased their use of modern contraceptives. Contraception was used by 41% of married Ethiopian women in 2019, up from 36% in 2016, and just 29% in 2011. However, this percentage is far below the targets for 2020 (ie, 55% contraceptive prevalence rate).<sup>13,14</sup> In the capital city of Ethiopia, Addis Ababa, 80.3% of childbearing women adopted modern PPFP.<sup>15</sup> In Ethiopia, 86% of women have unmet needs during the first year after giving birth, while just 8% use any method of family planning and 5% desire another birth within 2 years. Despite the WHO and Ethiopia's

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national family planning guidelines advising at least a 24-month space between pregnancies to minimize adverse fetomaternal and neonatal problems, nearly half (47%) of postpartum women in Ethiopia had short (23 month) birth-to-pregnancy intervals<sup>8,16</sup> which potentially have a negative effect on perinatal, neonatal and child health outcomes.

In Ethiopia, the risk of pregnancy is 37% among mothers who are sexually active in the first 6 months after giving birth, whereas it is 64% during 6 to 11 months. Although the preponderance of postpartum mothers points out the need to utilize contraceptives, contraceptive uptakes are often not obtainable or in use by the first year of the postpartum period.<sup>17</sup> According to studies conducted in Ethiopia, the prevalence of postpartum contraceptive use ranged from 15% to 80.3%.<sup>12,15,18-22</sup>

Despite studies on postpartum family planning conducted in certain towns in Ethiopia, there has been limited locally available evidence in the rural part of the country; thus, this study provides locally available evidence on the magnitude of postpartum family planning and associated factors from a rural district in the central part of the country, allowing health service providers and program managers to focus on appropriate interventions to mitigate the problem. Moreover, it provides evidence for other rural districts in a similar setting, particularly for developing countries.

## Materials and Methods

### Study Setting

Ambo rural district is located in West Shewa Zone of Oromia Regional State, Ethiopia. The district is 114 km away from Ethiopia's capital city, Addis Ababa, on the main route of the country's corridor, which connects Addis Ababa with the western part of Ethiopia. The district consists of 33 kebeles (the lowest administrative units), 32 of which are rural and 1 is urban. It has a total population of 142 740, with a male to female ratio that is nearly equal. The district has 5 public health centers, 32 health posts, and 10 private small clinics, according an information obtained from the district.

### Study Design and Period

A community-based cross-sectional design was among postpartum reproductive-age women who had given birth within the previous 12 months and lived in Ambo rural district at least for 6 months before the beginning of data collection. Women who were critically ill and unable to respond were excluded from the study. The data were collected from May 20, 2021 to June 10, 2021.

### Study Variables

Dependent variable: Utilization of modern postpartum family planning.

Independent variables:

*Socio-demographic factors:* Age, marital status, educational status, occupation, place of residence, family income

*Fertility & reproductive factors:* Duration after delivery, parity, breast feeding status, condition of menses, visiting HF after delivery, ever used modern FP methods, currently using modern FP

*Partner/Husband support for FP:* Decision of FP use, husband approval on FP use, discussion with a partner about FP

### Sample Size Determination

The sample size was determined by using both single and double population proportion formulas for the first and second objectives respectively with the following considerations: confidence level of 95%, the proportion of postpartum women using FP of 45.8% in Gida Ayana district of Oromia region, Ethiopia,<sup>23</sup> and marginal error of 5%. Then, considering a 10% non-response rate and using population correction formula, the final sample size was 389. The sample size for the second objective was calculated by StatCalc on Epi Info version 7.1 for associated factors. Then comparing the sample size for both objectives, the largest sample size for the first objective was taken as the final.

### Sampling Techniques

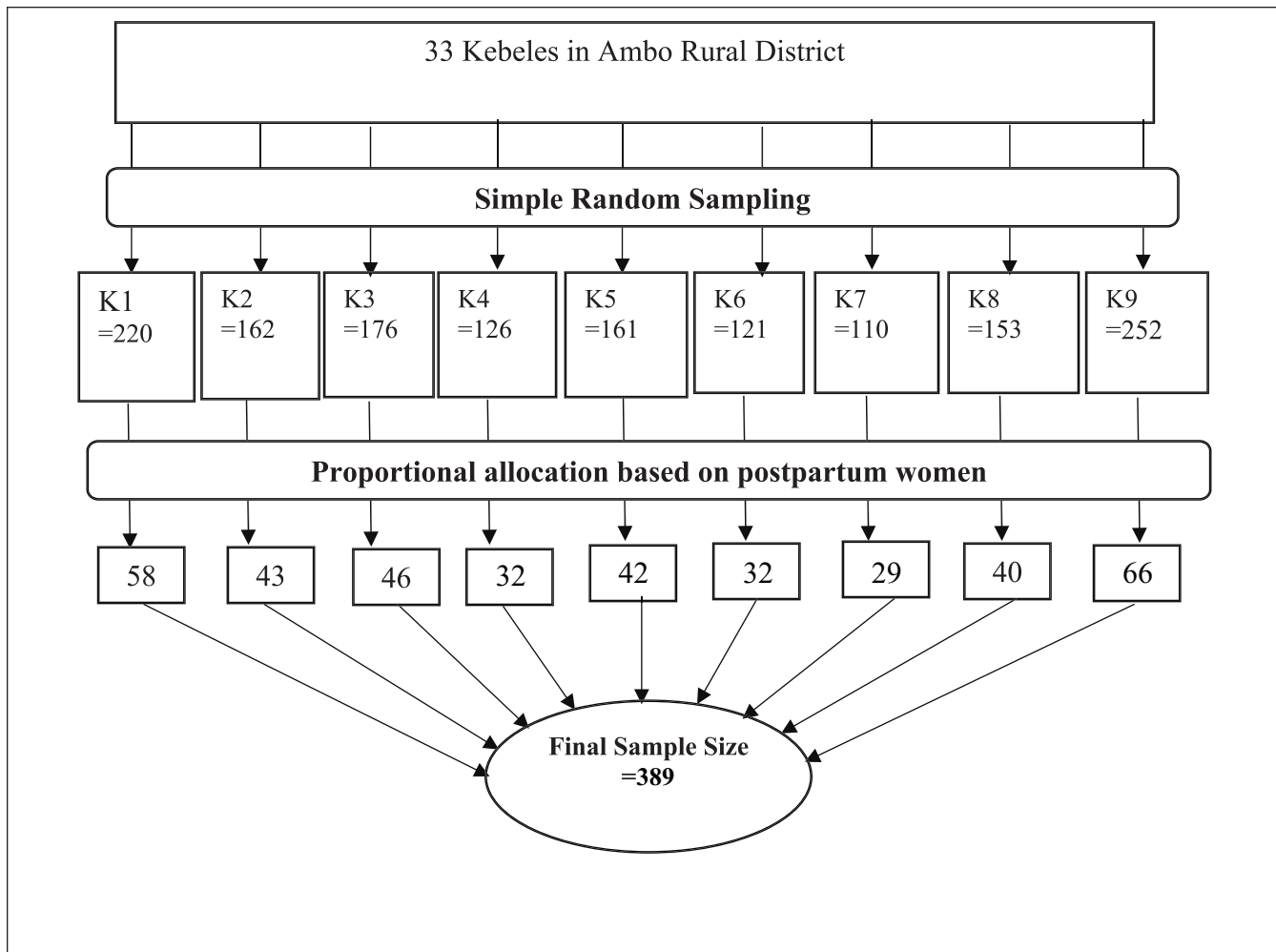
Nine kebeles (8 rural and 1 urban) were selected randomly out of 33 in the Ambo rural district. The total sample size for each kebele was allocated proportionally based on the number of postpartum women in each kebele. The list of mothers who gave birth within 1 year in each selected kebele was obtained from registrations at each kebele's health post and served as a sampling frame. Finally, participants of the study were selected by simple random sampling technique using the lottery method. In case 2 or more postpartum women were available in a house, only 1 was randomly selected (insert Figure 1).

### Data Collection Tool and Techniques

The data collection questionnaire was adapted from previous tools that were applied in different studies related to assessment of postpartum family planning.<sup>11,12,15</sup> Data were collected on socio-demographic; reproductive history, maternal health care, and current practice regarding postpartum contraception; knowledge on PFP; past experiences with modern contraception services and sexuality-related variables using a face-to-face interviewer-administered structured questionnaire. Data were collected by 9 trained diploma nurses and supervised by 2 BSc nurses from the catchment health center.

### Data Quality Assurance

The data collectors were provided 1-day training on the aim of the study, content of the questionnaire, and field ethics.



**Figure 1.** Sampling techniques among postpartum women in Ambo rural district, Ethiopia, 2021.

The collected data were checked for completeness and consistency daily by the supervisors and principal investigator. The questionnaire was pre-tested on 20 (5%) of the sample size out of the selected kebeles for the study and consequently, some amendments were made on jargon and vague questions in the questionnaire.

### Data Analysis

The filled questionnaires were coded and checked manually for their completeness and consistency. Then, it was cleaned, and entered into Epi-data 3.1 and exported to Statistical Package for Social Science (SPSS) version 25.0 for statistical analysis. For continuous variables, measures of central tendency and measures of dispersion were computed. For categorical data, frequency distribution was done. Bivariate analysis was done to select candidate variables with  $p < .25$ . Then entered into multivariable binary logistic regression to determine the association of independent variables with the PFP and control for confounders. Multicollinearity was checked by using Variance Inflation Factor (VIF) and no

problems were identified (ie,  $VIF < 10$ ). Model adequacy was checked by Hosmer & Lemeshow goodness of test ( $p > .05$ ). For those variables maintained in the final model, adjusted odds ratio (AOR) and its 95% confidence interval were calculated, and statistical significance was declared if  $p < .05$ .

### Operational Definitions

According to the WHO Programing strategies for postpartum family planning definition<sup>4</sup>;

**Postpartum period:** The period from childbirth up to 12-month interval.

**Postpartum contraceptive use:** When a postpartum woman currently uses any modern contraception methods (pills, IUCD, injectable, implants, male or female condom, male or female sterilization) during the 12 months following her most recent childbirth.

**Visit health facility after delivery:** When a postpartum woman visited health facility for postnatal care (PNC) or other services within a 12-month period following her most recent childbirth.

**Table 1.** Socio-Demographic Characteristics of Postpartum Women in Ambo Rural District, Central Ethiopia, 2021 (n=385).

Characteristics	Category	Use of modern PFPF		Total (%)
		Yes No. (%)	No No. (%)	
Age of women	≤24	71 (18.4)	22 (5.7)	93 (24.2)
	25-34	143 (37.1)	58 (15.1)	201 (52.2)
	≥35	65 (16.9)	26 (6.8)	91 (23.6)
Ethnicity	Oromo	253 (65.7)	98 (25.50)	351 (91.20)
	Amhara	25 (6.5)	5 (1.30)	30 (7.80)
	Other <sup>a</sup>	1 (0.3)	3 (0.8)	4 (1.0)
Religion	Orthodox	122 (31.7)	68 (17.7)	190 (49.4)
	Protestant	128 (33.2)	29 (7.5)	157 (40.8)
	Wakefata	28 (7.3)	5 (1.3)	33 (8.6)
	Other <sup>b</sup>	1 (0.3)	4 (1.0)	5 (1.3)
Marital status	Single	14 (3.6)	10 (2.6)	24 (6.2)
	Married	245 (63.6)	83 (21.6)	328 (85.2)
	Widowed	8 (2.1)	11 (2.9)	19 (4.9)
	Divorced	12 (3.1)	2 (0.5)	14 (3.6)
Occupational status of women	Housewife	206 (53.5)	68 (17.7)	274 (71.2)
	Merchant	30 (7.8)	12 (3.1)	42 (10.9)
	Daily laborer	26 (6.8)	17 (4.4)	43 (11.2)
	Government/private employer	17 (4.4)	9 (2.3)	26 (6.8)
Occupational status of husband (n=328)	Merchant	26 (7.9)	11 (3.4)	37 (11.3)
	Daily laborer	7 (2.1)	8 (2.4)	15 (4.6)
	Government/private employer	15 (4.6)	5 (1.5)	20 (6.1)
	Farmer	170 (51.8)	48 (14.6)	218 (66.5)
Place of residence	Other <sup>c</sup>	27 (8.2)	11 (3.4)	38 (11.6)
	Urban	40 (10.4)	11 (2.9)	51 (13.2)
Educational status of women	Rural	239 (62.1)	95 (24.7)	334 (86.8)
	No formal education	68 (17.7)	42 (10.9)	110 (28.6)
Educational status of husband (n=328)	Primary	147 (38.2)	42 (10.9)	189 (49.1)
	Secondary	55 (14.3)	18 (4.7)	73 (19.0)
	Above secondary	9 (2.3)	4 (1.0)	13 (3.4)
	No formal education	28 (8.5)	30 (9.1)	58 (17.7)
Monthly family income (ETB)	Primary	105 (32.0)	31 (9.5)	136 (41.5)
	Secondary	86 (26.2)	12 (3.7)	98 (29.9)
	Above secondary	26 (7.9)	10 (3.0)	36 (11.0)
Monthly family income (ETB)	≤2000	133 (34.5)	92 (23.9)	225 (58.4)
	2001-3500	110 (28.6)	10 (2.6)	120 (31.2)
	≥3501	36 (9.4)	4 (1.0)	40 (10.4)

Note. ETB= Ethiopian Birr (1ETB=0.02159USD).

<sup>a</sup>Other= Gurage 2, Tigre 1, and Silte 1.

<sup>b</sup>Other= Catholic 3 and Muslim 2.

<sup>c</sup>Other= Student, local security member, religious leader.

## Results

### Socio-Demographic Characteristics

In this study, 385 postpartum women were participated with a response rate of 98.9%. The mean age of the respondents was 29.4 years  $\pm$  6.2 years standard deviation (SD). The respondent's age ranges from 18 to 47 years. The majority 351 (91.2%) were Oromo by ethnicity and 190 (49.4%) were Orthodox Christians in religion. The median monthly family income was 1900 Ethiopian Birr (ETB) per month (Table 1).

### Reproductive Health Characteristics of the Respondents

The mean parity of the study participants was 3 with an SD of  $\pm$ 1.82. About 204 (53%) of the respondents were above 6 months of the postpartum period. Three hundred one (78.2%) respondents had received prenatal family planning counseling during their recent pregnancy and 205 (53.2%) of the respondents had histories of family planning use before their last pregnancies (Table 2).

**Table 2.** Fertility and Reproductive Characteristics of Women in the First Year of Postpartum Period in Ambo Rural District, Central Ethiopia, 2021 (n=385).

Characteristics	Category	Use of modern PFP		Total (%)
		Yes No. (%)	No No. (%)	
Parity	1-2	126 (32.7)	51 (13.2)	177 (46.0)
	2-4	91 (23.6)	36 (9.4)	127 (33.0)
	≥5	62 (16.1)	19 (4.9)	81 (21.0)
Age of current child (months)	≤6	134 (34.8)	47 (12.2)	181 (47.0)
	>6	145 (37.7)	59 (15.3)	204 (53.0)
Planned birth	Yes	221 (57.4)	40 (10.4)	261 (67.8)
	No	58 (15.1)	66 (17.1)	124 (32.2)
Counseling on FP during ANC	Yes	261 (67.8)	41 (10.6)	302 (78.4)
	No	18 (21.6)	65 (16.9)	83 (21.6)
Condition of menses	Regular	195 (50.6)	43 (11.2)	238 (61.8)
	Irregular	84 (38.2)	63 (16.4)	147 (38.2)
Menses were seen after delivery	Yes	194 (50.4)	52 (13.5)	246 (63.9)
	No	85 (22.1)	54 (14.0)	139 (36.1)
Visit health facility after delivery	Yes	202 (52.5)	28 (7.3)	230 (59.7)
	No	77 (20.0)	78 (20.3)	155 (40.3)
Ever used family planning before pregnancy	Yes	180 (46.8)	25 (6.5)	205 (53.2)
	No	99 (25.7)	81 (21.0)	180 (46.8)
Women's discussion about FP with partner	Yes	148 (38.4)	13 (3.4)	161 (41.8)
	No	131 (34.0)	93 (24.2)	224 (58.2)
Partner willingness assist women to obtain contraceptives (n=38)	Yes	164 (42.6)	14 (3.6)	178 (46.2)
	No	115 (29.9)	92 (23.9)	207 (53.8)
A person who decides to use family planning	Women herself	98 (25.5)	17 (4.4)	115 (29.9)
	Partner/Other/Both	181 (47.0)	89 (23.1)	270 (70.1)

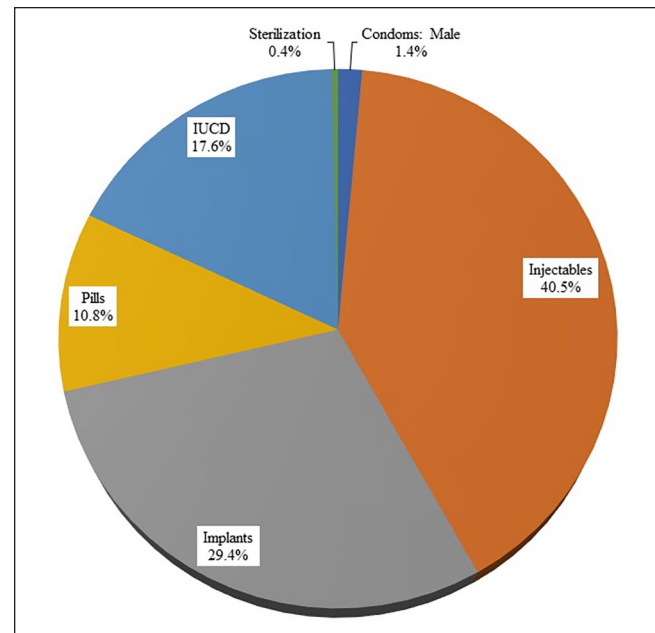
Two hundred seventy-nine (72.5%) (95% CI: 68%, 77%) of participants used postpartum modern family planning methods, with injectables (40.5%) being the most commonly used type (insert Figure 2).

Among the major reasons for not using modern contraceptives, lack of awareness about fertility return during postpartum was the most common reason given by 24 (22.6%) of the 106 women who did not use PFP (insert Figure 3).

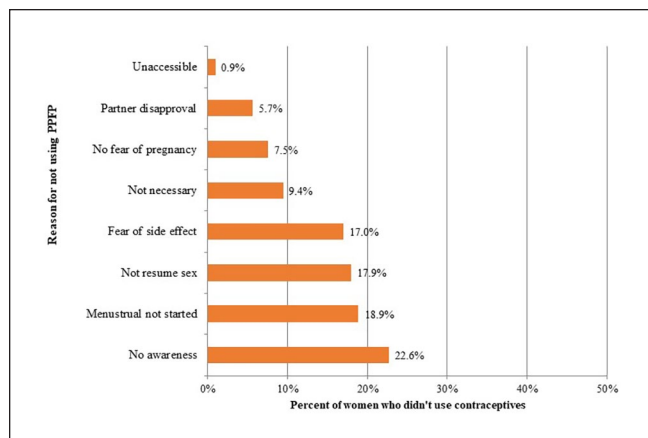
### Factors Associated With Postpartum Modern Contraceptive Use

The following variables were identified as independently associated with postpartum modern contraceptive use in the multivariable logistic regression analysis. These were: family monthly income, postpartum visit to a health facility, FP counseling during antenatal care (ANC), women's knowledge of family planning, women's decision-making power, and perceived partner willingness or approval for women to obtain contraceptive methods.

Mothers who received FP counseling during ANC in a health facility were 9.72 times more likely to use modern family planning methods than mothers who received no



**Figure 2.** Proportion of modern contraceptive users by type among postpartum women in Ambo rural district, central Ethiopia, 2021.



**Figure 3.** Major reasons for not using modern contraceptives during the postpartum period in Ambo rural district, central Ethiopia, 2021.

counseling prior to the recent pregnancy (AOR=9.72; 95% CI: 3.83, 24.61). Women who visited health facilities for postnatal care or other services during the postpartum period were 5.24 times more likely to use the PFP method (AOR=5.24; 95% CI: 2.32, 11.84).

Women who had ever heard of PFP were 5.17 times more likely to use it than those who had never heard of it (AOR=5.17; 95% CI: 1.88, 14.23). Women who made their own decisions about family planning were 6.43 times more likely to use postpartum contraceptives than those who did not (AOR=6.43; 95% CI: 1.98, 20.90).

One of the predictors of postpartum contraceptive use was found to be perceived partner approval of contraceptive use. Postpartum women whose husbands approved contraceptive use used PFP 4.31 times more than those whose husbands did not approve contraceptive use (AOR=4.31, 95% CI: 1.62, 11.47).

Increased monthly income was also associated with a higher likelihood of using family planning among postpartum women. Women with a monthly income of less than or equal to 2000ETB were 88% less likely to use family planning methods than women with the highest category of monthly income of 3501 and above (AOR=0.12; 95% CI: 0.02, 0.68) (Table 3).

## Discussion

Postpartum family planning (PFP) focuses on the prevention of unintended and closely spaced pregnancies through the first 12 months following childbirth.<sup>4</sup> This study was conducted in a rural district in a central part of Ethiopia and provided evidence on PFP and its associated factors.

This study revealed that the prevalence of modern postpartum family planning was 72.5% (95% CI: 68%, 77%). This finding was much higher than the national report

(41%),<sup>14</sup> and other community-based studies in rural parts of Ethiopia which revealed 15% in Ledo Etosa, Arsi,<sup>21</sup> 1.5% in Bale,<sup>24</sup> 28.3% in Kiramu,<sup>25</sup> 18.4% in Eastern Hararge,<sup>26</sup> and 20.7% in Burie, Northern Ethiopia<sup>12</sup> and Kailali, Nepal (32.8%).<sup>27</sup> However, the prevalence in this study is lower than a community-based study conducted in Addis Ababa, Ethiopia 80.3%<sup>15</sup> and Kenya (86.3%).<sup>28</sup> The differences could be attributed to community acceptance of the service, the contribution of the health extension workers in promoting behavioral change and implementing FP services, the presence of socio-economic differences, cultural variations, and service accessibility.

In this study, injectable was the most commonly used modern contraceptive method (40.5%). There are differences in percent distribution by the method between studies conducted in Hosana town (87.7%)<sup>29</sup> and Goncha Siso Enesie district of East Gojjam Zone (60.6%)<sup>18</sup> in Ethiopia, but the finding in this study is higher than a community-based study in a district in Nepal (29.3%).<sup>27</sup> In this study, nearly half (47%) of postpartum women used reversible long-acting contraceptives (intrauterine device or implants), which is higher than the national estimate (36.2%) for 2020.<sup>30</sup> The disparity could be attributed to the study's time gap, prior experiences with short-acting contraceptive methods, and differences in socio-demographic and reproductive characteristics among participants in different settings.

According to the findings of this study, mothers who received family planning counseling during their ANC visit(s) were 9 times more likely to use PFP than those who received no counseling during their ANC follow-up. This could be because women who receive family planning counseling during their ANC are more likely to use modern contraceptive methods after giving birth. This finding is consistent with studies from Gida Ayana, Western Ethiopia,<sup>23</sup> and Northwest Ethiopia.<sup>18</sup> The possible reason for this could be that counseling during ANC would provide women with more exposure to information and awareness about birth spacing through the use of modern contraceptives after each birth.

This study found that postpartum women with the lowest family income (<2000ETB/month) were less likely to use modern contraceptive methods than those with the highest income (3501 and more ETB). This finding is similar to one from Ethiopia, where income level of 1001 birr or above resulted in increased practice among adult women.<sup>31,32</sup> This might be postpartum women with higher incomes are more aware of family planning and are more likely to practice it than their counterparts, even though the service is free.

According to the findings of this study, women who visit health facilities after giving birth are more likely to begin using postpartum FP. This finding is supported by reports from Addis Ababa,<sup>33</sup> western Ethiopia,<sup>23</sup> and Hosanna.<sup>29</sup> This finding is similar to the study done in Gondar, where women who had a postpartum visit used FP nearly twice as much as those who did not. This could be due to the increased

**Table 3.** Independent Predictors of Postpartum Family Planning Use in Ambo Rural District, Central Ethiopia, 2021 (n=385).

Characteristics	Category	PPFP use		Crude OR (95% CI)	Adjusted OR (95% CI)	P-value
		Yes	No			
Family monthly income (ETB)	≤2000	133	92	0.16 [0.06-0.47] <sup>a</sup>	0.12 [0.02-0.68] <sup>b</sup>	.170
	2001-3500	110	10	1.22 [0.36-4.14]	0.37 [0.06-2.36]	.292
	≥3501	36	4			
Recent birth planned	Yes	221	40	6.29 [3.86-10.24] <sup>a</sup>	2.22 [0.92-5.36]	.077
	No	58	66			
Family planning counseling during antenatal care in health facilities	Yes	261	41	22.99 [12.40-42.61] <sup>a</sup>	9.72 [3.83-24.61] <sup>b</sup>	<.001
	No	18	65			
Condition of menses	Regular	195	43	3.40 [2.14-5.41] <sup>a</sup>	1.53 [0.68-3.44]	.303
	Irregular	84	63			
Menses were seen after delivery	Yes	194	52	2.37 [1.50-3.75] <sup>a</sup>	0.92 [0.40-2.08]	.834
	No	85	54			
Visit health facility after delivery	Yes	202	28	7.31 [4.41-12.11] <sup>a</sup>	5.24 [2.32-11.84] <sup>b</sup>	<.001
	No	77	78			
Currently breast feeding	Yes	249	78	2.98 [1.68-5.29] <sup>a</sup>	1.02 [0.33-3.14]	.979
	No	30	28			
Ever heard of postpartum family planning	Yes	265	50	21.20 [10.97-40.98] <sup>a</sup>	5.17 [1.88-14.23] <sup>b</sup>	.001
	No	14	56			
Ever used family planning before pregnancy	Yes	180	25	5.89 [3.53-9.82] <sup>a</sup>	1.21 [0.52-2.80]	.659
	No	99	81			
Discussing family planning with partner	Yes	148	13	8.08 [4.32-15.12] <sup>a</sup>	2.21 [0.86-5.67]	.100
	No	131	93			
Perceived husband approves to take contraceptives	Yes	164	14	9.37 [5.09-17.26] <sup>a</sup>	4.31 [1.62-11.47] <sup>b</sup>	.003
	No	115	92			
Decision-maker to take PPFP	Women herself	98	17	2.84 [1.60-5.03] <sup>a</sup>	6.43 [1.98-20.90] <sup>b</sup>	.002
	Partner/Other/Both	181	89			

Note. PPFP= postpartum family planning; OR = odds ratio; ETB= Ethiopian Birr (1ETB=0.02159USD).

<sup>a</sup>P-value < .25.

<sup>b</sup>P-value < .05.

availability of FP counseling at various service delivery points throughout health facilities. As a result, women who received post-partum FP counseling are more likely to use modern contraceptives because it raises their awareness.

In this study, women's use of contraceptive methods during the postpartum period was strongly associated with partner willingness or approval of contraception. This result is consistent with studies from Ethiopia<sup>22,34</sup> and Malawi.<sup>35</sup> This might be because women's use of postpartum contraceptives would be influenced by any factor that affects the partner's attitude toward contraceptives.

This study also found that women who had ever heard of postpartum family planning were 5 times more likely than their counterparts to use modern contraceptives during the postpartum period. This finding is in line with studies conducted in Ethiopia<sup>36,37</sup> and Liberia.<sup>38</sup> This is because women who have heard about postpartum family planning are more likely to be aware of the available options and can make an informed decision to use it.

## Limitation

This study did not examine the influence of husbands on contraceptive use. Quantitative nature of the study might hinder in depth exploration of women's perception and barriers for PPFP use. As this study was conducted in a rural district, the finding might not be representative for the urban communities.

## Conclusion

The prevalence of postpartum family planning in Ambo rural district was 72.5%, which was much higher than the national report and other community-based studies in rural parts of Ethiopia. The main reason for not using PPFP was lack of awareness about fertility return during postpartum. Partner approval to use contraceptives, attending health facility after delivery, counseling about FP during ANC, women's ever heard of family planning, and women's self-decision-making power to use contraceptives were all significantly associated



with postpartum family planning utilization. However, low monthly family income is a barrier to PFP utilization.

## Recommendations

Therefore, family planning service providers should strengthen their efforts to make awareness to the women and counsel their partners about the use of postpartum contraception at any point of contact within the health facility or community. The women's affairs sector and concerned stakeholders should emphasize empowering low-income women with income-generating activities, and husbands should be encouraged to assist their wives in adopting postpartum family planning methods of their own will.

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## Author Contributions

Conceptualization, B.N, T.S and HT.; methodology, B.N, T.S and HT.; software, B.N, T.S and HT.; validation, B.N, T.S and HT.; formal analysis, B.N, T.S and HT.; investigation, B.N, T.S and HT.; resources, B.N, T.S and HT.; data curation, B.N, T.S and HT.; writing—original draft preparation, B.N, T.S and HT.; writing—review and editing, B.N, T.S and HT.; visualization, B.N, T.S and HT.; supervision, B.N, T.S and HT.; project administration, T.S.; funding acquisition, None. All authors have read and agreed to the published version of the manuscript.

## Availability of Data and Materials

All relevant data are within the manuscript and its Supporting Information files.

## Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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## Ethics Approval and Consent to Participate

The ethics approval to conduct this study was obtained from the Ethical Review Committee of Rift Valley University of Ambo Campus and submitted to West Shewa Zonal Health Department. Permission letter from the zonal health department was provided to Ambo Rural District Health Office. The Ethical Review Committee of Rift Valley University of Ambo Campus confirmed informed verbal consent considering the illiteracy level in the community.

Informed verbal consent was obtained from all participants prior to the study initiation. All methods were carried out in accordance with relevant guidelines and regulations (the Declaration of Helsinki).

## Consent for Publication

Not applicable.

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## Supplemental Material

Supplemental material for this article is available online.

## References

1. World Health Organization. *Packages of Interventions for Family Planning, Safe Abortion Care, Maternal, Newborn and Child Health*. WHO. 2010.
2. Ethiopian Public Health Institute, ICF. *Ethiopia Mini Demographic and Health Survey 2019: Key Indicators*. EPHI and ICF. 2019.
3. Hubacher D, Trussell J. A definition of modern contraceptive methods. *Contraception*. 2015;92(5):420-421.
4. World Health Organization. *Programming Strategies for Postpartum Family Planning*. WHO. 2013.
5. Bongaarts J. United Nations department of economic and social affairs, population division world family planning 2020: highlights, United Nations publications. *Popul Dev Rev*. 2020;46:857-858.
6. Shaaban OM, Glasier AF. Pregnancy during breastfeeding in rural Egypt. *Contraception*. 2008;77(5):350-354.
7. Gahungu J, Vahdaninia M, Regmi PR. The unmet needs for modern family planning methods among postpartum women in Sub-Saharan Africa: a systematic review of the literature. *Reprod Health*. 2021;18(1):35.
8. Ali M, Farron M, Ramachandran Dilip T, Folz R. Assessment of family planning service availability and readiness in 10 African countries. *Glob Health Sci Pract*. 2018;6(3):473-483.
9. Yemane TT, Bogale GG, Egata G, Tefera TK. Postpartum family planning use and its determinants among women of the reproductive age group in low-income countries of Sub-Saharan Africa: a systematic review and meta-analysis. *Int J Reprod Med*. 2021;2021:1-14.
10. Woldu BF, Ermolo TL, Lemu LG, Gejo NG. Long-acting reversible contraception utilization and associated factors among women in extended postpartum period in Hossana town, southern Ethiopia: cross sectional study. *Contracept Reprod Med*. 2020;5(1):1-6.
11. Pasha O, Goudar SS, Patel A, et al. Postpartum contraceptive use and unmet need for family planning in five low-income countries. *Reprod Health*. 2015;12(S2):1-7.
12. Ashebir W, Tadesse T. Associated factors of postpartum modern contraceptive use in Burie District, Amhara Region, Ethiopia. *J Pregnancy*. 2020;2020:1-9.
13. Ministry of Health. Ethiopia Health System Transformation-Plan I (HSTP I) 2016-2020 (2008-2012 EFY). *Ministry of Health, Federal Democratic Republic of Ethiopia*. 2015. <https://www.cmpethiopia.org/content/download/2268/9612/file/HSTP%20Final%202015-10-19.pdf>

14. Ministry of Health. Health Sector Transformation Plan II (HSTP II) 2020/21-2024/25 (2013 EFY - 2017 EFY). *Ministry of Health, Federal Democratic Republic of Ethiopia*. 2021. <https://e-library.moh.gov.et/library/wp-content/uploads/2021/07/HSTP-II.pdf>
15. Gebremedhin AY, Kebede Y, Gelagay AA, Habitu YA. Family planning use and its associated factors among women in the extended postpartum period in Addis Ababa, Ethiopia. *Contracept Reprod Med*. 2018;3(1):1-8.
16. Ministry of Health. National Guideline for Family Planning Services in Ethiopia. *Ministry of Health, Federal Democratic Republic of Ethiopia*. 2011. <https://www.prb.org/wp-content/uploads/2018/05/National-Guideline-for-Family-Planning-Services-in-Ethiopia-2011.pdf>
17. Mehare T, Mekuriaw B, Belayneh Z, Sharew Y. Postpartum contraceptive use and its determinants in Ethiopia: a systematic review and meta-analysis. *Int J Reprod Med*. 2020;2020:1-14.
18. Getaneh M, Jara D, Alle A, Arora A, Tsegaye TB, Birhanu MY. Modern contraceptive use and associated factors during extended postpartum period among women who gave birth in the last 12 months at Northwest Ethiopia. *Int J Gen Med*. 2021;14:3313-3325.
19. Dona A, Abera M, Alemu T, Hawaria D. Timely initiation of postpartum contraceptive utilization and associated factors among women of child bearing age in Aroressa District, southern Ethiopia: a community based cross-sectional study. *BMC Public Health*. 2018;18(1):1-9.
20. Jaleta DN, Yeshita HY, Tamirat KS. Timely initiation of postpartum contraceptive and associated factors among women of extended postpartum period in Pawe district, northwest Ethiopia. Preprint. Posted online October 7, 2019. doi:10.21203/rs.2.15665/v1
21. Jima G, Garbaba W. Postpartum family planning utilization and associated factors among women who gave birth in the last 12 months prior to the study in Lode Hetosa District, South East Ethiopia. *J Womens Health Care*. 2020;9:488.
22. Berta M, Feleke A, Abate T, Worku T, Gebrecherkos T. Utilization and associated factors of modern contraceptives during extended postpartum period among women who gave birth in the last 12 months in Gondar town, Northwest Ethiopia. *Ethiop J Health Sci*. 2018;28(2):207-216.
23. Teka TT, Feyissa TR, Melka AS, Bobo FT. Role of antenatal and postnatal care in contraceptive use during postpartum period in western Ethiopia: a cross sectional study. *BMC Res Notes*. 2018;11(1):581.
24. Gonie A, Wudneh A, Nigatu D, Dendir Z. Determinants of family planning use among married women in bale eco-region, Southeast Ethiopia: a community based study. *BMC Womens Health*. 2018;18(1):50.
25. Kenate W, Amenu D. Assessment of contraceptive needs and practices of women during the extended postpartum period in KIRAMU woreda, Western Ethiopia. *Int J Adv Biol Biomed Res*. 2015;3(4):341-350.
26. Mulatu T, Sintayehu Y, Dessie Y, Deressa M. Modern Family planning utilization and its associated factors among currently married women in rural Eastern Ethiopia: a community-based study. *Biomed Res Int*. 2020;2020:6096280.
27. Joshi AK, Tiwari DP, Poudyal A, Shrestha N, Acharya U, Dhungana GP. Utilization of family planning methods among postpartum mothers in Kailali district, Nepal. *Int J Mens Health*. 2020;12:487-494.
28. Jalang'o R, Thuita F, Barasa SO, Njoroge P. Determinants of contraceptive use among postpartum women in a county hospital in rural Kenya. *BMC Public Health*. 2017;17(1):604.
29. Gejo NG, Anshebo AA, Dinsa LH. Postpartum modern contraceptive use and associated factors in Hossana town. *PLoS One*. 2019;14(5):e0217167.
30. Ministry of Health. Costed implementation plan for family planning in Ethiopia, 2015/16-2020. *Ministry of Health, Federal Democratic Republic of Ethiopia*. 2016
31. Komo TT. Influence of education, income and attitude on family planning behaviors among rural adult women in Ethiopia. *Afr Res J Educ Soc Sci*. 2020;7:117-131.
32. Alemayehu M, Lemma H, Abrha K, et al. Family planning use and associated factors among pastoralist community of Afar region, eastern Ethiopia. *BMC Womens Health*. 2016;16(1):1-9.
33. Awulachew H, Negash S, Getiye Y, Yusuf L. Contraceptive needs and practice of women in the extended post-partum period in Addis Ababa, Ethiopia. *Ethiop J Reprod Health*. 2017;9(1):17-24.
34. Solomon T, Nigatu M, Gebrehiwot TT, Getachew B. Unmet need for family planning and associated factors among currently married reproductive age women in Tiro Afeta district, South West Ethiopia, 2017: cross-sectional study. *BMC Womens Health*. 2019;19(1):170.
35. Bwazi C, Maluwa A, Chimwaza A, Pindani M. Utilization of postpartum family planning services between six and twelve months of delivery at Ntchisi District Hospital, Malawi. *Health*. 2014;6:1724-1737.
36. Demie TG, Demissew T, Huluka TK, Workineh D, Libanos HG. Postpartum family planning utilization among postpartum women in public health institutions of Debre Berhan town, Ethiopia. *J Womens Health Care*. 2018;7(2):2167-0420.
37. Hounton S, Winfrey W, Barros AJD, Askew I. Patterns and trends of postpartum family planning in Ethiopia, Malawi, and Nigeria: evidence of missed opportunities for integration. *Glob Health Action*. 2015;8(1):29738.
38. Kaydor VK, Adeoye IA, Olowolafe TA, Adekunle AO. Barriers to acceptance of post-partum family planning among women in Montserrado County, Liberia. *Niger Postgrad Med J*. 2018;25(3):143-148.