

# Postpartum Modern Contraceptive Utilization and Associated Factors Among Women Who Gave Birth in the Last 12 Months in Addis Zemen, South Gondar, Ethiopia: Community-Based Cross-Sectional Study

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**Introduction:** While family planning (FP) is important throughout an individual's and couple's reproductive life, postpartum family planning (PPFP) focuses on the prevention of unintended and closely spaced pregnancies through the first 12 months following childbirth. However, modern contraception utilization practice during the postpartum period is under-emphasized in Ethiopia.

**Objective:** This study aimed to assess postpartum modern contraceptive utilization and associated factors among postpartum women in Addis Zemen, South Gondar, Ethiopia in 2019.

**Methods:** Community-based cross-sectional study was conducted from January 1 to February 30, 2019 on 402 women. Study subjects were selected by simple random sampling technique. The data were collected by a structured and pretested, face-to-face, interviewer-administered questionnaire, entered into EpiData 4.2 and analyzed by using SPSS 23 software. Bivariate and multivariable analyses were used to examine the association. Odds ratio, 95% confidence interval (CI) and P-value <0.05 were used to determine the statistical association.

**Results:** The prevalence of postpartum family planning utilization was 54.7%. Maternal educational status (adjusted odd ratio (AOR)=2.99, 95% CI (1.72, 5.19)), menses return (AOR=4.76, 95% CI (3.03, 7.48)), less than four alive children (AOR=3.61, 95% CI (1.51, 4.51)), postnatal care follow-up (AOR=2.96, 95% CI (1.57, 5.57)), length of time after delivery (AOR=1.80, 95% CI (1.16, 2.79)) and knowledge (AOR=1.69, 95% CI (1.07, 2.66)) were significantly associated with postpartum modern contraceptive utilization.

**Conclusion:** The postpartum modern contraceptive utilization was low. Therefore, health care providers should strengthen the integration of family planning services with maternal and child health service, provide health information about timely use of contraceptives and improve postnatal care follow-up after giving birth.

**Keywords:** postpartum, modern contraceptive, utilization, reproductive age, Addis Zemen, Ethiopia

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## Introduction

Family planning is described as the ability of individuals and couples to achieve their desired number of children in a family when they have children, the age range between children, and the timing of their births by using contraceptive methods.<sup>1</sup>

Postpartum family planning is defined as women who have ever used any type of family planning method within the first twelve months after she gave birth.<sup>2</sup>

Among pregnancy and childbirth related maternal and child health problems globally, failure of vaginal birth after cesarean delivery, increased risks of childhood under-nourishment, stunted growth and child mortality are correlated with closely spaced births.<sup>3</sup> In developing countries, the risk of low birth weight, prematurity and child mortality was high among women who had consecutive, closely spaced birth intervals less than 24 months.<sup>4</sup> Maternal contraceptive utilization can prevent 3.2 million out of 5.6 million under five deaths and 109,000 out of 155,000 (70%) maternal deaths. However, statistics from 57 countries from a demographic health study found that 62% of women had an unmet need for contraceptive utilization.<sup>5</sup> If all unmet need for modern contraceptive methods were satisfied, maternal mortality would decrease by almost 1/3 from current levels, and unplanned pregnancies and unsafe abortions would decrease by 89–92%.<sup>6</sup>

According to the World Health Organization's recommendation, after a woman has given birth, she should stay for at least two years before the next pregnancy to reduce the risk of adverse maternal, pre-natal and infant outcome.<sup>7</sup> In Ethiopia, maternal mortality is an important public health issue; 412 per 100,000 live births are dying as result of complications related to pregnancy and childbirth.<sup>8</sup> Provision of contraceptive can reduce maternal mortality by reducing the number of pregnancies, the number of abortions, and the proportion of births at high risk.<sup>9</sup>

Closely spaced pregnancies within twelve months of delivery increase the risks of preterm birth, low birth weight and small-for-gestational-age babies, risk of child mortality will also increase.<sup>10</sup> Evidence in Ethiopia shows that almost half (47%) of all pregnancies occur within a short birth interval of less than 24 months after the previous birth.<sup>11</sup> Postpartum women are an important group because, even if they are breastfeeding, they may not recognize they are at risk of unintended pregnancy.<sup>12</sup> Maternal health services such as regular immunization services are a continuum point of contact to provide family planning information and link women to postpartum family planning services.<sup>13</sup>

Studies have shown that the prevalence of postpartum family planning utilization in Aksum town 2017, Debre Berhane 2016 and Dessie Town 2016 were 48%, 41.6% and 44%,<sup>14–16</sup> respectively.

Different cross-sectional-based studies showed that reproductive health characteristics like resumed menses, resumed sexual intercourse and fertility desire,<sup>17</sup> mothers who received antenatal care service,<sup>18</sup> women who gave birth with the assistance of a skilled birth attendant,<sup>19</sup> maternal age, educational status,<sup>20</sup> religious,<sup>21</sup> poor economic status,<sup>22</sup> and knowledge about contraceptive method<sup>23</sup> were significant factors of postpartum family planning utilization (Figure 1). Even though introduction of contraceptive during the postpartum period is very crucial, less emphasis is given in the first year after birth. Therefore, assessing postpartum modern contraceptive methods utilization and identifying factors affecting their utilization are very vital in designing, implementing and monitoring effective maternal and child health intervention.

## Method

### Study Design

Community-based cross-sectional study was employed.

### Study Setting

Addis Zemen is an administrative town of Libo Kemkem district which is located in South Gondar Zone 656 kilometers away from Addis Ababa, the capital city of Ethiopia. The town has an elevation of 2,216 meters above the sea level. The main source of income for Libo Kemkem wereda community is mixed agriculture. According to figures from the Central Statistical Agency in 2015, the estimated total population of the town is 42,983. The town has three kebeles (the smallest unit of the woreda) and 13,515 households. The town has one primary (district) hospital, one health center, and two private clinics. The total delivery within 2019 was 861 women.

### Study Period

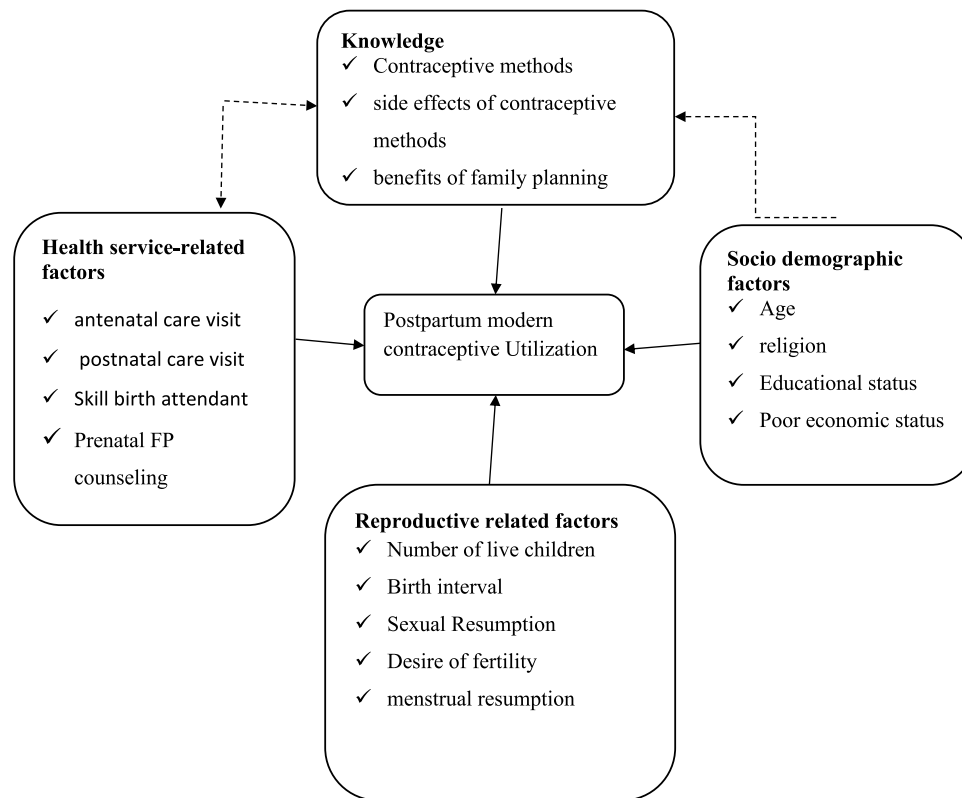
From January 1, 2019 to February 30, 2019.

### Source and Study Population

All reproductive age (15–49) women who gave birth in the last 12 months and lived in Addis Zemen Town.

### Sample Size Determination

A single population proportion formula was used to get the required sample size based on the following assumption by using: 95% confidence level, 5% margin of error and prevalence of postpartum family utilization planning ( $p=0.47$ ).<sup>22</sup> Then



**Figure 1** Conceptual framework for study done on postpartum modern contraceptive utilization and its associated factors among reproductive age women in Addis Zemen, South Gondar, Ethiopia, 2019.

$n = z^2 p (1-p)/d^2$ ; where  $z$  = level of confidence interval  $(1.96)^2$

Calculated sample size was:  $n = (1.96)^2 * 0.47 (1-0.47)/(0.05)^2$ ,  $n = \sim 383$

With 5% none respondent rate the final sample size was 402

## Sampling Procedure

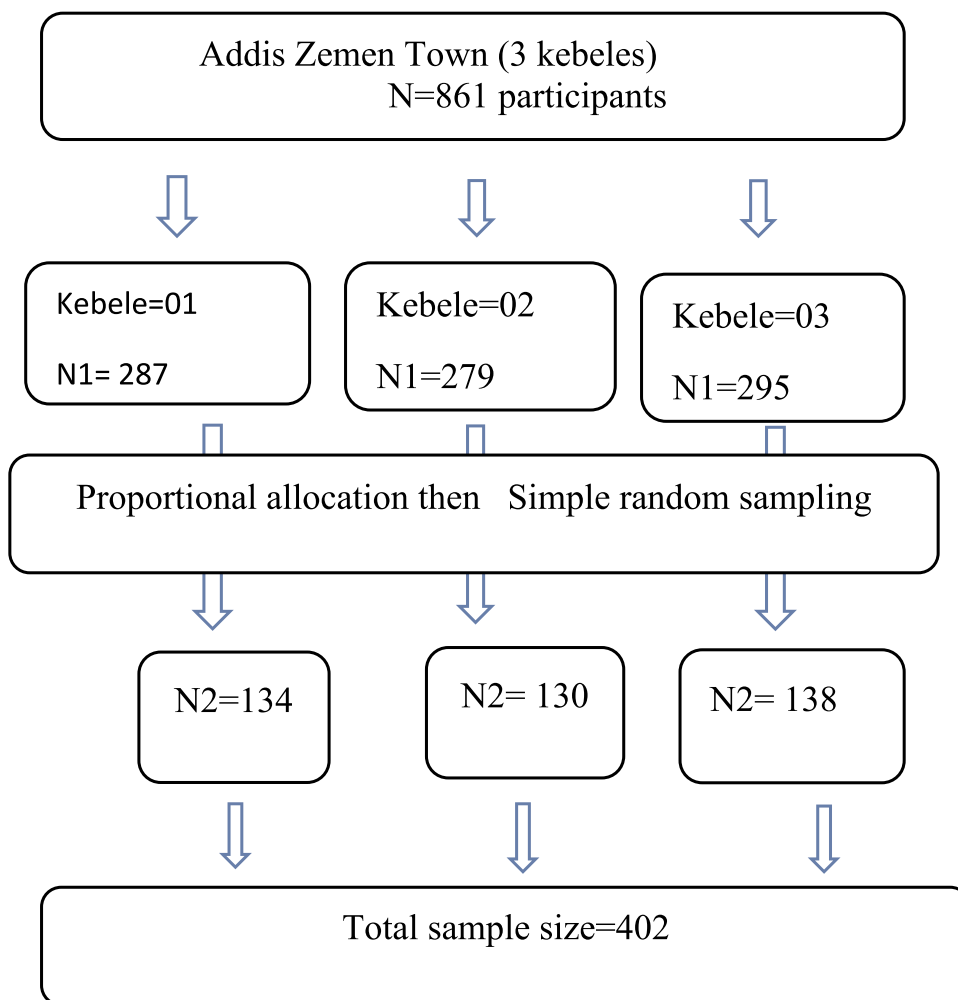
All three Kebeles of the town were included in this study. Then, sample frame was prepared in all selected kebeles to identify women who fulfill the inclusion criteria by having registered the birth date of the last child from family folders which was found from health extension workers. Based on the sample frame, house to house visit was conducted with their corresponding household identification number. Then, proportional to size allocation technique was employed to determine the study participants from each kebele.

Finally, reproductive age women whose last delivery was within the past one year prior to the study were selected using simple random sampling technique from the existing sampling frame. If the participant in the selected household was not present at the time of data

collection, three revisits were made to interview the woman and if there were more than two participants in one household, one mother was selected by lottery method (Figure 2).

## Variables

Dependent variable: postpartum modern contraceptive utilization (yes, no). Independent variables: socio demographic characteristics (age, marital status, educational status, religion, occupational status of the mother, husband educational status and occupation); reproductive and maternal health service use-related characteristics (parity, birth space, discuss with husband about postpartum family planning, previous history of contraceptive utilization, antenatal care follows up, postnatal care follows up, places of delivery, family planning counseling, birth attendants, menses return, length of time after delivery, pregnancy plan, want to have children for the future, resumed sexual intercourse); and knowledge on family planning (awareness of contraceptive use after birth, source of knowledge, source of FP, benefit of family planning).



**Figure 2** Schematic representation of the sampling procedure among postpartum women in Addis Zemen Town, South Gondar Zone, Ethiopia, 2019.

### Operational Definitions

Modern contraceptives: Sterilization (male and female), intrauterine devices, implants, oral contraceptives, condoms (male and female), injectables, emergency contraceptive pills and spermicidal agents<sup>26</sup>.

Postpartum period: the time from birth up to one year.<sup>27</sup>

Postpartum contraceptive utilization: women were considered as utilized when the women reported that she used any type of modern contraceptive method by herself or jointly with her husband from data collection time to the last 12 months after birth.<sup>14</sup> The utilization was measured by mothers’ words by yes or no options for use (yes = 1, no = 0).

Knowledge of family planning: those participants who scored  $\geq 50\%$  considered “good knowledge” and  $< 50\%$  had “poor knowledge” among knowledge question items.<sup>28</sup>

### Data Collection Tools and Technique

A face to face, interviewer-based, structured questionnaire was used to collect the data. The questionnaire was first developed in English and translated to local language (Amharic) then back to English by language experts to keep its consistency. Five health extension workers and two BSc midwives who were familiar with the local language and custom were recruited as data collectors and supervisors respectively. Training was given for data collectors and supervisors for two days on data collection procedures, interview techniques and confidentiality of the information obtained from the respondents. Finally, data collectors interviewed participants face to face at home for 20–25 minutes.

### Data Quality Assurance

Data quality was ensured during collection, entry and analysis. Before conducting the main study, pretest was

carried out on 5% of the sample size and necessary modification has been made. The principal investigator and supervisors conducted a day-to-day on-site supervision during the whole period of data collection. At the end of each day, the questionnaires were reviewed and checked for completeness and accuracy by the supervisors and investigator. Then corrective discussion was undertaken by the research team members.

## Data Analysis

After coding, the data were entered using Epi-data version 4.2 and then exported to SPSS version 23 software for analysis. Bivariate analysis was executed to examine crude association of predictors with postpartum contraceptive utilization. Finally, variables having p-values  $\leq 0.2$  on bivariate analysis were selected as candidates for multi-variable analysis and then the independent effect of predictors on postpartum family planning utilization was determined. Odds ratio and 95% CI was used to measure the statistical association. P-values less than 0.05 were used to determine the statistical significance of the tests. Finally, the results were presented in texts, figure and tables.

## Ethical Consideration

Ethical clearance for this study was obtained from ethical review committee of Debre Tabor University College of Health Sciences and supporting letter was written by department of midwifery to Addis Zemen Town health office. Informed consent for  $\geq 18$  year olds and assent for  $<18$  years from their family was obtained after the purpose and objective of study was explained. To ensure confidentiality, names of respondents were replaced by code numbers.

## Results

### Socio-Economic and Demographic Characteristics of This Study

This study included a total of 402 postpartum child bearing age women with a response rate of 100%. All of the respondents (100%) were from urban area. The mean age of the study participants was 28.1 years ( $SD=\pm 5.1$ ). Majority of the respondents, 391 (97.3%), were Orthodox Christian followers and almost all (96.8%) of the respondents were married women (Table 1).

**Table 1** Socio-Demographic Characteristics of Respondent at Addis Zemen Town, South Gondar, Ethiopia in June 2019 (n=402)

Variables	Frequency	Percentage
Age of respondents		
20–24	101	25.1
25–29	133	33.1
30–34	101	25.1
35–39	67	16.7
Religion		
Orthodox	391	97.3
Muslim/Protestant	11	2.7
Marital status		
Married	389	96.8
Divorced/Windowed/Separated	13	3.2
Educational level of mother		
Unable to read and write	10	2.5
Read and write	64	15.9
Primary (1–8)	125	31.1
Secondary (9–12)	153	38.1
College and above	50	12.4
Occupational status of mothers		
Housewife	157	39.0
Self-employee	41	10.2
Govt. employee	87	21.6
Merchant	98	24.4
Daily labor	19	4.7
Husband's occupational		
Farmer	13	3.3
Self-employee	108	27.7
Govt. employee	103	26.5
Merchant	124	31.9
Daily labor	41	10.6
Husband's educational level		
Unable to read and write	8	2.1
Read and write	38	9.9
Primary (1–8)	82	21.1
Secondary (9–12)	121	31.1
College and above	140	35.9

### Reproductive and Maternal Health Service Use-Related Characteristics of the Study Participants

Two hundred one (50.0%) participants had 2 to 4 children. Three hundred sixty-five (90.8%) of the respondents had at least one ANC service and 171 (42.5%) were counseled about family planning methods. Three hundred thirty-six (83.6%) respondents had planned pregnancy.

**Table 2** Reproductive and Maternal Health Service Use-Related Characteristics of the Study Participants in Addis Zemen Town South Gondar, Northwest Ethiopia, 2019 (n=402)

Variables	Frequency	Percent
Parity		
1	135	33.6
2-4	201	50.0
≥ 5	66	16.4
Birth interval between the last two consecutive children (n=267)		
< 2 years	33	12.4
2-4 years	200	74.9
> 4 years	34	12.7
Discuss about PFP with partner (n=389)		
Yes	301	77.4
No	88	22.6
Previous use of family planning		
Yes	365	90.8
No	37	9.2
Number of ANC visit (n=365)		
1	120	32.9
2-3	196	53.6
≥4	49	13.5
Family planning counselling during ANC		
Yes	171	42.5
No	231	57.5
Place of delivery		
Health institution	390	97.0
Home	12	3.0
Postnatal care		
Yes	69	17.2
No	333	82.8
Site of obtaining contraceptive (n=187)		
Health institution	150	80.2
Private	37	19.8
Birth was attended by		
Midwives	388	96.6
Doctors/Health extension workers	14	3.4
Pregnancy condition		
Planned	366	91.0
Unplanned	36	9.0
When did you give last birth?		
≤6 weeks	71	17.7
7-24weeks	127	31.6
>6-12 months	204	50.7
Menses resumed after recent childbirth		
Yes	167	41.5
No	235	58.5

(Continued)

**Table 2** (Continued).

Variables	Frequency	Percent
Menses resumed (n=167)		
< 6 months	68	40.7
≥6 months	99	59.3

Among all women, 333 (82.2%) of them had no postnatal care. Among those who used postpartum contraceptive, 150 (80.2%) of the respondents got contraceptive from governmental institution. For 97.0% of the respondents were delivered at health institution where as 3.0% of them delivered at home. Three hundred eighty-eight (96.6%) deliveries were attended by midwives (Table 2).

### Knowledge About Postpartum Family Planning

The majority of participants (91.5%) had heard about modern contraceptive methods and more than half (62.2%) of them were knowledgeable about postpartum modern contraceptive (Table 3).

### Contraceptive Use in Postpartum Period

Two hundred twenty (54.7%) respondents used modern postpartum contraceptive within the last twelve months after delivery. The most common contraceptive method used in this study was injectable which was 72.7%, followed by implants 10.9% (Figure 3).

### Factors Associated with Modern Postpartum Family Planning Utilization

First bi-variable logistic regression was conducted among different variables, only eleven variables with p-value of 0.2 or less were included in the multi-variable logistic regression. These variables were: maternal age, maternal educational status, maternal occupation, discuss with partner, menses return, number of alive children, antenatal care follow-up from last pregnancy, last pregnancy plan, postnatal care follow-up, the time interval between last birth to survey, fertility desire and knowledge.

As can be depicted from multivariable backward stepwise logistic regression, mothers with formal education, menses return after last birth, number of alive children ≤4, postnatal care follow-up, the time interval between last birth to survey and fertility desire were found to be significantly associated with postpartum family planning utilization.



**Table 3** Knowledge and Discussion About Family Planning Among Postpartum Women in Addis Zemen Town South Gondar, Ethiopia in June 2019 (n=402)

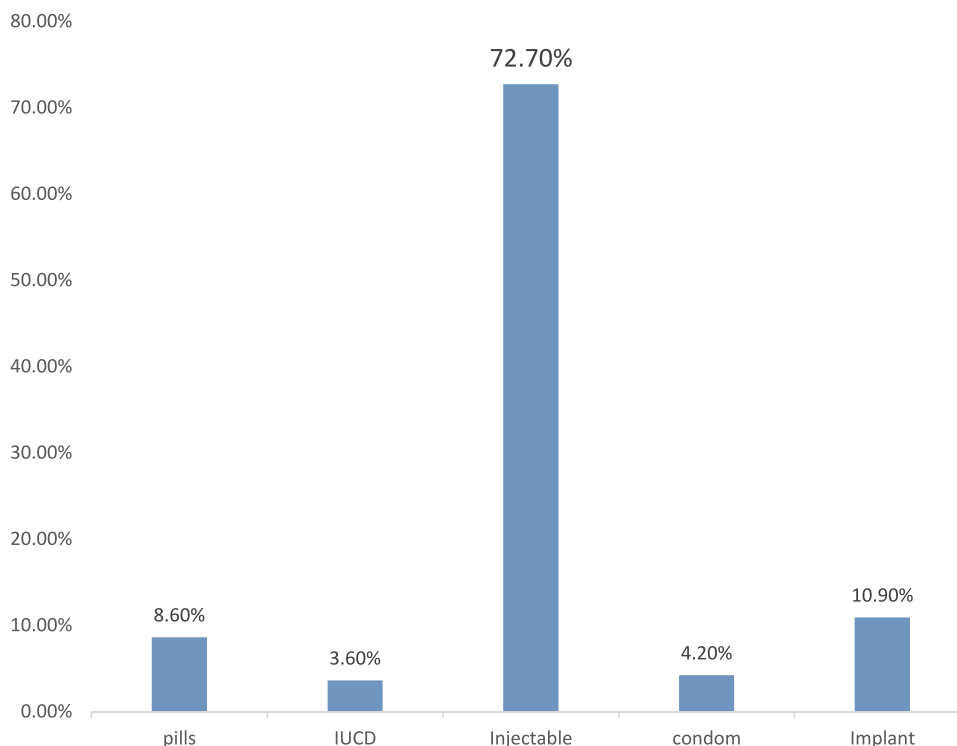
Variables	Response	Frequency	Percentage
Do you heard about methods of modern family planning that can be used after delivery?	Yes	402	100
	No		
Source of information			
Health institution	Yes	109	27.2
	No	293	72.8
Family	Yes	13	3.3
	No	389	96.7
Friend	Yes	110	27.4
	No	292	72.6
Mass media (TV/Radio)	Yes	169	42.1
	No	233	57.9
Health extension	Yes	375	93.2
	No	27	6.8
Which contraceptive methods can be used after delivery?			
Oral pills	Yes	294	73.1
	No	108	26.9
Emergency contraceptive	Yes	34	8.4
	No	368	91.6
Condom	Yes	72	17.9
	No	330	82.1
IUCD	Yes	36	8.9
	No	366	91.1
Implant	Yes	183	45.4
	No	219	54.6
Injectable	Yes	217	54.1
	No	185	45.9
Permanent	Yes	25	6.3
	No	377	93.7
Which contraceptive method cannot be used immediately after delivery?			
Pills	Yes	110	27.4
	No	292	72.6
Injectables	Yes	162	40.2
	No	240	59.8
Implants (Implanon/Jadelle)	Yes	106	26.4
	No	296	73.6

(Continued)

**Table 3** (Continued).

Variables	Response	Frequency	Percentage
Hormonal Emergency Contraception	Yes	166	41.3
	No	236	58.7
Side effect of using hormonal Postpartum family planning:			
Change breast milk amount	Yes	252	62.8
	No	150	37.2
Health effect on women	Yes	148	36.7
	No	254	63.3
Has no side effect	Yes	105	26.1
	No	297	73.9
Where do you obtain postpartum contraceptive?			
Public health institution	Yes	366	91.0
	No	36	9.0
Pharmacy/Private health facility	Yes	61	15.2
	No	341	84.8
The ideal time for family planning counseling is during ANC follow-up	Yes	117	29.1
	No	285	70.9
Benefit of postpartum family planning:			
Prevention of unwanted pregnancy	Yes	329	81.8
	No	73	18.2
Limiting number of children	Yes	293	72.8
	No	109	27.2
Child spacing	Yes	366	91.0
	No	36	9.0
Knowledge of participant	Good knowledge	250	62.2
	Poor knowledge	152	37.8

Mothers with formal education were nearly 3 times (AOR=2.99, 95% CI (1.72, 5.19)), more likely to have postpartum modern contraceptive utilization as compared to those who had no formal education. The odds of having postpartum contraceptive utilization was higher among mothers whose menses was returned after last birth (AOR=4.76, 95% CI (3.03, 7.48)) than those who did not return the menses. Mothers who had less than four alive children were 3 times more likely to utilize modern contraceptive methods than their counterparts of mothers who had 5 or more alive children (AOR=3.61, 95% CI (1.51, 4.51)).



**Figure 3** Methods used during postpartum period among respondents in Addis Zemen Town, South Gondar Zone, Ethiopia, in June 2019 (N=220).

The odds of having modern contraceptive utilization among postpartum women were higher for mothers who had a history of postnatal care follow-up after last birth than those who did not have (AOR=2.96, 95% CI (1.57, 5.57)). Mothers who delivered before 6 months of the survey were nearly 2 times (AOR=1.80, 95% CI ((1.16, 2.79))), more likely to have postpartum contraceptive utilization as compared to those who gave birth within 6 months.

The odds of having postpartum utilization was higher among mothers who had good knowledge about postpartum modern contraceptive methods (AOR=1.69, 95% CI (1.07, 2.66)) than those who had poor knowledge. (Table 4).

## Discussion

This study aimed to determine the prevalence of postpartum contraceptive utilization and identify factors that affect contraceptive utilization. The prevalence of postpartum contraceptive utilization was 54.7%, which was higher than studies conducted in Kenya (46%),<sup>29</sup> Gondar Town (48.4%),<sup>21</sup> Mexico (47%),<sup>30</sup> Butajira (47%),<sup>21</sup> Debre Birhan (41.6%),<sup>17</sup> Nepal (32.8%),<sup>31</sup> Oromia region (45.4%)<sup>32</sup> and Uganda (28%).<sup>33</sup> This disparity might be due to difference in study location, study residents and

time period of the study. But this finding was also lower than study in Malawi (73%)<sup>23</sup> and Addis Abeba (80.3%).<sup>32</sup>

In this study, the odds of having postpartum family planning utilization was higher among mothers who had no formal education as compared to their counterparts who attended formal education. Mothers who had formal education were 2.99 times more likely to utilize postpartum contraceptive as compared to mothers who had no formal education. This finding was supported by study conducted Uganda.<sup>33</sup> This might be due to the fact that women with formal education are more likely to have better knowledge and decision-making ability for using modern contraceptives and other reproductive health services. Additionally, educated women might have better access of print media and social media that provide information about the benefit of postpartum family planning utilization.

In this study, mothers whose menses was resumed were 4.76 times more likely to use postpartum family planning utilization as compared to their counterparts who did not resume menses. This is consistent with a studies done in Gondar Town,<sup>21</sup> Butajira,<sup>22</sup> Nepal<sup>31</sup> and Addis Abeba.<sup>32</sup> This could be described by the fact that women who had resumed menses reflect themselves as susceptible to risk of unplanned pregnancy.



**Table 4** Bivariate and Multivariable Analysis of Determinant Factors of Postpartum Family Planning Utilization Among Postpartum Reproductive Age Women in Addis Zemen Town, South Gondar, Ethiopia in June 2019

Variables	PPFP Utilization		COR (95% CI)	AOR (95% CI)	P-value
	Yes (N, %)	No (N, %)			
Maternal age					
≤19	14(6.5)	27(14.6)	1.92 (0.73, 5.05)	2.74 (0.96, 7.80)	0.058
20–24	64(29.5)	75(40.5)	1.17 (0.53, 2.58)	1.74 (0.74, 4.04)	0.199
25–29	75(34.6)	35(18.9)	0.46 (0.20, 1.06)	0.639 (0.26, 1.52)	0.312
30–34	49(22.5)	33(17.8)	0.67 (0.29, 1.56)	1.07 (0.43, 2.62)	0.877
35–39	15(6.9)	15(8.2)	1		
Maternal educational status					
No formal education	27(12.4)	57(30.8)	1		
Formal education	190(87.6)	128(69.2)	3.13(1.88, 5.21)	2.99 (1.72, 5.19) *	0.001
Maternal occupation					
Housewife	83(38.2)	65(35.1)	1		
Govt. employee	72(33.2)	15(8.1)	0.26 (0.14, 0.50)	0.37(0.10, 1.34)	0.131
Merchant	37(17.1)	61(33.0)	2.10 (1.24, 3.54)	1.65 (0.48, 5.71)	0.424
Daily laborer/self-employ	25(11.5)	44(23.8)	2.24 (1.24, 4.04)	2.50(0.93, 6.72)	0.068
Discuss with partner					
Yes	180(82.9)	122(65.9)	2.51 (1.57, 4.00)	0.62 (0.35, 1.11)	0.114
No	37(17.1)	63(34.1)	1		
Menses return					
Yes	127(58.5)	40(21.6)	5.11 (3.28, 7.95)	4.76 (3.03, 7.48) *	0.001
No	90(41.5)	145(78.4)	1		
Number of alive children					
1 –4	185(85.3)	111(60.0)	3.85 (2.39, 6.20)	2.61 (1.51, 4.51) *	0.001
≥ 5	32(14.7)	74(40.0)	1		
Antenatal care follow-up					
Yes	173(79.7)	131(70.8)	1.66 (1.05, 2.62)	1.07 (0.64, 1.80)	0.771
No	44(20.3)	54(29.2)	1		
Last pregnancy plan					
Unplanned	15(6.9)	21(11.4)	1		
Planned	202(93.1)	164(88.6)	0.58 (0.29, 1.16)	0.68(0.31, 1.51)	0.353
Postnatal care follow-up					
Yes	52(24.0)	15(8.1)	3.32(1.82,6.06)	2.96 (1.57, 5.57) *	0.001
No	165(76.0)	170(91.9)	1		
Length of time after delivery					
≤6 months	87(40.1)	111(60.0)	1		
>6months	130(59.9)	74(40.0)	2.24(1.50,3.34)	1.80 (1.16, 2.79) *	0.008
Want to have children for future					
Yes	184(84.8)	112(60.5)	3.63 (2.26,5.83)	1.01 (0.35, 2.81)	0.999
No	33(15.2)	73(39.5)	1		
Knowledge (N=368)					
Good knowledge	131(68.6)	98(55.4)	1.76(1.15, 2.69)	1.69 (1.07, 2.66) *	0.023
Poor knowledge	60(31.4)	79(44.6)	1		

Note: \*Significant at P-value <0.05.

Women who had history of post-natal care service after the delivery of the last baby were more likely to experience postpartum family planning utilization practices than women who had no history of post-natal care service. This was supported by studies conducted in Butajira and Gida Ayana district Oromia region.<sup>22</sup> This could be due to providing information during postnatal period about family planning by health care providers, help the women to agree and practice contraceptives utilization after delivery.

Maternal knowledge on postpartum contraceptive utilization was significantly associated with postpartum utilization. Mothers with good knowledge were 1.69 times more likely to initiate contraceptive utilization practices early as compared to those mothers who had poor knowledge. This finding was consistent with study conducted in Butajira.<sup>22</sup> This might be due to the fact that mothers knowing the importance of postpartum family planning utilization and distinguishing the suggested time of starting postpartum family encourage mothers to initiate postpartum contraceptive utilization within one year after delivery.

Mothers who had less than four children were 2.61 times more likely to utilize postpartum contraceptive as compared to their counterparts. This finding was inversely related to the study conducted in Uganda.<sup>33</sup> The reason for this might be due to younger women having relatively more knowledge about the time of postpartum contraceptive utilization because of exposure to social and print media as compared to older women.

The length of time after delivery was another factor which was significantly associated with postpartum utilization. Those mothers who had six months and above since the last birth were 1.8 times more likely to initiate postpartum contraceptive utilization practices as compared to those who were less than six months. This finding was consistent with study conducted in Addis Abeba.<sup>32</sup> This could be because as the duration of postpartum period increases sexual desire and activity also increase and then the women consider not using contraceptive in this time can expose to threat of unintended pregnancy.

Strength: the actual data were collected and community-based study design.

Limitation: memory bias might be introduced and this study's focus on quantitative approach which could not address the "why" questions in detail.

## Conclusion and Recommendation

The postpartum modern contraceptive utilization was low. Educational status of the mother, menses return, postnatal care follow-up, length of time after delivery and good knowledge about postpartum modern contraceptive method were significantly associated with postpartum modern contraceptive utilization. Therefore, health care providers should strengthen the integration of family planning services with maternal and child health services, provide health information about timely use of contraceptive and improve postnatal care follow-up after giving birth. Mixed quantitative and qualitative studies are better for further investigations to answer "why" questions.

## Abbreviations

ANC, antenatal care; PFP, postpartum family planning.

## Data Sharing Statement

The data sets generated during this study are available from the corresponding author on reasonable request via email.

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## Author Contributions

All authors contributed to data analysis, drafting or revising the article, have agreed on the journal to which the article will be submitted, gave final approval of the version to be published, and agree to be accountable for all aspects of the work.

## Disclosure

The authors report no conflicts of interest for this work.

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