



Knowledge and Associated Factors of Postpartum Contraceptive Use Among Women in the Extended Postpartum Period in Gondar City, Northwest Ethiopia

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Background: The choice of a postpartum contraceptive method and the timing of its initiation depend on the woman's knowledge regarding postpartum contraceptives use. Also, women's perception towards family planning is reliant on good knowledge and has a great influence on their attitudes and practices. There is limited information on the knowledge and associated factors of postpartum contraceptive use among women. Therefore, the aim of this study was to assess the knowledge and associated factors of postpartum contraceptive use among women in the extended postpartum period.

Methods: An institutional-based cross-sectional study was conducted from November 5, 2018 to December 5, 2018 among postpartum women in six health institutions in Gondar city, northwest Ethiopia. A systematic random sampling technique was used to select the study participants. Data were analyzed using SPSS version 20. Bivariable and multivariable logistic regression models were fitted to identify the determinants of knowledge of postpartum contraceptive use. Adjusted odds ratio (AOR) with their 95% confidence intervals (CI) were calculated. *P*-values less than 0.05 were considered to indicate statistical significance.

Results: Out of 403 participants, 299 (74.2%) had good knowledge on postpartum contraceptive use. Being urban residents (AOR=2.95, 95% CI=1.34–6.48), previous modern contraceptives use (AOR=5.15, 95% CI=1.16–22.88), health facility delivery (AOR=4.10, 95% CI=1.20–13.98), and counseling about family planning during PNC (AOR=3.80; 95% CI=1.52–9.51) were significantly associated with good knowledge.

Conclusion: This study showed that the knowledge of women regarding postpartum contraceptives was relatively low. Therefore, increasing institutional delivery service and counseling about family planning during the postpartum period should get more focus to address the knowledge gap of postpartum mothers.

Keywords: knowledge, postpartum, contraceptives use, Ethiopia

Introduction

Postpartum family planning (PPFP) is fundamental to prevent mistimed and closely spaced pregnancies following childbirth;¹ as closely spaced pregnancies increase the risks of maternal morbidity and poor infant outcomes including preterm birth, low birth weight and small-for-gestational-age.² Research shows that maternal death increases as the number of children (parity) per woman rises.³ A recent study revealed that contraceptive use could avert more than two-fifths of maternal mortality.⁴

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The benefits of contraceptive utilization accrue to women themselves, their children, and community.⁵⁻⁷ Additionally, contraceptive use during the postpartum period plays a great role in improving the lives of women and their families.^{8,9} Women have an opportunity for accessing the healthcare system during the postpartum period which further increased their motivation to avoid another pregnancy using contraceptives.¹⁰ Following childbirth, pregnancy can occur within 45 days of giving birth, even before menses resumes.^{11,12} Thus, late initiation of contraceptive use in the postpartum period could increase the risk of unintended pregnancy.¹³ The World Health Organization (WHO) recommended initiation of postpartum contraceptive utilization within 6 weeks after delivery.¹⁴

In order to make choices about family planning (FP) women need to have adequate information about the availability of different contraceptive methods.¹⁵ In addition, the choice of contraceptive method and its timing initiation in the postpartum period depend on a woman's knowledge about contraceptives.¹⁶ As well, women's perception towards FP is reliant on good knowledge and has a great influence on their attitudes and practices.^{17,18}

Access to timely utilization of modern contraceptives in the postpartum period is dependent on good knowledge of women regarding family planning.¹⁹ Evidence has indicated that the lowest contraceptive utilization was observed in sub-Saharan African countries, mainly due to low level of knowledge.²⁰ Other evidence has revealed that lack of knowledge on contraceptive methods and their accessibility are barriers that exist in developing countries.²¹

Knowledge of women on the role of contraceptive use in family life is indispensable to good health.²² Given that, good knowledge increases intent to use contraceptives, which can then lead to increased postpartum modern contraceptive uptake. Hence, investigation of knowledge and its determinants of PFP utilization will help to design and implement evidence-based interventions. However, there is limited evidence on levels of knowledge and its associated factors of postpartum contraceptive use, particularly in northwest Ethiopia. Therefore, this study aimed to fill the research gap by assessing the knowledge and its associated factors of postpartum contraceptive use among women in the extended postpartum period in Gondar city, northwest Ethiopia. The finding will help to design appropriate interventional strategies that could fight against the unsatisfactory potential demand of family

planning services. Moreover, it will have a big contribution in reduction of maternal and infant mortality as well as morbidity rates.

Methods

Study Design and Setting

An institutional-based cross-sectional study was conducted in six public health institutions of Gondar city, northwest Ethiopia, 750 km from Addis Ababa, the capital of Ethiopia. The data were collected from November 5 to December 5, 2018. According to the Gondar city Health department office, the city has a population of approximately 78,546 women in the reproductive age group, and the estimated number of postpartum women was 10,360. The study site consists of eight governmental health centers and 14 rural health posts that are providing maternal and other health services to the community.

Study Population and Sampling

A total of 405 participants were determined using the single population proportion formula assuming the proportion of women who had a good knowledge on postpartum contraceptive in a previous study to be 60.1%,²³ confidence level 95%, margin of error 5%, and 10% non-response rate. A systematic random sampling technique was used to select the study participants. The proportional allocation was made for six health facilities providing immunization service at Gondar city. Finally, every third woman who brought their child for immunization was included in the study. Women who gave birth in the last 12 months and attended immunization for their children at a public health facility in Gondar city were included in the study.

Data Collection Procedure

Data were collected by a structured and pretested questionnaire via face-to-face interview at the health institutions. The questionnaire and consent documents were first developed in English, then translated into Amharic by a language expert, and finally retranslated into English to check the consistency. The questionnaire was adapted from EDHS and other published literature.²⁴⁻²⁷ The questionnaire includes socio-demographic, reproductive health, and obstetric factors, source of information, and knowledge of modern postpartum contraceptives. Six female diploma midwives were assigned as data collectors and two Bsc nurses as supervisors. Training was given for data collectors and supervisors before the actual data collection.

Variables of the Study

Extended postpartum period: The first 12-month period after a live birth.

The dependent variable for this study was knowledge (good, poor). It was defined as follows: each question had a group of answer points; one point was awarded for each correct answer. Correct responses were summed up to get a total knowledge scores for each participant. Total score for all questions reached 16 grades. The knowledge scores were classified into Good knowledge ($\geq 50\%$) and 50% was considered as Poor knowledge.²⁸

The independent variables were socio-demographic factors: age, religion, marital status, educational level, residence, occupation, husband education, wealth status; reproductive health factors: number of live children, birth interval, menstrual resumption, fertility desire, breast feeding status, abortion history; and health service-related factors: antenatal care visits, postnatal care visit, place of delivery, family planning counseling during antenatal care, and family planning counseling during postnatal care.

Data Quality Control

Data quality was controlled through the provision of training for the data collectors and supervisors about the overall data collection procedures and the techniques of interviewing. To establish face validity, a pre-test was done on 5% of the sample questionnaire before the actual data collection to ensure the clarity of the questionnaire and necessary corrections were made based on the pre-test. Moreover, it was assumed to check the wording and to confirm the logical sequence of the questions with a population of postpartum women presumed to have similar sociodemographic characteristics to the population of the study area. The collected data were checked for completeness, consistency, accuracy, and clarity by the co-authors and the principal investigator on a daily basis.

Data Processing and Analysis

Data were entered into Epi Info version 7.2.2.2 statistical software and then exported to SPSS version 20 for further analysis. Frequencies and cross-tabulations were used to summarize descriptive statistics. Both bivariable and multivariable logistic regression was used to identify independent variables associated with knowledge of women on postpartum contraceptive use. Variables having a P -value ≤ 0.2 in

the bivariable analysis were included in the multivariable logistic regression model. The strength and presence of association was interpreted using the adjusted odds (AOR) ratio with their 95% confidence interval (CI). The criterion for statistical significance was set at a P -value of 0.05.

Results

Socio-Demographic Characteristics of Study Participants

A total of 403 participants responded completely to the study, making a response rate of 99.5%. The mean age of the respondents was 28.2 years (± 5.3 SD); and more than half (221, 54.8%) of them were in the age group of 25–34. Out of the total study participants, 357 (88.6%) were urban dwellers. The majority (390, 96.8%), of the respondents were married and 374 (86.1%) orthodox in religion. One-third (149, 37%) of them had attended secondary school in their education. Of the respondents' husbands, 178 (45.6%) had attended higher education. One hundred and fifty-eight (39.2%) of the respondents were found in the lowest economic status (Table 1).

Reproductive Health and Obstetric Characteristics of Participants

The average number of living children per woman was 2.1, with a minimum of one and a maximum of ten children. Among the study participants, 33 (8.2%) had experienced abortion in their past. Three hundred and ninety-five (98%) of the study participants had an ANC visit for their recent pregnancy. Three hundred and seventy-nine (94%) mothers gave birth to their current children in government health institutions. The majority (377, 93.5%) of the current births were planned. Regarding reproductive plan, more than two thirds (68.9%) of the respondents wanted to have one to two children. Of the respondents, 329 (81.6%) attended postnatal care; of them, 299 (90.9%) received family planning counseling at postnatal care sessions. The majority (378, 93.8%) of participants had a history of previous contraceptive use, and nearly half (48.9%) were using contraceptives currently. Three hundred and eighty-eight (96.3%) respondents were currently breastfeeding their infant (Table 2).

Knowledge of Postpartum Contraceptive Use

The findings of this study showed that 299 (74.2%) women had good knowledge regarding postpartum

Table 1 Socio-Demographic Characteristics of Study Participants in Gondar City, Northwest Ethiopia, 2019 (n=403)

Variables	Number	Percent
Age		
19–24	127	31.5
25–34	221	54.8
≥35	55	13.6
Marital status		
Married	390	96.8
Other (single, divorced, widowed)	13	3.2
Religion		
Orthodox	347	86.1
Muslim	50	12.4
Protestant	6	1.5
Residence		
Urban	357	88.6
Rural	46	11.4
Educational level		
No formal education	68	16.9
Primary school	63	15.6
Secondary school	149	37.0
Higher education	123	30.5
Occupation		
Housewife	258	64.0
Government employee	47	11.7
Private employee	74	18.4
Merchant	14	3.5
Others	10	2.4
Husband's education status (N=390)		
No formal education	53	13.6
Primary school	57	14.6
Secondary school	102	26.2
Higher education	178	45.6
Husband's occupation (N=390)		
Farmer	23	5.9
Government employee	150	38.5
Private employee	103	26.4
Merchant	72	18.5
Daily laborer	31	7.9
Others	11	2.8
Wealth status		
Lowest	158	39.2
Middle	156	38.7
Highest	89	22.1

contraceptive use. Almost all (99.5%) of the study participants had heard about postpartum contraception. The most mentioned sources of contraceptive methods were health personnel 387 (96%) (Figure 1).

Table 2 Reproductive Health and Obstetric Characteristics of Study Participants in Gondar City, Northwest Ethiopia, 2019 (n=403)

Variables	Number	Percent
Parity		
1	141	35
2–4	243	60.3
≥5	19	4.7
Abortion		
Yes	33	8.2
No	370	91.8
Alive children by now		
1	144	35.7
2–3	207	51.4
≥4	52	12.9
Mode of delivery for current child		
Spontaneous vaginal delivery	322	79.9
Cesarean section	81	20.1
Breastfeeding currently		
Yes	388	96.3
No	15	3.7
Was the present birth planned?		
Yes	377	93.5
No	26	6.5
Previous use of contraceptive		
Yes	378	93.8
No	25	6.2
Number of planned children (N=251)		
1–2	173	68.9
≥3	78	31.1
ANC follow-up		
Yes	395	98
No	8	2
FP counseling during ANC (N=395)		
Yes	252	63.8
No	143	36.2
Place of delivery		
Health facility	379	94
Home	24	6
Postnatal care		
Yes	329	81.6
No	74	18.4
FP counseling during PNC (N=329)		
Yes	299	90.9
No	30	9.1
Current contraceptive use		
Yes	197	48.9
No	206	51.1

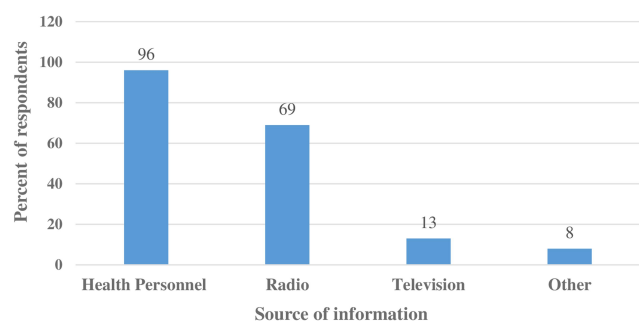


Figure 1 Source of information about postpartum contraceptive use in Gondar town, northwest Ethiopia, 2019.

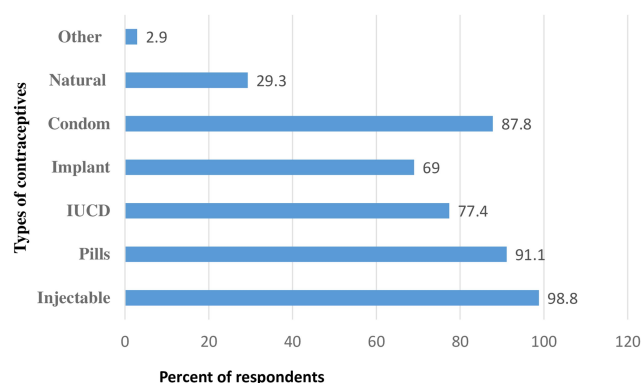


Figure 2 Type of contraceptives women know during extended postpartum period in Gondar town, northwest Ethiopia, 2019.

The main advantages of contraceptive use mentioned by the study participants were to space between child births (372, 92.3%), followed by to prevent unwanted pregnancy (364, 90.3%), and to limit the number of children (276, 68.5%). Some of the respondents mentioned more than one advantage. Women were asked whether they knew about any contraceptives, and 398 (98.8%) and 367 (91.1%) of the respondents knew of injectable and pills methods, respectively (Figure 2).

It was observed that 273 (67.8%) women cited that the best time to start postpartum contraceptive was after 42 days following childbirth. One hundred and two (25.3%) of the respondents had discussed modern contraceptives with their partners (Table 3).

Factors Associated with Knowledge of Postpartum Contraceptive Use

In the multivariable logistic regression analysis, factors that were found to be significantly associated with knowledge of postpartum contraceptive use among women in the extended postpartum period were place

Table 3 Knowledge-Related Characteristics and Partner Involvement of Study Participants in Gondar City, Northwest Ethiopia, 2019 (n=403)

Variables	Number	Percent
Ever heard about contraceptive		
Yes	401	99.5
No	2	0.5
Can exclusive breast feeding prevent pregnancy?		
Yes	131	32.5
No	272	67.5
The best time to start contraceptive use following childbirth		
Immediately following childbirth	28	6.9
Within 42 days after delivery	102	25.3
After 42 days following childbirth	273	67.8
What are your criteria for choosing your preferred method?		
Safety	194	48.1
Convenience (easy to use)	58	14.4
Husband prefers	23	5.7
Advised by health personnel	121	30.1
No criteria	7	1.7
Benefits of contraceptive		
Prevent unwanted pregnancy	364	90.3
Make family happy	247	61.3
Birth spacing	372	92.3
Limit number of children	276	68.5
Delay first child	194	48.1
Improve maternal health	209	51.9
Where Contraceptive Methods are available?		
Health post	146	36.2
Health center	390	96.8
Hospital	292	72.5
Medical shop	242	60.0
Private clinic	254	63.0
Discussion with husband on contraceptive		
Yes	102	25.3
No	301	74.7

of residence, modern contraceptive ever use, place of delivery, and FP counseling during PNC. Urban dwellers were about 3-times more likely to have good knowledge on postpartum contraceptive use than rural dwellers (AOR=2.95, 95% CI=1.34–6.48). The odds of those mothers who ever used contraceptive methods were 5.15-fold more knowledgeable than those mothers who did not use previously (AOR=5.15, 95% CI=1.16–22.88).

Postpartum women who gave birth to their current child in the governmental health institutions were 4.1-times more likely to have good knowledge regarding postpartum contraceptive use compared to those who gave birth at home (AOR=4.10, 95% CI=1.20–13.98). Similarly, counseling service on family planning during the postpartum period were found to be statistically significant in determining the knowledge of postpartum women about postpartum contraceptives use. Those mothers who were counseled during PNC were almost 4-times more likely to have good knowledge compared to those mothers who were not counseled (AOR=3.80; 95% CI=1.52–9.51) (Table 4).

Discussion

This study was conducted to assess the knowledge of women on postpartum contraceptive use and its associated factors among mothers in the extended postpartum period. Accordingly, the overall knowledge of women regarding postpartum contraceptive use was found to be 74.2% (95% CI=70–78.2). This finding is lower than the studies carried out in Aksum town, Tigray region,²⁹ Hossana town,³⁰ and southern Karnataka, India³¹ which reported the knowledge of women on contraceptive use among postpartum mothers was 95.8%, 96.5%, and 88% respectively. However, this finding is higher than those studies done in East Gojam Zone, northwest Ethiopia (60.1%),²³

Table 4 Factors Associated with Knowledge of Postpartum Contraceptive Use During the Extended Postpartum Period in Gondar City, Northwest Ethiopia, 2019

Variables	Level of Knowledge		COR (95% CI)	AOR (95% CI)
	Good	Poor		
Age				
15–24	75	52	1.04 (0.55–1.97)	0.70 (0.24–2.03)
25–34	160	61	1.89 (1.02–3.48)	1.30 (0.55–3.11)
≥35	32	23		
Residence				
Urban	246	111	2.64 (1.42–4.91)*	2.95 (1.34–6.48)*
Rural	21	25		
Parity				
1	92	49	5.26 (1.79–15.46)	2.44 (0.11–5.34)
2–4	170	73	6.52 (2.27–18.77)	1.08 (0.19–5.8)
≥5	5	14		
Alive children by now				
1	94	50	2.03 (1.07–3.86)*	1.89 (0.79–4.52)
2–3	148	59	2.71 (1.45–5.05)	2.12 (0.92–4.92)
≥4	25	27		
Contraceptive ever use				
Yes	260	118	5.67 (2.30–13.93)	5.15 (1.16–22.88)*
No	7	18		
Place of delivery				
Health facility	262	117	8.51 (3.10–23.34)	4.10 (1.20–13.98)*
Home	5	19		
FP counseling during PNC				
Yes	240	59	7.03 (3.17–15.56)*	3.80 (1.52–9.51)*
No	11	19		
Discussion with husband on contraceptive				
Yes	54	48	0.47 (0.29–0.74)*	0.76 (0.39–1.48)
No	213	88		

Note: *Significant with P -value<0.05.

Abbreviations: COR, crude odds ratio; AOR, adjusted odds ratio.

Kebribeyah Town, Somali Region, Eastern Ethiopia (68.2%),³² and Zambia (59%).³³ The reason for this variation might be due to differences in reproductive health services and accesses to information, education, and counseling regarding postpartum contraceptive utilization. Furthermore, the difference could be due to differences in women's access to mass media. Evidence has revealed that mass media plays a vital role in improving awareness of women on reproductive health including contraception.³⁴

This study has identified that urban residence was associated with knowledge of women on postpartum contraceptive use. Women who were urban residents were about 3-times more likely to have good knowledge on postpartum contraceptive use than rural dwellers. This study is supported by cross-sectional studies conducted in Nigeria²⁶ and India.¹⁶ The reason could be due to the fact that women in the urban areas are more likely to be more educated, and they have better access to information, education, and health facilities than rural women. Furthermore, the availability of major sources of family planning information, such as television and newspapers, are still very limited in rural areas.

Previous history of modern contraceptive use was found to be a determinant factor for knowledge of women on postpartum contraceptives use in which those mothers who had ever used modern contraceptive methods were about 5-times more knowledgeable than those mothers who had never used. This may be explained by the fact that previous exposure to contraceptives may give the opportunity to know the benefits and side-effects of contraceptives.

Postpartum women who gave birth to their current child at the Health facilities were about 4-times more likely to have good knowledge regarding postpartum contraceptive use than those who delivered at home. Similar findings were reported in a study conducted in India.³⁵ The reason could be that women who delivered at a health facility might get an opportunity for comprehensive counseling about the modern contraceptives and lactational amenorrhea methods during their maternal health services utilization. Moreover, this finding suggests that facility delivery remains an important window of opportunity to provide access to family planning messages and to offer women various contraceptive methods.

Furthermore, postpartum mothers who were counseled during their postnatal care visit were nearly 4-times more likely to have good knowledge on postpartum

contraceptive use compared to those mothers who were not counseled. This finding is supported by reports from Nigeria²⁴ and India.³⁵ This is because women who received family planning counseling during PNC might have adequate information regarding the source, benefit, side-effect, of contraceptives, and the place where they could find contraceptives.

While nearly three-quarters of women had good knowledge, which could increase their intent to use postpartum modern contraceptive uptake, a substantial number of women still had poor knowledge. This implies the need to improve the awareness of the women on the use of postpartum contraception through counseling, education, and social communication with a collaborative effort of policy-makers, program managers, health professionals, and other stakeholders.

Limitations of the Study

Though the study made its attempt to identify factors associated with knowledge of women on postpartum contraceptive use in the study setting, it is not free from some limitations. The study does not include data on the qualitative information of study participants, and it mainly focuses on individual level factors; and factors related to the health system and the service providers were not investigated. Furthermore, the measurements of knowledge tools are operationally defined according to our setting and from other similar findings, and these tools are not validated.

Conclusion

This study demonstrated that the knowledge of postpartum women regarding postpartum contraceptive use was relatively low. Women's residence, contraceptive ever use, place of delivery, and FP counseling during PNC were factors significantly associated with knowledge of postpartum contraceptive use among postpartum women. Therefore, increasing institutional delivery service and counseling about modern family planning during the postpartum period should get more focus to address the knowledge gap on postpartum contraceptive utilization. There is also a great need to prioritize the provision of information and education for women in rural areas to empower them to create awareness regarding postpartum family planning.

Abbreviations

AOR, adjusted odds ratio; ANC, antenatal care; CI, confidence Interval; FP, family planning; PPF, postpartum

family planning; PNC, postnatal care; SPSS, Statistical Package for Social Science.

Data Sharing Statement

The datasets used and analyzed during the current study are available from the corresponding author.

Ethics Approval and Consent to Participate

Ethical clearance was obtained from the Institutional Review Board (IRB) of University of Gondar, College of Medicine and Health Sciences, Institute of Public Health. Formal letters of cooperation were written to the different health institutions in Gondar Town and Gondar Woreda Health Offices. The head of each health facilities also wrote a letter of permission to the immunization focal person. The ethical review committee of University of Gondar has identified the study procedure to cause less than very minimal risk after assessing the proposal document and, therefore, verbal consent was obtained from each woman for participation. Hence, verbal informed consent was approved by the IRB of University of Gondar. Moreover, the study was conducted in accordance with the Declaration of Helsinki. The benefit of the study was explained to the respondents. Participants were informed that they had the right to withdraw from the study at any time. The study participants were interviewed in a separate room keeping their privacy.

Consent to Publication

Not applicable.

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Author Contributions

All authors (BDM, AAG, and AML) made substantial contributions to the conception and design, acquisition of data, or analysis and interpretation of data; took part in drafting the article or revising it critically for important intellectual content; agreed to submit to the current

journal; gave final approval of the version to be published; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare that they have no conflicts of interest for this work.

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