Contraceptive utilization and associated factors among women in the extended post-partum period in wukro town, Tigray, Ethiopia: a community based cross sectional study

Natnael Etsay Assefa (✉ natty416@gmail.com)

Adigrat University College of Health Sciences

Yodit Zewdie Berhe

Mekelle University

Weldu Mammo Werid

Adigrat University College of Health Sciences

Meresa Berewo Mengesha

Adigrat University College of Health Sciences

Kidanemariam Berhe Tekola

Adigrat University College of Health Sciences

Gdiom Gebreheat Abady

Adigrat University College of Health Sciences

Tesfay Tsegay Gebru

Adigrat University College of Health Sciences

Lidya Zewdie Berhe

Bahir Dar University

Mulu Gebretsadik Weldemariam

Adigrat University College of Health Sciences

Research article

Keywords: Contraceptive, utilization, postpartum, wukro town, cross sectional

Posted Date: August 15th, 2019

DOI: <https://doi.org/10.21203/rs.2.12957/v1>

License: This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Background: The extended post-partum period is the twelve months after delivery, which is a very critical time for mothers to ensure a safe birth interval. Many women do not realize that they are at risk of pregnancy during the postpartum period and the importance of birth interval. Birth interval more than two years reduces maternal and child mortality and give a better health for the mother and the child. Because of this assessing post-partum contraceptive utilization and the determining factors is crucial. Hence, the study was conducted to determine contraceptive utilization and identify factors which affect post - partum contraceptive utilization **Methods:** A community based cross sectional study was implemented among 422 women who gave birth one year prior to the study period in wukro town. The total sample size was allocated to the three kebeles proportionally. Systematic random sampling technique was used to select study subjects. Data were collected by interviewer administered structured questionnaire. The data were coded and entered using EpiData version 3.1 and transported to Statistical Package for Social Science version 20 for analysis. Binary and multivariable logistic regressions were fitted. Odds ratio with 95% confidence interval was used to measure strength of association. **Results:** A total of 422 women were enrolled in this study. Nearly half (48.6%) of the women were using contraceptive. Multivariable logistic regression showed that prenatal counseling [AOR 3.06(95% CI; 1.30, 7.22)], menses returned [AOR 3.99(95% CI; 1.96, 8.11)] and resuming sexual activity [AOR 5.96(95% CI; 2.67, 13.3)] were positively associated with utilization of postpartum contraceptive. **Conclusions:** Postpartum contraceptive use was low. Strengthening prenatal family planning counseling and improving women's awareness about the return of their fertility after childbirth are suggested to improve family planning utilization in extended postpartum period.

Background

Maternal health problems remain a major global concern since pregnancy and childbirth are the leading causes of morbidity and mortality among reproductive age women. Family Planning (FP) is recognized as a key life-saving intervention for mothers and their children(1). Family planning prevents unintended or unwanted pregnancies and enables women not to have pregnancies too early, too late, or too frequently, thereby avoiding exposure to risks of death from complications of pregnancy(2).

The extended post-partum period is the twelve months after delivery which is a very critical time for mothers to ensure a safe birth interval. The benefit of postpartum family planning (PPFP) for maternal and child survival has long been recognized and the concept of implementing special family planning programs for postpartum women has been recognized as the standard of care since 1966(3).

The success of postpartum family planning programs in low income countries has been limited by poor access to prenatal care, skilled delivery and postnatal care, Therefore, access to maternal and child health services is a crucial factor in the early adoption of a family planning method after a birth(4).

More than one-third of the 205 million pregnancies that occur worldwide annually are unintended. The majority of these unintended pregnancies occur in developing countries, where more than one third of 182 million pregnancies are unintended. Two-thirds of these unintended pregnancies occur among women who are not using a method of family planning. Family planning use during the first year postpartum has the potential to significantly reduce the number of unintended pregnancies(5).

Globally, more than 9 out of 10 women want to avoid pregnancy for two years after having a baby(6). According to an analysis of Demographic and Health Surveys data from 27 countries, 95% of women who are 0–12 months postpartum want to avoid a pregnancy in the next 24 months; but 70% of them are not using contraception. Family planning can avert more than 30% of maternal deaths and 10% of child mortality if couples space their pregnancies more than 2 years apart (7).

In sub-Saharan Africa, the proportion of postpartum women who are exposed to the risk of pregnancy by having sex while using no contraceptive method within 2 years after childbirth is nearly one third. For these women, addressing unmet need for family planning in the postpartum period is crucial for child survival as well as maternal health (8).

Post-Partum family planning utilization varies in sub-Saharan countries, which is 40 % in Zambia, 25 % in Kenya, 20 % in Tanzania, 15 % in Nigeria and less than 10 % in Ethiopia. In a recent study, women of postpartum period were less likely to use family planning by the end of the extended postpartum period when compared with married women in the general population. Those using contraception made up only a small proportion of those needing it(5).

Demographic characteristics, socioeconomic characteristics, fertility preferences and use of maternal health services are some of determinants of utilization of post-partum family planning (9). Antenatal care (ANC) visits, skilled birth, wealth and education were associated with family planning in the postpartum period(10).

Even though giving birth at a health institution increases the opportunity of uptake of post-partum family planning, institutional delivery in Ethiopia is 26% which is very low(11). According to a study conducted in low and middle income countries the percentage of postpartum women with short inter-pregnancy interval in Ethiopia was 47 % (12). However, studies regarding contraceptive utilization in the extended post-partum period are limited at the study area. Hence, we conducted the study at Wukro town to estimate utilization of contraceptive and associated factors among women in the extended post-partum period.

Methods

Study setting

A community based cross sectional study was carried out at Wukro town in February 2018. Wukro town is located in northern part of Ethiopia in Tigray National Regional State, Eastern Tigray Zone, at a Distance

of 826 Km from Addis Ababa, and 46 Km from Mekelle. Based on a projected population for 2008 the town has a total population of 47,611 of which 24,490 were females with women of reproductive age accounting for 8,232(13).

Study population and sampling

All women who gave birth one year prior to the study period and not pregnant in each kebele of Wukro town were included in the study. Sample size was calculated using single population proportion formula by considering population proportion of 48.4%, 95% CI and 5% marginal error(14). After adding a 10% non-response rate the total sample size became 422. A census was done to identify households with postpartum women.

The sample was allocated proportionally to the three kebeles based on the number of postpartum women and then study participants were selected by systematic random sampling techniques. Sampling interval was calculated for each kebele by dividing the total number of postpartum women in each Kebele by the proportionally allocated sample of each Kebele. The first study subject was selected using lottery method. The next postpartum woman was included in the study when a selected woman was absent for two consecutive times.

Data collection

The data were collected using a structured questionnaire. The questionnaire was prepared in English and translated to local language (Tigrigna), and back to English to ensure consistency. The questionnaire was pretested using 5% of the sample questionnaire at an area which is not part of the study (Eidaga hamus) and revision was made. Six midwives and one supervisor were recruited and trained to collect the data by interviewing the women face to face.

Data processing and analysis

The collected data was coded and entered using EpiData version 3.1 statistical software and Exported to SPSS version 20 statistical software for analysis. Odds ratio with 95% confidence interval was used to measure strength of association. The bivariate and multivariable logistic regression model was used to see the association between the independent variables and the dependent variable. Variables with $P < 0.25$ in the bivariate analysis were exported to multivariable logistic regression model to control confounding factors and identify variables independently associated with post-partum contraceptive utilization. Statistical significance was declared at $P < 0.05$. An effort was made to check the major assumptions of logistic regression were fulfilled. Absence of multicollinearity was checked and it was found to be satisfied. Goodness of fit was checked by Hosmer and Lemeshow test.

Result

Socio-demographic and economic characteristics of respondents

In this study, 422 postpartum women were enrolled. The mean age of respondents was 27.3 years (SD = ± 5.7) and 150(35.5%) women were aged between 18–24 years. The majority of respondents (91.2%) were married. Regarding Religion and Ethnicity, majority of the study participants were Tigray (97.6%) and Orthodox (91.5%) respectively. Two third of study participants (66.6%) were housewives by occupation, and 263(62.3%) of participants and 274(68%) of participants' partner have attended more than secondary education. The proportion of participants monthly family income earning <1000 birr was 26.6 % (*Table 1*).

Reproductive health and maternal health service related characteristics of study participants at Wukro town

The mean number of birth (parity) of the study participants was 2.2 (SD, ± 1.4). The mean number of living children was 2.2 per women (SD, ± 1.5). One hundred sixty six (39.3%) of participants had one child. The median birth interval of the study participant was 36 months (IQR = 34). Almost two-third (65.9%) of the women were using modern contraceptives prior to their last child. Concerning menses, one hundred seventy two (40.8%) of participants had resumed menses. Slightly more than two third of respondents (67.5%) had started sexual activity.

The majority (97.6%) of women had attended antenatal care. The proportion of women who got family planning counseling during antenatal care and who gave birth at health facility was 79.1% and 98.8% respectively. Postnatal care follow up was reported by 51.9% of respondents (*Table 2*).

Contraceptive use in the post-partum period

The prevalence of contraceptive use was found to be 48.6% [95% CI: 43.6%, 53.1%]. The most frequently used type of contraceptive method was injectable contraceptives (65.9%), followed by implants (22.4%) and pills (7.8%). One hundred ninety three (94.1%) use contraceptive for spacing birth. Regarding with the post-partum period, 64(31.4%) of the women who reported using PP contraceptive adopted between 10 to 12 months (*Figure 1*). More than half of the contraceptive users (59.6%) started the contraceptive after menses resumes. Majority (97.1%) of users collected their contraceptive from government health facility.

Reasons for not using contraceptive methods

Participants who were not using contraceptive were asked about their future intention and the reasons for not using. Majority of the participants (75.9%) reported the intention to adopt contraceptive in the future. The main reasons for not using were not resuming menses (52.3%) followed by little perceived risk of pregnancy (35.8%) and fear of side effects (7%) (*Figure 2*).

Factors associated with postpartum contraceptive utilization (bivariate and multivariate analysis)

Twelve variables with $p < 0.25$ in bivariate were exported to multivariable logistic regression. The multivariate analysis showed that only family planning counseling during ANC, returned menses and resumed sexual activity showed a significant association with post-partum contraceptive utilization.

Accordingly, the odds of using contraceptive in the extended post-partum period among women who received family planning counseling during ANC were 3.06 higher than in those who do not received with AOR 3.06(95% CI; 1.30,7.22). The odds of using contraceptives among women with returned menses were 3.99 higher than among those whose menses did not returned with AOR 3.99(95% CI; 1.96, 8.11). Women who had resumed sexual activity were 5.96 times more likely to adopt contraceptive than those who had not resumed sexual activity since birth with AOR 5.96(95% CI; 2.67,13.3).(*Table 3*)

Discussion

This study was designed to identify contraceptive utilization and associated factors among women in the extended post-partum period. Accordingly the study identified that prenatal FP counseling, returned menses and resumed sexual activity to be significantly associated with post-partum contraceptive utilization.

Our study showed that nearly half (48.6%) of the respondents were using contraceptive. This is in line with studies done in Gondar (48.4%), Aksum (48%) and Mexico (47%)([14–16](#)). However, the finding is higher than findings from Kebribeyah town Eastern Ethiopia (12.3%), Debat district northwest Ethiopia (10.3%) and Uganda (28%)([17–19](#)). The variation might be attributable to the socio demographic, cultural and religious difference for the adoption of postpartum family planning.

The commonly used type of contraceptive was injectable (65.9%) followed by implant (22.4%), pill (7.8%) and IUCD (3.9%). This would be attributed to the women's preferences for a specific method and the availability of the desired method at facility. This result is in line with 2016 Ethiopia Demographic and Health report and with a study from Aksum ([11, 15](#)).

In this study women who had family planning counseling during antenatal care were 3.06 times more likely to utilize postpartum contraceptive than their counterparts. The possible reason might be women who received family planning counseling will have an increased awareness and motivation to adopt contraceptive. This is supported by different studies conducted in Ethiopia, Malawi and Mexico ([15](#), [16](#), [20](#)).

Women whose menses returned were more likely to use contraceptive than those whose menses did not returned. This result is consistent with different studies which identified returned menses as a predictor of contraceptive adoption among post-partum women ([14](#), [15](#), [21](#)). The possible explanation would be women whose menses returned are aware of the returning of their fertility. They might realize that they would be safe as long as they are amenorrhic. In view of this, more than half (52.3%) of women stated that not resuming menses as a reason for not using contraceptive.

Literatures from Nigeria and north Ethiopia revealed that resuming sexual activity to be an associated factor with postpartum contraceptive utilization. This study also showed that Resuming sexual activity was associated with postpartum modern contraceptive use. Women who resumed sexual intercourse were more likely to use contraceptive. The postpartum women who resume sexual activity are aware of the risk of getting pregnant which in turn encourages them to use contraceptive([17](#), [21](#)).

The study has some limitations. Study participants were prone for recall bias for some factors since a one year enquiry was made. It also emphasized on individual factors. Factors related to the health system which includes the availability and accessibility of the service, and health care providers attitude were not assessed. It would be better if future studies focus on these factors.

Conclusion

Low utilization of post-partum contraceptive utilization was found. Prenatal counseling, resuming menses and sexual activity were factors positively associated with post-partum contraceptive utilization. Hence, strengthening prenatal family planning counseling and improving women's awareness about the return of their fertility after childbirth are suggested to improve contraceptive utilization in extended postpartum period.

Abbreviations

FP: family planning; ANC: antenatal care; COR: crude odds ratio; AOR: adjusted odds ratio

Declarations

Ethics approval and consent to participate

Ethical approval was obtained from Adigrat University. After briefing the purpose and procedure of the study, verbal consent was obtained from study participants and. Their right not to participate, not to answer any or all questions and to withdraw from the interview at any time they want was respected.

Consent for publication

Not applicable.

Availability of data and material

The dataset used and analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no conflict of interest.

Funding

This study was funded by a grant from Adigrat University (AGU/CMHS/037/09). The funding body had no role in the design of the study and collection, analysis, and interpretation of data and in writing the manuscript.

Authors' contributions

NE, YZ, KB and WM designed the study. NE, MB, GG, LZ, TG and MG made substantial contribution in data collection and analysis. NE and YZ draft the manuscript and revise it critically for important intellectual content. All authors given final approval of the final draft to be published

Acknowledgement

We would like to acknowledge Adigrat University for the financial support. Our deepest gratitude also goes to data collectors, supervisor and study participants for their commitment.

References

1. Ahmed S, Norton M, Williams E, Ahmed S, Shah R, Nazma B, et al. Operations research to add postpartum family planning to maternal and neonatal health to improve birth spacing in Sylhet District, Bangladesh. *Glob Health Science and Practice*. 2013;1:262-76.
2. Federal Ministry of Health(FDRE); HSDPs II, III, and IV; (five year health development strategic plans),. 1993/4 - 2014/15.
3. Akinlo A, Bisiriyu A, Esimai O. DHS working papers: Influence of Use of Maternal Health Care on Postpartum Contraception in Nigeria. Calverton, Maryland, USA: 2013 96.
4. Rossier C, Hellen J. Traditional birthspacing practices and uptake of family planning during the postpartum period in Ouagadougou: qualitative results. *Int Perspect Sex Reprod Health*. 2014;40(2).
5. Maria B, William W. Postpartum Fertility and Contraception: An Analysis of Findings from 17 Countries. USA: Jhpiego, 2010.
6. John AR and William LW. Contraceptive use, intention to use and unmet need during the extended postpartum period. *Int Fam Plan Perspect*. 2001;27(1):20-7.
7. world health organization. Programming strategies for postpartum family planning. WHO Library Cataloguing-in-Publication Data. 2013.
8. Robert PN, John C, Nyovani JM, Jean CF, Eliya MZ. Menstrual Pattern, Sexual Behaviors, and Contraceptive Use among Postpartum Women in Nairobi Urban Slums. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*. 2010;88(2):41-2.
9. Winfrey W, Rakesh K. use of family planning in the postpartum period. Rockville, Maryland,USA: ICF International, 2014 36.
10. Hounton S, Winfrey W, D.Barros AJ, 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.
11. Central Statistical Agency (CSA) [Ethiopia] and ICF. 2016 Ethiopian Demographic and Health Survey. Addis Ababa, Ethiopia, and Rockville, Maryland, USA: 2017.
12. Zhuzhi Moore AP, Rehana Gubin, Elaine Charurat, Leah Elliott, Trevor Crofta. Missed opportunities for family planning: an analysis of pregnancy risk and contraceptive method use among postpartum women in 21 low- and middle-income countries. *contraception* 2015;92:31–9.
13. Federal Democratic Republic of Ethiopia Central Statistical Agency. Population Projection of Ethiopia for All Regions at Wereda Level from 2014 – 2017. 2013.
14. Abera Y, Mengesha ZB, Tessema GA. Postpartum contraceptive use in Gondar town, Northwest Ethiopia: a community based cross-sectional study. ; . *BMC Womens Health*. 2015;15(19).
15. Abraha TH, Teferra AS, Gelagay AA. Postpartum modern contraceptive use in northern Ethiopia: prevalence and associated factors *Epidemiol Health*. 2017;39.
16. Barbe SL. Family Planning Advice and Postpartum Contraceptive Use Among Low-Income Women in Mexico *International Family Planning Perspectives*. 2007;33(1).

17. Nigussie AT, Girma D, Tura G. Postpartum Family Planning Utilization and Associated Factors among Women who Gave Birth in the Past 12 Months, Kebribeyah Town, Somali Region, Eastern Ethiopia Journal of Women's Health Care. 2016;5(6).
18. Mengesha ZB, Worku AG, Feleke SA. Contraceptive adoption in the extended postpartum period is low in Northwest Ethiopia. BMC Pregnancy and Childbirth 2015.
19. Rutaremwa G, Kabagenyi A, Wandera SO, Tapiwa Jhamba2 EA, Nviiri3 HL. Predictors of modern contraceptive use during the postpartum period among women in Uganda: a population-based cross sectional study. BMC Public Health. 2015;15(262).
20. 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 (14).
21. Iliyasu Z, Galadanci HS, Danlami KM, Salihu HM, Aliyu MH. Correlates of postpartum sexual activity and contraceptive use in Kano, northern Nigeria. African Journal of Reproductive Health. 2018;22.

Tables

Table 1: Socio-demographic and economic characteristics of respondents at Wukro town, Tigray, Ethiopia, 2018

Variable	Category	Frequency	Percentage
Age	18-24	150	35.5
	25-29	136	32.2
	30-34	90	21.3
	≥35	46	10.9
Marital Status	married	385	91.2
	others ^a	37	8.8
Ethnicity	Tigray	412	97.6
	Amhara	8	1.9
	Oromo	2	.5
Religion	orthodox	386	91.5
	Muslim	34	8.1
	catholic	2	0.5
Educational level	no formal education	48	11.4
	primary education	111	26.3
	Secondary & above	263	62.3
Partner Educational level	no formal education	42	10.4
	primary education	87	21.6
	secondary & above	274	68.0
Occupation	house wife	281	66.6
	gov't employee	47	11.1
	merchant	83	19.7
	others ^b	10	2.4
Partner occupation	gov't employee	131	32.5
	merchant	195	48.4
	daily laborer	66	16.4
	others ^b	11	2.7
Monthly Income	<1000	90	21.6
	1001-2000	152	36.5
	2001-3000	77	18.5

>3001

97

23.3

^a E.g. single, divorced, widowed

^b E.g. farmer, student

Table 2: Reproductive health and maternal health service related characteristics of study participants at Wukro town, Tigray, Ethiopia, 2018

Variable	Category	Frequency	Percent
Parity	1-4	392	92.9
	>5	30	7.1
Living children	1	166	39.3
	2-3	184	43.6
	≥4	72	17.1
Birth Interval	<24	35	15.2
	25-47	72	31.2
	≥48	124	53.7
Reproductive health intention	want to have space	230	54.5
	want to limit	29	6.9
	undecided	146	34.6
	want to have child soon	17	4.0
Who decide about family planning	mainly respondent	63	14.9
	mainly husband	13	3.1
	jointly	346	82
ANC	yes	412	97.6
	no	10	2.4
Number of Visit	1	5	1.2
	2-3	63	15.3
	≥4	344	83.5
place of delivery	health facility	417	98.8
	home	5	1.2
post natal care	yes	219	51.9
	no	203	48.1
Receive prenatal FP counseling	yes	86	20.9
	no	326	79.1
Duration of post-partum period	0-3 months	135	32
	4-6 months	87	20.6

	7-9 months	95	22.5
	10-12 months	105	24.9
Menses returned	yes	250	59.2
	no	172	40.8
Resume sexual activity	yes	137	32.5
	no	285	67.5

Table 3: Bivariate and multivariable logistic regression (final model) analysis result of variables ($p \leq 0.25$) in bivariate analysis in wukro town, Tigray, Ethiopia 2018

Variable	Category	COR(95% CI)	AOR(95% CI)
Age	15-24	1	1
	25-29	2.00(1.25,	2.12(0.93, 4.82)
	≥30	3.22)	2.43(0.94, 6.30)
		2.48(1.54, 3.99)	
Educational level	no formal education primary education	1	1
	Secondary & above	0.82(0.41,	2.38(0.71, 7.94)
		1.65)	1.58(0.49, 5.02)
		0.60(0.32, 1.12)	
Average income	<1000	1	1
	1001-2000	0.79(0.47,	0.66(0.27, 1.59)
	2001-3000	1.34)	0.38(0.13, 1.07)
	>3001	0.58(0.31,	0.68(0.24, 1.91)
Children		1.07)	
		0.58(0.32,	
		1.03)	
PNC	1	1	1
	2-3	1.54(1.01,	0.81(0.37, 1.81)
	≥4	2.35)	0.95(0.31, 2.85)
		1.64(0.94,	
Prenatal Counseling		2.87	
	No	1	1
	Yes	0.77(0.53,	0.62(0.33, 1.17)
		1.14)	
Decision	No	1	1
	Yes	0.39(0.23,	3.06(1.30,7.22)*
	Mainly respondent	1	1
	Mainly husband	1.33(0.43, 4.04)	0.65(0.05,8.22)
	Jointly		2.28(0.68,7.62)

			3.65(1.97,	
			6.77)	
Husband support	No	1		1
	Yes	0.18(0.07,		0.88(0.17,4.53)
		0.49)		
Resume menses	No	1		1
	Yes	4.48(2.95,		3.99(1.96,8.11)*
		6.80)		
Sexual activity	No	1		1
	Yes	6.01(3.74,		5.96(2.67,13.3)*
		9.66)		
Post-partum duration	0-3 months	1		1
	4-6 months	0.71(0.41,		1.82(0.70, 4.75)
	7-9 months	1.24)		0.55(0.22, 1.40)
	10-12 months	0.35(0.20,		0.89(0.35, 2.23)
		.607)		
		0.33(0.19,		
		0.57)		
Problem with previous use	Yes	1		1
	No	0.65(0.34,		0.49(0.21, 1.13)
		1.24)		

*significant association

Figures

Figure 1

Contraceptive use by method mix and purpose of use of the study subjects in Wukro, Tigray, Ethiopia, 2018

Figure 2

Reasons for not using contraceptive among women in the extended postpartum period in Wukro town, Tigray, Ethiopia, 2018

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Englishversionquestionnaire.docx](#)
- [ppfp.FinalModel.sav](#)
- [STROBEchecklistcrosssectional.doc](#)
- [LocallanguageTigrignaversion.docx](#)