

TIMELY INITIATION OF POSTPARTUM CONTRACEPTIVE UTILIZATION AMONG WOMEN OF CHILD BEARING AGE IN ARBA MINCH TOWN , GAMO ZONE, ETHIOPIA

Mekbib Meshka¹, Migbaru Debalkie, MSc.¹, Bitew Mekonen, MSc.¹, Aynalem Mencho, MSc.¹, Zinash Tantu, MSc.²

ABSTRACT

BACKGROUND: Most women have an average time to first postpartum ovulation of 45 days and can occur as early as 25 postpartum days (1). However, many women do not recognize that they are at a risk of pregnancy during this period. Most postnatal women are exposed to pregnancy by seven to nine months after delivery (2).

OBJECTIVES: To assess the prevalence of timely initiation of postpartum modern contraceptive utilization and associated factors among women in child bearing age in Arba Minch Town health facilities.

METHOD: An institutional based cross-sectional study was employed using pre-tested interviewer administered questions; 574 were interviewed. Systematic random sampling method was done from April 15 to May15, 2020. Bivariate and multivariate logistic regression analysis was done. P-value < 0.05 was used to consider as statically significant variables.

RESULTS: The magnitude of timely initiation of postpartum contraceptive utilization was found to be 260 out of 574 women (45.3%) 95% [CI: 40.1-49.0]. Educational level of respondents , (AOR=0.46; 95% [CI: 0.31-0.71], number of ANC visit [AOR=2.913,95% [CI:1.39-6.07], counseling of postpartum family planning after the last delivery (AOR=2.29,95% [CI:1.46-3.58], couple discussed (AOR=4.94,95%[CI:3.01-8.09], resumption of sexual intercourse (AOR=1.74, 95% [CI: 1.36-2.77] and return of menses (AOR=(6.6, 95% [CI:1.91-22.78) were significantly associated variables with timely initiation of postpartum contraceptive utilization.

CONCLUSION: Timely initiation of modern contraceptive use in Arba Minch Town is observed in fewer than 50% of study participants. Therefore, it is crucial for the family planning program to actively integrate contraceptive education and services into antenatal and postnatal follow-up care.

KEYWORD: Timely initiation, modern contraceptive, postpartum contraception, contraceptive utilization, women of childbearing age

(The Ethiopian Journal of Reproductive Health; 2023; 15;28-36)

1 School of Nursing, Department of Comprehensive Nursing, Arbaminch University, Arbaminch, Ethiopia

2 College of Nursing, Arba Minch University, Arbaminch, Ethiopia

INTRODUCTION

After giving birth, most women experience their first postpartum ovulation around 45 days, but it can happen as early as 25 days¹. Unfortunately, many women are unaware that they could become pregnant during this time². A significant portion of women who have recently given birth are at risk of pregnancy within seven to nine months, without using any contraception. These women have typically resumed their menstrual cycles, are sexually active, and are not using any birth control methods, thus increasing their chances of unintended pregnancy². Pregnancy can increase the mother's risk of complications such as spontaneous abortion, postpartum bleeding, and anemia. Additionally, the newborn may be born with low birth weight or prematurely. Furthermore, the existing child may not receive sufficient care and support, making them vulnerable to disease and malnutrition^{1, 3}.

Ethiopia has introduced various programs and initiatives with the goal of improving the access and utilization of maternal health services. These services, including family planning, antenatal care (ANC), facility-based delivery, and postnatal care (PNC), are provided free of charge to the public. The Federal Ministry of Health (FMOH) has set an objective to increase contraceptive adoption from 42% to 55% within the general population by 2020. However, there remains a persistent issue of underutilized contraceptives, and the underlying causes of these gaps are not well understood. This highlights the necessity for a thorough investigation in Ethiopia.¹ Furthermore, in Ethiopia, despite the well-documented health benefits of initiating postpartum contraceptive use at the appropriate time to enhance maternal and child health, little attention has been given to the timing of contraception initiation, and there is limited knowledge regarding the practices and factors that influence the utilization of this service at the recommended time².

Therefore, the objective of this study was to assess timely initiation of modern contraceptive and

identify associated factors among postpartum women in Arba Minch Town health facilities.

These findings could help planners, programmers, and decision makers to have insight about factors affecting timely initiation of postpartum modern contraceptive utilization

METHODS AND MATERIALS

Institutional based cross-sectional study design was conducted from April 2020 to May 2020 in Arba Minch town, which is located in Gamo Zone, 505 km to the south of Addis Ababa. (2017).

Arba Minch town has four health facilities, one general hospital, and three health centers.

Women who gave birth within one year of Menses came to selected health facilities with their infants for immunization, postpartum care, or sick child health care in selected Arba Minch health facilities were included.

The required sample size was determined using a single population formula, which yielded a result of 522. This calculation accounted for a 10% non-response rate. To ensure an adequate sample size after factoring in non-responses, the total sample size was calculated to be 574.

Data was collected from the women by using structured interviewer administered questionnaire which was adapted from different literature

The collected questionnaire was checked manually for its completeness, coded, and entered into epi Info version 7.0 Statistical package, then exported to SPSS version 21.0 for further analysis.. Both bivariate and multivariate logistic regression analysis was used.

RESULT

Socio-demographic characteristics of respondents
In this study 574 respondents were interviewed with a 100% response rate. The mean age of the respondents was 27.8 (SD \pm 5.9) with the minimum and the maximum age of 18 and 44 years respectively. Almost all 565 (98.1%) of the respondents were married and Approximately 50.9% of the respondents identified as Orthodox religion

followers, 40% as Protestant, and 1.6% as Catholic religion followers. Regarding educational status of the respondents, 416 (72.5%) had secondary and above educational level, 158 (27.5%) had primary and below educational status. More than half 308 (53.7%) of respondents were from Gamo ethnicity. Regarding occupation, 215 (37.5%) respondents were house wife, and almost all (96.9%) respondents were living in Arba Minch town (Table2)

Table 2: Socio-demographic and economic characteristics of respondent towards timely initiation of modern contraceptive utilization in public health facilities of Arba Minch Town, Gamo Zone, Southern Ethiopia 2020

Variables (N=574)	Category	Frequency	Percent (%)
Age	< 20	65	11.3
	21-30	304	53.0
	31-40	180	31.4
	>40	25	4.4
Ethnicity	Gamo	308	53.7
	Wolayta	78	13.6
	Gofa	34	5.9
	Other	154	26.8
Religion	Orthodox	290	50.9
	Protestant	235	40.9
	Muslim	40	7.00
	Catholic	9	1.6
Educational level of respondent	Primary and below	158	27.5
	Secondary and above	416	72.5
Occupation	House wife	215	37.5
	Government employee	165	28.7
	Daily labor	112	19.5
	Student	56	9.8
	Merchant	21	3.7
	Un employee	5	0.9
Marital status of respondents	Single	5	0.9
	Married	563	98.1
	Others	6	1.0
Place of residence	Arba Minch	556	96.9
	Out of Arba Minch	18	3.13

Characteristics of maternal health service utilization

Regarding the characteristics of maternal health service utilization, the majority 557(97%) of respondents had attended at least one antenatal care during their last pregnancy. More than two thirds, 509 (88.7%) of them had two or more ANC visits; more than half 349 (60.8%) received FP counsel at ANC visit during last pregnancy, and nearly two thirds 420 (73%) of women received contraceptive counseling after delivery. The majority (98.1%) of respondents had their last birth at a health institution.

Characteristics of sexual and reproductive health of respondents

Regarding the reproductive and sexual characteristics of respondents, 202 (35.2%) of them had only one living child and 372(64.8%) of them had two or more children. The majority 548 (95.5%) of respondents had not had menses after their last delivery.194 (33.8%) wanted to space the next pregnancy for two or more years, and 380 (66.2%) of them wanted to limit their number of pregnancies'. The majority 527 (91.8%) of them decided their number of children together. More than half 335 (58.4%) of the study participants started sexual intercourse at postpartum period and the majority of them 452 (78.7%) of respondents discussed contraceptives with their partner.

Level of Knowledge and attitude on modern contraceptive

From the overall participants 289 (51%) of the respondents were knowledgeable on timely initiation of modern contraceptive method (MCMs). Health institution were the predominant source of information 423 (73.3%), r followed by 399 (69.5%) from mass media, and 344 (59%) friends and neighbors. Almost all (98.6%) of the respondents knew at least one MCM. Injection (84.8%) and implant (82.9) were those most mentioned MCMs by the respondents.

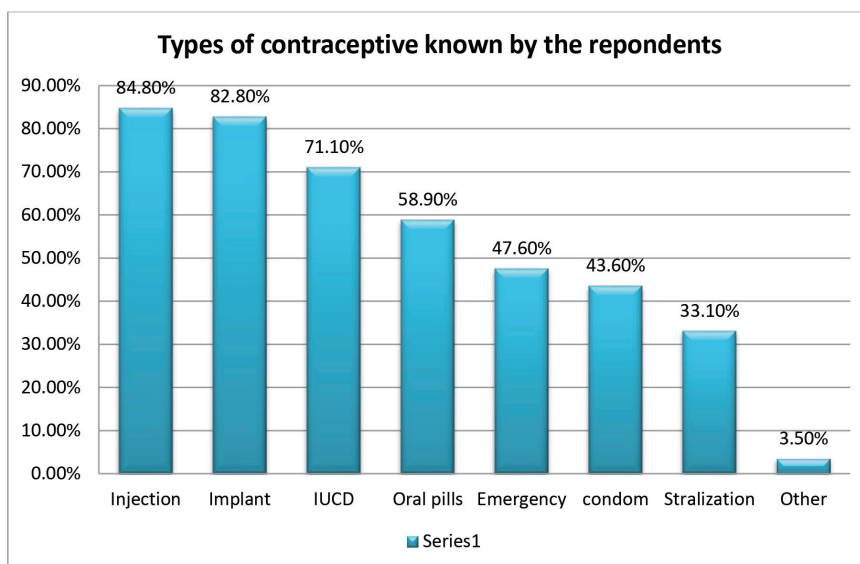


Figure 3: Types of modern contraceptive methods know by respondents in public health facilities of Arba Minch town, Gamo zone, Southern Ethiopia, June 2020.

Timely initiation of modern postpartum contraceptive utilization

The timely initiation of postpartum modern family planning utilization was 260, representing 45.3% of the total with a 95% [CI 41.1 to 49.5]. A total of 314 participants, or 54.7%, did not intend to initiate postpartum contraceptive usage on the recommended schedule. The reason for not initiating were, waiting for menses return,

avoid sex (9.4%), breast feeding (8.2%), living alone (6.4%), fear of side effect (5.1%), husband opposed (4.7%), experienced problem of previous contraceptive use (2.8%) and others (2.6%). In relation to the choice of contraceptive methods, majority of the contraceptive users were using Implant (53.80%) followed by Injectable (30.40%).

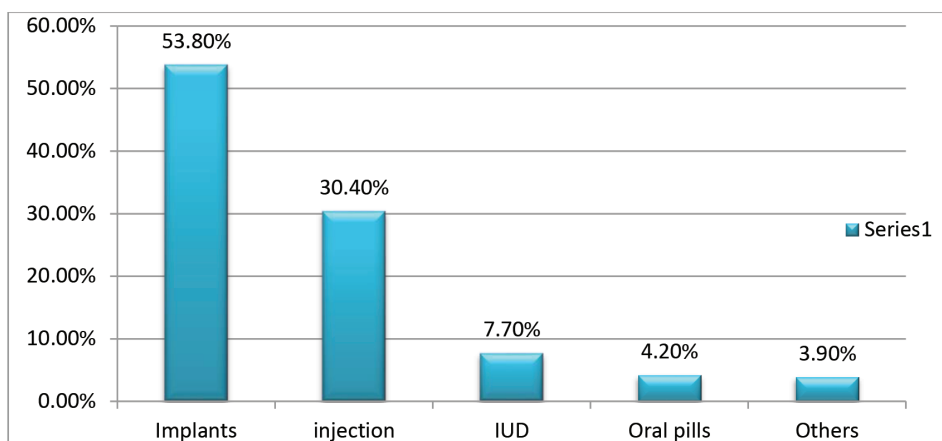


Figure 4: Timely initiations on types of modern contraceptive utilization at Arba Minch Town health facilities Gamo Zone, Ethiopia, 2020.

Factors associated with timely initiation of postpartum contraceptive utilization

In the Bivariate analysis significant association was observed between the educational levels of respondent, attitude, number of ANC visits, parity, number of living child, fertility desire, counseling on contraceptive after last delivery, return of menses, resumption of sexual activity, and spousal discussion on FP at $P < 0.25$. After adjusting the effect of confounding variables using multivariable logistic regression, variables like educational level of respondents, number of ANC visits, counseling on contraceptive after last delivery, return of menses, resumption of sexual activity and spousal discussion on FP was statically significant with timely initiation of modern contraceptive utilization (at $P < 0.05$).

Mothers' educational status showed statistically significant association with postpartum family planning use. Mothers who had primary and below educational level had 53% reduced odds to utilize

postpartum contraception than those who had secondary and above educational level (AOR=0.46; 95% [CI: 0.31-0.71]).

Women who had frequent ANC visits, were 2.9 times (AOR=2.91, 95% [CI: 1.39-6.07] more likely to utilize as compared to women who had less frequent ANC visit. Mothers who got counsel after delivery were 2.3 times (AOR=2.29, 95% [CI: 1.46-3.58] more likely to initiate PFP utilization. Women who discussed about FP utilization with their partners were 4.9 times (AOR=4.94, 95% [CI: 3.01-8.09] more likely to initiate at recommended time than their counterparts. Those mothers who had menses return after last deliveries were 6.6 times (AOR=6.6, 95% [CI: 1.912, 22.78] more likely to initiated PFP than those with the absence of menses return. Women who started sexual intercourse after last delivery were 1.9 times (AOR=1.94 95% [CI: 1.361, 2.77] more likely to intend PFP at recommended time.

Table 5: Bivariate and Multivariable analysis for factors associated with timely initiation of postpartum contraceptive in public health facilities of Arba Minch Town, Gamo Zone, Southern Ethiopia, 2020.

Variables	Yes Frq (%)	No Frq (%)	COR(CI)	AOR1(CI)	P-Value
Educational level					
Primary and below	51(19.6)	107 (34.1)	0.47(0.32-0.69)	0.46(0.31-0.71)	0.001*
Secondary and above	209(80.4)	207(65.9)	1	1	
Level of Attitude					
Good	158(60.8)	214 (68.2)	0.72(0.51- 1.02)	0.75(0.51-1.116)	0.158
Poor	102(39.2)	100 (31.8)	1	1	
No of ANC visit					
0-1	11(4.2)	54(17.2)	1	1	
> 2	249(95.8)	260(82.8)	4.70(2.403-9.19)	2.91(1.39-6.07)	0.004*
Parity					
1-2	103(39.6)	101(32.2)	1.38(0.98-1.95)	1.24(0.733-2.11)	0.421
> 3	157(60.4)	213(67.8)	1	1	
Number of living child					
One child	88(33.8)	114(36.3)	1	1	
>=2 child	172(66.2)	200(63.7)	1.114(0.78-1.57)	0.86(0.54-1.39)	0.55
Fertility desire					
Want to limit	171(65.8)	209 (66. 6)	0.96 (0.68-1.36)	0.79(0.513, 1.23)	0.301
Want to space	89(34.2)	105(33.4)	1	1	
Return of menses					
Yes	257(98.8)	291(92.7)	6.77(2.01, 22.18)	6.6(1.91, 22.78)*	0.003*
No	3 (1.2)	23(7.3)	1	1	
Resumption of sexual activity					
Yes	129(22.5)	110(19.2)	1.82 (1.31, 2.55)	1.74 (1.191, 2.53)*	0.004*
No	131(22.8)	204(35.5)	1	1	
Couple discussion					
Yes	94(16.4)	28(4.9))	5.78(3.64-9.12)	4.94(3.012-8.09)*	0.000*
No	166(28.9)	286(49.8)	1	1	
Counsel on PFP after last delivery					
Yes	214(37.3)	206(35.9)	2.43(1.64,3.62)	2.29(1.46-3.58)*	0.000*
No	46(8.0)	108(18.8)	1	1	

* = Statically significant at p-value<0.05, 1= Reference point

DISCUSSION

The magnitude of timely initiation of postpartum contraceptive utilization was found to be 260 (45.3%). The findings of this study are comparable with a study done in Debere Birhan of 46.9%, Gojam with 46.7%, and Gonder with 45.8%,^{4,5,6}). It also comparable with study done in India of 49%, Nigeria 44%, and Kenya at 45%^{7,8,9}. However; this finding was higher than the findings of similar studies previously done in Ethiopia Sebata Hawas district 38.6%¹⁰ , finote Selam 37%⁶ Bale zone 20.8 %,¹¹ Aroressa 32%², Dabat 32.5 %³, Somalia 12.3 %,¹². It was also higher than study done in Nepal, 37%¹³ Uganda 39%,¹⁴ and Ghana 30.7%¹⁵. This finding is also supported by other studies done in Ethiopia^{16,17,18}. However, this finding was found to be lower than study done in Northern, Ethiopia Tigeria, 84.3%, Somalia 86.3% and southern Ethiopia Hossana, 72.9%^{19,20,21}. It is also lower than Malawi 75%²². The possible explanation for this variation might be due to different socio demographic factors, like economic and educational status of respondents in the area. Other reason might be due to geographical variation.

This study showed that most of the contraceptive users (53.8%) were using implant, 30.4% inject able, and 7.7% IUD type of contraceptive methods. This predominant method was accounted in most previous studies^{23,16, 24, 17, 2,7, 25}. The reason may be due to its convenience of not being taken on daily basis, and the availability of these methods. An Additionally, in this study most of respondents said they “heard it is good” . .

Educational attainment is found to be an important predictor of modern contraceptive use. In this study, mothers who had primary and below educational level had 53% reduced odds to timely initiation of PFP than those who had secondary and above educational level (AOR=0.46; 95% [CI: 0.31-0.71]. This was similar with the studies conducted in most developing countries^{3,1,2,26, 2,24,24, 25, 11, 26}.

In this study, only 19.6 % of women with primary and below educational level reported current use

of any method of MCM, compared with 80.4 % of women with secondary and above educational level. This can be explained by the idea that women with better educational level have better access to health care information, have greater autonomy to make decisions, and have greater ability to use quality health care services. The idea was supported by most studies conducted in Ethiopia^{16, 21,33,27,28,18,30,33,4}.

Women who had two or more ANC visits during last pregnancy were 2.9 times more likely to initiate the postpartum contraceptive utilization at recommended time than those who had less than two ANC visits. Possible explanations might be women who attended continuous follow up of antenatal care clinic during pregnancy may have more information and were strongly counseled by health care providers on benefits of family planning up take, and may be more likely to be informed and aware about complications that may occur after delivery. These factors can increase their initiation^{32,12}

Those mothers who got counsel about utilization of contraceptive after delivery were 2.3 times more likely to initiate contraceptive utilization than counterparts. This might be due to women who were counseled during delivery and after delivery would informed the importance of having birth spacing for both the mother and new born. This finding is highly supported by other studies completed in Ethiopia^{35, 16, 12}. A study in Mekelle showed women who received counseling on family planning had significantly greater odds of using modern postpartum contraceptives compared to those who did not (adjusted odds ratio [AOR] = 10.157). The difference may be because of the quality of counseling or the socio-demographic characteristics of the women.³⁶

Postpartum women who have discussed with their husbands on contraceptive methods were 4.9 times more likely to initiate postpartum contraceptive utilization on time than those who had never discussed. The possible explanation for this might be that women can get more information and

support to utilize maternal health services through discussing with their spouses, so this might increase their initiation to timely contraceptive methods. This is also supported by other studies in Ethiopia^{37,25, 21,6,38}, Malawi²², and Ghana^{14,39}.

Women whose menses returned after last delivery were 6.6 times more likely to initiate PPMC at recommended time than those who had not seen menses after their last delivery. This finding is also supported by other studies done in Axum¹⁹, Gonder⁶, Gojam³³, and Hossana²⁰, and also supported by studies in India⁷ and Ghana^{16, 39}. This might be explained by the fact that postpartum women whose menses returned after delivery may assume that they are at risk of getting pregnancy.

Women who started sexual intercourse at postpartum period were 1.9 times more likely to utilize PPFM. This might be due to the fact that women who resumed sexual activity have a fear of getting pregnant. This finding is supported by other studies done in Hadiya Zone, Hossana Town²¹, and Tigray region Axum Town¹⁹.

CONCLUSION

In 2020, a comprehensive study in Arba Minch Town, Southern Ethiopia, involving 574 respondents examined socio-demographic characteristics, maternal health service utilization, and sexual and reproductive health in the context of postpartum modern contraceptive usage in public health facilities. Key findings included a relatively young population, mostly married with diverse educational backgrounds, and varied religious affiliations, primarily Orthodox and Protestant. The study showed positive trends in maternal health service utilization, indicating growing awareness of timely postpartum contraceptive use. Respondents expressed preferences to limit and space pregnancies, with good knowledge and positive attitudes toward modern contraceptive methods. The study underscores the need for ongoing efforts to enhance family planning services and tailored interventions to improve reproductive health outcomes. Additional research is warranted

to explore the barriers hindering the prompt initiation of contraceptives. This research should actively engage the local community in order to address their unique requirements effectively, particularly during the postpartum phase. This collaborative approach can yield valuable insights for customizing interventions to cater to the distinct needs of the community.

CORRESPONDING AUTHOR:

Aynalem Mencho, MSc.

School of Nursing, Department of Comprehensive Nursing, Arbaminch University, Arbaminch, Ethiopia

Email: aynemayaye@gmail.com

REFERENCES

1. WHO. Contraceptive: a health and development issue, a key intervention for the survival of women and children. 2012.
2. USAID. High Impact Practices in Family Planning (HIPs). Immediate postpartum family planning: key component of child birth care Washington, DC. <https://www/briefs.org/immediate> PFPF. 2017.
3. WHO. WHO Library Cataloguing-in-Publication Data Programming strategies for postpartum contraceptive . ISBN. 2013:978 92 4 1506496.
4. WHO. Ethiopia Voluntary National Review on SDGs Government Commitments, National Ownership and Performance Trends , 2017.
5. United Nations. Department of Economic and Social Affairs, Population Division. . Trends in Family planning Use Worldwide 2015.
6. Bishaw A, Abebaw G Addis G. Modern contraceptive use and associated factors among married women in FinoteSelam town Northwest Ethiopia: a community based cross-sectional study 2018; 4(13).
7. United Nations . Department of Economic and Social Affairs, Population Division. World Family Planning 2017.
8. Ethiopian Public Health Institute (EPHI) [Ethiopia] and ICF. . Ethiopia Mini Demographic and Health Survey Key Indicators. Rockville, Maryland, USA: EPHI and ICF. 2019.
9. United Nations . Model-based Estimates and Projections of Contraceptive Indicators Department of Economic and Social Affairs, Population Division 2017.
10. Ismael K, Charkos TG, Abdo M (2023) Timely initiation of postpartum contraceptive utilization in Sebata Hawas district, Ethiopia: A cross-sectional study. PLOS Glob Public Health 3(1): e0001503. <https://doi.org/10.1371/journal.pgph.0001503>
11. Atukunda E MG, Obua C, Atuhumuza EB, Lukyamuzi EJ, Kaida A, et al. Provision of contraceptive vouchers and early initiation of postpartum Contraceptive use among women living with HIV in south western Uganda: A randomized controlled trial. PLoS Med. 2019;16(6).
12. Central statistical agency (Csa). federal democratic republic of ethiopia demographic and health survey ;2016.
13. Fekadu G, Fentie A, Getahun, and Seblewongiel A, Kidanie. Facility Delivery and Postnatal Care Services Use among Mothers Who Attended Four or More Antenatal Care Visits in Ethiopia: Further Analysis of the Demographic and Health Survey. Rockville, Maryland, USA: ICF. 2018; (137).
14. Dessalegn et al. Status of modern contraceptive use among married women in Debere Birhan District Ethiopia Journal of public health and epidemiology. 2014; 6(10): 316-26,.
15. Central Statistical Agency (CSA). Ethiopia Demographic and Health Survey. Addis Ababa, Ethiopia, and Rockville, Maryland, . USA: CSA and ICF. 2016.
16. Pasha O, Goudar S, Patel A, Garces A, Esamai F, Chomba E, et al. Postpartum Family planning use and unmet need for family planning in five low income countries. Reprod Health. 2015;12 (2).
17. Alemayehu et al. Prevalence and determinants of Family planning utilization among married women at Dabat Health and Demographic Surveillance System site, northwest Ethiopia. BMC Women's Health <https://doi.org/10.1186/s12905-018-0611-3>. 2018;18(118):
18. EFMO Health. Coasted Implementation Plan for Family Planning in Ethiopia, 2016.
19. Ethiopia Federal Ministry OF Health Coasted Implementation Plan for Family Planning in Ethiopia. 2016.
20. Dona et al. Timely initiation of postpartum Family planning utilization and associated factors among women of child bearing age in Aroessa District, Southern Ethiopia , . BMC Public Health. 2018;18(11).
21. Guttmacher Institute and UNFPA. Sub-Saharan Africa: Facts on investing in contraceptive and maternal and newborn health. 2010.
22. Bobadaye I L.W., Fawole, O. I. I. Ogunwale A. O. 21. Prevalence and Determinants of Intention To Use Modern Family planning Methods Among Postpartum Women In Selected Secondary Health Care Facilities In Ibadan 2019:2250-3153.
23. Ujah O, Ocheke A, Mutihir J, Okopi J, Ujah IA. Postpartum contraception: determinants of intention and methods of use among an obstetric cohort in a tertiary hospital in Jos, North Central Nigeria. Int J Reprod Contraception Obstetric Gynecol; 2017;6(5).
24. Determinants of contraceptive use and future contraceptive intentions of women attending child welfare clinics in urban Ghana BMC Public Health. 2018;18:79:12889-0174641-9.
25. Bwazi C, Maluwa, A., Chimwaza, A. and Pindani, M. Utilization of Postpartum Family Planning Services between Six and Twelve Months of Delivery at Ntchisi District Hospital, Malawi. <http://dxdoi.org/104236/health>. 2014:614205.

26. Roy, T. Ram, F. Nangia, P. Saha, U. and Khan, Can women's child bearing and Family planning intentions predict Family planning demand? Findings from a longitudinal study in central India International Family Planning Perspective, . 2006;29(1) :25-31.
27. Adegbola O Okunowo A. Intended postpartum contraceptive use among pregnant and puerperal women at a university teaching hospital Arch Gynecol Obstet 2009.
28. Asfaw P. prevalence of Modern Contraceptive Use and Associated Factors among Married Women at Quan town, Gurage Zone Ethiopia, . <https://orcid.org/0000-0001-6678-9161> 2019.
29. Mohammed et al. Determinants of modern contraceptive utilization among married women of reproductive age group in North Shoa Zone, Amhara Region, Ethiopia. . Reproductive Health. 2014;11(13).
30. Abraham et al. Intentions on contraception use and its associated factors among postpartum women in Aksum town, Tigray region, northern Ethiopia: a community-based cross sectional study Reproductive Health <https://doi.org/10.1186/s12978-018-0632-2> 2018; 15:(188).
31. Hamdalla T, Arega A, Markos T. Prevalence and Associated Factors of Modern Contraceptive Utilization among Married Women in Reproductive Age Group in Misha Woreda Hadiya Zone, South Ethiopia. . J Women's Health Care 2017; 6(372).
32. Ajibola I. Samson. A Deji Ogunlaja, S Olalere. O. Determinants of Intention to Use Post-Partum Family Planning among Women Attending Immunization Clinic of a Tertiary Hospital in Nigeria. American Journal of Public Health. 2015; 3,(4):122-7.
33. Gizaw W, Zewdu F, Abuhay M, Bayu H. Extended Postpartum Modern Contraceptive Utilization and Associated Factors among Women in Gozamen District, East Gojam Zone, Northwest Ethiopia. Reprod Med. 2017;1(28).
34. Sennen Hounton, William Winfrey, Aluisio J. D. Barros & Ian Askew. Patterns and trends of postpartum family planning in Ethiopia, Malawi, and Nigeria: evidence of missed opportunities for integration, Global Health Action, [https://doi.org/10.3402/gha.2015.8\(1\):29738](https://doi.org/10.3402/gha.2015.8(1):29738)
35. Tadese Ejigu. Effect of quality Antenatal Care Service on the Continuum of Maternal and Newborn health care services; a follow up study at public health facilities of Bahir-Dar city administration; North West Ethiopia 2018.
36. Tesloach James¹, Frewoini Tesfay¹, Birhane Amare¹, Awol Yemane¹, Hale Teka^{1*} PREVALENCE AND ASSOCIATED FACTORS OF POSTPARTUM FAMILY PLANNING UPTAKE AMONG MOTHERS DELIVERED AT MEKELLE PUBLIC HOSPITALS, NORTHERN ETHIOPIA Ethiopian Journal of Reproductive Health (EJRH) January, 2023 Volume 15, No. 1
37. Bushura Nugussa, MPH¹, Tesfaye Solomon, MPH² , and Hailu Tadelu, MPH³ Modern Postpartum Family Planning and Associated Factors Among Postpartum Women in a Rural District of Ethiopia, 2021: A Cross-Sectional Study The Journal of Health Care Organization, Provision, and Financing Volume 60: 1-10
38. Silo, Katelyn M. Determinants of Family Planning Service Uptake and Use of Contraceptives among Postpartum Women in Rural Uganda. https://opencommons.uconn.edu/gs_theses/602. 2014
39. Alemayehu M. Tuliahan T. Factor as associated with utilization of long acting and permanent Family planning methods among married women of reproductive age in Mekelle town, Tigray region north Ethiopia. . BMC pregnancy and child birth. 2012;12(1).