

Contraceptive Use and Associated Factors among Women in the Extended Postpartum Period in Dello Mena District, Bale Zone, Ethiopia: A Cross-Sectional Study

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ABSTRACT

Background: The first year after childbirth is a critical period for the prevention of unintended pregnancy through contraceptive use. However, many women do not realize the risk of pregnancy in this period and do not start contraception use. The study aims to identify factors associated with contraceptive use by women who gave birth in the last 12 months in Dello-Mena Woreda, Oromia Region, Ethiopia.

Methods: A community-based cross-sectional study was conducted from March 28 to April 27/2017. A total of 515 women in the extended postpartum period were selected using a multi-stage sampling technique. A structured and pretested questionnaire was used to collect data through face to face interview technique. The data were coded, cleaned and entered into SPSS version-20 software. Binary logistic regression analysis was used to identify factors associated with contraceptive use in the extended postpartum period. Statistical significance was declared at ($p < 0.05$) and Odds ratios with 95% CI were used to indicate the strength of association between the study variables.

Results: The magnitude of contraceptive use in the extended postpartum period was 14.3%. Religious prohibition and low perceived risk of pregnancy were the two major reasons for non-use reported by 67.7% and 34.9% of respondents respectively. The odds of contraceptive use in the extended postpartum period was higher among respondents with primary (AOR= 5.5; 95% CI:2.13-14.22) and secondary or more level of education. Also, resumption of menses (6.12; 95% CI:2.58-14.52), counselling during antenatal care (AOR=7.67; 95% CI:3.24-18.13), childbirth in health facility (AOR=3.23; 95% CI:1.28-8.14) and couple discussion (AOR=4.75; 95% CI:1.81-12.46) were the factors positively associated with contraceptive use among women in the extended postpartum period.

Conclusion: Contraceptive method utilization in the extended postpartum period was very low in the study area. Mis perception of pregnancy risk and religious prohibition prevent the use of contraceptive by women who are at risk of unwanted pregnancy. Family planning counseling to all women during antenatal care and promoting spousal contraceptive discussion could improve contraceptive use in the extended postpartum period.

Keywords: Contraceptive use, Family planning, Extended Postpartum Period

INTRODUCTION

Postpartum contraceptive use is defined as the use of contraceptive methods for the prevention of unintended pregnancy and closely spaced pregnancies in the first 12 months after childbirth [1]. Interpregnancy interval of 24 months has been recommended due to its contribution to the prevention of preterm birth, low birth weight, infant mortality, malnutrition and stunting in under five-children. Evidence indicates that the risk of low birth weight and prematurity increase two times for pregnancy

that occurs less than six months of previous childbirth and children who are born less than two years from previous birth are 60% more likely to die during infancy than those born greater than two years[2]. Furthermore, nearly 30% of maternal deaths and 10% of child death could be prevented through the use of contraceptive methods in the Postpartum Period (PP) [3].

Though the contraceptive method uses during the first one year after delivery could enable women to realize their desire for pregnancy

spacing and to get rid of unplanned pregnancy, many women do not use contraceptive[4]. Postpartum women are among women with the highest unmet need for Family Planning (FP)[5]wherein low income countries up to 70% of women in the Extended Postpartum Period (EPP) who wish to delay the next pregnancy at least for one year and 75% of those who were undecided about whether they want another child or not,do not use modern contraceptive method[6].

In the past decade, considerable efforts have been made by the government of Ethiopia and various local and international partners to expand family planning programs and services through building health infrastructure and the introduction of the Health Extension Package (HEP). At present, although the national contraceptive use increased substantially, from (15%) in 2005 to nearly (36%) in 2016[7] the progress in contraceptive use in this period is not consistent among the different segments of the community[8]. Nearly 74% of women who gave birth in the last 24 months in Ethiopia appeared to have an unmet need for FP and 9% of pregnancies occur within very short intervals of 7 to 17 months, and another 12% occur within intervals of 18–23 months. Thus, almost more than a fifth (21%) of all pregnancies in Ethiopia occur within short intervals of less than 24 months after the preceding birth[7].A considerable number of women and new-borns exposed to unnecessary risks that could have endangered their life[9].Furthermore, one can easily recognize the reality on the ground that women in the postpartum period (who most wish to prevent pregnancy) are not getting the service that would deal with their desire to extend birth interval and evade unintended pregnancy and its outcome, however, programs would offer FP services that postpartum women want and deserve [10]. To the best of our knowledge, the factors that determine the utilization of contraceptive method in the EPP in the study area are not well known. Hence, this study attempted to determine the magnitude of contraceptive utilization in the first 12 months after delivery and its associated factors. So, the study findings will help program planners, Dello Mena district health department and health service providers to provide a more efficient and targeted family planning service for women in the extended postpartum period.

METHODS

Study Design and Study Area

A community-based cross-sectional study design was carried out in Dello Mena District from March 28 to April 27, 2017. Mena town (capital town of DelloMena district) is located at 555 km from Addis Ababa and 125 km south-east of Robe town (the capital town of Bale Zone). The study district is one of the pastoral districts in Bale zone that is bounded by Berbere district in the East, HarenaBuluk district in the East, Goba district in the North and MaddaWalabu district in the South. Dello Mena District has sixteen kebeles (kebele is the smallest administrative unit in Ethiopia) of which fourteen rural and two urban kebeles. The district has an estimated total population of 117,958 and has an estimated 26,104 and 3,798 women of reproductive age and women who have under one-year child respectively [11]. Dello Mena district has one primary hospital, three health centres, and fourteen health posts that providing basic health services to the community including contraceptive counselling and service provision.

Source Population

The source population was women in the extended postpartum period (women who gave birth during the 12 months before the data collection period), living in Dello Mena district, Bale Zone, Ethiopia.

Inclusion and Exclusion criteria

Women were recruited into the study if they had a birth from March 15, 2016, to March 14, 2017; who lived in the selected kebele at least for one year and who gave informed consent to participate. While those women who cannot communicate or women who were seriously ill during the data collection period were excluded from the study.

Sample Size Determination and Sampling procedure

The sample size was determined using a single population proportion formula. The prevalence (P) postpartum contraceptive use was taken as 28.3% [12], with the assumptions of a95% confidence level and a 5% margin of error (d). Then the calculated sample size was (n = 312) and after adjusting for 1.5 design effect and 10% response rate, a final sample size of 515 was obtained.

A stratified multi-stage sampling technique was used in this study to select 515 women in the EPP. Initially, the study district was stratified into 14 rural and two urban kebeles. In the first sampling stage, five rural and one urban Kebele were selected randomly. Then the data collectors conducted a house to house visit in the sampled kebeles to identify and register households of women who gave birth in the last 12 months (March 15th, 2016, to March 14, 2017). Then the calculated sample size was allocated to the sampled kebeles using proportional to the number of women in the extended postpartum period. In the second sampling stage, households with a women in EPP were selected using systematic random sampling technique by using the prepared list of households as a sample frame and through computing the sampling interval (“k” equal to the ratio of the number of women in the EPP in each kebele to the proportionally allocated sample size of that kebele). When women were not available at the time of data collection, two repeated visits were made by the data collectors. In the case of households with more than one woman in the extended postpartum period, only one of them was selected using the lottery method.

Data Collection Instrument and Procedure

A structured and pre-tested interviewer-administered questionnaire was used to collect the data. To maintain consistency, the questionnaire was first prepared in English language and translated into Afan Oromo (local language) by a native speaker of the local language and retranslated back to English by another professional translator. Through reviewing relevant literature, the questionnaire was developed with contents related to socio-demographic characteristics; obstetric characteristics of respondents; questions related to fertility and contraceptive knowledge, attitude and practice; health service-related characteristics; and characteristics related to contraceptive use during the extended postpartum period. Five data collectors (diploma graduate nurses) who speak the local language (Afan Oromo) and who have previous experience in data collection were recruited to collect the data using a face to face interview technique. Five local guides were also recruited to travel with the data collectors and guide the boundary of the selected kebeles during the data collection period. The whole data collection process was supervised by two

supervisors who had a BSc degree in Public health.

Data Quality Control

Before the actual data collection, the investigators provided two days of training to the data collectors and the supervisors. The training focused on the objective of the study, the study population, the sampling procedure, the inclusion and exclusion criteria, the data collection tool (going through each question), interview techniques, data handling, and storage. The training also included techniques of getting informed consent and on how to maintain ethical integrity. After the training, a pre-test was done by selecting and interviewing 26(5% of the total sample) women in the extended postpartum period in Deyu kebele (a kebele not included in the study). Minor adjustment related to the allocation of the average time for each interview, correction and resentencing of few questions was made based on the assessment in the pre-test. Close supervision and assistance were made to the data collection process to ensure completeness of each interview and consistency of the interview by the data collectors. The data collectors also checked the filled questionnaire for missed data and made the early correction before terminating each interview. At the end of each data collection day, the supervisors collect the completed tools and orderly place in a bag and properly transferred the questioner to the investigators.

Data Processing and Analysis

The data were visually cleaned, coded and entered into a Statistical Package for Social Scientists (SPSS) version 20 computer software. Frequency checks were made for each study variable and further cleaning and cross-checks were made to ensure the consistency of the study variables among respondents. Descriptive analysis was made, and measures of central tendency were determined. Binary logistic regression analysis was used to identify factors associated with contraceptive use in the EPP. Statistical significance was declared at $P < 0.05$. Variables with $P < 0.25$ on bivariate analysis were selected to compute the multivariable logistic regression model. Adjusted Odds Ratio (AOR) with 95% Confidence Interval (CI) was used to assess the strength of association of the independent variables with the dependent variable. Finally, the result was presented in text, tables, and figures.

Operational Definitions and Definition of Terms

Contraceptive methods: - are the various drugs, devices, surgical procedures or sexual practices used to prevent pregnancy [13].

Long-acting Contraceptive Methods: - Methods that provide effective contraception for an extended period (at least a year) without requiring user action. They are the most effective reversible methods of contraception and include IUDs and implants [13].

Short-acting Contraceptive Methods: - Methods that provide effective contraception for a short period of time. Depending on the method, they require user action either every time a couple has sex, every day, every month, or every 2 or 3 months. The examples of such methods include condoms, oral contraceptive pills, and injectables [13].

Postpartum: - the first 6 weeks after childbirth [14].

Extended postpartum period (EPP):- the time from childbirth to the first one year.

Contraceptive use in the EPP: - in this study is defined as the use of a contraceptive method during the data collection period by women who gave birth in the last 12 months. The study participants were dichotomized as contraceptive users (coded as "1") or non-users (coded as "0" in the analysis of the data). Contraceptive Users were those women in the EPP who or whose partner was using a contraceptive method (Injectable method, Oral contraceptive pills, Implants, IUDs, Surgical methods, Lactational

Amenorrhoea Method, or Condoms) during the data collection period. All other women were categorized as Contraceptive non-Users.

Knowledge: - knowledge was measured by the participants' responses to 8 knowledge related questions. Correct responses were given a value of "1" and incorrect responses were given "0". Respondents who had score median and above were considered as having good knowledge. Respondents who scored below the median were labeled as having poor knowledge.

Attitude:- attitude was measured by using 10 attitude related questions. Respondents who had score median and above were regarded as having a favorable attitude. Respondents who had scored below the median were regarded as having an unfavorable attitude.

RESULTS

Socio-Demographic Characteristics

A total of 505 women in the extended postpartum period were interviewed giving a 98% response rates. The mean age \pm Standard Deviation (SD) of the respondent was 27.67 years (\pm 6.9) and the minimum and the maximum age of the respondents were 15 and 45 years respectively. Majority 447(88.5%) of the respondents were Oromo, 43(8.5%) Somali and 15(3%) Amhara by ethnic group. Four hundred sixty-three (91.7%) of the respondents were Muslims by religion and 490 (97%) were married. Regarding school enrolment, 320(63.3%) of the respondents had no formal education while 155(30.7%) have attended a primary level of education (Table 1).

Table 1. Socio-demographic characteristics of women in the extended postpartum period in Dello Mena district, Bale zone, Ethiopia, April 2017 (n=505)

Variables	Frequency	Percent
Age category in years		
15-19	64	12.7
20-24	115	22.8
25-29	141	27.9
30-34	84	16.6
35-39	69	13.7
40-49	32	6.3
Marital status of the respondents		
Married	490	97.0
Others (Single, Widowed and Divorced)	15	3.0
Place of residence		
Urban	90	17.8

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Rural	415	82.2
Religion of the respondents		
Muslim	463	91.7
Orthodox	37	7.3
Protestant	5	1.0
Ethnicity of respondents		
Oromo	447	88.5
Somali	43	8.5
Amhara	15	3.0
Educational status of the respondents		
No formal education	320	63.4
Primary education	155	30.7
Secondary and above education	30	5.9
Husbands educational status		
No formal education	304	62
Primary education	130	26.5
Secondary and above education	56	11.1
Respondents occupation		
Housewife	470	93.1
Farmer/Livestock rearing	18	3.6
Others*(employed/ merchant/housemaid/student)	17	3.3
Husbands occupation		
Farmer	322	65.7
Livestock rearing	55	11.2
Government /private employee	34	6.9
Others* (merchant/student/daily labourer)	79	16.1
Family size of the respondents		
<=4	164	32.5
>=5	341	67.5

Obstetric Characteristics

One hundred forty-eight (29.3%) of the respondents were between 7-9 months of postpartum, followed by 130(25.7%) between 10-12 months of the postpartum period. In the interbirth interval, more than two-third 349(69.1%) of the respondent's recent birth was spaced only 1-2 years after the previous childbirth, while the remaining 103(20.4%) of respondents spaced the childbirth three years or

more after a previous childbirth. Nearly 357(70.7%) of the respondents reported no resumption of menses after childbirth, while the other 148(29.3%) reported that their menses was resumed after the childbirth. Out of those whose menses was resumed 83(56.1%) of the menses was resumed 4-6 months after the child birth. The study revealed that 455 (90.1%) of the women in the EPP resumed sexual intercourse after childbirth (Table 2).

Table 2. *Obstetric characteristics of women in the extended postpartum period in Dello Mena district, Bale zone, Ethiopia, April 2017.*

Variables	Frequency	Percent (%)
Number of parity (n=505)		
1	67	13.3
2-3	147	28.3
>=4	295	58.4
History of stillbirth		
Yes	63	12.5
No	442	87.5
Duration of postpartum period (n=505)		
<=3months	99	19.6
4-6months	128	25.4

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7-9months	148	29.3
10-12months	130	25.7
Birth interval between recent and previous child(n=505)		
First birth	53	10.9
1-2 years	349	69.1
>=3 years	103	20.4
Breast feeding(n=505)		
Yes	497	98.4
No	8	1.6
Started complementary food (n=505)		
Yes	308	61.0
No	197	39.0
Infant agewhen complementary feeding started (n=308)		
Before 6 months	50	16.2
>= 6 months	258	83.8
Menses resumed after childbirth (n=505)		
Yes	148	29.3
No	357	70.7
Period of menses resumed in reference to date of childbirth (n=148)		
< 3 months	52	35.1
4-6 months	83	56.1
7-9 months	13	8.8
Started sexual intercourse after recent childbirth (n=505)		
Yes	455	90.1
No	50	9.9
Time of first sexual intercourse after childbirth(n=455)		
< 6 weeks	17	3.7
At 6 weeks	206	45.3
>=7 weeks	232	51
Contraceptive started after childbirth(n=505)		
Yes	72	14.3
No	433	85.7
Time of contraceptive use initiation after childbirth (n=72)		
6 weeks -3 months	63	87.5
4 - 6 months	7	9.7
>= 7 months	2	2.8

Knowledge of Postpartum Women on Contraceptive Methods

Four hundred forty-seven (88.5%) of the respondents had information about contraceptive methods and know at least one modern contraceptive method. The main source of information about the contraceptive method was from health extension workers. Four hundred thirty-eight (86.7%) of the respondents knew at least one source to obtain modern contraceptive methods when required.

The most known modern contraceptive method was the injectable method 430 (97.5%), followed by pills and implant reported by 377(85.5%) and 269(61%) respectively. On aggregate, more than half of 271 (53.7%) of the respondents had good knowledge about contraceptive methods.

Contraceptive Use in the Extended Postpartum Period

The study revealed that only 72(14.3%) of women in the extended postpartum period were using a contraceptive method. Among those who were using a contraceptive method, 63(87.5%) started utilization of the contraceptive method between 6weeks-3months after childbirth, and 9 (12.5%) women started contraceptive method use after 3 months of childbirth. Out of the total respondents participated in this study,344(68.1%) had the intention to use a contraceptive method in the future and of those who had the intention to use a method, 48(14%) had the intention for limiting and 296(86%) had the intention for spacing future pregnancies. The main reason for non-use of a contraceptive method in the EPP was religious prohibition 293(67.7%) followed by no perceived risk of pregnancy 151(34.9%), husband disapproval 101(23.3%) and desire to have more children 90(20.8%) (Figure 1).

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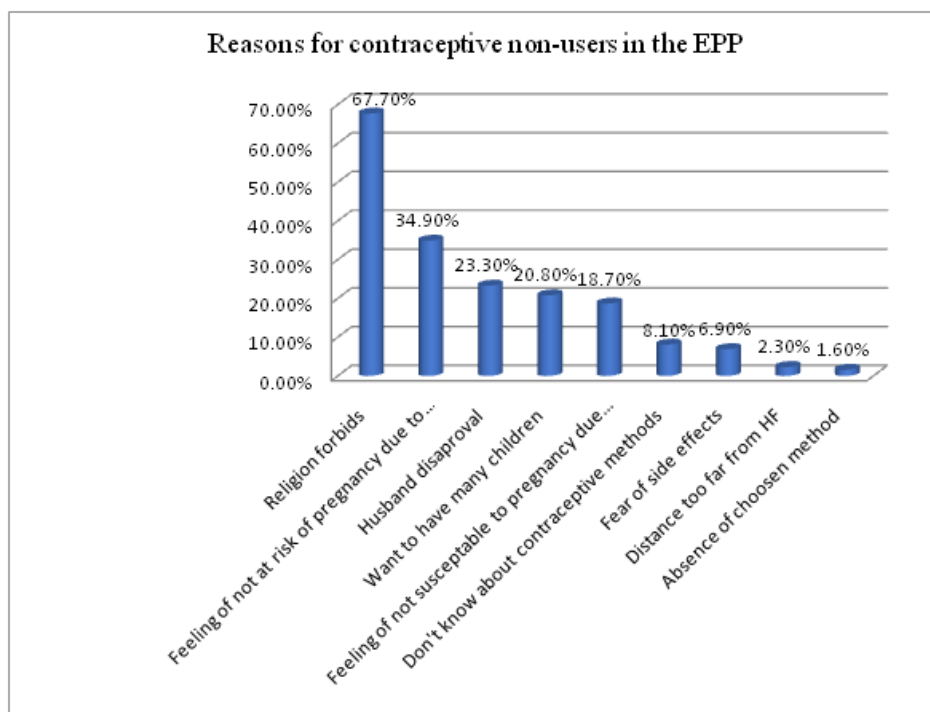


Figure1. Reasons for contraceptive non-use in the extended postpartum period in Dello Mena district, Bale zone, Ethiopia, April 2017

Contraceptive Method-Mix in the Extended Postpartum Period

The short-acting contraceptive methods were the most commonly used contraceptive methods in the EPP. The injectable method having 61.1%, followed by oral contraceptive pills being 20.8% of the methods used in the EPP. The proportion of the more effective long-acting contraceptive

methods accounts to only 11.1% for implant methods and 2.8% Intra Uterine Devices (IUDs). While 4.2% of the contraceptive users corresponds to Lactational Amenorrhoea Method (LAM) that used Exclusive Breast Feeding (EBF) as a contraceptive method for the first 6 months being in postpartum amenorrhoea after childbirth (Figure 2).

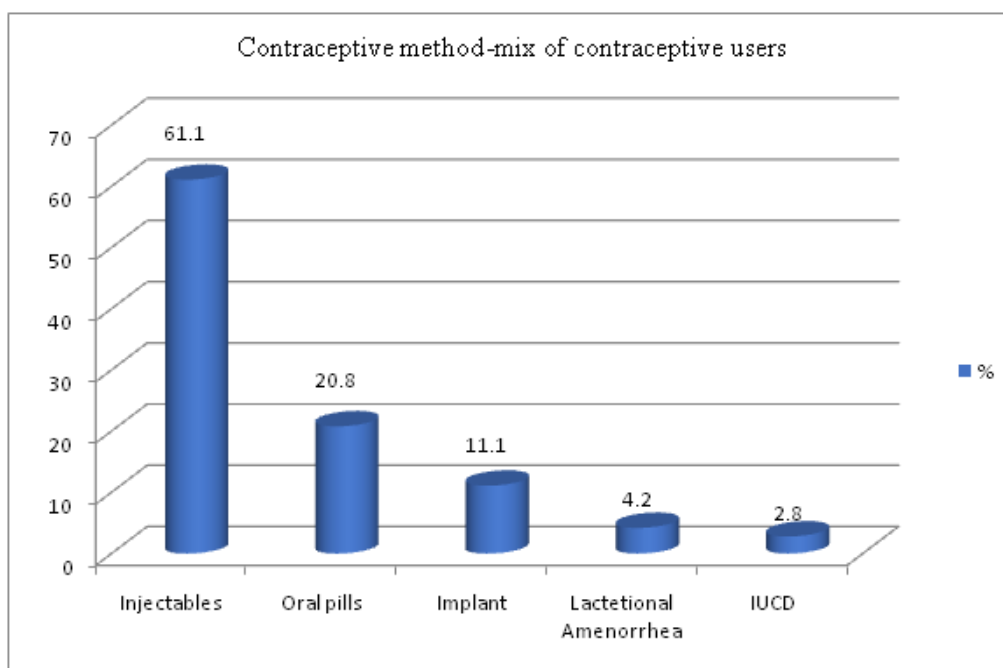


Figure2. Contraceptive method-mix in the extended postpartum period, Dello Mena district, Bale zone, Ethiopia, April 2017.

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Health Service Utilization Characteristics

Three hundred forty-four (68.1%) and 171(33.9%) of the respondents had Antenatal Care (ANC) check-up in the last pregnancy and gave childbirth in a health institution respectively. Only 73 (21.2%) and 18(10.4%)

received counselling on family planning during antenatal care and delivery respectively. About 281(55.6%) of the respondents received postnatal care. Among those women who had a postnatal check-up, only 94 (33.5%) received counselling on family planning (Table 3).

Table 3 Health service utilization of women in the extended postpartum period in Dello Mena district, Bale zone, Ethiopia, April 2017.

Variables	Frequency	Percent (%)
ANC visit during the last pregnancy (n=505)		
Yes	344	68.1
No	161	31.9
No. Of ANC visits(n=344)		
One visit	74	21.5
Two visit	92	26.7
Three visit	119	34.6
Four and above visit	59	17.2
Counselled for FP during ANC(n=344)		
Yes	73	21.2
No	271	78.8
Place of delivery for the recent child (n=505)		
Health facility	171	33.9
Home delivery	334	66.1
Counselled for FP during delivery(n=171)		
Yes	18	10.5
No	153	89.5
Visit of health facility after childbirth (n=505)		
Yes	281	55.6
No	224	44.4
Time of health facility visit after childbirth (n=281)		
<= 7 day	12	4.3
8 - 44 days	47	16.7
>= 45 days	222	79.0
Reasons for health facility visit after childbirth		
Immunization	205	73
Postnatal care	31	11
Family planning	28	10
To get treatment	17	6
FP Counselling during H/ facility visit after childbirth		
Yes	94	33.3
No	188	66.7

Factors Associated with Contraceptive Use in the EPP

Bivariate and multivariate logistic regression models were fitted to determine the presence of an association between the dependent variable (Utilization of contraceptive method by women in the EPP and the independent variables at (P < 0.05) level of significance. Those variables which had a statistically significant association (P-value < 0.05) in the bivariate analysis were hired for multivariable logistic regression analysis. The findings from the multivariable analysis revealed that educational status of respondents, resumption of menses, FP counselling during ANC, place of delivery and

couple discussion contraceptive methods were the independent predictors of contraceptive utilization by women in the EPP at p-value < 0.05 (Table 4).

The current study revealed that those women with primary level education were five and half times (AOR= 5.5; 95% CI: 2.13-14.22) more likely to use contraceptive methods in the EPP compared to those who had no formal education and also those women who had secondary or above secondary education were nearly twelve times (AOR= 11.82; 95% CI: 2.89-48.22) more likely to use contraceptive method in the EPP as compared to those who had no formal education.

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In the study area, the odds of contraceptive use in the EPP by women who had FP counseling during ANC visit was more than seven and half times (AOR=7.67; 95% CI: 3.24-18.13) compared to their counterparts. Similarly, women who gave birth in a health institution were more than 3 times (AOR=3.23; 95% CI: 1.28-8.14) more likely to use contraceptive in the EPP compared to those who gave birth at home.

Our study identified that women whose menses resumed after childbirth were more than six times (6.12; 95% CI: 2.58-14.52) more likely to

use contraceptive in the EPP as compared to those women whose menses was not resumed after childbirth. The study also uncovered that couple discussion on family planning had a statistically significant association on the use of contraceptive method by women in the EPP. Women who had a discussion with their partners were nearly five times (AOR=4.75; 95% CI: 1.81-12.46) more likely to use contraceptive methods in the EPP as compared to those women who had no discussion about contraceptive methods with their partners.

Table 4. Factors associated with contraceptive use in the EPP, Dello Mena district, Bale zone, Ethiopia, April 2017 (n=505).

Variables	Contraceptive use in the EPP		COR(95% CI)	AOR(95% CI)
	No Frequency (%)	Yes Frequency(%)		
Respondents age				
15-24	143(79.9)	36(20.1)	8.22(2.46,27.45)	1.47(0.47,4.52)
25-34	192(85.3)	33(14.7)	5.61(1.68,18.76)	2.67(0.32,22.05)
35-49	98(97)	3(3)	1	1
Education				
No education	310(96.6)	10(3.1)	1	1
1 ^o education	112(72.3)	43(27.7)	11.90(5.78,24.48)	5.5(2.13, 14.22)***
2 ^o and above	11(36.7)	19(63.3)	53.54(20.2,141.7)	11.82(2.89,48.22)***
Family size				
<=4	124(75.6)	40(24.4)	1	1
>=5	309(90.6)	32(9.4)	0.32(0.19,0.53)	1.74(0.74, 4.12)
Number of parity				
<= 3	161(76.7)	49(23.3)	1	1
>=4	272(92.2)	23(7.8)	0.27(0.16,0.47)	0.94(0.27,3.22)
Menses resumed				
Yes	98(66.2)	50(33.8)	7.76(4.48,13.46)	6.12(2.58, 14.52)***
No	335(93.8)	22(6.2)	1	1
Knowledge level				
Poor knowledge	216(92.3)	18(7.7)	1	1
Good knowledge	217(80.1)	54(19.9)	2.98(1.69,5.25)	0.82(0.32,2.13)
Attitude				
Unfavourable	175(93.1)	13(6.9)	1	1
Favourable	258(81.4)	59(18.6)	3.07(1.64,5.78)	2.35(0.9,6.12)
Counselling				
Yes	31(42.5)	42(57.5)	11.3(6.18,20.66)	7.67(3.24,18.13)***
No	242(89.3)	29(10.7)	1	1
Place of delivery				
Institution	110(64.3)	61(35.7)	16.28(8.27,32.06)	3.23(1.28,8.14)*
Home	323(96.7)	11(3.3)	1	1
HF Visit				
Yes	212(75.4)	69(24.6)	23.97(7.43,77.34)	2.26(0.43,11.91)
No	221(98.7)	3(1.3)	1	1
Duration of PP				
<=6 months	212(93.4)	15(6.6)	1	1
7-12 months	221(79.5)	57(20.5)	3.64(2.0,6.63)	3.85(1.54,9.64)**
Couple Discusses				
Yes	123(66.5)	62(33.5)	15.62(7.76,31.46)	4.75(1.81, 12.46)**
No	310(96.9)	10(3.1)	1	1

NB: $p < 0.001 = ***$, $p < 0.01 = **$, $p < 0.05 = *$ predictors of contraceptive use in EPP

DISCUSSION

As they recently gave birth to a child, women in the extended postpartum period need contraceptive methods more than any women in the community. The status of a family planning program can easily be judged by the rate of contraceptive utilization by women who most need the service. Yet, this study was conducted to assess contraceptive utilization and its predictors among women in the extended postpartum period in a rural community where the uptake of family planning service is low. In the study area, very small proportion 14.3% of women use contraceptives during the EPP, which was very much lower than the target sated by the Ethiopian ministry of health of meeting the contraceptive need of all women in the postpartum period[8]. Though, the result the current study was in line with the finding reported from the northern Ethiopia where 10.3% of women in the EPP adopt contraceptive use in Dabat District[15]; the finding was much lower than the contraceptive utilization of postpartum women reported by researchers from Southern and South Western Ethiopia that reported 34.8% of women in Mana district of Jimma Zone and 47.38% in Butajira Health and Demographic Surveillance Site use contraceptive method in the postpartum period [16]and also lower than the finding reported from Uganda where more than 28% of women use contraceptives during postpartum period[17]. The difference in contraceptive utilization by postpartum women both among women in Ethiopia and elsewhere could be explained by the differences in the demographic and socio-cultural context of the study population.

Even when postpartum women use a contraceptive method, the overwhelmingly rely on short-acting methods. In the study population, four out of five contraceptive users in the study area use short-acting contraceptive method (61.1% Injectable and 20.8% Oral contraceptive method) while, very small proportion of the women use the more effective long-acting reversible methods (11.1%) implants and (2.8%) Intra Uterine Devices (IUDs) in the EPP. This finding was consistent with findings reported in Ethiopiawhere68.5% injectables, 16.8% pills, and 12.9% implant method use in Gondar town and the 72.5% injectables and 23.1% pills utilization by postpartum women in Mana District of Jimma Zone[16, 18]and with the findings reported from

other low-income countries [6]. The predominant utilization of short-acting methods could be due to client's preferences or it could be due to the service provider bias where the health extension workers may counsel women on methods that are less invasive and simple to administer or this could be due to lack of skill or unavailability of long-acting methods like the IUDs and Implants in some of the health posts located in the sampled kebeles. This finding suggests for prioritization of interventions to facilitate the access and acceptability of more effective contraceptive methods such as the long-acting reversible methods like the IUDs for women in the EPP as the probability of discontinuationof the short-acting methods before reaching the desired length of pregnancy spacing by women in the EPP is high.

In this study educational status of respondents, menstrual resumption, counseling contraceptive methods during ANC visit, place of delivery, and couple discussion about contraceptive methods were the factors that have an independent effect on contraceptive utilization by women in the EPP by controlling the effect of confounding variables. The finding of this study revealed that postpartum women who have primary or secondary/postsecondary education were more likely to use a contraceptive method during the EPP compared to women who had no formal education. This finding was supported by the research findings from northern Ethiopia[19] and of African countries as women in Ghana with no formal education are less likely to use contraceptive methods[20] also in Uganda, woman's primary or secondary level education were the predictors of utilization of postpartum contraceptive method [17]. This could be explained by the decision-making ability of women who have a primary or secondary level of education, as women get educated, they became more likely have the right information about fertility and contraception and use a contraceptive method in the postpartum period through making the decision by themselves. This calls for improvement of the status of women education both in the family and in the society could contribute to the opportunity of women to make an informed decision on own fertility and to adopt practices for healthy timing and spacing of pregnancies.

This study revealed that women who discussed family planning with their partners were more likely to use contraceptive methods in the

extended postpartum period in the study area. The finding was supported by other researchers in Ethiopia[18]and it coincides also with the study findings reported from Uganda and Malawi that revealed discussion among couple was a factor that determines women's contraceptive use in the EPP[21, 22]. This could be due to the fact that both women and men need encouragement from their sexual partners to apply their knowledge they have to their own situation or some women who were reluctant to apply their understanding often promoted by the support from their partner. Nonetheless, contrary to the findings of the current study, other researchers reported the effect of husband's educational status on contraceptive utilization by women[23]. The difference could be explained by the domination of the sociocultural influence limiting the possibility of husband discussion on issues related to sexuality, fertility, and contraception regardless of the level of husband education.

The resumption of menstruation after the birth of the index child was among the main predictors of contraceptive utilization by women in the EPP in the study area. This might be explained by the fact that amenorrhoeic women would perceive themselves to be less likely to become pregnant, by assuming amenorrhea could protect against pregnancy irrespective of the postpartum period. The study revealed more than 90% of the women in the EPP had resumed sexual intercourse, thus the misperception of the risk of pregnancy could make postpartum women to conceive again and increases the risk of unwanted pregnancy and its consequences. Moreover, about one-third(34.9%) of the women cited the absence of menses as the main reason for non-use of a contraceptive method during the extended postpartum period and the magnitude of unmet need for contraceptive method could be higher in the study population as most of the women do not want another pregnancy in the EPP. This finding is supported by reports from different Gondar Ethiopia [18]and alsoconsistent with the findings from Kenya and a Demography Health Survey based-analysis from 17 developing countries support this finding that return of menses is the main marker for initiation of contraceptive use by women during postpartum[4, 24].

This study also revealed that family planning counseling during antenatal care is an important determinant of contraceptive use. Study participants who had been counseled about

contraceptive methods by health care provider during antenatal care were more than seven and half times more likely to use contraceptive methods in the extended postpartum period than those women who were not counseled about contraceptive methods. The finding supported by research findings in Ethiopia and elsewhere [15, 25]. The possible explanation might be those women who received family planning counseling during prenatal care were highly motivated to practice contraceptive methods. Despite this fact this study identified that, only 21.2% of those women who had ANC check-up during the index pregnancy received FP counselling a health professionals and nearly more than four women in five who would potentially get the FP counselling during ANC were not counselled about FP, indicating high level of missed opportunity for FP counselling in the study area. Yet, this finding could alert the health service providers and program managers to effectively integrate FP planning counselling with ANC service for better uptake of contraceptive use in the EPP by women in the study area.

Respondents who gave the index childbirth in health facility were three times more likely to use contraceptive methods during the extended postpartum period than those who delivered at home. This result is supported by a study done in the Ethiopian Somali region and Gondar Zone[25] and other studies done in India and Demography Health Survey based-analysis from 17 developing countries [4, 26]. This can be attributed to family planning advice received by women from health institution during facility delivery. This is an important opportunity to provide access to family planning messages in order to increase the uptake of contraceptive methods during the EPP.

As a strength, this study investigated one of the major public health priority problem (postpartum contraceptive use). Understanding factors affecting contraceptive use in the EPP will enable program planners and health service providers to improve the uptake of contraceptive use by women who are most at risk of unwanted pregnancy and its outcome. However, as women were asked sexual and reproductive behavior might diminish honest responses due to the cultural sensitiveness of the issue and there could be a potential recall bias in remembering the exact dates of resumption of menses and sexual practice after childbirth.

CONCLUSIONS

The rate of contraceptive utilization by women in the extended postpartum period is very low in Dello Mena District. Contraceptive use in the extended postpartum period was overwhelmingly dominated by short acting contraceptive methods (Injectable and Oral contraceptives). The reasons for non-utilization of contraceptive methods during the EPP were religious prohibition, feeling not at risk of pregnancy due to amenorrhea, husband disapproval and high desire to have many children. educational status of respondents, menstrual resumption, counseling contraceptive methods during ANC visit, place of delivery, and couple discussion on contraceptive methods were the independent predictors of contraceptive utilization by women in the EPP. Family planning counseling to all women during antenatal care and promoting spousal contraceptive discussion could improve contraceptive use in the extended postpartum period.

LIST OF ABBREVIATION

ANC: Antenatal Care; AOR: Adjusted Odds Ratio; CI: Confidence Interval; CSA: Central Statistical Agency; DRC: Departmental Research Committee; EBF: Exclusive Breast Feeding; EPP: Extended Postpartum Period; FP: Family Planning; HEP: Health Extension Package; IUDs: Intra Uterine Devices; LAM: Lactational Amenorrhoea Method; MOH: Ministry of Health; PP: Postpartum; PFP: Postpartum Family Planning; SD: Standard Deviation; SPSS: Statistical Package for Social Scientists; USAID: United States Agency for International Development; WHO: World Health Organization.

DECLARATIONS

Ethical Approval and Consent to Participate

The study was approved by the Departmental Research Committee (DRC) of the department of Public Health of Goba Referral Hospital, MaddaWalabu University. The Dello Mena District Health Office gave an approval to conduct the research in the study area. Informed oral consent was obtained from each study participant after receiving a brief explanation of the purpose of the study, confidentiality of information, and no incentive to receive due to their participation. The study participants were informed about their right to participate or not to participate in the study. The authors declare that this manuscript was not previously published or considered for publication in other journals.

Availability of Data and Materials

All data generated and analysed in this study is available within the manuscript as [Additional file 1].

Competing Interests

The authors declare that we have no competing of interest.

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Financial support to undertake data collection of the study was obtained from MaddaWalabu University. The funding organization has provided ethical clearance after reviewing the research protocol, however has no primary role in the design, data collection, analysis and reporting writing. The university only wants to motivate and supports its students and academic staff to undertake problem-oriented research in the surrounding community so that the generated evidence will be communicated to concerned bodies through publications and presentations.

Authors' contributions

Conceived and designed the experiments: SS and SG. Analysed the data: SS, SG and KA. Wrote the first draft of the manuscript: SS. Contributed to the writing of the manuscript: SG and KA. Agree with manuscript results and conclusions: SS, SG and KA. Jointly developed the structure and arguments for the paper: SS, SG and KA. Made critical revisions and approved final version: SS, SG and KA. All authors reviewed and approved of the final manuscript.

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