Postpartum Family Planning Utilization and associated factors among Women who gave birth in the last 12 months in selected Districts of Arsi Zone, Southeast Ethiopia: A community based cross-sectional study

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Abstract

Background: Inter-pregnancy intervals of at least 24 months are recommended due to the association between shorter intervals and higher rates of infant mortality, pre-term and low birth weight newborns. Increasing use of postpartum contraception can reduce the number of short-interval pregnancies. Despite these facts, there is a very limited data related to postpartum contraception utilization and contributing factors in the study area.

Objective: to assess postpartum family planning utilization and associated factors among Women who gave birth in the last 12 months in Zeway Dugda and Dodota Districts.

Methods: A community based cross-sectional study was conducted from January 15-31, 2020. Data was collected from a random sample of 796 women who gave birth during the last 12 months using structured and pre-tested questionnaire. The collected data was entered using Epi-Info version 7 software and then exported to SPSS version-21 for analysis. Multivariate

logistic regression was used and association between postpartum family planning uptake and independent variables were measured using adjusted odds ratios and its 95% confidence interval and P- values below 0.05 was considered statistically significant.

Results: Magnitude of overall postpartum family planning utilization in the study districts was 17.46%. Immediate Postpartum family planning uptake rate was 1.01%. Partners' educational status and receiving family planning counseling during ANC visit were main factor associated to postpartum family planning uptake.

Conclusion: Postpartum family planning uptake specially the immediate one was very low in the districts. Partner's educational status and family planning counseling during ANC were found to be predictors for postpartum family planning utilization.

Key words: Postpartum, contraception, Ziway dugda , Dodota, Ethiopia

1. Introduction

The World Health Organization defined postpartum family planning as "the prevention of unintended and closely spaced pregnancies through the first 12 months following childbirth". Inter-pregnancy intervals of at least 24 months (or birth intervals of nearly three years) are recommended due to the association between shorter intervals and higher rates of infant mortality, pre-term and low birth weight newborns, and malnutrition and stunting among children under five (WHO,2005; Kozuki N, et al., 2013 ;Cleland J. et al., 2012).

Low use of contraception contributes to the high level of short inter-pregnancy intervals: a prospective analysis of 2011 data found 74% of

Ethiopian women 0-23 months postpartum have unmet need for family planning while only 19% use a modern method of contraception (WHO, 20050. By 2016, use of modern contraception among all women had only modestly increased from 19% to 25% (Central Statistical Agency, 2012). Exclusive or predominant breastfeeding offers protection against rapid fertility return during the first 6 months after child birth, but rates of exclusive breastfeeding drop off sharply in Ethiopia: 74% of newborns (0-1 month) are exclusively breastfed, while only 36% of infants 4-5 months old are exclusively breastfed (Central Statistical Agency, 2012). Increasing use of postpartum family planning (PPFP) can reduce the number of short-interval pregnancies and associated risks (Moore, 2015).

Like in many low-income countries, use of modern contraception has substantially increased in Ethiopia over the past two decades; from 6% of married women using modern contraception in 2000 to 35% in 2016 (Central Statistical Agency, 2016). Still, there is a sizable gap between the number of women desiring to prevent or delay pregnancy and the number using modern contraception, particularly among postpartum women, for whom that gap is 74% (Central Statistical Agency, 2016). Ethiopia has one of the highest numbers of postpartum women not using modern contraception (Moore, 2015).   High unmet need among postpartum women contributes to the large proportion of births that occur at short intervals. In Ethiopia 22% of non-first births are less than 24 months after the previous birth and an additional 32% are 24-35 months after the previous birth. Short pregnancy intervals contribute to poor maternal outcomes as well as infant mortality, high rates of pre-term and low birth weight newborns, and malnutrition and stunting among children under five (Central Statistical Agency, 2016; Moore,2015, Track 20; Conde-Agudelo A, et al.,2007).

Although PPFP is part of the Federal MOH costed implementation plan to increase contraceptive use, the practice gap suggests all levels of the health system need to prioritize meeting the contraceptive needs of postpartum women. Offering contraception to women immediately after birth in a facility is one important strategy (Rutstein S, et al., 2008; Conde-Agudelo A. et al., 2007). Yet in Ethiopia, the majority of women deliver at home, thus many postpartum women will not benefit from integration of PPFP within facility-based childbirth services. Community-based family planning, which can be effective in improving contraceptive use generally, may be important for improving PPFP (Rutstein S, et al., 2008).

Despite these facts, there is a very limited data related to Postpartum family planning utilization and contributing factors particularly in the study area. Studies conducted in different parts of Ethiopian also showing different figures for the uptake of Postpartum Family Planning. Therefore it is important to assess Postpartum Family Planning Utilization and associated factors among Women who gave birth in the last 12 months in Zeway Dugda and Dodota Districts.

2. Method and materials

2.1.Study area and period

The study was conducted in the Zeway Dugda and Dodota Districts, Oromia Regional State, Southeast Ethiopia. Study was conducted in the district from January 15-31, 2020. The districts are located at 229 to 125 km away from Addis Ababa and 50 km from Asella town.

Study design

Community based Cross-Sectional study was conducted.

2.1 Source Population

Source populations for this study were all women who gave birth within the last 12 months in Zeway Dugda and Dodota Districts.

2.2.Study population

Study population for this study was all randomly selected women who gave birth within the last 12 months in Zeway Dugda and Dodota Districts.

2.2.Sample size determination

Single population proportion formula ($n = ((Z\alpha/2)^2 P (1-p))/d^2$) was used to estimate the appropriate sample size. Proportion (P=38%) of level of PPFP utilization from A community-based cross-sectional study conducted among 1109 postpartum women in rural Tigray region (Abraha et al., 2018), 95% confidence level (z=1.96), Margin of error of 0.05(d= 0.05) is used to obtain large sample size to have good study power, A non-response rate of 10% of the sample was added to the final sample size. Design effect of 2 was considered, as there was an stage to reach study unit. Hence, sample size was 796 women who gave birth within the last 12 months

2.3. Sampling Procedure

Ten *kebeles*, five from each district, were randomly selected using Lottery method. Then Women fulfilling inclusion criteria was proportionally selected from each *kebeles* based on the size of women who gave birth during the last 12 months period in the district.

2.4.Data collection instrument and procedure

Questionnaires was prepared in English and then translated into Afan Oromo. Twenty experienced grade 10/12 completed individuals who are fluent in Afan Oromo Language were recruited for data collection. In addition 5 degree level health professionals were recruited to supervise field

data collection. Three days training was given to data collectors on tools and on the process of data collection. Five field supervisors (each for 5 data collectors) were assigned to supervise quality of data collection by observing interviews and checking completed surveys. The tool was pre-tested on 5% of the total sample on different L.Hetosa district. Eligible study participants were identified from the list of postpartum women at health posts in the selected *kebeles*. In case a list was not up to date, health extension workers helped identify local guides who have experience with health campaigns and who know which households has eligible women. Interviewed women were also asked if they know other pregnant women in their village.

2.5. Data processing and analysis

Data was entered in to Epi-Info version 7 software and then, exported to SPSS version-21 for analysis. Before analysis, data was checked for completeness and consistency. Descriptive statistics was used to describe the sample as per the considered characteristics. Bivariate analysis was carried out to see the association of each independent variable with PPFP utilization to select candidate variables for the final model. Independent variables with p- values below 0.2 remained in to multivariate analysis. Adjusted Odds Ratios was generated for each variable and the independence of any association was controlled by entering all variables into the model using backward stepwise method (backward conditional). The magnitude of the association between the independent variables in relation to the outcome variable was measured using adjusted odds ratios (AOR) and 95% confidence interval (CI) and P- values below 0.05 was considered statistically significant.

2.1.   Study Variables

2.1.1.   Dependent variable

Postpartum family planning utilization

2.1.2. Independent variable

Socio-economic and Socio-demographic factors: Education level, Partner education level, Place of residence, marital status, wealth quintile

Client related factors: Knowledge about PPFP, Attitude towards PPFP

Health Facility related factors: Community-level antenatal care services, proximity of women to health facility, receiving antenatal care, receiving postnatal care, counseling about postpartum family planning during antenatal care, postnatal care and delivery, satisfaction on the antenatal care services women received, counseling on birth preparedness and complication readiness plan on breast feeding post-natal care use, information about family planning from health facility

Obstetric, Sexual and reproductive related characteristics: Resumed sexual intercourse, resumption of menses after delivery, husband approval of family planning use, place of delivery of last child, outcome of birth, delivery by cesarean section, delivery complication that occurred during birth, number of previous pregnancy, awareness about maternal complication, spousal communication on contraceptive methods

3. Result

3.1. Socio demographic, economic and cultural characteristics

The total of 796 postpartum women was interviewed making response rate of 100%. Three hundred and four (38.2%), of study participants were in age group of 25-29years.With regards to marital status, 718(90.2%) were married and living with their husband. Six Hundred and eighty five (86.1%), of the participants were Muslims and the dominant ethnic group observed in the district was Oromo 701 (88.2%)(Table 1).

Table 1: Socio-demographic characteristics of postpartum women who gave birth within 12 months prior to the survey in Zoway Dugda & Dodta district, south east Ethiopia 2020.

Variables	Frequency	Percent
Age of respondents (n=796)		
15-19 years	41	5.2
20-24 years	152	19.1
25-29 years	304	38.2
30-34 years	171	21.5
35-39 years	102	12.8
40-49 years	26	3.2
Marital status(n=796)		
Married	718	90.2
Single	26	3.3
Divorced	17	2.2
Widowed	21	2.6
Separated	14	1.7
Religion(n=796)		
Muslim	685	86.1
Orthodox	59	7.4
Protestant	33	4.2
Catholic	10	1.2
Others	9	1.1
Mother educational status(n=796)		
tertiary education	11	1.4
secondary education	57	7.2
primary education	440	55.3
no formal education	288	36.2
Occupation(n=796)		
Farmer	547	68.7
Merchant	104	13.1
salaried worker(public)	85	10.7
Unemployed	43	5.4
salaried worker(private)	17	2.1
Ethnicity(n=796)		
Oromo	702	88.2
Ahmara	28	3.5
Zey	55	6.9
Others	11	1.4
Residence(n=796)		
Rural	646	81.1
Urban	150	18.9

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Family income(n=796)		
350-1000ETB	360	45.2
1001-1599ETB	181	22.8
1600-2999	159	20
3000ETB and Above	96	12
Partner educational status(n=796)		
tertiary education	57	7.1
secondary education	280	35.2
primary education	291	36.5
no formal education	169	21.2

3.1.   Knowledge of women about postpartum family planning

Five items were used to assess women's knowledge about postpartum family planning. Average response was taken as cutoff points to classify women with good and poor knowledge about PPFP. Two hundred and ten(26.4%) of women had awareness on types of family planning methods used in postpartum period as they could mentioned at least one method. One hundred and fifty one 151(72.1%), of them knew that utilization of contraception important to unwanted pregnancy. Generally 382(48%) had good knowledge while the rest had poor knowledge as summarized as per the operational definition used for this purpose (Table 2).

Table 2: Knowledge of women about postpartum family planning use in Zoway Dugda & Dodta district, South east Ethiopia 2020.

Variable		Frequency	Percent
women knew PPFP methods	Yes	210	26.4
	No	586	73.6
Mentioned PPFP method by women during survey	Injectable	78	37.2
	Pills	74	35.1
	implants	42	20.3
	IUCD	7	3.1
	LAM	5	2.2
	Condom	4	2.1

Benefits of PPFP methods	Prevent	151	72.1
	Limit	149	70.8
	Healthy	25	12.1
	Have no any	5	2.2
	I don't know	35	16.9
Do you know side effects of contraceptive methods?	Yes	228	28.7
	No	568	71.3
After stopping contraceptive use can fertility resume?	Yes	720	90.4
	No	13	1.6
	I don't know	64	8
Knowledge(in Summary)	Good	382	48
	Poor	414	52

3.2.   Postpartum family planning utilization

Of the total sample only 8(1.01%) started using family planning within the first 48 hours and 23(2.9%) started immediately after 48 hours to 6 weeks after delivery. One hundred and eight (13.6%) started using after 6 weeks. This showed only 139(17.46%) have started using contraception within 12 months after delivery

3.2. Reproductive history and health service related characters of women

One hundred sixty four (14%) of the women resumed sexual activity within 6 weeks after delivery while 628 (67.6%) of them resumed with 6 weeks to 3 months after delivery.   Menses was returned on 608(52.4%) of the interviewed women of which 30(5.2%) was before 6 weeks of delivery and 576(94.8%) was after 6 weeks of delivery. But Family planning counseling during ANC, delivery and PNC were 592(51%), 520(44.8%) and 384(33.2%) respectively (table 3).

Table 3: Reproductive history and health service related characteristics of postpartum women who gave birth within 12 months prior to the survey in Ziway Dugda & Dodota district, south east Ethiopia, 2020.

Variable		Frequenc	Percent
Maternal services received in the last 12 months	ANC visit	578	72.6
	PNC service	371	46.6
Place of delivery in the last 12 months	Government facility	512	64.3
	Private facility	33	4.2
	Home	251	31.5
Counseling received in the 12 months(about contraception)	During ANC	374	47
	During delivery	435	54.6
	During PNC	264	33.2
Number of live children in the family	1	146	18.3
	2 to 3	376	47.2
	4 and above	275	34.5
Desire for more children	Yes	712	89.4
Prior use of contraception	Yes	540	67.8

3.3.Factors associated to postpartum family planning utilization

In the bivariate logistic regression analysis factors like mothers educational status, residence, partner educational status, ANC attendance, place of delivery, PNC service, FP counseling during ANC, FP counseling during delivery, FP counseling during PNC, husband approval, couple discussion on FP, sexual resumption, attitude, knowledge and socio- cultural influence were found to be candidate variables for multivariate analysis (Table 4).

In multiple logistic regression analysis partner educational status and FP counseling during ANC were significantly associated with postpartum family planning utilization (Table 4).

Accordingly, Women their partner completed secondary education were 2.6 times more likely utilized contraception during postpartum period compared

to partners with no formal education 2.6(95%CI: 1.84, 4.67). Women who received counseling about family planning during ANC visit were 6.57 more likely utilized contraception during postpartum period compared to those who didn't counseled for family planning during ANC visit 6.57 (95%CI: 4.46, 8.54).

Table 4: Bivariate and multiple logistic regression analysis of factors associated with PPFP utilization postpartum women who gave birth within 12 months prior to the survey in Ziway Dugda & Dodota district, south east Ethiopia, 2020.

Variables		PPFP Utilization		COR(95%CI)	AOR(95% CI)	P-Value
		Yes	No			
Mother's educational status	Tertiary	8	3	2.21(1.03,4.7	1.37(0.61,3.07	0.135
	Secondary	25	32	2.57(1.27,5.1	0.47(0.20,1.12	0.091
	Primary	40	400	5.11(2.57,10.	0.48(0.18,1.25	0,135
	No formal education	89	199	1	1	
Residence	Urban	50	100	3.84(1.16,2.4	0.88(0.50,1.54	1.663
	Rural	89	557	1	1	
Partner's educational status	Tertiary education	37	20	2.51(1.62,3.9	0.84(0.47,1.52	0.570
	Secondary education	190	90	10.95(6.19,19	2.6(1.84,4.67)	0.004
	Primary education	120	171	3.46(2.24,5.3	1.11(0.62,1.97	0.72
	No formal education	88	81	1	1	
knowledge	Poor knowledge	58	354	0.14(0.08,0.2	0.17(0.67,4.50	0.091
	Good knowledge	60	324	1	1	
ANC attendance	Yes	112	226	2.46(1.46,4.1	0.59(0.26,1.31	0.190
	No	17	2186	1	1	
Place of delivery	Government facility	63	346	5.46(2.51,11.	2.56(0.92,7.1	0.072
	Private facility	4	65	3.55(1.27,9.8	2.55(0.78,8.27	0.118
	Home	7	175	1	1	

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PNC service	Yes	76	288	4.84(3.34,7.0	1.28(0.59,2.77	0.530
	No	42	198	1	1	
FP counseling at ANC	Yes	61	231	15.94(8.93,28	6.57(4.46,8.54	0.001
	No	13	255	1	1	
FP counseling during PNC	No	45	231	0.12(0.08,0.1	4.41(3.2,0.86)	0.08
	Yes	129	155	1	1	
prior use of Contraception	Yes	143	165	3.43(2.28,5.1	0.82(0.46,1.47	0.520
	No	31	121	1	1	
Couple discussion on FP	Yes	168	244	9.10(3.98,20.	3.13(0.76,12.7	0.112
	No	6	242	1	1	

*statistically significant at P value <0.05

4. Discussion

Continuum of points of contact within the health care system can provide opportunity to increase level of PPFP utilization through integration of it to maternal, newborn and child health (WHO, 2013). But this finding revealed that magnitude of PPFP utilization was only 17% which is almost similar with findings of studies previously conducted in rural Bareilly district of India(13.8%), Kebrebyan of Somali region(12.3%) and in Dabat of Ahmara region(10.3%) (Mahamood SE, et al, 2011; Nigussie AT, et al ,2016 ; Mengesha ZB, et al, 2015). But it was lower than level had been seen from studies conducted in Axum town (48%), Gonder town (48.4%), and Gozamen district of east Gojjam(21%) (Abraha TH et al, 2017;Berta M et al, 2018; Gizaw W, et al, 2017). The possible explanation for the differences might be due to difference in study area and target populations. Our study was conducted mainly in rural kebeles where lack of information, low educational status, socio-cultural problems and lack of transportation facilities might be a reason for less utilization of PPFP compared to studies mentioned above as they were conducted in the town.

Our study also showed partner's education was significantly associated with postpartum family planning utilization. This was in line with community based study conducted in rural district, Dabat which revealed women whose husband had secondary and above educational status were 2.98 times higher in utilization of the service (Berta M, et al., 2018). This might be due to the fact that as a partner gets a better education, he can obtain better knowledge on importance of men involvement in family planning and can help his wife to utilize contraception.

The current study also confirmed statistically significant difference in utilization of PPFP among women who received counseling on PPFP at

ANC compared to those who didn't receive counseling. This finding is consistent with the studies conducted in Axum town, northern Ethiopia which showed women who received counseling on PPFP during ANC visits were about 6 times more likely used PPFP than their counterparts (Abraha TH, et al, 2017). Likewise, a facility based study in Malawi indicated counseling on fertility issues significantly associated with PPFP utilization (Bwazi, C. et al, 2014).The possible explanation for this finding is that as women get advice on PPFP utilization at all MNCH points of contact within the health system, her awareness about the importance of the service will be improved, her motivation will be enhanced and then she will practice using the methods (WHO, 2013).

5. Strength and limitation of the Study

5.3. Strength of the Study

In this study great effort was made to use larger sample size to increase precision.

5.4. Study limitations

Some asked information relayed on the past memory of the study participants which could have recall biases. The inherent limitation of cross-sectional study was also another limitation of this study.

6. Conclusion

Magnitude of postpartum family planning utilization in Ziway Dugda & Dodota district was low. Thus most of women in postpartum period were at risk to pregnancy in short birth interval. Factors significantly associated to postpartum family planning utilization were partner's educational status and counseling about PPFP during antenatal visit.

7. Recommendation

All concerned stakeholders should give better attention to postpartum family planning service in the district. We recommend Arsi zonal health department and Zoway Dugda & Dodota district health office to routinely provide sensitization workshop for health workers in the district focusing on PPFP counseling especially at community level to reach postpartum women in the general population. Regular monitoring and supportive supervisions on proper counseling for postpartum women in all health facilities should also get attention. Moreover, we also strongly recommend health centers in Zoway Dugda & Dodota district to integrate counseling and PPFP services with all MNCH services like during ANC, delivery service, PNC and EPI.

8. Ethical consideration

Ethical approval was obtained from the Arsi University College of health science Institutional Review Boards (IRB). Supportive letters was obtained from the college, Arsi Zone health department, Ziway Dugda and Dodota districts health office and concerned *Kebeles*. Before data collection, women were informed about the purpose of the study, the right to refuse participation and discontinue the interview. The interviewers discussed the issue of confidentiality and obtained verbal consent from all selected women before interview started.

9. ACRONYMS/ ABRIVAITION

ANC   Antenatal care

AOR   Adjusted Odds Ratio

CI   Confidence Interval

FMOH   Federal Ministry of Health

FP	Family planning
HEW	Health Extension Workers
HTSP	Healthy Timing and Spacing Pregnancy
IUD	Intra uterine Device
LAM	Lactation Amenorrhea Method
MNCH	Maternal, newborn and child health
OR	Odds Ratio
PPFP	Postpartum Family Planning
PPIUD	Postpartum intrauterine device
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization

10. Availability of data and materials

Data sets supporting the finding of this research are included in to the manuscript.

11. Competing Interest

The authors declare that there is no conflict of interests.

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14. Reference

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