

Review Article

Prevalence and Predictors of Postpartum Care Uptake Among Mothers Who Gave Birth in the Last Six Months in Mertule Mariam District Northwest Ethiopia

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Abstract: Background: In the majority of home and hospital based births, postpartum care is not delivered adequately and are highly limited in Ethiopia in terms of coverage and frequency with which the service should be provided. Objective: The aim of the study was to assess the prevalence and predictors of postpartum care uptake among mothers who gave birth in the last six months in Mertule Mariam District, Northwest Ethiopia. Methods and Materials: A Community based descriptive cross sectional study design was carried out through a cluster sampling method with a total sample size of 565 from January 30 to February 8, 2018. Structured interviewer administered pre-tested questionnaire was used to collect data. The collected data was entered into Epi data version 4.2 and then exported into SPSS window version 24. Bivariate and multivariate analysis were undertaken and information was presented by using simple frequency tables, graphs and pie charts. Result: The prevalence of postpartum care uptake was found to be 19% (95% CI: 15.2, 21.9). Fifty one percent of mothers reported that the main reason for not using postpartum care was an absence of any complication. Knowledge about postpartum care (AOR=6.35, 95% CI: 3.41, 11.82), having four or more antenatal care checkups (AOR=8.59, 95% CI: 4.59, 14.58), experiencing complications in the last delivery (AOR=4.89, 95% CI: 2.52, 9.49) and receiving health information after delivery (AOR=3.57, 95% CI: 1.69, 7.53) were found to be statistically associated with postpartum care uptake. Conclusion: This study revealed that postpartum care rates in this community was very low. Hence, there is an urgent need to assess the quality of Postpartum care (PPC) provided and a need for knowledge and ANC raising program focusing on the schedule.

Keywords: Postpartum, Postpartum Care, Postpartum Care Uptake, Mertule Mariam District

1. Introduction

Postnatal period is defined by World Health Organization (WHO), as the period one hour after delivery of placenta and includes the six weeks following birth. This period is called postpartum period when referring to the mother alone and postnatal when referring to both the mother and her baby. Postpartum period is the time when most maternal deaths occur compared to the antenatal and intra natal period. This

period marks the establishment of a new phase of family life for women, their partners and the beginning of lifelong health for the newborns [1].

Maternal mortality occurs from risks attributable to pregnancy and child birth as well as poor availability and quality of maternal health services. The most common cause of maternal mortality in sub Saharan countries include hemorrhage (34%), sepsis (infection (10%), hypertensive disorder (9%), HIV and AIDS (6%), other direct causes (5%)

and other indirect causes contribute approximately 17% [2].

A significant proportion of maternal and neonatal death occur during the first 48 hours after giving birth. As such, postnatal care is important to both mothers and neonates to manage complications arising after childbirth as well as to provide the mother with crucial health information on how to care herself and her child [3].

Maternal deaths are a subset of female deaths and are associated with pregnancy and childbirth. Considerable progress has been made globally in improving maternal health. Worldwide, the maternal mortality ratio (MMR) has decreased from 385 to 216 per 100,000 live births in 1990 and 2015 respectively. However, MMR in developing and sub-Saharan African countries was 239 and 546 per 100,000 live births respectively [3].

Maternal mortality in Ethiopia has decreased from 678 per 100,000 to 412 per 100,000 according to (EDHS, 2011) and (EDHS, 2016) respectively. Yet, many women did not report their physical or psychological problems to health professionals or even to their family members which indicates that more and improved care is needed during postnatal period [4, 5].

Postnatal coverage is low in middle and low income countries. An analysis of demographic and health survey data from 23 sub-Saharan Africa countries found that only 13% of women who gave birth at home received postnatal care within 2 days of birth [3]. The proportion of mothers received PNC checkup within 2 days of birth was 17% in which PNC coverage is higher in urban area than rural areas [5]. In Amhara region, 76.9% of mothers did not receive any PNC service and 2.9% utilized within the first 4 to 23 hours after birth [5].

Prompt postnatal care for both the mother and the newborn is important to treat any complication arising from childbirth as well as to provide the mother important information on how to care for herself and her child [6]. Therefore, this study was undertaken to assess the prevalence and predictors of postpartum care uptake among mothers who gave birth in the last six months in Mertule Mariam District, Northwest Ethiopia, from January 30 to February 8, 2018.

2. Methods

2.1. Study Design and Setting

A community based descriptive cross sectional study was conducted in Mertule Mariam District from January 30 to February 8, 2018 among postpartum mothers. The district is one of the *Woreda* in East Gojjam Zone, Amhara Regional State of Ethiopia and it is located 364 Km from Addis Ababa, the capital city of Ethiopia, 180 Km South East of Bahir Dar, the regional city of Amhara region and 197 km from Debre Markos city.

2.2. Sample Size Determination

Epi info7 software Stat Cal has used to calculate the sample size. A single population proportion formula was used with the following assumptions: 95% confidence interval, 5% margin of error and the prevalence of postnatal care

utilization was found 34% from community based cross sectional study conducted in Gondar *Zuria* (7). The final sample size came up by adding non-response rate of 10% to the larger sample size from first objective which is 345 and the design effect of 1.5 was used to calculate the sample size for both first and second objective. Because the sampling procedure is population based two stage stratified cluster sampling and which has secondary unit, hence; the final sample size for the study was found to be 570.

2.3. Operational Definitions

Knowledge of mothers about PPC uptake: Those mothers scored greater or equal to 5 out of 8 knowledge related questions about PPC (≥ 5 out of 8) correctly were ranked to have good knowledge whereas poor knowledge for those mothers scored less than 5 out of 8 [14].

Postpartum care uptake: When a mother had at least three health facility visits after giving birth within 42 days at 6-24 hours, at 3 days (48 hrs-72 hrs), between 7 -14 days or at 6 weeks in addition to labor and delivery care [1, 6].

Postpartum care: The maternal care services provided in postpartum period but postnatal care is the care provided for both mothers and their newborns [3].

2.4. Data Collection Procedures

The data collection has been undertaken by 9 Mertule Mariam College Students and supervised by two BSc holder midwives who were fluent in Amharic language. Before data collection, both the data collectors and supervisors have trained by principal investigator for one day.

2.5. Data Quality Control

Then data have coded, entered and cleaned using Epi-data version 4.2 software and finally exported into SPSS version 24 for analysis. Bivariate analysis, crude odds ratio with 95% CI, was used to see the association between each independent variable and the outcome variable by using binary logistic regression.

Independent Variables with a p-value of ≤ 0.05 were included in the multi-variable analysis to control Confounding factors. Multi-collinearity was checked to see the linear correlation among the Independent variables by using standard error. Hosmer-Lemeshow's test was found to be insignificant (p-value = 0.351) and Omnibus tests was significant (P-value = 0.000) which indicated that the model was fitted. Adjusted odds ratio with 95% CI were estimated to identify the predictors associated with postpartum care uptake using multivariable logistic regression analysis. The level of statistical significance was declared at p-value ≤ 0.05 .

2.6. Ethical Consideration

Ethical clearance was obtained from the Institutional Health Research Ethics Review Committee (IHRERC) at Haramaya University's, College of Health and Medical Sciences. A formal letter for permission and support was written from Haramaya University postgraduate coordinating

office to Mertule Mariam District health office. Finally, informed consent was obtained from each respondent.

3. Results

3.1. Socio-Demographic Characteristics

The result was driven from 565 mothers who gave birth in the last six months from one urban and eight rural *kebeles* proportionately allocated 86 (15%) and 479 (85%) respectively. The overall response rate of the study was 99% (Table 1).

Table 1. Socio demographic characteristics of Postpartum care uptake among women who gave birth in the last six months in Mertule Mariam District, Northwest Ethiopia, 2018.

Variable	Frequency (%)
Age of mothers (mean, SD: 31 ± 5.6)	
15-24	69 (12)
25-34	355 (63)
≥ 35	141 (25)
Religion	
Orthodox	544(96.30)
Others *	21(3.70)
Ethnicity	
Amhara	561(99.30)
Others **	4(0.70)
Marital status	
Married	533(94.30)
Married and Separated	13(2.30)
Others ***	19(3.40)
Educational status of mother	
No formal education	341(60.40)
Primary level	160(28.30)
Secondary and above level	64(11.30)
Educational status of husband (n=546)	
No formal education	277(50.77)
Primary level	192(35.16)
Secondary and above level	77(14.07)
Maternal occupation	
Farming	453(80.20)
Housewife	38(6.70)
Daily labourer	28(5)
Others ****	46(8.10)
Husband occupation (n=546)	
Farming	408(74.73)
Daily laborer	57(10.44)
Merchant	53(9.70)
Employee	28(5.13)
Residency	
Urban	86(15)
Rural	479(85)
Wealth index in quintile	
1 st quintile	188(33)
2 nd quintile	36(7)
3 rd quintile	341(60)

3.2. Maternal and Child Health Service

Regarding the maternal and child health service, 22(4%) of the respondents had no ANC for the last birth whereas 95(17.5%) had four or more ANC visits. Most of the respondents 368 (67.77%) received ANC at the health center.

Regarding health information about postpartum care during any ANC visit, 26(4.80%) of the respondents had health information among which most of them got health information

from health professionals 8(31%). Most 427(75.6%) and 352(80.40%) of them had health institution delivery and hospital stay after delivery from 6 hours to 24 hours respectively.

3.3. Obstetric and Pregnancy Characteristics

One hundred ninety-six respondents (34.7%) had 4 or more children, while 60 (10.6%) of respondents had 1 child.

Experience of complication during pregnancy and delivery were reported by 42 (7%) and 88 (17%) respectively. Among 555 respondents, 501 (90%) of them had a spontaneous vaginal delivery. Most 551 (97.5%) of respondents had alive birth.

Most of the respondents took at 6 hours to 24 hours and 42 days or more periods which was found 315 (56%) regarding the schedule of postpartum care uptake.

Regarding the care provided, 189 (41%) mothers received health information about maternal feeding followed by a physical examination, feeding, family planning and maternal hygiene which was found 146 (32%). Some 339 (60%) mothers had taken up PPC twice. The prevalence of postpartum care uptake (three or more visits) was 19% (Figure 1).

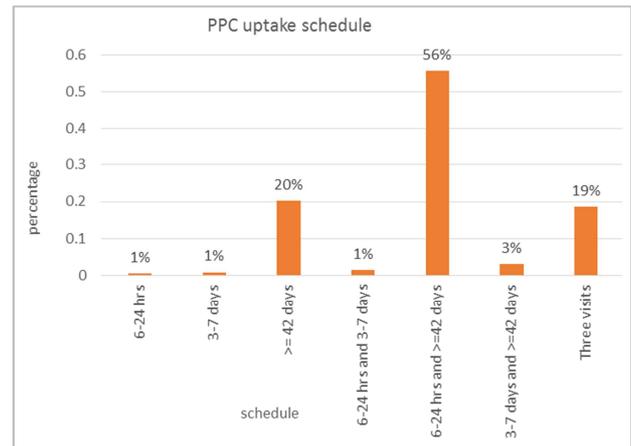


Figure 1. Postpartum care uptake on recommended schedule among mothers who gave birth in the last six months in Mertule Mariam District, Northwest Ethiopia, 2018.

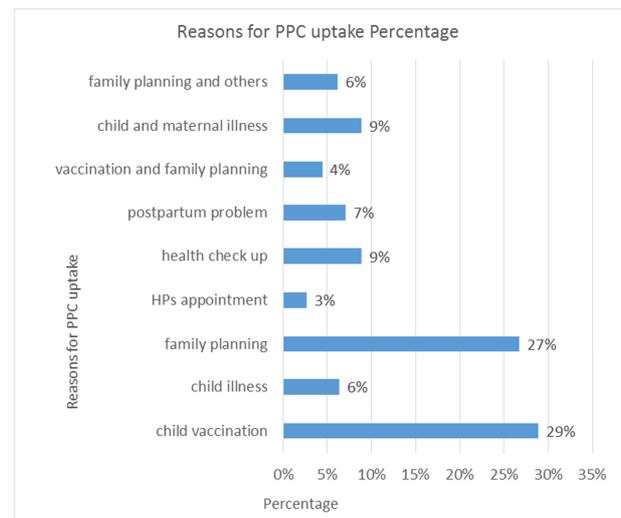


Figure 2. The reasons for utilizing PPC among mothers who gave birth in the last six months in Mertule Mariam District, Northwest Ethiopia, 2018.

165 (29%) had mentioned to have their child vaccinated regarding the reason for postpartum care Uptake followed by family planning which was found to be 153 (27%) (Figure 2).

Regarding barriers to postpartum care uptake, 290 (51%) of respondents mentioned that they had no health problem followed by cultural belief (faith) 87 (19%). (Figure 3).

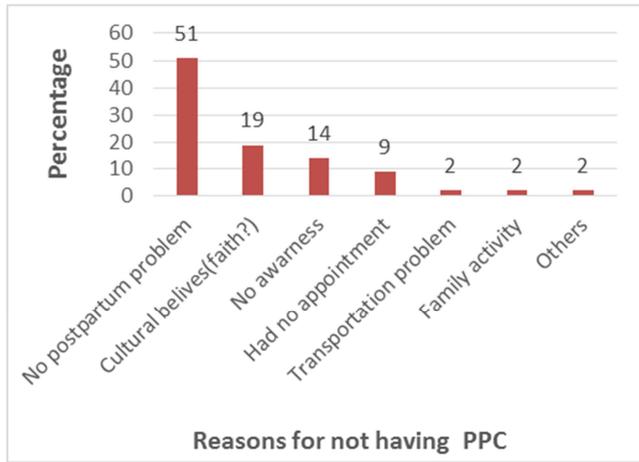


Figure 3. The reasons for not having PPC uptake among mothers who gave birth in the last six months in Mertule Mariam District, Northwest Ethiopia, 2018

3.4. Postpartum Care Health Information

About 89 (15.8%) mothers received health information and the majority of the health information provided was about postpartum care need and its availability which was found 55(62%). Postpartum care information providers were health professionals at majority 43(50%).

Among 565 mothers, 393 (69.60%) had poor knowledge of PPC and 172 (30.40%) had good knowledge of PPC.

Table 2. Predictors of Postpartum care uptake among mothers who gave birth in the last six months in Mertule Mariam District, Northwest Ethiopia, 2018. (n=565).

Variables	Uptake of PPC		95% Confidence Interval	
	Yes	No	COR	AOR
Age in years				
15-24	16(15.23%)	53(11.52%)	1	1
25-34	79(75.23%)	276(60%)	1.05 (0.57, 1.94)	0.43 (0.17, 1.07)
≥ 35	10(9.54%)	131(28.48%)	3.95 (1.68, 9.27)	1.21 (0.36, 4.08)
Maternal educational level				
No formal education	72(68.57%)	429(93.26%)	1	1
Primary	29(26.60%)	24(5.20%)	0.13 (0.07, 0.25)	2.08 (0.83, 5.23)
Secondary and above	4(4.83%)	7(1.54%)	0.22 (0.08, 1.02)	0.98 (0.20, 4.71)
Husband educational level				
No formal education	37(35.23%)	240(54.42%)	1	1
Primary	40(38.09%)	152(34.46%)	0.58 (0.35, 0.95)	1.41 (0.72, 2.74)
Secondary and above	28(26.68%)	49(11.12%)	0.27 (0.15, 0.48)	1.59 (0.59, 4.26)
Frequency of ANC visit				
< 4	43(42.5%)	406(91.6%)	1	1
≥ 4	58(57.5%)	37(8.4%)	14.80(8.81,24.85)	8.59(4.56,14.58)**
Health information after delivery				
Yes	32(30%)	42(9%)	4.36 (2.58, 7.35)	3.57 (1.69, 7.53)*
No	73(70%)	418(91%)	1	1
The last delivery complication				
Yes	46(44%)	46(10%)	7.01 (4.29, 11.46)	4.89 (2.52, 9.49)**
No	59(56%)	414(90%)	1	1
Maternal illness				

3.5. Health Facility Characteristics

The most accessible health institution reported by the majority of respondents at 412 (74%) was the health center. The nearest distance to the health institution 245 (44%) was assumed from 5km -15km/30min-1hr walking distance and the majority of the respondents 424(75%) expressed that transportation was not accessible.

4. Predictors for Postpartum Care Uptake

Binary and multiple logistic regression was used to identify predictors. There was no marked variation by age, maternal educational level, husband educational level and maternal illness even though it appeared predictors of postpartum care uptake by bivariate analysis.

Predictors of postpartum care uptake were Frequency of ANC visit, experiencing complication during delivery, health information during postpartum period before discharge from health facility and knowledge level about PPC.

Mothers with four or more (≥4) ANC visits were more than 8 times (8.59) more likely to seek PPC than those mothers with three or less (< 4) ANC visits.

Mothers with a good knowledge level about postpartum care uptake were nearly 6 times (6.35) more likely to seek PPC than those with poor level of knowledge. Having postpartum health information has made the mothers more than 3 times (3.57) more likely to seek PPC than those with no postpartum health information Mothers who had delivery complication were nearly 5 times (4.89) more likely to seek PPC than those mothers with no complication (Table 2).

Variables	Uptake of PPC		95% Confidence Interval	
	Yes	No	COR	AOR
Yes	7(7%)	83(18%)	0.32 (0.14, 0.72)	0.45 (0.13, 1.60)
No	98(93%)	377(82%)	1	1
Knowledge level				
Good	72(68.6%)	100(21.7%)	7.85 (4.92, 12.54)	6.35(3.41,11.82)**
Poor	33(31.4%)	360(78.3%)	1	1

* Significant with P=0.001, ** Significant with P=0.00

5. Discussion

In this study, the prevalence of postpartum care uptake was found to be low. Less than one fifth of study participants had received PPC. In Ethiopia, only 17% women reported having received postnatal care within the first two days after their last child birth. In fact, PNC is the most poorly utilized in the maternal health care continuum compared to at least one ANC (62%) and skilled delivery care (28%) [5].

This is much lower result from the recommended universal access of maternal care services advocated by WHO. Poor rates of PNC utilization have similarly been reported in Africa and Nepal previously. In Uganda, it has reported that 15.4% of women utilized PNC within a week [8]. Mothers who have delivered at health facility would have more access to postpartum care. However, this study found that only one fourth mothers with health facility delivery utilized postpartum care. This finding is comparable with the study done at Hadya southern Ethiopia and Jabitenan in northwest Ethiopia [9, 10] where the prevalence was 22.7% and 20.2% respectively.

However, the finding of this study slightly differs from other studies in Nepal and Ethiopia. Studies in Nepal, Debre Markos, Dembecha and Lemo found the prevalence of PPC uptake to be 34%, 33.5%, 36.5% and 51.4% respectively. The variation might be attributed to methodological and study area variations. These studies used one postpartum visit as postnatal care had up taken but in this study at least three postpartum visits required to say postpartum care has up taken so that the variation might be due to this methodological difference [11-14].

The finding of this study is higher than both the national (17%) and Amhara region (2.9) postnatal care coverage (5). This difference might be due to difference of the study setting in which EDHS study included much higher sample size and larger geographical areas which subsequently includes wider variations of societal variations related to health care services.

Knowledge about postpartum care was found to be strong predictor for postpartum care uptake. Mothers who have good knowledge of PPC were almost 6 times more likely to utilize postpartum care uptake than those who have poor knowledge. This is due to the fact that mothers with good knowledge about postpartum care would have perception of benefits of PPC than those who did not have. They seek postpartum care because they know the advantage of taking PPC for their postpartum health.

This finding is comparable with the study at Jabitenan district in Northwest Ethiopia which revealed that mothers who had knowledge about postpartum complication were 4.5

times more likely to utilize postnatal care services compared with those who had not knowledge. In another study in Northern Ethiopia, knowledgeable mothers about availability of postnatal care were 72% more likely to utilize postnatal care than those who were not knowledgeable which is consistent with this study [10, 7]. The possible explanation to this might be due to the fact that knowledge about postpartum care enhances positive health belief and perception which in turn increases health seeking behavior.

Essentially, knowledge about PPC is an important factor in motivating mothers and their families to seek health care services at the earliest opportunity in prevention, early detection and management of postpartum complications.

Antenatal visit was another strong obstetric factor found significantly predictor for postpartum care uptake. Mothers who had four or more (≥ 4) ANC visits were more than 8 times more likely to uptake postpartum care than those mothers who had three or less (< 4) visits. The possible explanation might be due to the probability that postpartum care uptake increases as frequencies of ANC visits increase. Mothers would be experienced health information about PPC and institutional delivery while they have taken ANC. This in turn implies that those mothers who had all four ANC visits would be assumed that they were in enhanced health seeking behavior. Hence, more mothers getting ANC care might have positive influence on the uptake of PPC due the increased likelihood of getting health information about PPC.

This finding is most compared to the study done in Kenya which found that mothers with four or more ANC visits were twice as likely to utilize postnatal care than those who had not (Kenya 2014) And in another study, in Southern and Northern Ethiopia which revealed that mothers who had ANC visits were six and three times more likely to utilize postnatal care than those who had not respectively [7, 14].

This difference might be brought about due to the difference in methodology and study settings of the studies.

Health information during postpartum period before discharge was significantly associated with postpartum care uptake. Mothers who had postpartum health information before discharge were more than 3 times more likely to uptake postpartum care than those who had not. The possible explanation might be due to health information making mothers to be more concerned for their health. It insinuates that mothers would have a greater mindfulness towards health care seeking behavior. Mothers with health information during delivery care might have positive influence on the uptake of postpartum care due to the realization of possible postpartum complication to self and its importance though health education and counselling.

This finding is comparable with study in Nepal [11] and northern Ethiopia [7] which revealed that mothers who had no postnatal service availability awareness were 65% less likely to utilize postnatal care than those who had awareness and mothers who had awareness about postnatal care service were four times more likely to utilize postnatal care than those who had not awareness.

The other major factor predicting postpartum uptake was delivery complication in the previous delivery. Mothers with prior delivery complication were nearly 5 times more likely to uptake PPC than those with complication.

This finding is much lower than the study in Nepal [11] which showed that mothers with postpartum complication were seventeen times more likely to utilize postnatal care uptake than those who had not. This might be due to methodological difference and biogeographically variation between the studies.

However, the present study is in agreement with studies in Northwest and Southern Ethiopia by which reported that mothers with postpartum complication which were three and five times more likely to utilize postnatal care than those who had no postpartum complication [12] and [14] respectively. The possible justification to this is that health problems; in this case, postpartum complications, generates the need for health care services. This is due to the fact that mothers with delivery complication perceived severity of the problem that acknowledges occurrence of life threatening complications to self. The perceived severity of the health complication by mothers and need factor for seeking health care service would lead to seek postpartum care.

Regarding to barriers of postpartum care uptake, the most common reasons not to utilizing postpartum care was lack of postpartum complication. This finding is supported by the studies in Indonesia and Loss Angeles which showed that mothers would go for postnatal care services when postpartum complication had occurred and the reason why they had not postnatal care was that they had not postpartum problem [15, 16]. This is due to poor health service seeking behavior which is probably caused by health professionals' reluctance to appoint them timely rather telling them to come back when problem has occurred. Hence health professionals judgment about maternal health status and their need for medical care.

6. Limitation of the Study

As it is cross sectional study design, it might not show cause and effect relationship.

7. Conclusion and Recommendation

In this study, the prevalence of postpartum care uptake in the last six months was found low. Less than one fifth of women had taken up postpartum care. Independent predictors of PPC uptake were: Knowledge about PPC, Four or more (≥ 4 ANC) visits, postpartum health information and an experiencing a complication in the last delivery.

Knowledge and awareness creation about PPC should be implemented district wide in accordance with the national health delivery system. It is important to launch action plan to all health facilities in the district aimed at knowledge raising and antenatal care coverage improvement. Health information about postpartum care, including all components of care; should be provided in all mothers at the 4th ANC visit. Critically, Health education should focus on postpartum care as care provided for prevention postpartum complication rather than treating disease and complication.

Public health messaging should address this issue to address PPC uptake in a context of high maternal mortality. It is also important to ascertain further why prevalence of postpartum care uptake is low and barriers for postpartum care uptake by using other study designs.

Declarations

Ethical approval and consent to participate

Ethical clearance was obtained from Haramaya University, College of Health sciences, Institutional Health Research Ethics Review Committee (IHRERC). Informed consent was taken from each participants.

Authors' Contribution

Solomon Demis has worked as principal investigator on designing the study, training the data collectors, supervising the data collectors, interpreting the result, preparing the manuscript. Dr. Kedir Teji and Dr. Nega Assefa have advised the corresponding author as major and co advisor. Tigabu Munye and Wubet Alebachew have edited this manuscript.

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