

The Role of Women Health Development Army on Postnatal Care Utilization in Primary Health Care Units of Bahir Dar Zuria District, Northwest Ethiopia, 2019: a Community Based Cross-Sectional Study

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ABSTRACT

Background: The days and weeks following childbirth – the postnatal period – is a critical phase in the lives of mothers and new born babies. But in low and middle income countries, postnatal care utilization is still low and maternal and neonatal mortality is high. Therefore, the aim of this study was to assess postnatal care service utilization and associated factors among mothers in primary health care units of Bahir Dar Zuria district, Northwest Ethiopia, 2019.

Methods: A Community based quantitative cross-sectional study was conducted from December 1, 2018 to January 30, 2019 among 708 women who gave birth six months prior to the data collection. Multistage sampling was used to select study participants. Pre-tested semi-structured questionnaire was used to collect data. The data were entered in EPI info version 3.5.1 and analysed using SPSS version 20.0. Adjusted Odds ratio with 95 % confidence interval was computed to identify the relative association of explanatory variables on postnatal care service utilization.

Results: The study revealed that the prevalence of postnatal care service utilizations was 35.6%, (95% CI: 31.90, 39.30). Being involved in women's health development army (AOR=11.3, 95% CI: 6.41, 19.79), being graduated in health extension packages (AOR=5.1, 95% CI: 2.88, 8.87), history of antenatal care attendance (AOR=6.8, 95% CI: 3.26, 14.27), institutional delivery (AOR=3.3, 95% CI: 1.92, 5.68), giving still birth (AOR=0.22, 95% CI: 0.1, 0.5), and good knowledge on postnatal care (AOR=16.7, 95% CI: 9.08, 30.86) showed statistical significant association.

Conclusions: Postnatal care utilization in the study area is lower than what is planned to achieve in the Ethiopia growth and transformation plan two. Therefore, increasing women involvement in the health development army and increasing coverage of health extension packages graduated households are recommended to improve postnatal care utilization.

Keywords: Postnatal care; Utilization

INTRODUCTION

Postnatal period is the time that lasts from date of delivery until the sixth week of delivery. The advice and medical service given during this period to the mother and child is called postnatal care service. Lack of care in this time period may result in death or disability as well as missed opportunities to promote healthy behaviours, affecting women, new born, and children. Yet, postnatal care (PNC) utilization is still low in Ethiopia. Women's Health Development Army (WHDA) is a network consists of neighbouring women in the community. They are expected to identify bottlenecks that hinder families from utilizing maternal, neonatal and child health services and propose locally acceptable strategies for addressing the bottlenecks. Hence, we conducted a community based study to assess the role of WHDA on postnatal care utilization among 708 women in North West Ethiopia. Women were asked questions using a face to face interview on home to home visits. The prevalence of postnatal care utilization was found to be 35.6%.

Women who were involved in WHDA have had improved postnatal care utilization. Other factors like history of antenatal care attendance, institutional delivery, giving still birth and good knowledge of PNC were found to be associated with PNC utilization.

BACKGROUND

The postnatal period is defined as the time just after delivery and through the first sixth weeks of life [1]. The main aim of postnatal care services are early detection and treat complications of the mother and infant, counselling and service provision on baby care, breastfeeding, maternal nutrition, family planning and immunization of the infant [2].

Postnatal period is a crucial moment in identifying and responding to needs and complications, which are the most desirable and likely to influence the health and safety of the mother and the new born [3]. Whereas lack of care in this time period may result in death or disability as well as missed opportunities to promote healthy

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behaviours, affecting women, new born, and children [4].

Besides, the majority of maternal and neonatal deaths, as well as a significant burden of long term morbidity occur during the postpartum period, providing appropriate PNC in the first hours and days after birth is an essential and effective strategy which averts and prevents most of maternal and child morbidity and mortality.

Globally, the maternal mortality ratio is 216 deaths per 100, 000 live births in 2015 [5]. About 2.6 million new born die in 2016 [6]. Majority of maternal deaths (66%) and neonatal deaths (75%) occur during the first week of life. And more than half of these take place within a day of delivery. Furthermore, 88% of maternal and 80% of newborn deaths occurs in Sub-Saharan Africa and South Asian countries [7]. Particularly in Africa, 125,000 women and 870,000 new born die in the first week after birth every year [8].

In Ethiopia, maternal mortality and morbidity levels are among the highest in the world. The estimated pregnancy-related mortality ratio (PRM) in the year 2016 is 412 per 100,000 live births [9]. The majority (67%) of deaths occurred in the postpartum period [10]. The major causes of maternal death are haemorrhage, hypertension in pregnancy, obstructed labour, sepsis, and anaemia, and severe bleeding usually occurring after the mother gave birth is the single most feared complication claiming the life of most mothers (53%).

In fact, there is a remarkable progress to reduce mortality of children less than 5 years of age in Ethiopia, neonatal mortality accounts for 43% of all under-5 deaths, which shows an increment of 42% in the previous survey [11]. Ethiopia is among five countries where half of all new born deaths are concentrated. Moreover, 2000, 2005, 2011 and 2016 Ethiopian Demographic and Health Surveys reported neonatal mortality rates of 49, 39, 37 and 29 per 1000 live births, respectively. But the decline in neonatal mortality rate by 41% over 16 years is substantially less than the decline in infant (50%) and under five (60%) mortality over the same period [12].

Globally, PNC reaches even fewer women and new born: less than half of women receive a PNC visit within 2 days of childbirth [13]. And among 69 countries where more than 95% of all maternal and child deaths occur, only 1 in 5 women received PNC. Similarly, according to the Demographic and Health Survey (DHS) data from 23 African countries, only 13% of all women receive a postnatal visit within two days [14].

Likewise, the level of postnatal care coverage is extremely low in Ethiopia. Only 17% of women received postnatal check-up within two days after birth [15]. Nevertheless, there is an improvement from the previous survey when only 12 % (11) received postnatal care during the first two days of delivery. Yet the great majority of women (81%) with a live birth did not receive a postnatal check-up at all [16].

Furthermore, different studies conducted in Ethiopia also showed that the estimated prevalence of PNC utilization ranges from 20.2% in Jabitehenan to 83.3% in Debre Birhan town [17].

Even though, there is a guideline and strategy on postnatal care follow-up in Ethiopia but not applied properly; there are little information and less practice in postnatal care follow up at the ground level in the community. Because of this, the government of Ethiopia developed the Health Extension Program (HEP) designed to improve the health status of families, with their full participation, using local technologies and the community's skill and wisdom. The HEP draws on the same principles as Primary Health Care, but focuses on the improvement

of prevention skills and behaviours within the household, and involves fewer facility-based services. The HEP is the main vehicle for bringing key maternal, neonatal and child health interventions to the community through the provision of staffed health posts with Health Extension Workers (HEWs) who are trained to deliver 16 health care packages under four components. Among these four components family health service play a significant role in reducing maternal and child morbidity and mortality through educating the community to increase their awareness and knowledge regarding antenatal care, delivery practice and PNC. After 96 hours of training by HEWs, and adopting 12 of the 16 packages, a family graduates to become a HEP graduate or a model family [18].

Prompted and encouraged by the success of the Health Extension Programme, Ethiopia has recently created an innovative volunteer system known as Women's Health Development Army (WHDA). WHDA is a network consists of five women volunteers and make up a larger group of 30 led by a woman from model household, organised to promote health, prevent disease through community participation and empowerment. The WHDA has effectively facilitated the identification of local salient bottlenecks that hinder families from utilizing key Maternal, Neonatal and Child Health Services and to come up with locally grown and acceptable strategies for addressing on going issues [19].

Despite the above strategies in due course, still the postnatal periods is a neglected period, and continue to be regarded as having little value, but the greatest number of maternal and new born deaths occur during this time. It is also among the lowest MNCH programmes along the continuum of care, especially in a rural area where 85.1% of women did not receive postnatal check-up [20].

Even though, different studies were conducted in Ethiopia; significant heterogeneity in the prevalence across studies shows that area-specific factors associated with PNC need further exploration. Moreover, this study also differs from previous studies done in Ethiopia in that, the role of WHDA and HEP graduation on PNC service utilization were not studied as a factor and has not yet been systematically analysed.

Therefore, this study aimed to fill the existing information gap on PNC service utilization via identifying factors/predictors by providing empirical evidence-based data in rural Ethiopia, particularly in the study area.

METHODS

Study setting

This study was conducted in Bahir Dar zuria district, North West Ethiopia. The district has 32 rural kebeles (the smallest administrative unit in Ethiopia) with a total population of 218,213. Out of this, 106,142 were women. The district has 12 public health centres and 32 Health posts. Health professionals were unevenly distributed in all health facilities and there were a total of 187 health professionals and 75 health extension workers. There were also 1320 one to thirty networks (WHDA) in the district (Bahir Dar zuria district health office report 2018).

Study design and period

A community based quantitative cross-sectional study was conducted from December 1, 2018, to January 30, 2019.

Eligibility criteria

All women who gave birth six months prior to data collection regardless of the birth outcome, and live for at least six months in

the district were included in the study. Women who were seriously ill to respond to the questionnaire were excluded from the study.

Sample size determination

The sample size was determined using a single population proportion formula considering 34.8% for the proportion of postnatal care utilization (31), 95% confidence level, 5% margin of error, a design effect of 2 and non-response rate 6%. The final sample size became 742.

Measurements

Postnatal care service utilization in this study was considered as woman who received at least one PNC service from primary health care units following delivery till 42 days.

The knowledge of PNC was assessed using a 7 points scale. There were seven multiple choice questions that carried a total of seven correct responses. Each correct response was given a score of 1 and a wrong response a score of 0. Total points to be scored were 7 and the minimum was 0. For assessment, the median score was used in order to classify as good knowledge (those mothers who scored equal to or above the median score of knowledge questions asked on PNC) and poor knowledge (those mothers who scored less than median score of knowledge questions asked on PNC)

Woman participation in decision making about own health care was considered if a woman makes decisions alone or jointly with her husband or someone else.

Sampling technique and procedure

Multistage sampling technique was used to select study participants. In the first stage, from the total of 32 kebeles, 10 kebeles were selected using the lottery method. Then to obtain 742 study participants, the total sample size was allocated to each selected kebeles using population proportion to size. And HHs was selected using systematic random sampling technique. All women who gave birth in the last six months prior to data collection and reside in the selected HHs were eligible to be interviewed. Whenever more than one eligible respondent found in the same selected household, only one respondent was chosen by lottery method. For households with no eligible woman the immediate next household was selected and then, subsequent households were selected accordingly via the predetermined interval.

Study variables

The dependent variable of the study was postnatal care utilization. The independent variables include; socio-demographic and economic variables (age, marital status, educational status of the mothers, educational status of the husband, mother's occupation, husband's occupation, women's participation in decision making about own health care, being involved in women's health development army, being graduated in HEP), knowledge on PNC and obstetric related factors (current total number of children, history of ANC attendance, place of delivery, mode of delivery and outcome of birth).

Data collection tool and procedure

Data were collected using an interviewer-administered questionnaire that can address the objective of the study which is developed by reviewing different literature of previous similar studies. The data collection instrument was prepared initially in English and translated into local language (Amharic). Five diploma nurse data collectors and two BSC health officers as supervisors

participated in the data collection process. One and half day training was given for data collectors and supervisors on how to approach participants, how to gather the appropriate information, procedures of data collection, the contents of the questionnaire and the objective of the study.

Data processing and analysis

The collected data were entered in to Epi-Info version 3.5.1 and exported to SPSS version 20.0 for analysis. Frequency and percentage were used for the descriptive part and logistic regression model was used to identify the statistically significant variables. Variables that were statistically significant with p-value<0.2 at bi-variable logistic regression were entered to multivariable analysis. The multivariable logistic regression was used to identify variables which are statistically significant with p-value<0.05 and odds ratio with 95 % confidence interval was computed to determine the level of significance.

RESULTS

Socio-demographic characteristics of respondents

From 742 eligible women in the selected sample, 708 (95.4%) of them responded to the questionnaire. About 79.7% (564) respondents were between the ages 20 to 34 with a mean age of 28.2± (4.8 SD) and 84.9% (601) were married. Almost 56% of respondents were involved in WHDA (1 to 5 and 1 to 30 network) and 61% of respondents were graduated in HEP previously. Regarding women's autonomy 75.5% of respondents involved in decision making about own health care (Table 1).

Table 1: Socio-demographic characteristics of respondents in Bahir Dar Zuria district, North West Ethiopia, 2019.

Variables	Frequency (n)	Percentage (%)
Age of respondents		
<20	56	7.9
20-34	564	79.7
35-49	88	12.4
Marital status		
Married	601	84.9
Unmarried*	107	15.1
Religion		
Orthodox	645	91.1
Muslim	63	8.9
Educational status of respondents		
No education	663	93.6
Primary education	22	3.1
Secondary education and above	23	3.3
Occupation of respondents		
Housewife	507	71.6
Farmer	82	11.6
Merchant	86	12.1
Daily labourer	33	4.7
Husband's educational status		
No education	566	94.2
Primary education	22	3.7
Secondary education and above	13	2.1

Husband's occupation		
Farmer	477	79.4
Merchant	112	18.6
Daily labourer	12	2
Involvement of WHDA		
Yes	396	55.9
No	312	44.1
Graduated in HEP		
Yes	431	60.9
No	277	39.1
Women's participation in decision making		
About own health care		
Yes	536	75.7
No	172	24.3

N.B:*= Divorced, Widowed, Single, Separated

Majority of the respondents 499 (70.5%) received ANC service during their last pregnancy. Among these 128 (25.7%) received four times and above. While only 340 (48%) of respondents delivered in health facilities (Table 2).

Table 2: Obstetric history of respondents in Bahir Dar Zuria district, North West Ethiopia, 2019.

Variables	Frequency (n)	Percentage (%)
Birth order		
1	128	18.11
02-Mar	402	56.8
04-May	160	22.6
6+	18	2.5
ANC visit for the last pregnancy		
Yes	499	70.5
No	209	29.5
Number of ANC visit		
01-Mar	371	74.3
Four and above	128	25.7
Place of delivery		
Home	368	52
Health facility	340	48
Mode of delivery		
Spontaneous vaginal	590	83.3
C/S and Instrumental	118	16.7
Outcome of birth		
Alive	609	86
Still birth	99	14

From the total of 708 respondents 377 (53.3%) had good knowledge about PNC. Regarding the knowledge about danger signs 489 (69%) and 694 (98%) were aware of at least one danger sign of the mother and the new born during postpartum period respectively (Table 3).

Table 3: Knowledge of Respondents towards PNC in Bahir Dar zuria district, North West Ethiopia, 2019.

Variable	Frequency (n)	Percentage (%)
Knowledge on PNC		
Good	377	53.3
Poor	331	46.7

Knowledge on availability of PNC		
Yes	412	58.2
No	296	41.8
Knowledge on advantage of PNC		
Yes	578	81.7
No	130	18.3
For whom PNC is necessary		
Those who gave birth at home	261	36.87
Those who gave birth at health facility	124	17.51
Those who gave birth at home and health facility	323	45.62
Know at least one danger sign of new born during postpartum		
Yes	694	98
No	14	2
Know at least one maternal danger sign during postpartum		
Yes	489	69.1
No	219	30.9

In a multi-variable logistic regression; being involved in WHDA, being graduated in HEP, history of ANC attendance, place of delivery, outcome of birth and knowledge on PNC service had statistically significant association at p-value <0.05 with postnatal care utilization (Table 4).

Table 4: Factors determine PNC service utilization of respondents in Bahir Dar zuria district, North West Ethiopia, 2019.

Variables	PNC service utilization		COR 95%CI	AOR 95%CI
	Yes	No		
Age				
<20	28	28	1	1
20-34	201	363	2.83 (1.39,5.73)*	0.87 (0.25,2.46)
35-49	23	65	1.56 (0.94,2.6)	0.34 (0.9,1.32)
Being involved in WHDA				
No	35	277	1	1
Yes	217	179	9.6 (6.41,14.4)**	11.26 (6.41,19.8)**
Being graduated in HEP				
No	34	243	1	1
Yes	218	213	7.32 (4.88,10.97)*	5.05 (2.88,8.87)**
Participation in decision making about own health care				
No	40	131	1	1
Yes	213	324	2.14 (1.43,3.16)*	1.34 (0.6,2.97)
ANC attendance				
No	14	195	1	1
Yes	238	261	12.7 (7.18,22.46)**	6.83 (3.26,14.27)**
Place of delivery				
Home	56	312	1	1
Health facility	196	144	7.6 (5.31,10.83)**	3.30 (1.92,5.68)**
Outcome of birth				
Alive	241	368	1	1
Still birth	11	88	0.19 (0.1,0.37)**	0.22 (0.1,0.5)**
Knowledge on PNC				

Good	231	146	23.4 (14.3,38.1)**	16.74 (9.08,30.86)**
Poor	21	310	1	1

N.B *=statistically significant at $p<0.005$ ** =statistically significant at $p<0.00$

Being involved in WHDA and being graduated in HEP were showed strong statistical association (p -value <0.001) with the level of PNC utilization. Women who were involved in WHDA were 11 times (AOR = 11.26, 95%CI=6.41, 19.79) more likely to utilize PNC services as compared with those who were not involved. Similarly, women who were graduated in HEP were 5 times (AOR=5.05, 95%CI=2.88, 8.87) more likely to utilize PNC services as compared to those who were not graduated.

PNC service utilization was highly associated with history of ANC attendance. Women who attended ANC follow up were 7 times (AOR=6.83, 95%CI=3.26, 14.27) more likely to utilize PNC services as compared to those who did not attend.

PNC service utilization regarding place of delivery showed strong statistical significant association in the manner that women who delivered in health facilities were 3 times (AOR=3.3, 95%CI=1.92, 5.68) more likely to utilize PNC services as compared to those who delivered in home.

Moreover, women with still birth outcome were 78% less likely to utilize PNC services than those with live birth.

Knowledge on PNC showed strong statistical significant association with PNC service utilization. Mothers who had good knowledge were almost 17 times (AOR=16.74, 95%CI=9.08, 30.86) times more likely to utilize PNC services than who had poor knowledge.

The present study helped to understand the mechanism of development of depression in Chinese university students as a function of parental depression. The correlation analysis showed a positive relationship between the incidence of parental depression and the development of anxiety in Chinese university students. Hence, it could be inferred that the respective students initially develop anxiety when they start to witness or perceive depression in their parent [7]. However, if they continue to suffer from anxiety for a long period, they are likely to develop depression [8]. This model was substantiated by the correlation analysis, which indeed showed that the duration of depression in students is positively correlated to both the duration of depression in their parents as well as their anxiety levels [9]. The study calls for mental health counseling for Chinese university students and their parents to address the prevalence and complications of depression in them. Although the present study provided robust data regarding the prevalence of depression in Chinese university students and their parents, future studies should incorporate evidence-based screening tools (such as the Beck Depression Inventory or DSM-V-based tools) for diagnosing depression. Such measures could further increase the reliability and validity of the present study and the research domain as a whole.

DISCUSSION

This study showed that utilization of postnatal care was 36.5 % (95%CI=31.90, 39.30), which is comparable with study results in Dembecha, Ethiopia (34.8%) [21]. Sidamo, Ethiopia (37.2%), Loma, Ethiopia(36.7%)(21), Debre Markos, Ethiopia (33.5%) and India (35%) (29). However, this finding is higher as compared to EDHS, 2016 (17%)(9), studies in Jabitehenan, Ethiopia (20.2%)

(16), Nigeria (14%), Kenya (14.2%) and lower as compared to studies in Adwa, Ethiopia (78.3%), Gondar, Ethiopia(66.8%) Debere Birhan, Ethiopia (83.3%), Egypt (48.7%), Cambodia (61%) and Baghdad (42%). The difference might be attributed to the time of the study, study population, study setting, study design, study area, sample size, and socio-demographic characteristics. For instance, the studies in Adwa and Debre Birhan were conducted in urban areas unlike our study, and a study in Egypt used a smaller sample size as compared to the current study [22].

Besides, the current study revealed that history of ANC visit has a significant association with PNC utilization. This is consistent with the study findings of Gondar, Ethiopia and Dembecha, Ethiopia. This could be owing to women's contact with the health care providers during ANC visit, increase the chance to get exposed to health education and counseling related to PNC service and its benefits, impels them to use the service. While antenatal care programs may not be the entire solution to reducing maternal mortality, our findings showed that making antenatal care visit was beneficial, and may also lead towards a greater uptake of PNC services [23].

Similarly, women gave birth in health facilities were more likely to utilize PNC than those who delivered at home, which is in agreement with study findings in Jabitehenan, Ethiopia, Gondar, Ethiopia(18), Debre Markos, Ethiopia, Halaba, Ethiopia, Debre Birhan, Ethiopia [24], Nigeria, Cambodia and Nepal. FGD result also showed that women who delivered in their home did not seek PNC services. The possible reason might be women who gave birth in health facilities could be exposed to the availability of PNC service during their stay in the health institution for giving birth and after delivery [25].

Furthermore, knowledge on PNC is another factor that has a strong statistically significant association with PNC utilization. This finding is similar with studies in Jabitehenan, Ethiopia, Gondar, Ethiopia, Debre Birhan, Ethiopia(24), Cambodia and Baghdad, except the study finding of Adwa, Ethiopia that revealed disparate finding with the current study. This could be explained in the fact that good knowledge on PNC, services given and danger sign and symptoms during the postpartum period will motivate mothers to attend PNC with the intention of prevention, early detection and getting managed their postpartum complications, and for women to use PNC services, they must know about the services [26].

Another factor that was shown a significant association with PNC utilization is the birth outcome. This is consistent with the study finding in Debre Markos, Ethiopia. This impact could be partly explained by a lack of awareness about PNC, the benefit, and type of service provided during the postpartum period [27].

Concerning more pertinent findings in this study that were shown to have a strong statistical association with PNC utilization were being involved in WHAD and being graduated in HEP.

Women who were graduated in HEP were more likely to utilize PNC services than those who were not graduated. This might be due to the fact that, women from model families (graduated in HEP) are equipped with knowledge and skill necessary to practice maternal health services available like PNC. In addition, a family to be certified as a model they are expected to use and model maternal health services, which raise their PNC utilization.

Regarding WHDA, women who were involved in WHDA were more likely to utilize PNC services as compared to those who were not involved. The possible reason might be due to WHDA leaders mobilize and educate the community to take up key MNCH services including PNC through disseminating essential health messages during door to door visit and weekly meeting with their respective members. They also identify and help women needing PNC to utilize the service, which increases women's engagement and health-seeking behaviour towards PNC service.

Strength and limitation of the study

Six months' time period was chosen to minimize recall bias since women were asked for events which have already happened. Despite the above strengths, the study has a limitation. This study utilized cross sectional study design, hence it is difficult to establish causal relationship between the independent and the outcome variables.

CONCLUSION

In general, the study has revealed that PNC service utilization in this study area was lower than what was planned to achieve in growth and transformation plan two of Ethiopia. The most pertinent findings this study revealed were being involved in WHDA and being graduated in HEP that has shown a statistically significant association with PNC utilization. Likewise, other factors found to have significant association with PNC utilization were history of ANC attendance, place of delivery, outcome of birth and knowledge on PNC. Therefore, addressing these factors with a cumulative effort in different level of the health care system of Ethiopia will increase the uptake of PNC services, and in the long run it will minimize maternal and neonatal morbidity and mortality of the community.

Declarations ethics approval and consent to participate

Ethical clearance was obtained from the ethical review committee of Bahir Dar University, School of public health. Official Letter of co-operation was written from Bahir Dar University to Amhara regional state health bureau. Since the study was conducted in rural areas, and the great majority of the participants were illiterate, the ethical review committee approved the procedure for verbal consent. Accordingly, Verbal consent was obtained from each study subjects with the presence of an impartial witness after reading the consent script and clear explanation about the purpose of the study. A signed copy of the consent was offered to the participants. Any participant who did not willing to participate in the study was not forced to participate. They were also be informed that all data obtained from them would be kept confidential by using codes instead of any personal identifiers and was meant only for the purpose of the study.

CONSENT FOR PUBLICATION

Not applicable

Availability of data and material

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

Competing interests

We declare that, there have no financial and non-financial competing interests.

FUNDING

Not applicable

AUTHOR CONTRIBUTIONS

AAD, pictured the original idea, designed the study and implemented the project; analyzed the data and finalized to write the manuscript. FYK was assisted in methodology designing, tool development, data analysis and re-viewing the manuscript. All authors have read and approved the manuscript.

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