

Antenatal Care Utilization and It's Associated Factors in East Wollega Zone, Ethiopia

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Abstract

Background: Antenatal care, is one of the most effective health interventions that can play a significant role in preventing maternal morbidity and mortality especially in under developed world. Information regarding its utilization is crucial to encourage mothers to get Antenatal care and institutional delivery service.

Methods: A community-based cross-sectional study was carried out from October to November 2013 in East Wollega Zone of Oromia Regional State. Women aged 15-49 who gave birth in the 12 months prior to the beginning of the study in the selected kebeles/clusters were included in the study. Bivariate and multiple logistic regression models were used to examine the effect of each independent variable on ANC use.

Results: Among the 770 women included in the study, 443 (57.5%) had at least one antenatal visit. Out of whom 58 (13.1%) had only one, 141 (31.8%) had two antenatal contacts 178 (40.2 %) had three visits, and only 66 (14.9%) had the recommended four or more antenatal visits. Among the potential determinants explored, having taken health education on maternal health [Adjusted OR (aOR)=5.5; 95% CI (3.2, 9.5)]; being above grade eight [aOR=2.8; 95% CI (1.4, 5.5)], grade one to four [aOR=2.3; 95% CI (1.5, 3.5)], grade five to eight [aOR =2.1; 95% CI (1.2, 3.6)]; being husband's occupation "other than farming" [aOR=1.8; 95% CI (1.2, 2.9)]; and perceived walking time to the nearest health facility being <30 min [aOR=1.7; 95% CI (1.1, 2.5)] were the factors that encourage pregnant mothers to use ANC.

Conclusion: This study has witnessed that there was low utilization of ANC services in the study area when compared to the recommended four visits during pregnancy. Hence, health education programs intended to enhance community use of ANC service should be strengthened.

Keywords: Antenatal care; Utilization; Maternal health; Ethiopia

Introduction

Reducing maternal death by improving maternal health is one component of Sustainable Development Goal 2. Globally, about 287 000 maternal deaths occurred in 2010. About 56% of the total global maternal death is from Sub-Saharan Africa [1]. In Ethiopia, the levels of maternal mortality and morbidity are among the highest in the world. The maternal mortality ratio in Ethiopia was 676 per 100,000 live births in 2011 indicating a huge burden of maternal health in the country [2,3].

Appropriate care during pregnancy is vital for the health of the mother and reduction of maternal mortality as well [4]. Antenatal care (ANC), an intervention provided for women during pregnancy is one of the most effective health interventions that can play a significant role in preventing maternal morbidity and mortality especially in under developed world where health status of women is deteriorated [5-7]. Taking its importance in to account, WHO recommends a minimum of four ANC and the first ANC visit should occur within the first trimester of pregnancy [8-11].

The essential interventions during ANC visit include detection and management of pregnancy-related complications; provision of Health education; promote the use of institutional delivery, and healthy behaviors such as breastfeeding, early postnatal care, and planning for optimal pregnancy spacing [9]. Despite its importance, its coverage ranges from 55% to 87% in most sub-Saharan African countries including Ethiopia [12]. As reported in 2011 Ethiopian Demographic Health Survey (EDHS), only 19% made the recommended number of four visits for their most recent birth. Oromia region of Ethiopia is one of the regions with higher maternal mortality burden and lower utilization of ANC service [2]. There could be several factors that limit the utilization of ANC in the country in general, in the region in particular. To our knowledge there is a paucity of information on ANC service utilization. Information regarding its utilization is crucial to encourage mothers to get Antenatal care and institutional delivery service so that maternal and infant mortality and morbidity will decline. Hence, the aim of this study was to assess the ANC utilization and the factors that are associated with it in Ebantu district, of Oromia Regional State, Ethiopia.

Methods

Study area and population

A community based cross-sectional study was conducted from October to November 2013 to determine the ANC coverage and assess its associated factors among women aged 15-49 who gave birth in the 12 months prior to the beginning of the study in Ebantu district, Eastern Wollega Zone of Oromia Regional State. Based on the 2007 national census, this Zone had a total population of 1,213,503, of whom 606,379 were men and 607,124 women [13]. The zone has 1 hospital, 59 health centers and 295 health posts. The study participants were women aged 15-49 who gave birth in the 12 months prior to the beginning of the study in the 12 selected kebeles/clusters.

Sample size and sampling procedure

The sample size was determined using two-population proportion formula by the following assumptions; 23% of women with one birth order attended ANC, 11.6% of women with ≥ 2 birth order attended ANC [14], with type I error (α) probability of 5%, power of 80% ($\beta=0.84$) to detect at least a 11% difference between the two groups, design effect for cluster surveys, DEFF of 2, the total sample size required was 796 women aged 15-49 after adding 15% contingency. The total sample size was proportionally allocated to each kebeles/clusters considering the total number of women aged 15-49 who gave birth during the previous 12 months (October 2012-September 2013). All women who gave birth within the last 12 months prior to the study and lived in the selected area for at least 6 months during the time of the study were included in the study.

Data collection

A pre-tested structured questionnaire was initially developed in English and then back translated into local language (Afan Oromo) and used for data collection. The questionnaire collected data on socio-demographic characteristics, obstetrics history and ANC. Thirteen female Health Extension workers were trained to recruit the study participants and implement the questionnaire.

Data analysis

Data were entered using EPI INFO version 3.5.1 software package and analyzed using SPSS version 20. Initial analysis was done by Chi-squared testing and subsequent analysis by binary logistic regression after adjustment for potential confounding variables.

Ethical considerations

The study protocol was reviewed and approved by the Research and Ethics Committee of the School of Public Health at the College of Health Sciences of Addis Ababa University. Informed consent was obtained from each participant and confidentiality was maintained. Lastly, information and education was given to the study subjects with regard to ANC, delivery care and postnatal care.

Role of the funding source

The sponsors of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report. The corresponding author had full access to the data in the study and had full responsibility for the decision to submit.

Results

Characteristics of the study participants

A total of 770 mothers aged 15 to 49 years participated in the study; indicating a 96.5% response rate. About 82% and 18% mothers were from semi-urban and rural areas, respectively. Majority (87.3%) of the study participants were protestant followers, followed by Orthodox (10.8%), and Muslim (1.9%). Regarding the educational status of the study subjects more than half (54.9%) had no formal education. The mean and median ages of the mothers were 27 years ranging from 15 to 42. Majority (93.8%) of the study participants had health facility in their locality, as well as 89% have taken health education on maternal health. The average gravidity and parity of the respondents were 4.3 ± 2.6 and 4.1 ± 2.5 , respectively (Table 1).

Variables	N	(%)
Age		
15-24	224	29.1
25-34	442	57.4
35-44	104	13.5
Educational status		
No formal education	423	54.9
Completed grade 4	149	19.4
Completed grade 5-8	85	11
Greater than grade 8	113	14.7
Occupation of the Mother		
House wife	663	86.1
Daily laborer	40	5.2
Civil servant	35	4.5
Merchant	15	1.9
Student	17	2.2
Husband's Occupation (745)		
Farmer	541	72.6
Others	204	27.4
Husband's Educational status (745)		
No formal education	167	22.4
Completed grade 4	195	26.2
Completed grade 5-8	158	21.2
Greater than grade 8	225	30.2
Presence of any Health Facility in their locality		
Yes	722	93.8
No	48	6.2

Perceived walking time to nearest health center (min)		
<30	251	32.6
30-60	243	31.6
60-180	276	35.8

Table 1: Socio-demographic characteristics of the study participants in East Wollega Zone, October-November 2013.

ANC utilization

Among the total women (770) included in the study, 443 (57.5%) had at least one antenatal visit. Out of whom 58 (13.1%) had only one, 141 (31.8%) had two antenatal contacts 178 (40.2 %) had three antenatal visits, and only 66 (14.9%) reported to have the recommended four or more antenatal visits. Moreover, Among the ANC users 231 (52.1%) started their visit during their second trimester while 145 (32.7%) started their visit during their first trimester, and the rest 67 (15.1%) started their visit during their third trimester. Regarding the question asking “why they attended ANC”; “to know maternal health status” (68.8%) and “because of sickness” (38.6%) were the main reasons mentioned. More than half (54.4%) of the attendants attended their ANC in health center while 38.4% attended in health post. Majority (92.3%) of the attendants didn't pay money for ANC service. The most frequent reasons for choice of health institutions for ANC attendance were; closeness of health institution to which the respondent lives 315 (70.0%), little or no cost for antenatal care attendance 142 (31.6%), good behavior of health workers 127 (28.2%) and convenient time of services 39 (8.7%). On the other hand, among the 327 mothers who did not attend ANC, being in a state of good health during pregnancy was mentioned by 195(59.6%) and lack of awareness by 138 (42.2%) as reason for not attending ANC (Table 2). On the other hand, 142 (18.4%) and 344 (44.7%) received skilled delivery and post-natal care service.

Variables	N	(%)
Visited ANC during the last pregnancy		
Yes	443	57.5
No	327	42.5
Time of first ANC visit		
1st trimester	145	32.7
2nd trimester	231	52.1
3rd trimester	67	15.1
Place of ANC visit		
Health center	241	54.4
Health post	170	38.4
Private clinic	21	4.7
Hospital	11	2.5
Frequency of ANC visit		
1	58	13.1

2	141	31.8
3	178	40.2
>3	66	14.9
Reason for seeking service in the specific facility		
Close to where I live		
Little or no expense	315	70
Behavior of health workers is best	142	31.6
Convenient time of service	127	28.2
	39	8.7
Decision maker for ANC		
Respondent	87	19.6
Husband	56	12.6
Both	295	66.6
Others	5	1.1

Table 2: Antenatal care utilization of the study participants in East Wollega Zone, October-November 2013.

Factors associated with ANC utilization

The outcome of interest of this study is ANC service utilization. Thus, the response variable is binary, indicating whether or not a mother visited health facility during pregnancy to get ANC service. The association between socio-demographic characteristics, obstetric history and knowledge about danger signs of pregnancy of mothers in relation to ANC service utilization was first assessed using bivariate and multivariate logistic regression models.

Among the potential determinants explored for the use of ANC service, having taken health education on maternal health; educational status being above grade eight, grade one to four, grade five to eight; husband's occupation “other than farming” and perceived walking time to the nearest health facility being <30 min were found to be significantly associated with ANC service use. Among all, those who have taken health education on maternal health were nearly six times more likely to use ANC service as compared to who have not taken [Adjusted OR (aOR)=5.5; 95% CI (3.2, 9.5)]. Those who were above grade eight were three times more likely to use ANC service [aOR =2.8; 95% CI (1.4, 5.5)], those where grade one to four were two times more likely to use ANC service [aOR=2.3; 95% CI (1.5, 3.5)], those who were grade five to eight were two times more likely to use ANC service [aOR=2.1; 95% CI (1.2, 3.6)]; as compared to those unable to read and write. Those women whose husband's occupation “other than farming” were nearly twice more likely to use ANC service [aOR=1.8; 95% CI (1.2, 2.9)] as compared to those farmer's wives. Those who were located at a walking time of <30 min to the nearest health facility were nearly two times more likely to use ANC service [aOR=1.7; 95% CI (1.1, 2.5)] as compared to those located at a waking time of ≥ 60 min (Table 3).

	ANC Visit	Crude	Adjusted
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Variables	No	Yes	OR (95% CI)	OR (95% CI)
Residence				
Urban	47	93	1.6 (1.1, 2.3)	0.8 (0.5, 1.3)
Rural	280	350	1	1
Educational status				
No formal education	233	200	1	1
Completed grade 4	49	100	2.3 (1.5, 3.4)	2.3 (1.5, 3.5)**
Completed grade 5-8	29	56	2.2 (1.3, 3.5)	2.1 (1.2, 3.6)*
Greater than grade 8	26	87	3.7 (2.3, 6.0)	2.8 (1.4, 5.5)*
Number of delivery				
1	52	71	1	1
02-Apr	120	189	1.2 (0.8, 1.8)	1.4 (0.9, 2.3)
N 5	155	183	1.3 (0.9, 1.8)	1.4 (0.9, 2.4)
Husband's Occupation				
Farmer	260	281	1	1
Others	13	27	2.2 (1.6, 3.1)	1.8 (1.2, 2.9)*
Taken Health Education on Maternal health				
Yes	264	421	4.6 (2.7, 7.6)	5.5 (3.2, 9.5)**
No	63	22	1	1
Presence of any Health facility in their locality				
Yes	299	422	1.9 (1.1, 3.4)	1.4(0.7, 2.8)
No	28	21	1	1
Perceived walking time to nearest health center (min)				
<30	80	171	2.2 (1.5, 3.1)	1.7 (1.2, 2.6)*
30-60	107	136	1.3 (0.9, 1.9)	1.1 (0.7, 1.6)
60-180	140	136	1	1

Table 3: Factors associated with Antenatal Care use in East Wollega Zone, October-November 2013; **: Significance level of <0.001; *: Significance level of <0.05.

Discussion

This study provides information regarding the utilization of ANC and its associated factors in both the semi-urban and rural part of East

Ethiopia. The data demonstrated that in this population, more than half of the mothers had utilized ANC service at least once. Besides, having taken health education on maternal health; being educated, being husband's occupation "other than farming", and presence of health facility nearby home were the factors that encourage pregnant mothers to use ANC.

In this study more than half (57.5%) of the mothers had at least one visit. This is consistent with different reports from Ethiopia [12,15-17]. However, it was higher than the 34% of EDHS 2011 report [2]. The possible explanation for this difference could be the fact that EDHS encompassed distant areas, and time gap could have played a role to the difference. It is recommended that a woman without complications need have at least four ANC visits to get adequate intervention [5,6]. Only 14.9% of women in our study had the recommended four and above visits. Similarly, the latest EDHS [2] has reported that only 19% had four and above visits. Though WHO recommended that the first antenatal visit should occur within the first three months of pregnancy, this study showed that only one-third of respondents started their ANC within the recommended time. Studies from different regions of the country [18,19] reported similar result; while the latest EDHS [2] report indicated a lower proportion (11%) of women who made their first ANC visit before the fourth month of pregnancy. Among the women who had not utilized ANC in this study, the major reasons reported for not utilizing ANC were absence of illness during pregnancy, lack of awareness about ANC, distance from health facility being too far and being too busy. These reasons are in agreement with the findings of other studies from Ethiopia [19-24].

In our study, those who have taken health education on maternal health were more likely to use ANC service. This could be explained by the fact that to those who have taken health education on maternal health will have knowledge and awareness about the advantages of the interventions and pregnancy related complication, and thus influences them to use of maternal health-care services. Educated women were more prone to use ANC in the current study. Similar findings have been observed by other studies from Bangladesh [25], Ethiopia [26,27], Swaziland [28] and India [29]. Women's education improves women's practice of ANC utilization there by equipping them with the knowledge of modern health care and boosting their confidence in making independent decisions about where and how to get the right health care [15,30].

In the current study, husband's occupation was associated with ANC use. Those women whose husband's occupations "other than farming" were more likely to use ANC service than farmer's wives. This finding was in agreement with the results of other studies where women with husbands in non-farming occupations were more likely to use ANC and institutional delivery [15,31,32]. On the other hand, women who live within 30 min walking distance from the health facility were more likely to use ANC. Previous studies in Ethiopia and other African countries have also shown an association between ANC utilization and proximity to a health facility [15,7,20,31,33-35]. The distance from health facilities may incur them extra expense for transportation costs which in turn could hinder them from receiving ANC services.

The strengths of the present study lay in the use of representative samples, but it has some limitations. Firstly, it did not explore the quality of ANC services delivered to the community, such as the type of information and health education provided to the mother, as well as the outcome of the last pregnancy wasn't assessed. Secondly, since the study design is simple cross-sectional study, it doesn't show a strong cause and effect relationship of the study variables. Nonetheless, the

validity of the study's results is unlikely to be affected by these issues. Further health facility based prospective studies that incorporate direct observation would be important to assess the quality of ANC.

Conclusion

In conclusion, this study has witnessed that there was low utilization of ANC services in the study area when compared to the recommended four visits during pregnancy which, in effect, could have put the safety of the mother and the unborn baby in danger. Having taken health education on maternal health; being educated, husband's occupation being other than farmer, and presence health facility nearby home were enabling factors for utilization of these services. Hence, health education programs intended to enhance community use ANC service should be strengthened with special focus for women with low or no education. On the other hand, involving husbands during health education is also necessary as they can play a role in encouraging their wives to use ANC. Furthermore, there is a need to increase the availability and accessibility of ANC services to those in need.

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Author's Contribution

TG was involved in proposal writing, designed the study and participated in coordination, supervision and the overall implementation of the project, analyzed the data, drafted and finalized the manuscript. MF and FT participated in all stages of the study and revision of the manuscript. All authors read and approved the final version of the manuscript

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