

Focused Antenatal Care Service Utilization and Associated Factors in Dejen and Aneded Districts, Northwest Ethiopia

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Abstract

Background: Focused antenatal care considers every pregnant woman at high risk for developing pregnancy-related complications. Hence, all pregnant women should receive at least four antenatal visits to early identify the complications and intervene accordingly. Therefore, this study attempted to assess focused antenatal care service utilization and associated factors among mothers who gave birth in the last 2 years prior to the study in Dejen and Aneded districts, Northwest Ethiopia.

Methods: A community-based cross-sectional study was conducted on mothers who gave birth in the last 2 years in 2013. Multistage sampling was used to get the total sample size of 521. Pre-tested structured questionnaires were used to collect the data. The data were entered and cleaned by using Epi info version 6 and exported to SPSS version 16.0 software package for analysis.

Results: A total of 509 mothers who have history of antenatal care for their last birth in the last two years were included in the study from which 61 (12.0%, 95%CI: 11.87, 12.13) mothers attended focused antenatal care service. Marital status (single/divorce women) (AOR= 3.44, 95%CI: 1.43, 8.26), travelling more than one hour to obtain antenatal services (AOR=8.21, 95%CI: 1.28, 36.8) and abortion history (AOR= 3.57 and 95%CI: 1.62, 7.86) were significantly associated with focused antenatal care service utilization.

Conclusion and recommendations: The majority of pregnant mothers did not attend focused antenatal care during their last pregnancy. Marital status, travel time to health facility, history of abortion and illness, plan of pregnancy and sources of information were identified as factors affecting focused antenatal care service utilization. Provision of focused antenatal care should be used as an opportunity for early detection of pregnancy related complications. Women health development army in the districts should be used to disseminate information regarding FANC for pregnant mothers.

Keywords: Focused; Antenatal care; Ethiopia

Introduction

Antenatal Care (ANC) is an umbrella term used to describe the medical procedures and care that are carried out during pregnancy. The goal-oriented antenatal care approach was recommended by researchers in 2001 and adopted by the World Health Organization (WHO) in 2002. Ethiopia has accepted and adopted Focused Antenatal Care (FANC) as part of monitoring women's health and offering preventive services [1].

Focused antenatal care approach recognizes two key realities: first, frequent antenatal visits do not necessarily improve pregnancy outcomes and secondly, many women with risk factors may never develop complications. While ANC interventions, maternal mortality and the death of a woman while pregnant or within 42 days of termination of pregnancy, remains disturbingly high in sub-Saharan Africa [2].

In Ethiopia, the maternal mortality was estimated to be 673 deaths per 100,000 live births and infant mortality rate was 77 per 1,000 live births, which is among the highest in the world. As emphasized in the 2005 Ethiopian Demographic Health Survey (EDHS), one explanation for poor health outcomes among women in Ethiopia was non-use of modern health care services.

The new model reduces the number of required antenatal visits to four, and provides focused services shown to improve maternal outcomes. Focused antenatal care eliminates the traditional risk assessment and instead emphasizes helping women to maintain normal pregnancies by identifying existing health conditions, detecting emerging complications, promoting health, preparing for a healthy birth, and educating clients on postpartum care including nutrition, breastfeeding and family planning [3].

Focused antenatal care recognizes that every pregnant woman is at risk for complications, and therefore all women should receive basic care and monitoring for complications. The provision of quality basic care-safe, simple, cost-effective interventions that all women should receive in turn helps maintain normal pregnancies and can save lives

by preventing complications and facilitating early detection and treatment of complications [4].

According to EDHS (2011), FANC service coverage in Ethiopia was 19.1%. Despite low utilization of health care services, there is considerable variation across different demographic and socio-economic variables in utilizing FANC [5,6].

Studies that focused on maternal mortality and morbidity in developing countries have repeatedly recommended the need for FANC and availability of trained personnel to attend women during labor and delivery [7].

However, in Ethiopia the utilization of FANC is still very low and many of the studies done so far did not target FANC. As a result, this study aimed at assessing the utilization and factors affecting FANC among mothers in the study areas.

Methods

Study design, period and setting

A cross-sectional study was conducted among mothers who have history of ANC for their last birth in the last two years in Dejen and Aneded districts, Northwest Ethiopia from 21st July to 30th August 2013. Based on 2012 estimation, Dejen and Aneded districts had a total population of 113,672 (of which 47.5% were child bearing women (15-49 years)) and 98,606 (of which 54.7% were child bearing women (15-49 years)), respectively. Dejen district had 3 urban and 20 rural kebeles (smallest administrative units), 5 functional health centers and 21 health posts whereas Aneded comprised of 1 urban and 19 rural kebeles and 5 functional health centers and 20 health posts.

Source and study population

The source populations were all reproductive age women attending ANC clinic in the last two years in Dejen and Aneded districts; whereas selected reproductive age women attending ANC clinic in the last two years in the districts were the study populations. Child bearing age women who had ANC visit in the last two years and lived for at least six months in the study area were included and those who were severely ill and/or unable to hear from the study were excluded.

Sample size determination

The required sample size of the study participants was determined by single population proportion formula using the assumptions of z , standardized normal distribution value for the 95%CI, which is 1.96, p , an estimate of the level for the population ($19.1\% = 0.191$) (6) and taking d , the margin of error to be 5.0%.

$$n = z^2 p (1-p) / d^2 = (1.96)^2 (0.191) (0.809) / (0.05)^2 = 237$$

Since multistage sampling technique was used, design effect of 2 was considered to get the final sample size and the required sample size was found to be 474. After adding 10% for non-response rate, the final total sample size was 521.

Sampling techniques

Multistage sampling technique was used to select the study populations. Two districts, Aneded and Dejen, were selected randomly. Eight rural kebeles were also selected randomly. The list of mothers who attended ANC was obtained from the health post of the

kebeles and the study participants were selected using computer generated random numbers. If there was more than one mother within the same household lottery method was used to select the eligible mother.

Data collection procedures

Data were collected by face-to-face interview using structured and pre-tested questionnaires. The questionnaires have embodied socio-demographic characteristics, obstetric history and service delivery patterns. Sixteen Health Extension Workers (HEW) collected the data and two supervisors (one BSc. nurse and one environmental health officer) from the districts health office were assigned to monitor the data collection process.

Data quality control

The quality of data was assured by proper designing and pre-testing of the questionnaires to ensure validity. The questionnaires were first prepared in English and translated to Amharic (local language). Finally, it was translated back to English by another person and training was given for both data collectors and supervisors by the principal investigators. The training included discussion on the objectives of the study, contents of the questionnaires, data collection techniques and issues of confidentiality of the responses. Questionnaires were reviewed and checked for completeness by the supervisors and the principal investigators and the necessary feedbacks were offered to data collectors throughout the study.

Data processing and analysis

All the questionnaires were checked visually, coded and entered into EPI info version 6 and were exported to SPSS version 16.0 software packages for analysis. Double entry and frequency checks were done to control for errors. Univariate, bivariate and multivariable analyses were done. The data were analysed using binary logistic regression to determine the effect of various factors on the outcome variable and to control confounding effect, multiple logistic regressions was used. The results were presented in tables, figures and texts using frequencies and summary statistics such as mean, standard deviation and per cent to describe the study populations in relation to relevant variables. The degree of association between independent and dependent variables was assessed using odds ratio with 95% confidence interval.

Variables of the study

Dependent variable

Focused antenatal care utilization

Independent variables

Socio-demographic and economic variables

Health facility characteristics: distance from health facility

FANC service utilization pattern: ANC visit, knowledge and attitude of the mother towards focused antenatal care follow up services in health facilities.

Operational definitions

Focused antenatal care: Four visits of antenatal care service as per WHO recommendation during pregnancy [1].

Good knowledge of ANC: Mothers who correctly answered 75.0% of knowledge questions regarding ANC.

Ethical consideration

This study was reviewed and approved by the Institutional Review Board (IRB) of Health Sciences College of Debremarkos University and permission was also obtained from Dejen and Aneded districts administration and respective health offices. All selected participants were informed about the objectives and contribution of the study and their verbal consent (as most participants were unable to read and write) were obtained before administering the questionnaires. Participants were informed that they have the right to discontinue or refuse to participate in the study and checklist was used to record their consent. They were also informed that all data obtained from them would be kept confidential and all procedures were approved by the IRB.

Results

Socio-demographic and economic characteristics of the respondents

A total of 521 respondents were sampled and 509 (97.69%) were interviewed making non-response rate of 11 (2.3%). The mean age was 29.31 (\pm 5.74 SD) years. Among the study participants, 191 (37.1%) were within 25-29 age group. Three hundred ninety one (76.8%) and 488 (95.9%) participants were illiterate and married, respectively (Table 1).

Variables (n=509)	Frequency	Per cent
Age (years)	7	1.4
15-19	76	14.9
20-24	191	37.5
25-29	120	23.6
30-34	72	14.1
35-39	41	8.1
40-44	2	0.4
45-49		
Marital status	460	90.4
Married	49	9.6
Single/divorced		
Religion	479	94.1
Orthodox	30	5.9
Muslim		
Educational status	391	76.8
Unable to read and write	61	12.0
Only read and write	35	6.9
Primary education	22	4.3
Secondary and above		
Occupation	476	93.5
Housewife	13	2.6
Civil servant	12	2.4
Merchant	8	1.6
Student		

Family income (USD)	116	22.8
<25	170	33.4
25-50	223	43.8
>50		

Table 1: Socio-demographic and economic characteristics of respondents in Aneded and Dejen districts, Northwest Ethiopia, July to August 2013.

Obstetric characteristics of the respondents

The mean age at first pregnancy was 15 (\pm 3.4 SD) years. About seven in ten (69.2%) women become pregnant at the age of <20 years and 155 (30.5%) were between the age of 20 and 34 years. Three hundred (64.0%) of the respondents had history of 2-4 pregnancies and 108 (21%) of them had history of more than 5 pregnancies (i.e., multigravida). Majority of the respondents (64.8%) had 2-4 children. Thirty eight (7.5%) and 25 (4.9%) of the mothers had history of abortion and still births respectively (Table 2).

Antenatal care knowledge

Health institutions were the main sources (40.3%) of information for ANC services. Majority of the respondents, 346 (68%), went ANC clinic for regular check-ups. Among ANC users, 412 (80.9%), reported that FANC check-up has benefits to the health of both the mother and children, while 51 (10.0%) mentioned its benefit is only for the health of the child and 46 (9.0%) mentioned that it is beneficial for the wellbeing of the mother only (Table 3).

Antenatal care service utilization

Among mothers who attended ANC for their last pregnancy, 192 (37.7%) visited 3 times, 124 (24.4%) visited four and more times, 114 (22.4%) visited twice and 79 (15.5%) attended once. At least one injection of tetanus toxoid (TT) was reported by the majority, 384 (75.4 %), of mothers during their last pregnancy. Out of these, 191 (37.5%) of the women had TT injection attendance card. Three hundred thirty three (65.4%) of the women obtained laboratory examination. Among mothers who attended ANC, 21 (4.1%) of the women paid for antenatal care service and 110 (21.6%) waited more than 60 minutes during ANC service utilization.

Among mothers who attended ANC follow up, 497 (97.6%) of the women thought pregnant women should attend FANC during their pregnancy. From those mothers who visited health institution for ANC, 231 (45.4%) of the women thought waiting time during ANC service was a major problem for not attending it (Table 4).

Variables (n=509)	Frequency	Per cent
Age at first pregnancy	352	69.2
15-19	155	30.5
20-34	2	0.4
35-49		
Gravidity	75	14.7
1	326	64.0
2-4	108	21.0
5 and above		

Parity	79	15.7
1	230	64.8
2-4	100	19.6
>/=5		
History of abortion	38	7.5
Yes	471	92.5
No		
Health problem (s) during last pregnancy	229	45.0
Yes	280	55.0
No		
History of still birth	25	4.9
Yes	484	95.1
No		

Table 2: Selected obstetric characteristics of respondents in Aneded and Dejen districts, Northwest Ethiopia, July to August 2013.

Use of focused antenatal care

Among the study participants, 141 (27.7 %) had at least one prenatal visit during their first trimester of last pregnancy while 180 (35.4%) had first prenatal visit during their second trimester; moreover, 113 (22.2%) and 75 (14.7%) mothers had third and fourth prenatal visits, respectively (Figure 1). Sixty one (12%) mothers reported four ANC visits as per WHO recommendation; therefore, the use of FANC was found to be 12% (95% CI: 11.87, 12.13) (Figure 2).

Factors associated with focused antenatal care utilization

Logistic regression analysis was done to come across with predictor factors of FANC utilization. Accordingly, on bivariate analysis, marital

status, travelling time to the nearest health facility, history of abortion, illness, and sources of information regarding ANC, plan of pregnancy and knowledge of mothers about ANC benefit were significantly associated with FANC utilization whilst educational status, occupation and family income did not show significant association. After adjusting for possible founders on multivariable analysis, marital status, travelling time, history of abortion, illness problem, plan of pregnancy and sources of information were significantly associated with FANC.

Single or divorced mothers more likely attended focused antenatal care than mothers who were married (AOR= 3.44, 95%CI: 1.43, 8.26). Mothers who travelled less than one hour to the nearest health facility were more likely to attend focused antenatal care as compared to those who travelled more than one hour (AOR=8.21, 95%CI: 1.28, 36.8). The probability of using focused antenatal care among mothers who had abortion was higher (AOR= 3.57, 95%CI: 1.62, 7.86) as compared to those who had no abortion.

Mothers who had history of illness during pregnancy significantly attended focused antenatal care as compared to mothers who had no history of illness (AOR=1.87, 95%CI: 1.02-3.43). Mothers who heard health information regarding ANC from radio or television more likely attended focused antenatal care than mothers whose sources of health information were their relatives (AOR=3.12, 95%CI: 1.35, 7.23).

Mothers who planned their last pregnancy attended focused antenatal care (AOR=0.048, 95%CI: 0.024, 0.962) when compared to mothers who did not plan their last pregnancy.

However, in this study both the respondents' average waiting time and benefit of antenatal check-ups did not show statistically significant association with focused antenatal care attendance during adjustment on logistic regression model (Table 5).

Variables (n=509)	Frequency	Percent
Sources of information		
Health institution	214	42.0
Radio/TV	91	17.9
Relatives	138	27.1
Women group	66	13.0
Benefit of ANC		
For pregnant women	46	9.1
For neonate	51	10.0
Both	412	80.9
Think pregnant women should attend ANC		
Yes	497	97.6
No	12	2.4
Months of visits		
1-3 months	141	27.7

4-6 months	180	35.3
7-8 months	113	22.5
9 months	75	14.7
Know danger health problem (s)		
Yes	371	72.9
No	138	27.1
Think danger health problem (s) occur during pregnancy		
Yes	397	78.0
No	112	22.0
Think lack of privacy is problem during ANC follow up		
Yes	498	97.8
No	11	2.2
Initiated ANC follow up visit (s)* As regular check up	346	68.0
When health problem (s) occur	163	34.0
Clinic was far from home		
Yes	44	8.6
No	465	91.4
No expense		
Yes	50	9.8
No	459	90.2
Good approach health worker		
Yes	167	32.8
No	342	67.2
Convenient time of service		
Yes	103	20.2
No	406	79.8
Respectful from health workers		
Yes	457	89.8
No	52	10.2

Table 3: Knowledge of ANC of mothers in Aneded and Dejen districts, Northwest Ethiopia, July to August 2013.

Discussion

According to WHO recommendation, woman should receive only four ANC visits for normal pregnancy [6].

The major goal of focused antenatal care is to help a women maintain normal pregnancy through identification of pre-existing health conditions arising during the pregnancy, health promotion and disease prevention, birth preparedness and complication readiness planning [9]. Subsequently, this cross-sectional study assessed focused

antenatal care service utilization and associated factors in Dejen and Aneded districts.

In this study, results showed that focused antenatal care service utilization in two districts was found to be 12.0%, where the majority of mothers (88.0%) were not attending focused antenatal care. This study finding was lower as compared with the EDHS (2011), which showed that 19.0% women received focused antenatal care in the respective region [6]. This might be due to the fact that EDHS (2011) was conducted in both rural and urban areas whereas this study was

exclusively conducted in rural settings to control distant from health services. The proportion of women who came for their first ANC visit within recommended time is higher than that of the EDHS 2011 [6]. This might be due to the variation in socio-demographic variables, sample size and difference in methodology.

In this study, marital status was significantly associated with utilization of focused antenatal care service where single/divorced women were found to be 3 times more likely to use FANC as compared to married women.

Variables (n=509)	Frequency	Per cent
Number of ANC visit during last pregnancy	114	22.4
One	79	15.5
Two	192	37.4
Three	124	24.4
Four and more		
Have TT injection card		
Yes	384	75.4
No	125	24.6
Blood pressure measure		
Yes	345	67.8
No	164	32.2
Weight measure		
Merchant	410	80.6
Student	99	19.4
Laboratory examination		
Yes	333	65.4
No	176	34.6
Physical examination		
Yes	305	60.0
No	133	26.1
Do not know	71	13.9
Height measure		

Yes	350	68.8
No	159	31.2
Did you pay ANC		
Yes	15	2.9
No	494	97.1
Average waiting time for ANC service	399	78.4
<60minutes	110	21.6
>60minutes		
Health education during ANC		
Yes	376	73.6
No	133	26.1
Think waiting time as a problem	231	45.4
Yes	278	25.6
No		
Distance from nearby health institution		
<60minutes	435	85.5
>60minutes	70	14.5

Table 4: ANC Service utilization of mothers in Aneded and Dejen districts, Northwest Ethiopia, July to August 2013.

These findings also revealed that travelling time of the respondents was significantly associated with utilization of FANC service. Pregnant mothers who travelled less than one hour were eight times more likely to attend focused antenatal care as compared to those who travel more than one hour. Eighty five percent of women reported that the health facility was either too far and it takes less than one hour on foot or that they did not have accesses of transportation. In consistent with this finding, EDHS (2011) showed that 14.0% of women reported that the health facility was either too far or that they did not have transportation services [6].

Sources of information were found to be significantly associated with the utilization of focused antenatal care service. Pregnant women whose sources of information were Health Development Army (HDA) were 3.12 times more likely to attend focused antenatal care as compared to those who heard from health institutions; the result of this study is in line with the study done in south India [8].

Variables	FANC		COR (95%CI)	AOR (95%CI)	p-value
	Yes	No			
Marital status	50	410	1	1	0.006
Married	11	38	2.37(1.14,4.93)*	3.44 (1.43,8.26)*	
Single/divorce					
Travelling time	59	373	5.93(1.41,24.8)*	8.21(1.28,6.8)*	0.006
<60 minute	2	75	1	1	0.002

>60 minute	13	38	2.92(1.45,5.86)*	3.57(1.62,7.86)*	
Number of abortion	48	410	1	1	
Yes					
No					
Illness experience	36	198	1.81(1.05,3.13)*	1.87 (1.02,3.48)*	0.043
Yes	25	250	1	1	
No					
Sources of information	21	193	1	1	0.008
HI	5	86	0.53 (0.19,1.46)	0.69 (0.23,2.06)	
Radio/TV	14	52	2.47 (1.17,5.19)*	3.12 (1.35,7.23)*	
HDA	21	117	1.65 (0.86,3.15)	1.61 (0.79,3.29)	
Relatives					

Table 5: Factors associated with FANC attendance in Aneded and Dejen districts, Northwest Ethiopia, July to August 2013.

It was observed that pregnant women who experienced health problems were two times more likely to attend focused antenatal care service as compared to those mothers who did not experience health problems. This finding is in line with other studies[7], which indicated that women's are more likely to be concerned about any health problems (whether or not the health problem mentioned were indeed a risk to the mother). This study showed that most of the respondents could be able to name the acceptable danger signs of pregnancy but the pregnant mothers did not practice antenatal care service at health institutions [9].

The result of this study showed that mothers with history of abortion were four times more likely to utilize focused antenatal care as compared to those mothers who did not have history of abortion. This finding is in line with the study conducted in south India, where women who experienced an induced or spontaneous abortion were 66.0% more likely to receive antenatal care than those who did not have any abortion in Karnataka state [8].

Generally, the utilization of focused antenatal care service was affected by some socio-demographic characteristics in consistent with studies conducted both in Ethiopia and abroad.

Conclusion and Recommendations

Focused antenatal care service utilization was found to be low among mothers in the study districts. Marital status, history of abortion, illness during pregnancy, sources information, travelling time to the health institutions were found to affect FANC service utilization. Provision of FANC should be used as an opportunity for early detection of pregnancy related complications. Women health development army in the districts should be used to disseminate information regarding FANC for pregnant mothers. There is a need of improving access for transportation for pregnant mothers to increase the utilization of FANC. Further qualitative research is recommended to more explore the contexts of FANC service utilization.

Figure 1: ANC visit by trimester of pregnancy among pregnant women attending ANC in Aneded and Dejen districts, Northwest Ethiopia, July to August 2013.

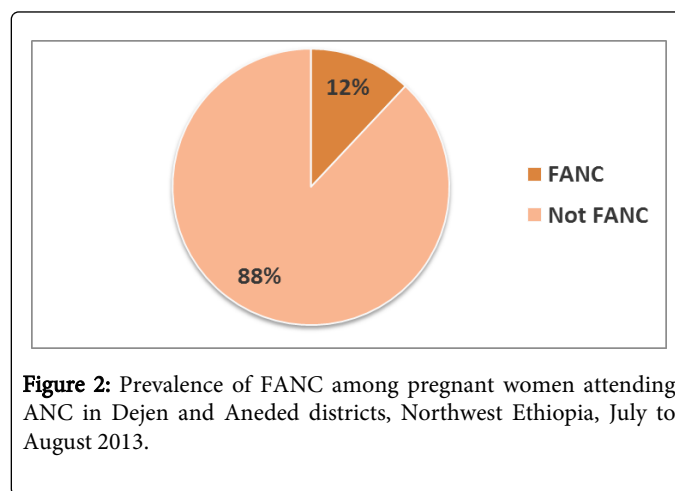


Figure 2: Prevalence of FANC among pregnant women attending ANC in Dejen and Aneded districts, Northwest Ethiopia, July to August 2013.

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