Utilization of Antenatal Care Services and Influencing Factors among Women of Child Bearing Age in Assosa District, Benishangul Gumuz Regional State, West Ethiopia

Muluwas Amentie[1], Muluemebet Abera[2] and Misra Abdulahi[3]

[1] Assosa University

Abstract

Background: Every minute, somewhere in the world and most often in a developing country, a woman of reproductive age dies from complications related to pregnancy. The major reason for this huge magnitude of the problem is failure to use antenatal care services in developing countries. Little is known about the utilization and factors influencing the use of Antenatal care services.Objective: To assess utilization of ANC services and influencing factors among women in Assosa District.Methods: A community based cross sectional study design was conducted from May 17 -31, 2012 on randomly selected samples of 536 women who had at least one delivery in the five years prior to the study. Structured questionnaire, FGD and in-depth interview guide were used to collect data. Data were analysed by using SPSS version 16.0. Binary logistic regression was used to determine the association between dependent and independent variables.

Index terms— antenatal care, health service utilization, factors, assosa, benishangul gumuz.

1 I. Introduction

ntenatal care is one of the most effective health interventions for preventing maternal morbidity and mortality particularly in places where the general health status of the women is poor. The antenatal period presents an important opportunity for identifying threats to the mother and unborn baby's health, as well as for counselling on nutrition, birth preparedness, delivery care and family planning options after the birth (1,2,3).

A women's health is critical to her own life, and to the well-being of her family, and the economy of her community and her country (4,5). But the mothers' health is closely tied to women's over all status. Where women lack education, economic opportunities and power over the decision that governs their lives, the health of the mother is poor. That is why world leaders gave a central place to maternal health and gender equality in the Millennium Development Goals. MDG 5, Improving Maternal Health, is often called "The heart of the MDGs," because if it fails, the other MDGs will fail as well (4,5).

The health care that a mother receives during pregnancy is important for the survival and well-being of both the mother and the child. The importance areas to maternal health care service: antenatal care service; problems in accessing health care and awareness and attitudes concerning maternal health care service are also essential for the survival and well-being of both the mother and the child (4-7).

The World Health Organization (WHO) estimates that, every minute of every day, somewhere in the world and most often in a developing country, a woman of reproductive age dies from complications related to pregnancy (10,11). Now a day, the importance of Antenatal care services in reducing maternal mortality and morbidity has received a significant recognition. Implementing and assuring utilization of effective maternity care for women in the developing world is not an easy task. In Ethiopia, as in other developing countries, most childbearing women are poor and live under harsh conditions. For them, while adequate care during pregnancy is essential, health care service utilization is extremely low **??**7).

Ethiopia demographic health survey 2011results show that 34 percent of women received antenatal care from a trained health professional at least once for their last birth. This low utilization of health care services may give some indication of service coverage in the country. As a result, each year large number of women in the child bearing ages (15-49 years) were die from complications associated with pregnancy and childbirth (7, 8). In Benishagul Gumuz regional state, utilization of ANC was 35.1%. This figure indicates there was low utilization of antenatal care services. Even though, utilization of ANC services is affected by a multiple factors (7-9).

Therefore, an attempt was made in this study to assess the status of ANC service utilization and important factors that affect women's utilization of maternal health care services.

2 II. Methods and Materials

Community based cross sectional study design was conducted employing both quantitative and qualitative methods of data collections to assess the status of ANC services utilization and influencing factors among women in child bearing age in Assosa District, Assosa Zone, Benishangul Gumuz Regional state, North-west Ethiopia. The source populations were all women living in Assosa District and had at least one delivery in the five years period preceding the survey. For quantitative method: the study population were women selected from source population. For qualitative methods: the study population was the part of community members in the study area especially study kebeles site such as women in child bearing age group, community leaders, religious leader, husbands, health workers and health extension workers.

Sample size was calculated for the cross sectional quantitative study. However, the sample size was calculated for each factors and magnitude each component of maternal health services utilization and the optimum sample size was taken. The sample size was calculated using EPI table of EPI 6 computer software which used two population proportion formulas. Therefore, the highest sample size calculated place of resident factors on the institutional delivery and this research is the continuation of institutional delivery service utilization. So that the calculated sample sizes was 134 for urban and 402 for rural women to be selected considering a design effect of two for the variation due to clustering and non-response rate of 10%. The total calculated sample size was536 women. However, this sample size was calculated for the study done for institutional delivery service utilization which has highest sample size. For qualitative data, the sample size was purposively determined which result 29 key informative for in-depth interview and 10 FGD were selected to supplement the quantitative data.

Sampling technique for the quantitative data, multi-stage sampling technique was employed. First, the four urban and seventy four rural kebeles were listed from which a total of ten kebeles (1 urban and 9 rural) were selected using simple random sampling technique. Secondly, the numbers of households living in the area were recorded; the probability of being included in the sample was proportional to the total number of household residing in each kebele. Assuming every household was to host at least one woman who gave birth in the last five years, households were taken as a final sampling unit. Out of the one sampled urban kebeles, a total of 134 households were selected. Also from the nine sampled rural kebeles, a total of 402households were selected using simple random sampling techniques. For households that had more than one eligible woman, interview was done by selecting one of them using lottery method. Revisit of three times was made in case where eligible respondents were not available at the time of the survey before considering as non-respondent. Regarding a woman having two and more under five children the most recent birth was taken. For qualitative data, focus group discussions were conducted after selecting FGD participant purposively. A total of ten FGDs were conducted at each selected kebele (one FGD having 8 -12 individuals) and: 3FGD for women in child bearing age, 3FGD for husbands, 3FGD for religious and community leaders, and 1FGD for health workers. For in-depth interview purposively selected 29 key informants were interviewed from the ten selected kebeles. Ten health workers (one from each kebele), 9 HEWs (one from each of the rural kebeles having HEW) and 10 community leaders (one from each kebele) were interviewed. In order to minimize bias, those who participated in FGDs and in-depth interviews were excluded from participating in quantitative study.

Data collection instrument for Quantitative method: Structured questionnaire was prepared in English and translated to Amharic language and then back translated to English by different people and used in the data collection of quantitative survey. Amharic (the Official working language) was preferred. Whereas for Qualitative method: discussion guide was prepared in English and discussions were made in local languages. Tape record was used at the same time. Interview guide was prepared in English and used for in-depth interview of key informants. Both discussion guide and interview guide were not translated in to Amharic because they are moderated and collected by principal investigator and experienced nurse.

Ten female data collectors, who were health extension workers and could speak local languages like Bertegna, Afan-oromo and Amharic, were used. For supervision four nurses having Diploma were selected from Assosa District Health Office, Selga 22 Health Center and Abramo Health Centre. Both the interviewers and supervisors were given two days training before the actual work about the study. Practical exercise was made through peer interviewer. Pre-test was carried out on 27(5%) of the sample size in two of the kebele in Assosa district which were outside of the selected kebeles that has similar socio-demographics characteristic with the people in both urban and rural kebeles. After completing pre-test, discussion was made with supervisors and data collectors, and care was taken not to include the kebele where the pre-test was made. Then, the data were collected using houseto-house interview questions, which consist of seven parts. During the actual data collection, supervisors were assigned for the data collector. The supervisors checked the activities of each data collectors by walking

with them in each kebele and sometimes-random spotchecking of the households were made to ensure reliability of the data collected. Each night the supervisors checked all the filled questionnaires for completion, clarity and proper identification of the respondents. Then, the principal investigator randomly checked 10% of the supervisors' work each day for completeness and relevance. Incomplete and unclear questionnaires were returned back to the interviewers to the next morning to get it corrected. For qualitative data: the principal investigator moderated the discussion of the male groups while the female groups were moderated by an experienced female nurse with diploma holder. Two senior nurses with diploma holder were took a note during the discussion. Each discussion had a tape recorded and finally the conversation was transcribed verbatim after each session and then analyze. Although, divers' opinions were expressed within each group, preliminary coding of transcript was done and themes that were directly related to the objective of this study were identified.

Data processing and analysis for quantitative method: the collected data were coded, entered and cleaned and analyzed by using SPSS Window version 16.0. Descriptive statistics was calculated for all variables. In bi-variate analysis crude odds ratio and confidence interval were determined to select candidate variables for multivariate analysis at the level significance (p<0.05). Binary and multivariate logistic regressions were used to determine the adjusted odds ratio and corresponding 95% confidence interval. A maximum likelihood estimate of the independent effect of the predictor variables was used to see the level of significance. The strength of association was interpreted using the adjusted odds ratio and 95% CI. The criterion for statistical significance was set at p <0.05. For qualitative method: Data of qualitative method were translated in to English, organized in narrative forms in congruent with the respondents' own words on the same day and analyzed by thematic frame work analysis.

Data quality was controlled by designing structured questionnaire. Interviewers were recruited and trained for two days. Pre-test was carried out for both tools. Two day training was given for data collectors, supervisors, and FGD moderators. The collected data was examined for completeness and internal consistency each day by supervisors. Strict supervision and tape recording of FGD process were also additional quality control methods

The study was conducted after approval of the proposal by ethical review committee of Jimma University. The survey was commenced after written consent obtained from Benishangul Gumuz Regional State Health Bureau to the respective offices. In turn the Assosa district Administration Office and Assosa Town Administrative Office wrote a letter to study kebeles to get permission and collaboration. Oral consent and written consent were obtained from each interviewee for their agreement to participate in the study. Interviews were conducted in private place. However, the women were assured that neither a 3 rd party nor their husband will have access to their responses. Privacy, anonymity and confidentiality were maintained throughout the process of the study by avoiding identifiers such as name.

3 III. Results

4 a) Obstetric characteristics of respondents

Nearly two third (74.1%) of the respondents were married before the age of 20 years old; 79(60.3%) for urban and 310(78.7%) for the rural. Most 333(63.4%) women had their first pregnancy below twenty; 62(47.3%) were in urban and 271(68.8%) were in rural. Half (50.1%) of women were between gravidity two and five; 72 (55.0%) were in urban and 191 (48.5%) were in rural.

Half (50.3%) of the respondents whose birth order of the last delivery between two and five (72(55%) for urban and 192(48.7%) for rural). In contrast 166(31.6%) of respondents (8(6.1%) for urban and 158(40.1%) for rural) had their birth order of the last delivery greater than five. Regarding number of delivery within last five years 237(45.1%) women (85(64.9%) for urban and 152 (38.6%) for rural) had only one delivery while 236(45%) women (35(26.7%) for urban and 201(51%) for rural) had two deliveries. Majority of the women in rural area had two and more than two deliveries but most of the urban women had only one delivery within last five years.

Fifty nine (11.2%) women had history of abortion among these 47(79.7%) had one time. Ninety seven (18.5%) of the respondent had history of still birth. History of abortion and still birth were much higher in rural area than urban area. About one fifth (19%) of the respondents encountered at least one health problem during pregnancy of their last delivery. (Table -1 Among women who encountered at least one health related problem during last pregnancy about 17(17%) encountered APH, 32(32%) severe headache, 37(37%) severe abdominal pain, 31(31%) drowsiness, 14(14%) persistent vomiting. These pregnancy related problems occurred more in rural than urban residents of the respondents. (Fig - 1)

In the FGD of women in child bearing age; "The major cause of mortality and morbidity in the study areas were obstructed labour, prolonged labour, eclampsia (hypertension during pregnancy) and uterine rupture whereas the cause of morbidity were anaemia, malaria, persistent vomiting, bleeding during pregnant and after delivery". Four hundred thirty (81.9%) women who had birth within five year preceding the data collection period received ANC from health professionals during the last pregnancy (121(92.4%) for urban and 309(78.4%) for rural).

From those mothers who visited health institution for ANC, 94(77.7%) urban women and 122 (39.5%) rural women attended the care for at least four times during pregnancy. Out of 430 women who attended antenatal care 21(4.9%) women visited the care for one occasion only (1(1.7%) for urban and 19(6.1%) for rural). More than half (57.9%) women attended ANC at the time of second trimester (83(68.6%) for urban and 166(53.7%) for rural).

Among urban women who had ANC visit at least once, more than half 65(53.7%) of them visited hospital followed by 52(43%) health centre while among rural 68(22%) of them visited health center followed by 4(1.3%) hospital. More than half 183(59.2%) of rural women who had ANC visit at least once visited health post while 2(1.7%) urban women visited health post. Most ANC attendants 293(68.1%) were nurses followed by 108(25.1%) health extension workers. Among women who had ANC visit: 110(90.9%) urban respondents and 197(63.8%) rural respondents had information to deliver in the health facility. Majority 386(89.8%) of the respondents received TT vaccine and 91(21.2%) paid for ANC service (26(21.5%) for urban and 65(21%) for rural). Among respondents who paid for ANC service 14(15.4%), 58(63.7%) and 29(20.9%) rated paid Birr for the ANC service as expensive, fair and cheap, respectively. (Table 2)

5   c) Factors influencing utilization of ANC services

Bi-variate analyses involving all variables were performed to identify candidate variables for multivariate analysis with the utilization of ANC service. Consequently, place of residence, ethnicity, maternal education, religion, availability of TTBA, availability of health professional providing delivery service, knowledge on (ANC and delivery service), Attitude towards (ANC, delivery service, PNC and maternal health service),availability of delivery service, available of transportation service and distance of health facility showed significant association ($p<0.05$) with the utilization of ANC service.

A multivariate analysis was performed for identified candidate variables for utilization of ANC service in bi-variate analysis which showed significant association. So that ethnicity, educational status, availability of TTBA, knowledge on ANC and distance of health facility showed significant association on multivariate analysis. The odds of utilizing ANC among women who attended secondary school and above were 7.6 times more than women who were illiterate [AOR = 7.6, 95% CI: 1.69, 34.34] whereas women who were able to read and write were 3.18 times more likely to utilize ANC service than women who were illiterate [AOR = 3.18, 95% CI: 1.57, 6.45]. Similarly women for whom distance between home and facility took greater or equal to 30 minutes on foot were 75 percent less likely to use the ANC service than their counterparts [AOR = 0.25, 95% CI: 0.

6   IV. Discussion

Antenatal care is one of the most effective health interventions for preventing maternal morbidity and mortality particularly in places where the general health status of women is poor. This study revealed that utilization of ANC services was (81.9%) in the district. This result is almost consistent with most studies conducted in other parts of the country such as the result of study conducted in Harari region in 2006/7 (79.8%) and study done in Afar region in 2005 (80%) (14,16) (8,15,17,18).This coverage could be due to the fact that ANC service is strongly given at the newly expanded growing health centres and health post through strong linkage with health extension and community health workers. Strong community mobilization is being done to avert complication during pregnancy and child birth and creating awareness of the community on importance of ANC services.

Utilization of ANC service in urban (92.4%) was higher than as compared to rural (78.4%). This is because of urban women had high awareness and knowledge on the important of ANC services.

Utilization of ANC service was more than 7.6 times higher among those who attended secondary school and above and among those literate were more than 3.18 times respectively compared to those who were illiterate. Furthermore, utilization of ANC services was 1.96 times higher among those who were knowledgeable on ANC service than mothers who were not knowledgeable on ANC services. This result in the line with other study done Sheka zone in 2008, study conducted in Special Yem woreda in2008 and in developing countries in including Ethiopia most women lack of knowledge on the risk of pregnancy and child birth, which influence the use of ANC service. Knowledge of women was also associated with their educational status which affects utilization of ANC service (17,20,21).Due to the possible explanation for why education is a key determinant could be that as a woman go up through the ladder of education, the more knowledgeable mothers will be use of ANC service.

Similarly women for whom distance between home and health facility took greater or equal to 30 minutes on foot were 75 percent times less likely to use the ANC service than their counterparts. This result was consistent with the study conducted in India, Pakistan, Kenya and Nigeria were find distance from health facility directly affected the attendance of women for ANC services (19,23,24,25). The possible explanation is that accessibility of health services have been shown to be an important determinant of utilization of maternal health care services in developing countries including Ethiopia (22). However, the result was lower than the study done in Yem special woreda women live in less than 60 minute walk from the health facility was 6.73 times more likely use ANC compare with live in far distance from the health facility (17).

Availability of traditional Trained Birth Attendant in the kebeles increase the odd of utilization of ANC service by 2.44 times higher among women with presence of TTBA in kebeles than with the absence of TTBA in the kebeles. This result consistent with WHO reports that is the trends have had serious implications on awareness, access and acceptability of maternal and newborn health services (13).This might be due to the TBAs have been trained by several development partners in modern methods of maternal health and childbirth to complement the existing maternal health services and improve their ability to refer.

7 V. Acknowledgment

Figure 1: Figure 1 :

1

Variables		Western Ethiopia, May 2012		
		Place of residence		Total
		Urban (n=131)	Rural (n=131)	(N=525)
		No (%)	No (%)	No (%)
Age at first marriage	<15	8(6.1%)	34(8.6%)	42(8%)
	15-19	79(60.3%)	310(78.7%)	389(74.1%)
	20-29	43(32.8%)	50(12.7%)	93(17.7%)
	>=30	1(0.8%)	0(0.0%)	1(0.2%)
Age at first pregnancy	<20	62(47.3%)	271(68.8%)	333(63.4%)
	>= 20	69(52.7%)	123(31.2%)	192(36.6%)
Gravidity	1	50(38.2%)	43(10.9%)	93(17.7%)
	2-5	72(55.0%)	191(48.5%)	263(50.1%)
	>5	9(6.9%)	160(40.6%)	169(32.2%)
Birth order of the last delivery	1	51(38.9%)	44(11.2%)	95(18.1%)
	2-5	72(55.0%)	192(48.7%)	264(50.3%)
	>5	8(6.1%)	158(40.1%)	166(31.6%)
No. of delivery in last 5 years	1	85(64.9%)	152(38.6%)	237(45.1%
	2	35(26.7%)	201(51.0%)	236(45.0%)
	>2	11(8.4%)	41(10.4%)	52(9.9%)
Ever had abortion	Yes	8(6.1%)	51(12.9%)	59(11.2%)
	No	123(93.9%)	343(87.1%)	468(88.8%)
Number of abortions ever encountered (n 1 =8, n 2 =51)	One time	8 (100.0%)	39 (76.5%)	47 (79.7%)
	>= two times	0 (0.0%)	12 (23.5%)	12 (20.4%)
Number of still birth (n1=9, n2=88)	1	9 (100.0%)	60 (68.2%)	69 (71.1%)
	2	0 (0.0%)	23 (26.1%)	23 (23.7%)
	>=3	0 (0.0%)	5 (5.6%)	5 (5.1%)
Any health related problems during last pregnancy	No	109 (83.2%)	316 (80.2%)	425 (81.0%)
	Yes	22 (16.8%)	78 (19.8%)	100 (19.0%)

Figure 2: Table 1 :

2

Variables

Figure 3: Table 2 :

Variables			ANC service utilization		Crude OR (95%CI)	Adjusted OR(95%CI)*
		Western-Ethiopia, May 2012				
			No	Yes		
Place of residence		Urban	10(7.6%)	121(92.4%)	1	
		Rural	85(21.6%)	309(78.4%)	0.3(0.15-0.59	0.27(0.06-1.18)
Religion		Orthodox	35(29.2%)	85(70.8%)	1	
		Muslim	58(14.9%)	330(85.1%)	2.34(1.45-3.79)	1.46(0.69-3.07)
		Others	2(11.8%)	15(88.2%)	3.09(0.67-14.22)	0.53(0.07-4.22)
Ethnicity		Berta	43(14.2%)	260(85.8%)	1	
		Amhara	44(27.8%)	114(72.2%)	0.43(0.27-0.69)	0.28(0.13-0.62)
		Oromo	2(5.1%)	37(94.9%)	3.06(0.19-1.37)	1.13(0.13-9.63)
		Others	6(24%)	19(76%)	0.52(0.19-1.37)	0.08(0.02-0.39)
Educational status		Illiterate	73(25.6%)	212(74.4%)	1	
		Able to read and write	14(11%)	113(89%)	2.78(1.5-5.14)	3.18(1.57-6.45)
		1-6 th Grade	5(20.8%)	19(79.2%)	1.31(0.47-3.62)	1.92(0.55-6.71)
		>=7 Grade	3(3.4%)	86(96.6%)	9.87(3.03-32.17)	7.6(1.69-34.34)
Availability of TTBAs in kebele		No	36(20.9%)	136(79.1%)	1	
		Yes	59(16.7%)	294(83.3%)	1.32(1.02-2.09)	2.21(1.19-4.12)
Health professional provide delivery care		No	27(31%)	60(69%)	1	
		Yes	68(15.5%)	370(84.5%)	2.45(1.45-4.13)	1.29(0.71-2.38)
Knowledge on ANC service		Not-Knowledgeable	68(24.6%)	205(75.1%)	1	
		Knowledgeable	27(10.7%)	225(89.3%)	2.71(1.7-4.49)	1.96(1.04-3.68)
Knowledge on delivery service		Not-Knowledgeable	55(26.2%)	155(73.8%)	1	
		Knowledgeable	40(12.7%)	275(87.3%)	2.44(1.55-3.83)	1.55(0.8-3.0)
Attitude towards ANC service		Unfavourable attitude	17(33.3%)	34(66.7%)	1	
		Favourable attitude	78(16.5)	396(83.5%)	2.54(1.35-4.77)	1.95(0.79-4.78)
Attitude towards delivery service		Unfavourable attitude	34(26.2%)	96(73.6%)	1	
		Favourable attitude	61(15.4%)	334(84.6%)	1.94(1.2-3.12)	1.08(0.54-2.16)
Availability delivery service	Not available		27(31%)	60(69%)	1	
	Available		68(15.5%)	370(84.5%)	2.45(1.45-2.09)	0.93(0.45-1.91)
Transportation service		No	83(21.8%)	298(78.2%)	1	
		Yes	12(8.3%)	132(91.7%)	3.06(1.62-	1.8(0.58-

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Figure 5:

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