

Research Article

Assessment of Antenatal Care Service Utilization and its Associated Factors Among Reproductive Women Who Gave Birth the Last One Year in West Gojjam Zone District, Amhara Region, Ethiopia

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Abstract

Background: Antenatal care is care given to pregnant women before delivery. The health of women during pregnancy and delivery is vital for the mother and her children. The aim of ANC is to improve the health of both the mother and the fetus during pregnancy. Complications of pregnancy and childbirth are the leading causes of disability and death among reproductive women. Therefore, the objective of this study was to assess ANC service utilization and associated factors among reproductive women who gave birth in the last year. The study's findings help with future planning.

Objectives: The objective of this study was to assess ANC services utilization and its associated factors among reproductive women who give birth the last one year in west Gojjam zone district, Amhara region.

Participants: In the study, 410 participants were involved, of which 402 (98%) were the response rate.

Methods: A community-based cross-sectional study design was employed. Structured questionnaires were used. The sample size was calculated by using the single population proportion formula. Descriptive statistics, binary and multivariate logistic regressions were employed. An adjusted odds ratio with 95% confidence intervals was used to interpret the findings.

Results: Only 43.7% of pregnant women have used ANC services at least four and above times. The study found that urban residence (AOR=0.030; 95% CI =0.016-0.057), delivery at health institutions (AOR=0.210; 95% CI=0.082-0.540), transportation services (AOR=0.391; 95% CI=0.171-0.897), health provider behaviors (AOR=0.030; 95% CI=0.015-0.063), and health provider bad behaviors (AOR=0.121; 95% CI=0.056-0.258) were associated with ANC utilization.

Conclusion: The utilization of antenatal care in the study area was low. This low prevalence of ANC utilization calls for the need to improve community awareness about maternal and child health. More importantly, intensive health education is required for pregnant women to have better ANC utilization and follow-up. Additionally, the role of health extension workers was low. Therefore, ANC training should be given to health care providers, and improving the socio-economic status of women is recommended.

Keywords: ANC; Child health; Delivery; Pregnant women; Maternal health; West gojjam zone

Background

Maternal Mortality (MM) a key indicator of international development and its reduction has long been and continue to be a global challenge, particularly in low-income countries, despite the existence of effective interventions [1]. According to the recent estimates of World Health Organization (WHO), about 303,000 maternal deaths occur each year due to complications linked with pregnancy and childbirth [2]. Maternal health is defined as the health of women before pregnancy, during pregnancy, childbirth and postpartum

period (WHO, 2018) [3]. Antenatal Care (ANC) is an opportunity to guide pregnant women on how to prepare them for pregnancy related health problems and to promote the benefit of skillful attendance at childbirth [4]. Antenatal and postnatal cares are crucial to salvage both mother and the child. Antenatal care helps women prepare for childbirth and contemplate the warning signs during pregnancy and birth [5]. However, the efficacy of ANC on prevention of adverse birth outcomes (low birth weight and preterm birth), infant and maternal mortality has been questioned and resulted in several flaws [6].

Globally antenatal care coverage is 72%, in developing countries 68%, and industrialized countries 98% [7]. Antenatal care is the maternal care during pregnancy that every pregnant woman needs for a better outcome. Antenatal care is an important determinant of safe motherhood and key strategy for reducing maternal morbidity and mortality [8]. ANC is significant opportunity for attaining pregnant women with number of interventions complications among pregnant women [9].

Effectiveness of antenatal care outcome relies on the quality of care provided during each ANC visit on health promotion, disease prevention, complication readiness and birth preparedness plan [10,11]. Although there is no consensus on the indicators for quality of ANC care, skill of ANC providers, staff motivation, budgetary

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provisions, integration with other health program and availability of consumables, drugs and basic equipment can seriously impact on the quality of ANC services [12].

According to EDHS 2016, the proportion of women, 15 to 49 years, who received ANC by skilled birth attendants, was 62%. The trend analysis showed that the increase in ANC coverage was to 27%, 28%, 34%, and 62%, in 2000, 2005, 2011, and 2016, respectively. Among regions, ANC coverage was highest in Addis Ababa (97%) and lowest in the Somali region (44%) [13].

A study on assessment of antenatal care services in rural training health center in Northwest Ethiopia indicated that (53.8%) pregnant women attending ANC in the second trimester of pregnancy and (45.9%) began in the third trimester [14]. Different studies revealed that factors were associated with late entry to ANC, these include demographic and some socioeconomic factors such as maternal age, parity, maternal educational attainment, place of residence, and institutional delivery as well as early antenatal care use [15-17].

A study done in Hadiya zone showed that ANC service utilization is two times higher in urban than rural residents. Women whose husband approves of prenatal care were more likely to have used prenatal care than women whose husband did not approve of ANC as indicated on a study done in Yem special woreda [18].

Materials and Methods

Study area, study design and period

The study was conducted in the West Gojjam Zone district, Amhara region of North Western Ethiopia. The Amhara region is the second most populous region in Ethiopia. Of the total population of the Amhara region, 49.9% were male and 51.1% were female. The majority of the population was rural residents (80.6%). A community-based cross-sectional study was conducted from March 2019 to January 2020.

Source and study population

Source population, all reproductive women who have experienced giving birth in the last one year. In the study population, those selected reproductive women who have a history of giving birth in the last one year in the study area.

Inclusion and exclusion criteria

Inclusion criteria: all women who gave birth in the last one year in the study area. Women were excluded from the study if they had not given birth or were mentally or physically ill during the data collection period.

Sample size determination

The sample size was determined by using a single population proportion formula by considering the following assumptions: The proportion of women who start ANC before the fourth month was found to be 41% in Tigray [19]. By assuming a margin of error of 5%, $Z_{\alpha/2}$ -value for 95% CI (1.96), proportion=41%, and a non-response rate of 10%, a sample size of 410 women was obtained.

Sampling techniques

A probability sampling technique was used to select the study area and subjects. The investigator used multistage sampling procedures to identify the study subjects. In the first stage, zones would be selected by using a lottery method in the Amhara region. For this, West Gojjam was selected from a total of zones in the Amhara region by using simple random sampling procedures. After this, a systematic

sampling technique was employed to identify the required sample after determining the eligible groups in the zone. They would be selected by using systematic random sampling from the existing sampling frame of health center and hospital registrars. After selecting the study participants, the reproductive women were selected every n th interval from selected district kebeles.

Data quality controls and collection

The prepared questionnaire and tools were translated into Amharic and then translated back to English for consistency. The Amharic version of the questionnaire was pre-tested (5%) among those outside the sample population and the study area. In addition to this, the quality of the data was assured by properly designing the questionnaire and providing proper training for data collectors and supervisors. The training was provided for one day about the objectives of the study, relevance of the study, how to keep confidentiality of the information, and the process of data collection. Every day, supervisors and the principal investigator coded and checked the collected questionnaire for completeness; the data was manually checked for completeness before being entered into SPSS and any errors were noted.

Data processing and analysis

Data was checked for completeness and inconsistencies by entering, coding, cleaning, and analyzing it using SPSS version 24. Descriptive statistics and crosstab were computed to determine the proportions and percentages of both dependent and independent variables. Binary logistic regression was used. Based on bivariate p -value, below 0.25 was entered into the multivariate analysis. Finally, the strength of association was determined by using a COR in the bivariate and multivariate analysis. P -values of 0.05 are considered statistically significant.

Results

Of a total of 410 women who have experience of antenatal care follow up in West Gojjam Zone District, 402 completed the interview administers questionnaires. Therefore, the data analysis was made based on 402 respondents that have completed the interview. The response rate was 98%.

Socio-demographic characteristics of respondents

The mean age of participants was 29.77, with (+SD 5.791). The minimum and maximum ages of the study participants were 18 and 46 years old, respectively. Most of the respondents were in the age group of 20 to 34 years. In terms of religion, 86.8% of respondents were Orthodox Christian, 5% were Muslim, and 8.2% were Protestant. Furthermore, 83.8% of women lived in rural areas, while 16.2% lived in cities.

Regarding marital status, the majority of respondents were married. Concerning the educational and occupational status of women, a significant number of respondents had no formal education and were housewives in occupation. With regard to the husband's education and occupation of the respondents, the majority had no formal education and the majority of them were farmers (Table 1).

The prevalence of ANC follows up among reproductive women

The study indicated that 74.6% of participants had ANC follow-up during the pregnancy of the last birth. The study result shows that most respondents got information on where to deliver during an attended pregnancy. Among women who received ANC after their last birth, 43.7% received it four or more times, while the remaining

Table 1: Socio-Economic and Demographic Characteristics of the Respondents in West Gojjam Zone District, Amhara region, Ethiopia, 2019-2020.

Variables	Frequency (N)	Percent (%)	
Age	<20	25	6.2
	20-34 years	274	68.2
	35-49	103	25.6
Religion	Orthodox	349	86.8
	Muslim	20	5
	Protestant	33	8.2
Place of residence	Rural	337	83.8
	Urban	65	16.2
Marital status	Married	394	98
	Divorced	8	2
Educational level of women	Not formal education	329	81.8
	Primary school	37	9.2
	Secondary and above	36	9
Occupation of women	Housewife	315	78.4
	Government worker	16	4
	Private employee	57	14.1
Husband educational level	Not formal education	306	76.2
	Primary school	48	11.9
	Secondary and above	48	11.9
Husband occupational level	Government worker	22	5.5
	Private Employee	66	16.4
	Farmer	69	66.9
House hold income	100-1300 ETB	235	58.5
	>1300	167	41.5

26.3%, 23.3%, and 6.7% received it three, two, and once, in that order. With regard to delivering at a health institution the last birth, 36.8% of respondents were delivered at a health institution. Most women reported knowing the risk of child birth at home. Respondents who know the risks of child birth at home reported 38.6% were child deaths, while 34%, 27.4%, and 27.4% were maternal deaths and hemorrhages, respectively (Table 2).

Accessibility characteristics of respondents

The study shows that the majority of respondents do not have health facilities near their dwellings. Concerning health facilities close to home, the majority of participants were health centers. A significant number of respondents said that it takes more than an hour to get to a health facility. A small number of respondents stated that roads were comfortable to go to health facilities. With regard to the role of health extension workers to encourage women to attend ANC in health institutions, most respondents said they did not play any role. Concerning the behaviors of health providers, the majority of participants were good (Table 3).

Factors associated with ANC service utilization

A binary logistic regression model has been applied in the current study to identify the independent variables significantly associated with antenatal care utilization because the dependent variable was dichotomous. The independent variables with a p-value less than 0.25 in the bivariate logistic regression have been transferred to multivariate logistic regression to identify the significantly associated variables with less than 0.05 p-values.

In the multivariate logistic regression, the variables, urban residence (AOR=0.030; 95% CI=0.016-0.057), deliver at health institution (AOR=0.210; 95% CI=0.082-0.540), transportation services (AOR=0.391; 95% CI=0.171-0.897), behaviors of health provider good (AOR=0.030; 95% CI=0.015-0.063), behavior of health provider bad (AOR=0.121; 95% CI=0.056-0.258) were associated with

Table 2: The prevalence of ANC Services Utilization during Pregnancy among Participants in the Study Area, 2019-2020.

Variable	Frequency (N)	Percent (%)
ANC services use during pregnancy of the last birth		
Yes	300	74.6
No	102	25.4
Number of attending pregnancy		
One time	20	6.7
Two time	70	23.3
Three time	79	26.3
Four & above time	131	43.7
Information got where to deliver during attending pregnancy		
Yes	276	92
No	24	8
Deliver at health institution the last child		
Yes	148	36.8
No	254	63.2
Do know risks of child birth at home		
Yes	315	78.4
No	87	21.6
Which risks know child birth at home *		
Maternal death	257	34
Child death	292	38.6
Hemorrhage	207	27.4
Who decided the place of delivery*		
My self	336	66.3
My husband	149	29.4
My relatives	22	4.3
Who assisted your last child birth		
Health extension workers	2	0.5
Doctors	147	36.6
Traditional birth attendant	58	14.4
Both relatives and neighbors	195	48.5
Faced health problems during childbirth		
Yes	97	24.1
No	305	75.9
Birth order of the last child		
First birth order	52	12.9
Second birth order	88	21.9
Third birth order	73	18.2
Four birth order	81	20.1
Above four	108	26.9
Duration labour		
<1 hours	145	36
Within 12 hours	223	55.5
Within and above 24 hours	34	8.5
Outcome of last baby during delivery		
Normal	365	90.8
Not normal	37	9.2

*Multiple responses

ANC services utilization at p-value <0.05 (Table 4).

Discussion

Antenatal care, or prenatal care, is the complex of interventions that a pregnant woman receives from organized health care services. According to the world health organization recommendation, every pregnant woman should receive at least four ANC visits during pregnancy [7]. The result of this study also showed that, the majority of women (43.7%) uptake ANC four or more times during pregnancy.

Place of residence was significantly associated with ANC service utilization during pregnancy. Accordingly, the present research findings showed that, rural women in the West Gojjam zone district were 0.030 times less likely to utilize ANC services than urban women (AOR=0.030; 95% CI=0.016-0.057). Studies in other parts of Ethiopia yielded similar results [11,20,21].

Table 3: The Distribution of Respondents by Accessibility of Services in the Study Area 2019-2020.

Variable	Frequency (N)	Percent (%)
Easily got health facility near to residence		
Yes	187	46.5
No	215	53.5
Which health facility near to residence		
Hospital	65	34.8
Health Centre	122	65.2
Hours take to reach health facility		
<1 hour	184	45.8
>1 hour	218	54.2
Road comfortable to go health facility		
Yes	176	43.8
No	226	56.2
Get transportation services easily to go health facility		
Yes	240	59.7
No	162	40.3
Had a role HEW during attended ANC		
Yes	169	42
No	233	58
Behaviors of health provider		
Good	239	59.5
Bad	67	16.7
I don't know	96	23.9

The women who did not deliver at a health institution were 0.210 times less likely to use ANC services than women who delivered at a health institution (AOR=0.210; 95% CI=0.082-0.540). This is similar to the findings from the study conducted in the Chencha Woreda Gamo Gofa zone; mothers with no ANC follow-up were less likely to deliver in a health facility than those who had ANC follow-up; mothers with four ANC visits were five times more likely to deliver in a health facility than those with one time follow-up [22].

The accessibility of transportation services was significantly associated with ANC service utilization during pregnancy. This study also explains that women who cannot access transportation service to go to a health facility are 0.391 times less likely to utilize ANC services than women who can access transportation services (AOR=0.39; 95% CI=0.171-0.897). The findings are in line with the study that was done in Kham district [23]. The study was also similar to the study conducted in Yem special woreda, which revealed that women who live within an hour's walking distance from the health facility were about eight times more likely to visit prenatal care than those living above an hour's walking distance [24,25].

The findings of this study revealed that, the behaviors of health providers who did not know were 0.030 times less likely to utilize ANC

Table 4: Bivariate and Multivariate Analysis of Factors Associated with ANC Services Utilization during Pregnancy, in West Gojjam Zone District, Amhara region, Ethiopia, 2019-2020.

Variables	ANC services utilization		Odds Ratio (OR)		
	Yes	No	B	COR (95%CI)	AOR (95%CI)
Place of residence					
Rural	236	101		1	1
Urban	64	1	-3.310(-2.037)	0.037(0.005-0.267) 0.001	0.030(0.016-0.057) 0.042
Deliver at health institution the last child					
Yes	141	7	-2.488(-1.558)	0.083(0.037-.185) 0.000	0.210(0.082-0.540) 0.001
No	159	95		1	1
Know the risks of child birth at home expose to maternal death					
Yes	222	35	-0.943(-0.472)	0.390(0.200-0.759) 0.006	0.623(0.271-1.436) 0.267
No	42	17		1	1
Know the risks of child birth at home leads to hemorrhage					
Yes	180	27	-0.685(0.460)	0.504(0.276-0.921) 0.026	1.584(0.721-3.477) 0.252
No	84	25		1	1
Decided the place of delivery by your self					
Yes	241	95	-1.201(1.213)	3.322(1.465-7.534)0.004	3.365(0.973-11.643) 0.055
No	59	7		1	1
Decided the place of delivery by husband					
Yes	134	15	-1.544(-0.236)	0.214(0.118-0.387)0.000	0.790(0.329-1.895) 0.598
No	166	87		1	1
Easily got health facility near to residence					
Yes	163	24	-1.352(0.322)	0.259(0.155-0.431)0.000	0.724(0.073-7.224) 0.783
No	137	78		1	1
Hours take to reach health facility					
<1 hour	161	23	-1.381(0.259)	0.251(0.150-0.421)0.000	1.296(0.132-12.740) 0.824
>1 hour	139	79		1	1
Road comfortable to go health facility					
Yes	154	22	-1.344(-0.250)	0.261(0.154-0.440)0.000	0.779(0.278-2.180) 0.634
No	146	89		1	1
Get access transportation services to go health facility					
Yes	202	38	-1.245(-0.939)	0.288(0.180-0.460)0.000	0.391(0.171-0.897) 0.027
No	98	64		1	1
Behaviors of health provider					
Good	223	16	-3.573(-3.502)	0.028(0.014-0.055)0.000	0.030(0.015-0.063)0.000
Bad	50	17	-2.017(-2.116)	0.133(0.066-0.270)0.000	0.121 (0.056-0.258)0.000
I do not know	27	69		1	1
Outcome of last baby during delivery					
Normal	278	86	-0.790(-0.646)	0.454(0.225-0.913) 0.027	0.524(0.211-1.301) 0.164
Not Normal	22	16		1	1

services during pregnancy than the behaviors of health providers who did know (AOR=0.030; 95% CI=0.015-0.063) [26,27]. Additionally, the result of this study showed that, the behavior of health providers who did not know was 0.121 times less likely to utilize ANC services than the behavior of health providers who did know (AOR=0.121; 95% CI=0.056-0.258).

Conclusion

There was relatively low antenatal care utilization among the study participants. The most important factors influencing utilization of antenatal care services were demographic and socio-economic. In order to improve women's attendance at skilled antenatal care, health education aimed at increasing women's awareness of antenatal care services should be instituted by government bodies.

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