

Research Article

Antenatal Care Utilization and Its Associated Factors among Pregnant Women in Boricha District, Southern Ethiopia

Dubale Dulla¹, Deresse Daka², Negash Wakgari^{1*}

¹*School of Nursing and Midwifery, College of Medicine and Health Sciences, Hawassa University, Hawassa, Ethiopia*

²*Department of Medical Science, College of Medicine and Health Sciences, Hawassa University, Hawassa, Ethiopia*

ABSTRACT

Consequences of pregnancy and childbirth are still the leading causes of maternal morbidity and mortality in developing countries. Antenatal care is one of the most effective interventions in reducing maternal mortality in the developing world. Hence, this study assessed the antenatal care utilization and its associated factors among pregnant women in Boricha district, southern Ethiopia. A community based cross-sectional study was conducted from January, 2015 to October 2015. Multistage sampling technique was used to select 626 women. Data were collected through structured and interviewer administered questionnaires. The data were entered and analyzed using SPSS version 20. A significant percentage

477 (76.2%) of the respondents were ever attended antenatal care. The educational status of the respondents and occupation of their partners were significantly associated with antenatal care utilization. Number of pregnancy, number of live birth, place of delivery and the profession of birth attendants were also significantly associated with antenatal care utilization. A significant percentage of respondents were ever attended antenatal care. Community mobilization and intensive utilization of community health agents are recommended to enhance the utilization of antenatal care.

Keywords: Antenatal care utilization; Boricha district; Pregnant women

Introduction

Worldwide, while 85 percent of pregnant women received antenatal care with skilled health care providers at least once, only 49 percent received at least four antenatal visits in sub-Saharan Africa [1]. Antenatal care (ANC) provides a stand for central healthcare tasks, including health promotion, screening and diagnosis, and disease prevention. It remains to be a vital health care tool to reduce the risk of stillbirths, preterm labor and pregnancy complications [2]. Maternal deaths continuing to be significant in developing countries due to lack of health care service utilization during pregnancy and child birth [3].

Health care service utilization is a key proximate determinant of maternal and infant outcomes [4]. It is evident that well-timed ANC utilization is an opportunity to prevent the direct cause of maternal and neonatal deaths related to obstetric complication and can improve certain outcomes of pregnancy complications [5]. To date, the importance of maternal health care services in reducing maternal mortality and morbidity has received a significant recognition [3]. However, implementing and assuring utilization of effective maternity care for women in the developing world is not an easy task [2,3,6,7].

In Ethiopia, even if there is improvement in maternal health care service utilization including antenatal care; most of the women did not attend minimum number of visit recommended by World Health Organization [8-11]. While adequate care during pregnancy and delivery is essential, health care service utilization is extremely low [11-13]. Most of the previous studies conducted in Ethiopia reflected a low utilization of antenatal

care in the towns and city [6,7,14]. In addition, knowledge of the recommended number of ANC visits and attitude towards antenatal care service, educational status, decision-making power, monthly income and wealth status of the respondents remain to be barrier for antenatal care service utilization [13-15]. According to the 2016 Ethiopian demographic and health survey report; 62 percent of women who gave birth in the five years preceding the survey received antenatal care from a skilled health care provider at least once for their last birth and only 32 percent had four or more ANC visits for their most recent live birth [8]. Hence, this study intended to assess antenatal care utilization and its associated factors among pregnant women in Boricha district, southern Ethiopia

Methods

Study design and setting

A community based cross-sectional study was conducted from January, 2015 to October, 2015 among women who had given at least one live birth in the preceding one year of the survey or who were pregnant at the time of the survey. The study was conducted in Boricha district, Sidama zone, southern Ethiopia. As of 2010/2011 the district had a population of 282,305 residing in 42 kebeles. About 95% of the population was rural resident. The district had 7 governmental health centers, 38 health posts, 4 private medium clinics and 1 non-governmental clinic.

Sample size and sampling procedure

The sample size was calculated using single population

proportion formula: $n=(Z\alpha/2)^2 * p(1-p)/w^2$, considering the following assumptions: the proportion (p) for antenatal care utilization 43%, 95% confidence interval, 5% margin of error and 10% of non response rate. Hence, the total sample size with 2 design effect (since the selection was conducted in two stages: at kebele and household level) became 626. All women who had given at least one live birth before the survey were included in the study. To minimize recall bias, women who had child with the age of greater 1 year and those who did not interested to participate in the study were excluded from the study. Multistage sampling techniques were employed to select the study respondents. Firstly, among a total of 42 Kebeles, 7 kebeles were randomly selected. Then, the total sample was allocated proportionally to each kebele based on the number of women who had given at least one live birth in the preceding one year of the survey. Finally, study respondents were identified using systematic random sampling technique [8].

Data collection tools and analysis

A pre-tested and structured interviewer-administered questionnaire was used for data collection. Different relevant literatures were reviewed to develop the tool that addresses the objective of the study [6,7,11,13,14,16].

The instrument was pretested with 35 study participants who were in Gase district. Findings from the pretest were used to modify the instrument. The questionnaire was designed to obtain information on the sociodemographic characteristics, obstetric history, knowledge, attitude and practice towards danger signs of pregnancy and antenatal care utilization.

The collected questionnaire was checked manually for its completeness, coded and entered into SPSS version 20.0 for analysis. Descriptive and summary statistics were done. Both bivariate and multivariate logistic regression analysis was used to determine the association of each independent variable with the dependent variable.

Ethical consideration

Ethical clearance was obtained from Hawassa University, College of Medicine and Health Science, institutional review board (IRB). Data were collected after getting informed verbal consent from the respondents.

Results

Socio-demographic characteristics

A total of 626 women were included in the study with 100% response rate. The mean (standard deviation) age was 27.8 (4.67) years (ranging from 15-40 years) and the majority 507(81%) were Sidama ethnic group. Most of the respondents 98.6% were married and 97.4% were housewives. Three fourth of the study subjects were protestant. About 336(53.7%) of the study subjects can write and read. The association between basic socio-demographic variables and utilization of ANC; age, ethnicity, and education of the participants were (X^2 , $p=11.123$, 0.025; 7.82, 0.020; and 13.138, 0.004) respectively. Also education and occupation of their partners (X^2 , $p=10.77$, 0.029

and 6.873, 0.009) showed statistically significant association (Table 1).

History of pregnancy and antenatal care utilization

The mean (Standard deviation) pregnancy was 3.5 (1.9) ranging from 1 to 11. About 405(64.7%) of the study subject have been pregnant more than 2 times. Only 57(9.1%) were attempted abortion at least 1 times. About 596 (95%) of the study participants gave birth at least once before the study. However, only 130 (21.8%) of them attended ANC. Meanwhile, more than three fourth of the study participants gave birth at home and about 439 (73.7%) of them were assisted by traditional birth attendants, relative/neighbor or being alone. Therefore, numbers of pregnancy, number of live birth, place of labor and the profession of birth attendants had statistically significant association with ANC utilization (Table 2).

Knowledge, attitude and practice towards danger signs of pregnancy

About 357 (57.0%) of the respondents had knowledge about danger signs of pregnancy, of which 308 (86.3%) attended ANC at least once before. Women who had the knowledge of danger signs were 7 times more likely to attend ANC. Of these 180 (50%), 157 (44.1%), 184 (51.7%), 235 (66.01%) and 85 (23.9%) complained nausea/vomiting, severe headache, fatigue, vaginal bleeding and blurred vision respectively. Amongst the danger signs, maternal fatigue was associated with ANC utilization.

About 88 (14.1%) of the respondents experienced complications during their pregnancy. Among these 55 (62.5%), 37 (42%) and 31 (35.2%) faced vaginal bleeding, nausea/vomiting and fatigue respectively. However, histories of complications were not significantly associated with ANC utilization. The pregnant woman consulted different individuals when they faced complications. Out of those respondents who reported complications, 85 (96.6%) discussed with others about their complications. Among these, 60 (68.2%) and 46 (52.3%) of them were discuss with their husband and health care worker, respectively (Table 3).

Present pregnancy status in relation to ANC utilization

Among the total participants of the study, 390 (62.3%) of pregnancies were planned; of which 371 (95.1%) women involved their partners in planning of pregnancy, while 140 pregnancies were not planned but wanted after conception. In contrast, 163 (26.0%) pregnancies were not planned and not wanted by the women but their partners required prolonging these pregnancies. The need of partner to continue pregnancy was significantly associated with utilization of ANC (X^2 , $P=17.88$, <0.0000 ; OR=3.58, CI=1.95-6.56). During their last pregnancy, 57% of the respondents informed others about their pregnancy. Of these women, 288 (80.6%) and 131 (36.7%) informed their partners and their relatives/ neighbors. Further, 223 (62.5%) informed health professionals. Women who informed their partners about their pregnancy status had better utilization of ANC (X^2 , $P=20.656$, <0.0000 ; OR, CI=2.33, 1.60-3.40) (Table 4).

Table 1: Socio-demographic characteristics of participants, Boricha Woreda, 2015.

Variables	Frequency	Percent	X ²	P
Age group in years				
<20	12	1.9		
21-25	126	20.1	11.123	0.025
26-30	339	54.2		
31-35	128	20.4		
>36	21	3.4		
Ethnicity				
Sidama	507	81	7.82	0.020
Wolaita	112	17.9		
others	7	1.1		
Religion				
Protestant	476	77.4	4.97	0.29
Catholic	98	15.7		
Muslim	42	6.7		
Orthodox	10	0.2		
Marital status				
Married	617	98.6	3.214	0.200
Separated	1	0.16		
Others*	8	1.3		
Educational status				
Cannot read and write	290	46.3	13.138	0.004
Able to read and write	162	25.9		
Primary (1-8)	164	26.2		
Secondary (9-12) and above	10	1.6		
Occupation				
Housewife	610	97.4	2.252	0.133
Government employ	16	2.6		
Educational status of the partners				
Cannot read and write	240	38.3	10.77	0.029
Able to read and write	160	25.6		
Primary (1-8)	200	31.9		
Secondary (9-12)	18	2.9		
Diploma and above	8	1.3		
Occupation of the partners				
Farmer	566	90.4	6.873	0.009
Others**	60	9.6		
Income				
<100	272	43.5	4.12	0.249
100-500	297	47.4		
501-1000	40	6.4		
>1000	17	2.7		
Principal household income generator				
Husband			0.	
Both	554	88.5	944	0.624
Self	57	9.1		
	15	2.4		

*=Single, widowed, **=Teacher, private employ

Knowledge about advantages of ANC in relation to ANC utilization

As presented in Figure 1, 96.6% of the women were informed about the advantages of ANC and about 78% of those who the information utilized ANC service at least once before. Of those who have information about advantage of ANC follow up, 233 (38.5%) women reported that they heard that ANC predicts the outcome of pregnancy, 474 (78.3%) know that ANC follows the health of the mother and fetus; 371 (61.3%)

said ANC can detect pregnancy complications; and 204 (33.7%) replied ANC can prepare the woman for labor and delivery. Among those who have no information about ANC advantage (21 women), only 3 had ANC follow up. Information about the advantage of ANC has strong significance to utilization of the service (X^2 , $p=46.271$, <0000 ; OR, CI=21.71, 6.30-74.83). Similarly knowing that ANC follow up help follow the health of the mother and fetus has statistical significance to utilization of ANC (X^2 , $p=10.942$, 0.001 ; OR, CI=2.07, 1.34-3.21) (Figure 1).

Table 2: Obstetric history in association with ANC attendance, Boricha woreda, 2015.

Variables	Ever attended ANC		N	χ^2	P
	Yes	No			
Pregnancy	477	148	626		
<2	167	54	221	12.643	0.002
3-5	248	59	307		
>6	62	36	98		
Abortion	47	10	57		
1 times	41	10	51	1.287	0.526
2 times	3	0	3		
>3 times	3	0	3		
Live birth	466	130	596		
<2	204	50	254	20.867	<0.000
3-5	237	57	294		
>6	25	23	48		
Still birth	10	1	11		
≤2	10	0	10	11.00	0.001*
>2	0	1	1		
Place of delivery	466	131	597		
Home	332	116	448	16.399	<0.000
Health post	57	7	64		
H C/Hospital	77	8	85		
Delivery assisted by	466	131	596		
Health professional	84	6	90	22.609	<0.000
HEWs	59	9	68		
TBA	102	33	135		
Relative/neighbor	158	52	210		
Being alone	63	31	94		

Table 3: Association of knowledge about danger signs of pregnancy with attendance of ANC, Boricha woreda, 2015.

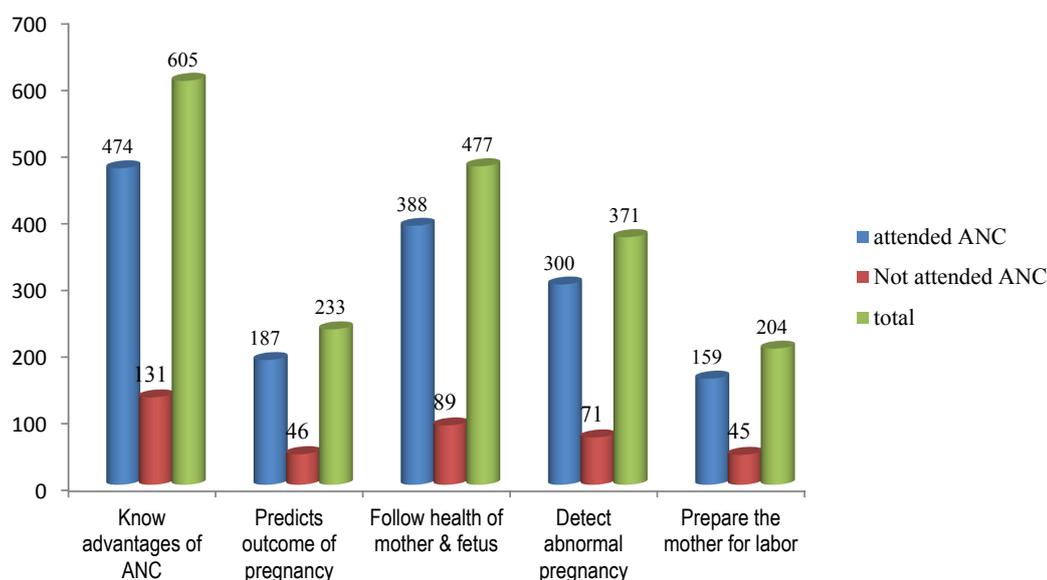
Variable	Ever attended ANC		N	χ^2	P	OR	95% CI
	Yes	No					
Knows danger signs	477	149	626				
Yes	308	49	357	46.510	<0.000	3.72	2.52-5.49
No	169	100	269				
Nausea/vomiting	308	49	357				
Yes	159	21	180	0.254	1.3		
No	149	28	177				
Severe headache	308	49	357				
Yes	131	25	156	1.238	0.266		
No	177	24	201				
Maternal fatigue	308	49	357				
Yes	149	34	183	7.470	0.006	0.41	0.22-0.79
No	159	15	174				
AVB*	308	49	357				
Yes	203	33	236	0.039	0.843		
No	105	16	121				
Blurred vision	308	49	357				
yes	78	6	84	3.791	0.052		
no	230	43	273				
Consulted anyone	76	12	88				
Yes	73	12	85	0.490	0.484		
No	3	0	3				
Consulted husband	73	12	85				
Yes	52	8	60	0.104	0.748		
No	21	5	25				
Consulted relatives	73	12	85				
Yes	15	7	22	7.670	0.011		
No	58	5	63				

* AVB: Abnormal Vaginal Bleeding

Table 4: Present pregnancy status of respondents in relation to ANC utilization, Boricha Woreda, 2015.

Variables	Ever attended ANC		N	X ²	P
	Yes	No			
Planned pregnancy	477	149	626		
Yes	306	84	390	2.922	0.087
No	171	65	236		
Plan involved partner	306	84	390		
Yes	294	77	371	2.768	0.096
No	12	7	19		
You wanted after conception	170	65	235		
Yes	108	32	140	4.391	0.036
No	62	33	95		
Your partner wanted after conception	170	65	235		
Yes	131	32	163	17.88	<0.0000*
No	39	33	72		
Informed your pregnancy status to someone?	477	149	626		
Yes	296	61	357	20.656	<0.0000**
No	181	88	269		

* OR=3.576, 95% CI=1.949-6.559, ** OR=2.332, CI=1.602-3.397

**Figure 1:** The relationship between ANC usage and knowledge of its advantages, Boricha Woreda, 2015.

Source of information for existence of ANC in health facilities

Five hundred ninety nine (95.7%) heard the existence of ANC in health facilities. However, only 472 (78.8%) utilized ANC and the remaining participants (21.2%) were never attended ANC. Based on this result, awareness of existence of antenatal care in health institution was significantly associated with utilization of ANC ($\chi^2, p=51.761, <0.000$; OR, 16.35, CI=6.07-44.04). The basic source of information for ANC utilization in this study area were relatives and/or friends, health care workers and health extension workers, which accounts 47%, 35.5% and 84%, respectively (Table 5).

Accessibility of health institution and availability of services

Among the participants who followed ANC, majority (93.5%) travel on foot to get the service. More than 50% of

those who followed ANC travel less than one hour to reach to the nearby health facilities where ANC service is available and the maximum amount of birr for travelling was 10 Ethiopian birr. Of those women followed ANC, 61 (12.8%) and 10 (2.1%) of them consumed their time for more than 2 h for the first and second visits, respectively. Only 28 (5.8%) of participants who followed ANC were charged for services related to ANC (Table 6).

Decision making status of the woman

Among 477 women who attended ANC, 102 (21.4%) decided by their own to attend ANC and 107 (22.4%) were rather advised by someone else. Of these women 104 (97.2%) were informed when, and where to follow the service. Among all women who followed ANC, 71 (14.9%) started the service due to their understanding regarding the advantages of the service and only 7 (1.5%) were forced to attend the care because they faced complications during their previous pregnancy.

Table 5: Source of information of pregnant women for utilization of ANC, Boricha district, 2015.

Variables	Ever attended ANC		n	X ²	P	OR	CI
	Yes	No					
Heard existence of ANC service							
Yes	472	127	599	51.761	<000	16.35	6.07, 44.04
No	5	22	27				
Heard from health workers							
Yes	184	28	212	12.553	<000	2.26	1.43, 3.57
No	288	99	387				
Heard from HEW*							
Yes	411	97	508	8.890	0.003	2.08	1.28, 3.40
No	61	30	91				
Heard from relatives and/or friends							
Yes	209	73	282	6.999	0.008		
No	263	54	317				
Heard from radio							
Yes	43	4	47	4.917	0.027	3.08	1.09, 8.76
No	429	123	552				
Heard from television							
Yes	6	0	6				
No	466	127	593				

HEW*=Health Extension Worker

Table 6: Relationship of accessibility of health institution and availability of services to utilization of ANC for all pregnancies of mothers, Boricha Woreda, 2015.

Variables	Frequency	percent
Distance to health facility (n=477)		
<30 min	179	37.5
30-60 min	108	22.6
60-90 min	115	24.1
>90 min	75	15.7
Mode of transport (n=477)		
On foot	446	93.5
On back of horse/mule	12	2.5
By cart	19	4
Cost of transport (n=31)	31	100
1-5 birr	16	53.3
6-10 birr	15	46.7
Maximum waiting time in 1st visit (n=477)		
<30 min	146	30.6
30-60 min	157	32.9
60-90 min	31	6.5
90-120 min	82	17.2
>120 min	61	12.8
Maximum waiting time repeat visit (n=477)		
<30 min	270	56.6
30-60 min	129	27
60-90 min	52	10.9
90-120 min	16	3.4
>120 min	10	2.1
Any payment (n=28)		
For consultation	3	10.7
For lab investigation	5	17.8
For ultrasound	23	82.1
For drugs	17	60.7

Reasons for not attending ANC

As presented among the total respondents 149 (23.8%) never attended ANC because of various reasons. Of the given reasons, ignorance accounts the lion's share 144 (96.6%); 112 (75.2%) responded that they did not attend ANC due to shyness/fear, but a very small number of respondents 4 (2.7%) replied that they never attended ANC because of long distance to health facility.

Discussion

In accordance with our study 76.2% of all participants utilized ANC and the remaining was never utilized the service through their pregnancies. This finding is consistent with the study done in southern Ethiopia (77.4%) [17]. However it is higher than the study conducted in south west Shoa, Ethiopia (45.5%) and Debra Tabor (55.7%) [13,15]. Furthermore, the current finding is lower than the study conducted in India (85.5%) and Hadiya Zone (86.3%) [9,18]. This is might be due to the difference in the socio demographic characteristics of the respondents and difference in the time of the study. In addition, recall bias minimized in the current study by using a women who had given at least one live birth in the preceding one year of the survey while two year was used in the study of south Shoa, Ethiopia.

Middle aged women used the ANC service better than other age groups. Similarly the study conducted Nigeria, Indonesia and Ethiopia, shown that there is good utilization of ANC among middle age group than other age groups. Contrarily, the study conducted in Bangladesh, Nigeria, Indonesia showed that the older mothers utilized ANC more likely than younger age groups [19-22].

About 97.4% of the study participants were housewives and there were many of them who did not attend the service. However, the occupational status of study participants has no statistical significance to ANC utilization. Similar study conducted in Ethiopia showed that there is no statistical significance to ANC utilization and occupational status [23]. In contrast to our study, the study conducted in Bangladesh and Nigeria showed that the women who involved in grateful gain of work utilized maternal service better than those who were not involved [24].

According to our study the pregnancy has strong relationship with utilization of ANC service. Women who have been pregnant 3-5 times attended ANC service more likely (80.8%) than their counterparts who have been pregnant for less than/equal to 2 (75.5%) and for more than/equal to 6 times (63.3%). This figure is higher than the study done in Gubalafto, North Wollo [25]. The reason of this variation could be due to the difference of age category, area of study and time of study. Similarly the number of live birth has strong relationship with ANC utilization. The utilization rate of ANC among the respondents who has given birth for <2 children was 80.3% and those who have given birth for 3-5 was 80.6%. Also among the respondent who has given birth for >6 children was 52.1%. The finding of the study is consistent with the study done in Nigeria [24]. This could be due to a number of parity increases; the rate of negligence for pregnancy related issues may increase

Among the total respondents 357 (57.0%) reported that they have awareness about different danger signs of pregnancy. The women who have knowledge about the danger signs of pregnancy were 3.7 times more likely to attend ANC than the others. Likewise, a study conducted in Maichew revealed that the odds of utilizing ANC were 2 times more likely for those respondents who had knowledge of unhealthy pregnancy as compared with those had not the knowledge [26]. This may indicate that the knowledge about the danger sign increases the opportunity to utilize ANC.

In this study, about 96.6% of women were informed about the advantage of ANC for both the mother and her child. However, only 78% of them utilized the ANC service. Thus information about the advantage of ANC service has strong significance to utilization of the service. Parallel findings were also reported in Southern Tigray and Japan [26,27].

According to our study, awareness of existence of ANC in health institution is significantly related with utilization of ANC service. However, Medias (radio and television) have very low contribution to promotion of ANC utilization (7.8% and 1% respectively) in our study area. This finding is consistent to the finding of study done in Yem special Woreda and Japan but is very low compared to study conducted in Metekel zone, Ethiopia [20,23,27,28]. This is might be due to lack of Media's access and living situation in rural area. Moreover, the language that disseminated through radio and television is not a local language so that they don't understand the message that transmitted by Radio and TV.

Among women who attended ANC in study area only 21.4% decided by their own to attend ANC; 22.4% were advised by someone about the advantage of ANC service. Among all women who followed ANC, 71 (14.9%) started the service due to they understand the advantage of the service and only 7 (1.5%) were forced to attend the care because they faced complication during their previous pregnancy. This finding is vey lower than the findings of study conducted in Nigeria (78.9%) and Indonesia (44.8%) [19,22]. The variation of findings may be due to educational status of the study participants. Also living and cultural situation might be affected a women not to decide by themselves.

In this study 23.8% never attended ANC because of different reasons. This is similar with the result of Dairo done in Nigeria (23.2%); however it is very lower than the findings of study conducted in Metekel zone (50.2%), in Ethiopia and Yem special Woreda (71.5%) [20,23,28]. The supposed reasons of the findings variation could be as the time is recent, the utilization of maternal care increases because of the involvement of government in mobilization of the community and financial support for the supplying the MCH services.

According to our study 96.6%, 75.2% and 2.7% women were not attending ANC service due to ignorance, shyness/fear and long distance to health facility respectively. In contrast to this some studies showed that lack o awareness; misunderstanding of ANC benefit and not experienced on previous pregnancies accounts 51.4% 59.4% and 23%, respectively [19,23,28].

Conclusion

In the current study significant percentage of the respondents were ever attended antenatal cares. The study indentified, education, monthly income, number of pregnancy and birth place of previous delivery and the profession of the birth assistants; knowledge about existence of service and advantage of the service, discussion with their partners and skilled health care providers and travelling cost and distance from health institutions are most commonly contributors of the service utilization. Educating mothers, men involvement, community mobilization, empowering and intensive utilization of community health agents, health extension workers and health professionals are recommended to enhance the utilization of ANC.

Limitations of the Study

This study was not supplemented with quantitative method of data collection. Furthermore, recall and social desirability bias was the potential limitation of the current study.

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Address of Correspondence: Negash Wakgari, School of Nursing and Midwifery, College of Medicine and Health Sciences, Hawassa University, Hawassa, Ethiopia, Tel: +2519-1709-3718; Fax: +046-220-8755; E-mail: negashwakgari@yahoo.com

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