UTILIZATION OF ANTENATAL CARE AND ASSOCIATED FACTORS IN GEDEO ZONE, SOUTHERN ETHIOPIA

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ABSTRACT

BACKGROUND: Antenatal (ANC) is care given for pregnant women with the purpose of prevention, early detection of existing disease, and treating health and health-related problems for both mother and unborn baby. The purpose of this study was to assess the utilization of ANC and associated factors in the Gedeo zone.

METHOD: A community-based cross-sectional study was carried out from August 1 to September 30, 2018, among women of reproductive age (15-49 years) in Gedeo zone Southern Ethiopia. A stratified, two-stage cluster sampling technique was used to select the study population. The study population was selected from the respective source population using a simple random sampling technique. Data was checked, coded and entered into Epi data version 3.1 and exported to SPSS version 20.0 for analysis. The wealth index was computed using principal component analysis. Descriptive statistics was employed to display the study findings. Bivariate and multivariable analyses were computed to identify the determinants of utilization ANC.

RESULTS: Utilization of at least one ANC contact was 72.6% (95% CI: 69.3, 75.8).Women with highest wealth index (rich) and grand multigravida were more likely utilize ANC contact. Whereas when the husband's education status was secondary and above, there were lower odds of utilization of ANC contact.

CONCLUSION: ANC utilization in the Gedeo zone is low. The highest wealth index (rich) and grand multigravida were more likely to utilize ANC services. Therefore, the minister of health, regional health offices and stakeholders should work to improve wealth of women and families to increase the utilization of ANC contact.

KEY WORDS: Antenatal care, utilization, Ethiopia

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INTRODUCTION

Antenatal care (ANC) is care given to pregnant women for the prevention, early detection, and treatment of health and health-related problems for good health outcomes of both the mother and the unborn baby [1, 2, 3]. It is a promotion of obstetric health care programs to optimize maternal and fetal outcomes through regular monitoring of pregnancy [4].

Despite the World Health Organization recommended minimum of 8 ANC contacts for normal pregnancy, the existing situation shows that Ethiopia is yet to meet this goal [5]. ANC is provided by obstetric health care providers for a pregnant woman throughout pregnancy [4]. The main purpose of ANC is to promote and protect the health of mothers and their unborn babies during pregnancy to achieve at the end of a pregnancy a healthy mother and a healthy baby [6].

ANC provides the promise of screening of mothers and their unborn babies for actual and potential problems as the pregnancy advances, and for preventing and treating any complications that may arise. It is a fundamental component of obstetric care provision in most contexts globally. Research reviews provided information on the efficacy of standard and alternative versions of antenatal care interventions and programs for women which use them, and for their babies [7, 8].

Similarly, ANC is crucial for assessing the wellbeing of pregnant women and their fetus. Worldwide, 85% of pregnant women had at least one antenatal care contact and 58 % of pregnant women had at least four antenatal care contacts [9]. In sub-Saharan Africa, 49% of pregnant women had at least four antenatal contacts and in South Asia, 42% of pregnant women had at least four antenatal care contacts [10]. Likewise in Ethiopia, 74% of pregnant women had at least one antenatal care contact and 43 % of pregnant women had at least four antenatal care contacts [11].

The responsible bodies and stakeholders made tremendous progress in reducing maternal and child deaths over the last two decades in low and middle income countries. However, 810 women die every day due to preventable causes related to pregnancy and childbirth [4, 12]. Approximately 295,000 women died during pregnancy and childbirth globally in 2017. The vast majority of these deaths (94%) happened in developing countries and most could have been prevented [13]. Sixty six percent of global maternal deaths occurred in sub-Saharan Africa, at an estimate of 542 maternal deaths per 100,000 live births in 2017. In Ethiopia 14,000 maternal deaths occurred with an estimated rate of 401 maternal deaths per 100,000 live births in 2017 [13].

Moreover, to achieve the Sustainable Development Goals of reducing maternal and child morbidity and mortality, quality antenatal care takes the lion share for better pregnancy outcomes. ANC provides an opportunity to offer care for the prevention and management of existing and potential causes of maternal and newborn morbidity and mortality [14]. In 2016, the World Health Organization recommend that antenatal care should be initiated before 12 weeks of gestation to improve pregnancy outcomes. The utilization of antenatal care is pivotal for the achievement of Sustainable Development Goals (SDG) concerning maternal, neonatal and child health improvement by policymakers and stakeholders. Nevertheless, evidence on the utilization of antenatal care in the study setting is scarce. Therefore, this study aimed to assess the utilization of antenatal care and their determinants among pregnant women in Southern Ethiopia.

METHOD AND MATERIALS

A community-based cross-sectional study was carried out from August 1 to September 30, 2018, among women who gave birth within six months in Gedeo zone Southern Ethiopia. Gedeo is one of the zones in Southern Nations, Nationalities and Peoples Regional State (SNNPRS). It has 8 woredas (2 towns and 6 rural woredas) and 148 kebeles (13 towns' kebeles and 135 rural kebeles).

Its administrative center is Dila which is located 377 km south of Addis Ababa, the capital city of Ethiopia. According to the 2007 G.C Census conducted by the Ethiopian Central Statistical Agency, the zone has a total population of 847,434. A total of 179,677 households were counted in Gedeo Zone. According to the regional health office, the current (2016/2017) estimated a total population is 1,112,951.

Study population and sample size determination

The population of interest for this study were all women aged 15 to 49 who gave birth within six months of the study and live in the Gedeo zone during the study period. It is estimated there are 239,053 women and girls of reproductive age (15-49) residing in Gedeo zone. Women were excluded if they had difficulties in communicating during the study period, if they were critically ill, refused to give consent, or were psychiatric patients. The sample size was calculated using a single population proportion formula under the assumptions of 95% CI, 80% power, and a 69.3% antenatal coverage in SNNPR from Ethiopian Demographic Heath Survey (EDHS) 2016[15] and 5% degree of precision and non-responsive rate of 10%. Total sample was 720.

Sampling technique and Sampling Procedures

A stratified, two-stage cluster sampling technique was used. Initially, all administrative kebeles in the Gedeo zone were stratified into town and rural. Then 2 urban and 21 rural kebeles were randomly selected. Census was conducted in each randomly selected kebele to identify study participants who gave birth within six months. The sample size was proportionally allocated for each selected kebele depending on the number of women who gave birth within six months. Finally, the study population was selected from the respective source population by using computer generated random numbers.

Outcome variable

Women who had utilized to at least one skilled ANC service were the outcome variables for this study. Skilled ANC service is one that is offered by medical doctors, nurses, midwives, or health officers. Therefore, ANC service is said to be skilled if it is provided by any one of these healthcare professionals [15]. Information about these ANC services is secured based on the woman's self-report.

Data collection procedure and quality control

Data collection and quality control preliminary survey/census of study participants in the selected kebeles was carried out before the actual data collection. The data was collected using structured and pretested interview questionnaires and checklists in participants' homes. Face- to-face interviews with cross-checking document records was done. The questionnaires were prepared reviewing different similar literature and Demographic and Health Survey (DHS) questionnaires. First, the questionnaires were written in English and then translated into local language, Gedeo'ffa, and then translated back to English to enhance consistency. The questionnaire consisted of two sections that focused on socio-demographic data and antenatal care. The questionnaires were pretested 5% at another kebele having similar socio-cultural characteristics with the study subjects. The tool was checked for reliability during the pretest and the Alpha coefficient was calculated. A total of 10 trained data collectors who completed grade 10 or 12 who were proficient in Gedeo'ffa and 2 supervisors with Master of Public health (MPH) were recruited for data collection. The role of supervisors were to supervise and check the questionnaires immediately after completion. Throughout the data collection process, data collectors were supervised and regular meetings were held among the data collectors, supervisors, and the investigators to raise, discuss, and solve problematic issues. Two more additional visits were made for participants who were not available during the first visit. The collected data was reviewed and checked for completeness before data entry.

Data management

Data were checked, coded and entered into Epi data version 3.1 and exported to Statistical Package

for Social Sciences (SPSS) version 20.0 for analysis. The wealth index was computed using principal component analysis. Descriptive statistics including percentages and frequencies were generated to describe the study participants. Bivariate and multivariable analyses were computed to identify the determinants of antenatal care contact utilization. All explanatory variables with a p-value of less than 0.2 in the bivariate analysis were included in the multivariable analysis. Finally, statistical significance was considered at P value of less than 0.05.

Ethical Approval and Consent to participate

Ethical clearance was obtained from the Institutional Review Board (IRB) with reference IRB/018/10 of the College of Medicine and Health Sciences, Hawassa University. The ethical clearance paper then was presented to the Gedeo zone health office to grant official permission to undertake research activities in the selected kebeles. After a detailed explanation of the purpose and the total course of the study, verbal consent was obtained from each participant before the actual data collection. The verbal consent was taken because the study was conducted in the rural area and most of the participants were not educated and the IRB also approved it. Confidentiality was assured by making the questionnaire anonymous.

RESULTS

Socio-demographic characteristics

Seven hundred twenty study participants were included with the response rate of 100%. Nearly three fourth (72.5%) of women were followers of Protestant religion. About half (49.4%) of the study participants were housewives. Whereas, more than half, 50.5% of study subjects had never attended formal education (**Table1**).

Table 1: Socio demographic characteristics of reproductive age women in Gedeo zone, South Ethiopia, 2018

Variables	No		Percent (n=720)
Age	15-19	26	3.6
	20-24	169	23.5
	25-29	230	31.9
	30-34	113	15.7
	35-39	139	19.3
	40-44	40	5.6
	45-49	3	0.4
Religion	Orthodox	134	18.6
	Muslim	24	3.3
	Protestant	522	72.5
	catholic	24	3.3
	Others	16	2.2
Ethnicity	Gedeo	593	82.4
	Sidama	13	1.8
	Oromo	44	6.1
	Amhara	52	7.2
	Gurage	5	0.7
	Others	13	1.8
Educational status of the participants	Non formal education	363	50.5
	Primary school	234	32.5
	Secondary school	77	10.7
	College and above	46	6.4
Occupation of the participants	House wife	356	49.4
	Merchant	238	33.1
	Gov't Employee	51	7.1
	Farmer	62	8.6
	Others	13	1.8
Residence	Rural	540	75.0
	Urban	180	25.0
Marital status	Married	692	96.1
	Divorced	17	2.4
	Widowed	11	1.5
Husband's educational status (n = 692)	can't read and write	93	13.4
	can read and write	58	8.4
	Primary school	274	39.6
	Secondary school	137	19.8
	College and above	130	18.8
Husband's Occupation (n = 692	Farmer	301	43.5
	Merchant	191	27.7
	Gov't Employee	150	21.7
	Daily laborer	42	6.1
	Others	8	1
Family size	<=4	121	16.8
	5-8	436	60.6
	>=9	163	22.6
Wealth index	Poor	235	32.6
	Medium	224	31.1
	Rich	261	36.3
Distance to the nearest health facility	<=20 minutes	416	57.8
	> 20 minutes	304	42.2

Obstetrics and Reproductive health service-related factors

More than half (57.4%) of women in this study had their first marital relationship when they were in the age range of 19-24 years, and 56.3% of women had 2-5 pregnancies (a multigravida). The utilization of ANC with at least one contact was 72.6%. Whereas 43.6% women had four and above ANC contacts **(Table2)**.

Table 2: Obstetrics and Reproductive health service-related characteristics of reproductive age women in Gedeo zone, South Ethiopia, 2018

Variables		No	Percent (n=720)
Age at first marriage	<15	32	4.4
	15-18	266	36.9
	19-24	413	57.4
	25-29	9	1.3
Number of total pregnancies (Gravidity)	Primigravida (1)	108	15.0
	Multigravida (2-5)	405	56.3
	Grandmultigravida (≥6)	207	28.7
Number of live children	1-2	218	30.3
	3-4	216	30.0
	5-6	148	20.6
	7-8	89	12.4
	>=9	49	6.8
Pregnancy complications	Yes	189	26.3
	No	531	73.8
	1	33	6.3%
	2	69	13.2%
	3	193	36.9%
	4+	228	43.6%

Determinants of ANC utilization

In the multivariate analysis, a woman's husband's educational level, being in the highest wealth index (rich), and being grand multigravida were significantly associated with utilization of ANC service. Accordingly, a woman's husband with secondary level of education had 51% lower odds of utilizing ANC contact than their counterparts (AOR: 0.49; 95% CI: 0.28:- 0.87). A woman's husband with college and above level of education had 87% lower odds of utilizing ANC contact than their counterparts (AOR: 0.13; 95%CI: 0.05- 0.35). Whereas, women in the highest wealth index (rich) had a 2.10 times higher odds of utilizing ANC service than their counterparts (AOR: 2.10; 95%CI: 1.26- 3.50) and grand multigravida women had 4.85 times higher odds of utilizing ANC contact than their counterparts (AOR: 4.85; 95%CI: 2.29- 10.26) **(Table 3)**.

Table 3: Factors associated with utilization of ANC in Gedeo zone, South Ethiopia, 2018

Variables		ANC use		COR(95% CI)	AOR(95% CI)
		Yes	No		
Educational status of	No formal education	93	64	1.00	1.00
the husband	Primary school	182	102	0.81(0.55, 1.22)	0.80(0.52, 1.22)
	Secondary school	121	26	0.31(0.18, 0.53)	0.49(0.28, 0.87)*
	College and above	127	5	0.06(.02, 0.15)	0.13(0.05, 0.35)**
Residence	Rural	370	170	2.60(1.66, 4.07)	1.62(0.98, 2.67)
	Urban	153	27	1.00	1.00
Wealth index	Poor	197	38	1.00	1.00
	Medium wealth	162	62	1.98(1.26, 3.13)	1.26(0.76, 2.10)
	Rich	164	97	3.07(2.00, 4.71)	2.10(1.26, 3.50)**
Number of gravida	Primigravida (1)	97	11	1.00	1.00
	Multigravida(2-5)	323	82	2.24(1.15, 4.37)	1.59(0.78, 3.22)
	Grandmultigravida (≥6)	103	104	8.90(4.51, 17.58)	4.85(2.29, 10.26)**
Pregnancy complications	Yes	117	72	1.00	1.00
	No	406	125	0.50(0.35, 0.71)	0.67(0.44, 1.01)

** P < 0.01   * P<0.05

DISCUSSION

Antenatal care is a key strategy for the reduction of maternal and neonatal morbidity and mortality. This strategy is accomplished through the prevention of disease, treating existing disease, and health promotion to prevent adverse maternal and neonatal outcomes during childbirth. The purpose of this study was to assess the utilization of ANC and its associated factors in the Gedeo zone. In this study, women in the highest wealth index (rich), the husband's educational level, and grand multigravida were significantly associated with ANC utilization. In this study, the utilization of at least one ANC contact was 72.6%. This finding is higher than a study conducted in Benishangul Gumuz was 37.7% of pregnant women had at least one ANC contact [16]. Another study conducted in Ethiopia indicated that 48.5% of pregnant women had at least one ANC contact [17] whilst a study conducted in Eastern Ethiopia had 53.6% of pregnant women who had at least one ANC contact [18]. A study conducted in Tigray showed that 54% of pregnant women had at least one ANC contact [19] and a

meta-analysis conducted in Ethiopia found that 63.77% of pregnant women had at least one ANC contact [14]. A possible explanation might be this study was done after the government has invested to scale up maternal health services utilization and the government's increased attention to the reduction of maternal and neonatal morbidity and mortality that led to increased utilization of ANC contact. In addition, community mobilizations, deploy midwifery in the health centre and free maternal health services had implemented across the country. This finding is in line with a mini EDHS of 2019, which indicated that 74% of pregnant women had at least one ANC contact [11] and in sub-Saharan Africa, 69% of pregnant women had at least one ANC contact [6]. The possible explanation might be this study was done after the government has invested to scale up maternal health services utilization and stakeholders' have invested in maternal health to enhance the utilization of ANC contact. In addition, community mobilizations, deploy midwifery in the health centre and free maternal health services may be factors.

On the other hand, this finding was lower than a study was done in South West Ethiopia in which 91.9% of pregnant women had received at least one ANC contact [5]. Similarly, a study conducted in Holeta town indicated that 87% of pregnant women had received at least one ANC contact [20]. Moreover, a study conducted in developed countries found that 97% of pregnant women had received at least one ANC contact [6]. The possible explanation for this finding might be the socio-cultural differences, study area, health coverage differences within the region and the differences in the inclusion criteria in the studies.

In this study, 43.6% of pregnant women had received at least four ANC contacts. This finding was inconsistent with study done in Eastern Ethiopia was 15.3 % [18], in depth analysis of EDHS 2011 was 22.3 % [21], Study done in Holeta was 33.7 [20], study done in Debre Tabor was 35.3% [22] and in depth analysis of EDHS 2016 was 36.6 % [23]. This finding is similar to mini EDHS 2019 was 43% [11], and the WHO report 2017, in South Asia was 42 % [10]. This finding is lower than study done in Southwest Ethiopia was 66.6 % [5], the WHO report 2017, in Sub-Saharan Africa was 49 % [10] and 58% of women received at least four ANC contacts across the globe [9].

In this study, the highest wealth index quartile (rich) has higher odds of utilizing ANC contact. This finding coincided with studies conducted in Ethiopia [11, 18, 20, 21, 24], in Nairobi Kenya [25], in Uganda [26], in sub-Saharan Africa [27] and Nepal [28]. The possible explanation might be that the household wealth index might have increased health seeking behaviors of the families and also the women were eager to know their health status and apply what the health care providers counselled them. In addition, it could be due to less financial problems such as transport costs. However, woman's husbands with secondary and above education level had lower odds to utilize ANC contact. This finding was inverse with other studies conducted in Ethiopia [11, 18, 20, 21, 24], in Nairobi Kenya [25], in Uganda [26], in sub-Saharan Africa [27] and Nepal [28]. In this study grand multigravida women had higher odds of utilizing ANC contact. This finding was inversely related to other studies conducted in Ethiopia [11, 18, 20, 21, 24], in Nairobi Kenya [25], in Uganda [26], in sub-Saharan Africa [27] and Nepal [28]. The possible explanation might be the women who did not have ANC contact and had experienced bad obstetric outcome led them to be alert to the next pregnancies to avert the problems. The potential limitation of this study was recall bias, and social desirability.

CONCLUSION

ANC utilization in the Gedeo zone is low. The highest wealth index (rich) and grand multigravida women have higher odds of utilization of ANC contact. Therefore, this study recommends that the government and stakeholders should work to improve wealth of women and their families to increase the utilization of ANC contact.

Abbreviations

ANC: Antenatal care

AOR: Adjusted odds ratio

EDHS: Ethiopian health demography survey

SDG: sustainable development goals

SNNPRS: Southern, Nations, Nationalities and Peoples Regional State

Declarations

Consent for publication

Not applicable

Availability of supporting data

All data are included in this article.

COMPETING INTERESTS

Authors declare there is on conflict of interest

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