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JOURNAL OF WOMAN'S REPRODUCTIVE HEALTH
ISSN NO: 2381-862X

Research Article

DOI: 10.14302/issn.2381-862X.jwrh-20-3444

Level of Antenatal Care Services Utilization and Associated Factors Among Mothers who have Given Birth in the Past Twelve Months in Gelemso Town, West Hararghe Zone, Oromia National Regional State, East Ethiopia

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Abstract

Background: In Ethiopia, the levels of maternal and infant morbidity and mortality are among the highest in the world. This is attributed to, among other factors, none use of modern health care services by women. According to the 2011 Ethiopian Demographic Health Survey, more than seven in ten mothers did not receive antenatal care at all.

Objectives: The objective of this study was to determine level and identify factors influencing maternal antenatal care services utilization among mothers who gave birth in the last twelve months in Gelemso town west Hararghe Oromia, Ethiopia.

Methods: A community-based cross sectional study design was conducted on 347 study participants in Gelemso town west Hararghe Oromia Ethiopia from July 15, 2017 to August 15, 2017 G.C.A probability to proportional to size sampling technique was used to select the study population in two urban Kebeles. Data were collected using a pre tested structured questionairs. Descriptive results were presented using frequencies, and numerical summary measures. Bivariate analysis was carried out to assess the association between outcome variable and each in dependent variables. Odds ratio with 95% confidence level was estimated to identify factors associated with Antenatal Care (ANC) utilization using multivariable logistic regression. The statistical significance was declared at p- value < 0.05.

Result: The response rate this study was 98%. The prevalence of antenatal care service utilization was 64.6%. About 146 (42.1%) of the pregnant mother started antenatal care visit during the second trimester of pregnancy and a significant proportion 289(83.3%) had less than the recommended four visits. Educational status (AOR;15.19:CI 95%,6.006,38.417), husband attitude (AOR;1.995:CI 95%,1.016,3.916), marital status (AOR:4.587:CI 95%,1.888,11.146), planned pregnancy (AOR:4.938:CI 95%,2.514,9.702) were major factors associated with antenatal care service utilization.

Conclusion: Though more than half mother used antenatal care service in the study setting, two in ten of the mothers did not have the minimum number of visits recommended by World Health Organization. Promotion of information, education and communication in the community should be strengthened is to sustain antenatal care service utilization in the community.

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Keywords: Antenatal care, Gelemso, Hararghe, mothers

Received: Jun 15, 2020 **Accepted:** Jul 30, 2020 **Published:** Aug 18, 2020

Editor: Maha Othman, Department of Biomedical and Molecular Sciences, Faculty of Health Sciences, Queen's University, Canada.

Introduction

Back ground of the Study

Reduction of maternal and neonatal mortality remains a major challenge to attaining global social and economic development. Worldwide, more than 515,000 women die each year from pregnancy and childbirth complications while four million babies die within the first week (neonatal period) of life. Almost all of the maternal deaths occur across all developing countries where 450 women per every 100,000 live births die during pregnancy, childbirth or at postpartum period [1, 2]. The maternal mortality ratio (MMR) and proportion of births attended by skilled personnel are important indicators of quality maternal health [3].Maternal and child health care begins with the immediate health problems of mothers and children and extends to health throughout life and to the health of the community [4]

Antenatal care, the care that a woman receives during pregnancy, helps to ensure healthy outcomes for women and newborns [3] it is considered as one of the most important for the health of the mother and optimal development of the fetus as well as for preventing or minimizing the complication of pregnancy [4]. Antenatal care clinics are expected to provide pregnancy surveillance of the woman and her unborn child, preventive measures, including immunization (especially with tetanus toxoid) and screening for underlying conditions and diseases such as anemia, malaria, sexually transmitted infections (of which syphilis is particularly important owning to its negative impact on maternal and neonatal health and the links to a high incidence of stillbirth and low birth weight), HIV infection, and symptoms of stress. They are also expected to provide management of pregnancy-related complications, treatment of diseases, prevention of HIV transmission from mother to child, advice and support to the women and her family in developing a birth and emergency preparedness plan as well as health education and promotion for the women and her family, including nutritional support [5, 6].

The importance of maternal health 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.

Methods

Study Area and Period

Gelemso administrative town is one of administrative units located in the eastern part west Hararghe zone. The town shares bounder line with Guba-Koricha district in the North, Oda-Bultum district in the east Boke district in the south and West Daro-Labu, The total area of the town is 46 SKm2 and divided into 2 administrative Kebeles. The town located at 376km from Addis Ababa and 70 km from Zonal capital city Chiro. A large area of the town is characterized by high land feature. The altitude of the district ranges from 1700 to 2700m above sees level. The main annual rain fall ranges from 800 to 1400mm and average temperature is maximum 25^{oc} and minimum $15\ ^{oc}$. In the town there is one zonal hospital, one Health center, seven private clinics and nine drug vender. Total population of the town is 24,084 of which 12182 (51%) females among these pregnant women estimated about 4,601.Antenatal care and institutional delivery of 2011 was 25% and 13% respectively. The information is obtained from head of Habro woreda health office. The study was conducted from July 15, 2017 to August 15, 2017 G.C

Study Design

A Community based quantitative cross sectional study was conducted.

Source Population

All mothers who gave birth regardless of delivery outcome in Gelemso town, West Hararghe, Ethiopia

Study Population

All mothers who gave birth 12 months back (from June 1, 2016 to May 31st, 2017) preceding the survey, irrespective of the outcome of pregnancy

Inclusion Criteria and Exclusion Criteria

Inclusion Criteria

Permanent resident of the study area

Exclusion Criteria

Women who lived less than one year at the time of the interview were excluded from the study.

Sample Size Determination

A Single population proportion double population formula was used to determine sample size.

Sample size calculated for the first and second objectives are 347 and 317 respectively and from these the larger sample size has taken which are 347 mothers.

Study Variables

Independent Variables

Age of women, economic status (monthly income), religion, ethnicity, current marital status, Family size, educational status, planned pregnancy and parity,

Dependent Variable

Antenatal care services Utilization

Data Collection

Data was collected by trained four grade 12 completed data collectors using a well-structured questionnaire .The questionnaire were initially prepared in English translated to "*Afan Oromo*" experts in the field and retranslated back to English. To check for any inconsistencies or distortion in the meaning of words in the content of the instrument .The questionnaire includes the information on all study variables including socio-demographic characteristics, enabling factors and need characteristics.

Pre-Test

The questionnaire was presented in Bedessa administrative town 01 Kebele which has similar socio-demographic Characteristics with the study population. On 5% of sample size prior to the actual data collection and some amendments were made. The wording and sequence of questions is designed in such a way that the logical flow of ideas (from general to specific, from impersonal to personal, and from easy to difficult questions) maintained. Interviewers assessed the clarity, understandability, completeness of questions and others based on pretest results.

Data Quality Control

Data quality was maintained by using different approach. First, the questionnaire was translated to Afan Oromo language and then adequate training and orientation was provided for 3 days to data collectors and supervisors. After that, the questionnaire was pretested on volunteer mothers who have similar characteristics with study population. After pretest some question was modified and the questions which were found to be difficult to understand were modified as needed. The supervisors together with the principal investigator have checked completeness of the questionnaires daily. An incomplete questionnaire was returned back to data collectors and if the major fields are missing, the questionnaire was discarded.

Data Processing and Analysis

The data were entered onto SPSS version 20 statistical software for cleaning and analysis. The data were cleaned for inconsistencies and missing values after revision. Descriptive numerical summary measures such as like mean, standard division, and percentage, were used to describe the study population in relation to socio demographic and other relevant variables. Bivariate analysis was used to assess the relationship between each independent variable and the dependent variable by using binary logistic regression. All independent variables with p value less than 0.25 at bivariate analysis were entered into multivariate logistic regression to control for all possible confounders. Odds ratio with 95% confidence level was estimated to identify factors associated with level Antenatal care

utilization. Level of statistical significance was set at p value less than 0.05.

Ethical Consideration

Ethical clearance was obtained from the Institutional review committee of College of Health and Medical Sciences, Haramaya University. Letter of permission was obtained from School of Medicine and Gelemso town administration. The aim, purpose, benefits and method of the study was clearly explained to the participant. The entire study group was informed that, their response was kept confidential. Finally, they were interviewed after verbal and written consent obtained. The interview was done in a way that it will not violate their privacy and confidentiality of information. Thus, name of the interviewees not recorded in the questionnaire. The respondents were informed that they have the right to participate or not in the study and that the finding of the study will be disseminated only to the concerned body.

Result Dissemination

Results of study will be presented (paper thesis will be carried out); correction will be done based on comments. End result of the study pepper will be disseminated to concerned body as well as common desiccation will be carried out with Habro District Health Office as well as attempt will be made to publish the paper on the peer journal.

Results

Socio Demographic Characteristics of the Study Subjects

A total of 347 women who gave birth in the last twelve months before the survey were interviewed from two urban Kebeles. The overall response rate was 97.4%. Two hundred forty eight (71.5%) of the respondents were in the age group of 20-34 with the mean age of 25.254 range 38. Two hundred twenty seven (65.4%) and 103 (29.7%) were followers of Islam and Orthodox religions, respectively. Two hundred twenty seven (65.4%) of the study participants were housewives. Two hundred thirty one (66.6) had attended formal education. Two hundred (57.6%) of the mothers are currently living with their husband. One hundred thirty one (37.8) of the respondents earn monthly income of >=500 Ethiopian Birr (19 Ethiopian Birr=1 USD). One hundred eighteen (34.0) of the respondents had family size of 3-4.

Antenatal Care

The findings of this study showed that 224 women (64.4%) had received ANC services at a health facility at least once during their last pregnancy. Some of the reasons mentioned for attending ANC were "to know maternal health status" (37.8%), and "because of sickness" (62.2%),. Among those who did not attend ANC, the most frequently mentioned reasons were "not feeling sick" (37.8%). whereas ANC use was very low (15.4%) in the older age group. Tab 1.

About 149 (74.5%) of those who received ANC were married. Several factors were found to be significant predictors for ANC utilization. Women whose pregnancy were planned and wanted were five times more likely to utilize ANC service than those who had unplanned and unwanted pregnancy (AOR=4.52; 95%CI 2.48, 8.26). With regard to education, educated mothers (AOR=4.59, 95% CI: 1.88-11.14) were more likely to attend ANC than non-educated.

Obstetrics Characteristic

One hundred ninety three (55.6%) of the respondents had their first pregnant before the age of twenty. The mean age at first pregnancy was 18.73 ranges are 28. Out of the total respondents 263 (75.8%) mothers had 1-2 children. From the total study participants about four (1.2%) the respondents had lost at least one child before the age of one. Twenty seven (7.8%) and 21 (6.1) of the mothers had history of abortion and stillbirth, respectively. In a significant proportion of the respondents 230(66.3%) the last pregnancy was unplanned. Concerning time of initiating care, only 167 (48.1%) of the ANC attendants initiated care during the first trimester of pregnancy while 146 (42.1%) had the first visit during the second trimester. Number of visit was at least three in 145 (41.2%) of the ANC service attendants. The majority of the attendants (34.9%) have received 2nd and above dose of tetanus toxoid during their last pregnancy.

Factors Associated with Maternal Antenatal Care Services Utilization in Gelemso town, 2014

Results of categorical bivariate analyses showed that the socio-demographic characteristics, such as age,

Table 1. Distribution of Obstetrics characteristics of study participants, in Gelemso town 2014.

Variable		**Frequency**	**Percent**
Planned pregnancy	Yes	220	63.4
	No	127	36.6
Parity	1-2	263	75.8
	3-4	68	19.6
	>=5	16	4.6
Live birth	1-2	263	75.8
	3-4	68	19.6
	Total	347	100.0
Total no of pregnancy	1-2	251	72.3
	3-4	65	18.7
	>5	31	8.9
Ever Had Still Birth	Yes	21	6.1
	No	326	93.9
Ever Had Infant Death	Yes	4	1.2
	No	343	98.8
ever had abortion	Yes	27	7.8
	No	320	92.2
Place Of ANC Follow Up	Hospital	69.5	69.5
	H/ Center	30.5	30.5
Reason For ANC Follow Up	Problem	216	62.2
	Check Up	131	37.8
Attitude Of Husband To Wards ANCS	Positive	231	66.6
	Negative	116	33.4

being educated (p<0.001), total number of living children (p<0.001), income (p<0.001), marital status, religion and ethnicity were positively associated with maternal ANC use. Multi logistic regression analysis was conducted taking into consideration ANC as a dependent variable. The model suggests that marital status (p<0.011), planned pregnancy (p<.000), ethnicity (p<0.060), satisfaction to the service (p<.027), and husband positive attitude toward ANC were the significantly associated with ANCS.

In this study, marital status was found to be a significantly associated with antenatal care utilization. Mothers who do not with their husband (divorced) were more likely to utilize ANC than those living with their husband (married). (AOR=2.796; 95%CI). Those mother from Oromo ethnic group were more likely to utilize ANC than women from Amhara ethnicity (AOR=2.24; 95%CI1.11, 4.54). Women whose husbands have positive attitude towards ANC were more likely to utilize ANC than women whose husbands had negative attitude towards ANC (AOR=2.545; 95%CI 1.308, 4.950). Moreover, those mother satisfied from the service given at ANC clinic were more likely utilize ANCS than those unsatisfied (AOR=0.0345;95%CI0.134,0.887) Though age, religion, educational status, parity, , and family income have shown significant association during the bivariate analysis and multiple logistic regressions has revealed that these variables are not true determinants of ANC utilization (Table 2). Out of the obstetric factors considered, planned pregnancy was found to be determinants of ANC service utilization. Women whose pregnancy were planned and wanted were five times more likely to utilize ANC service than those who had unplanned and unwanted pregnancy (AOR=4.52; 95%CI 2.48, 8.26). Regarding the reason for not attending ANC, 131 (37.7%) of the mothers responded that they were apparently healthy during their last pregnancy.

Discussion

Antenatal care allows management of pregnancy, detection and treatment of complications, and promotion of better maternal and child health. However, women rarely recognize childbearing as problematic and, therefore, do not seek care. In this study the major findings which have significant association with maternal ANC service are marital status, Positive husband attitude towards maternal antenatal care service utilization, pregnancy condition whether the pregnancy were planned or unplanned, wanted or unwanted and maternal educational status. World Health Organization recommends a minimum of four ANC visits initiated during the first trimester [7, 8]. Though this shows an optimal level of service utilization, more than four in ten of the ANC attendants initiated the visit during the first trimester of pregnancy. Moreover, a significant proportion (21.4%) of the attendees had less than four visits which is less than the recommended.

The results of the present study showed that 64.6% of the mothers received ANC services from both hospital and health center. The EDHS conducted in 2011 showed that about 34 percent of the mothers received at least one ANC during their entire period of pregnancy. This is also consistent with the report from North Gondar zone in Ethiopia where 45.7% of mothers had ANC visits. This finding is inconsistent with the result of the studies in rural Guatemala and South India which showed 90% and 88% ANC attendance, respectively [9-14]. However, the finding of this study significantly differs with that of EDHS 2005 which showed 30.3% attendance of ANC in the Southern Region of Ethiopia [15]. This could be attributed to the fact that DHS covered more remote areas where distance from health institution could be a major predictor of ANC utilization. It is also important to note the time gap between the EDHS and the current study. A study conducted in Northern Ethiopia (2004) showed that the magnitude of ANC attendance was 45% [16, 17].

With regard to the determinants of ANC service utilization; this study revealed that ANC service utilization is significantly influenced by marital status. Interestingly married women are more likely to use antenatal care than their unmarried counterparts. Although marriage is universal in Ethiopia, about 4.6 percent of births in the present study occurred among women who were not married. This group is largely composed of female headed households. The stigma associated with out-of-wedlock pregnancies could be severe in societies like Ethiopia. It therefore seems reasonable to assume that most such pregnancies are

Table 2. Factors associated with maternal antenatal care services Utilization in Gelemso town, 2017

Variable		Yes (%)	No (%)	COR	95%CI		AOR	95%CI							
										Low-er	up-per	Low-er	Up-per		
					Educa-tional sta-tus	Cannot read and write		47 (13.5)	19.0	7.209	3.697	14.056	1.927	.782	4.749
Primary school	100 (28.8)	12.1	2.156	1.114		4.172	15.191	6.006	38.417						
Secondary & +	77 (22.2)	4.3	1				1								
Marital status	Married	149(42.9)	14.7	1			1								
	Di-vorced	24(6.9)	10.9	4.626	2.534	8.445	4.587	1.888	11.146						
	Wid-owed	10(2.9)	1.7	1.753	.607	5.064	2.423	.593	9.889						
	Sepa-rated	41(11.8)	8.1	1.995	1.121	3.550	2.016	.935	4.346						
Income	<100	66(19.0)	8.1	.710	.403	1.251	.886	.416	1.887						
	100-499	76(21.9)	13.3	1.013	.609	1.685	1.028	.521	2.030						
	>=500	82(23.6)	14.1	1			1								
Live birth	1-2	181(52.1)	23.6	1			1								
	3-4	36(10.3)	9.2	1.962	1.140	3.377	.576	.079	4.192						
	>5	7(2.0)	2.6	2.838	1.022	7.883	.834	.028	25.100						
Planned pregnancy	Yes	170(49.9)	14.4	4.596	2.866	7.372	4.938	2.514	9.702						
	No	54(15.6)	21.0	1			1								

unwanted or unintended. Moreover, women with unwanted pregnancies may initially attempt to deny their pregnancies to themselves and to conceal them from others. As a result such women become less motivated to seek antenatal care compared with their married counterparts.

Positive husband attitude towards ANC was significantly related to antenatal care service utilization. This result agrees with the finding in Addis Ababa (1990) [18, 19]. In any case the husband seems to be the most key person in the decision-making process. It could be related also with women's economic status since they are dependent on men. This finding has also been described elsewhere [20, 21, 22].

Moreover, in this study the use of antenatal care was found to be related to planned and wanted pregnancy. Women whose pregnancy were planned and wanted were five times more likely to utilize ANC service than those who had unplanned and unwanted pregnancy. This is in line with other studies conducted in Southern Ethiopia (2003) and EDHS 2005 [23, 24, 25, 26], indicating that planning pregnancy has an impact on awareness among the population and use of health services by them.

The results of logistic regression showed that, respondents who had primary-level education were 15 times more likely to use ANC adequately compared to those who had no education. Several studies in other countries demonstrated that education of women was an important determinant of ANC use. The findings of the present study also showed that education of mothers is an important determinant of ANC visits during pregnancy. A study in rural Bangladesh confirmed that higher education was associated with the higher use of ANC. The finding of a strong education effect is consistent with findings from elsewhere in the world [27, 28, 29, 30, 31].

There are a number of explanations for why education is a key determinant of health service use.

Education is likely to enhance female autonomy so that women develop greater confidence and capability to make decisions about their own health [32-49].

Conclusion and Recommendation

In conclusion, this study revealed that there is low utilization of ANC services in the study area when compared to the recommendation by safe motherhood that every pregnancy should get at least four visits. Even though a minimum of four visits are recommended during pregnancy, the proportion of mothers having four and above visits were still very low. Educational status, marital status, planned pregnancy, and husband attitude towards ANC were identified as factors associated with ANC service utilization in the study area.

Therefore, information, education and communication on ANC must be intensified in order to reach all segments of the population, particularly mothers living in Gelemso administrative town.

Furthermore, maternal education, marital status, husband attitude, and planned pregnancy were major predictors of ANC service utilization. Therefore, efforts to bring about changes in these major predictors at individual and community level through behavioral change communication are recommended.

Acknowledgment

I would like to extend my sincere appreciation to Oromia Regional Health Bureau and Haramaya University for giving me this opportunity. I am highly indebted to the unlimited and resourceful all-round guidance and support of my advisors Gudina Egata (PhD) and Daniel Ayalew (MD, obstetrician and gynecologist) throughout my study period. I am happy to express my honor to all my best friends and colleagues for their support and idea sharing. My special thanks and appreciation also goes to all the facilitators, supervisors, and individuals who had agreed to participate in the study. I would like to thank Habro woreda Administration for allowing me to conduct the study. I would also like to express my heartfelt gratitude to Habro woreda Health Office.

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