

Antenatal Care Attendance And Associated Factors In Gambella Region: A Community Based Cross-Sectional Study

Getahun Tadesse Haile¹, Bang Chuol Nhial^{2*}

¹Department of Mathematics, Faculty of Natural and Computational Sciences, Gambella University, Gambella, Ethiopia

²Department of Public Health, Faculty of Natural and Computational Sciences, Gambella University, Gambella, Ethiopia

*Corresponding author: Bang Chuol Nhial, thebigbang202@gmail.com

Abstract

Background: Antenatal care is the care given to pregnant women in order to have a safe pregnancy and a healthy baby. This is one of the most crucial indicators that plays significant role in measuring health status of the mothers and babies as it is one of facing factors with great public health concern worldwide. However, there is a limited evident as yet in the study area that requires response.

Objective: The aim of this study was to assess the antenatal care attendance in Gambella Region.

Methods: A community based cross-sectional study was applied in Gambella Region. A total of one hundred ninety two mothers were involved in the study from January 15, 2021 up to February 17, 2021 following multi-stages sampling technique. Data were collected using structured maternal interview. To ensure the quality of the data, a pretest of the tool, training of data collectors and field supervision were made. Using statistical package for social science version 25, proportion of antenatal care attendance was computed and variables with $p \leq 0.20$ from bi-variable analysis were declared as candidate variables for inclusion into multivariable analysis. Variables with $p \leq 0.05$ from multivariable analysis were declared as factors significantly associated with the antenatal care attendance.

Results: The study resulted in 100% response rate. The proportion of mothers who had antenatal care attendance of at least 4 visits was estimated to be 7.3%. Furthermore, two factors namely; maternal educational status (AOR = 12.03, 95% CI: (1.13, 127.75)) and maternal employment status (AOR = 18.61, 95% CI: (2.62, 131.90)) were found to be significantly associated with the antenatal care attendance.

Conclusions and recommendations: Low attendance of antenatal care was found in the study area. Maternal educational status and maternal employment status were found to be the most influential factors determining the antenatal care attendance. Based on the conclusions, some recommendations were forwarded to the concerned bodies for the better attention to be paid on the mother education and job opportunities as well as for the conduction of further studies in similar area for better evidence

Keywords: Antenatal Care, Attendance, Gambella Region

Background

Pregnancy and childbirth are natural and eventful processes many women are at risk of them. Complications of pregnancy and childbirth are the leading causes of disability and death among women in child bearing age both in developing and developed countries as well WHO [1]. According to United Nations Millennium Development Goals (UNMDGs), an approximate of 99% deaths of women and girls as a result of pregnancy

complications, childbirth or just six week after delivery is in developing countries Ojo. A [2]. At least one woman dies each minute due to pregnancy complications or childbirth WHO [3]. In addition, more than 20 women suffer a lot from injuries, infections or diseases WHO [3]. The problem related to pregnancy complications is believed to be due to poor accessibility to maternal health services especially inadequate antenatal care (ANC) visits during pregnancy WHO [3].

An approximate of 300 million women suffer a lot from short and long term illness related to childbearing worldwide Overbosch G. et al [4]. Nearly 600,000 women die each year due to pregnancy related events. Of these women, nearly 99% occur in Sub-Saharan Africa (SSA) Overbosch G. et al [4]. According to World Health Organization (WHO), antenatal care is considered as the basic intervention in reducing maternal and newborn mortality in “safe motherhood package” as a guide for the interventions in maternal and child health WHO [1]. Antenatal care is the monitoring of mother and fetus by professional healthcare provider during pregnancy period with the necessary examinations as well as recommendations done at regular intervals Overbosch G. et al [4]. Antenatal care is the care given to pregnant women in order to have a safe pregnancy and a healthy baby Abosse Z. et al [5]. A minimum of four antenatal care visits each of at least 20 minutes duration is recommended so as to accomplish the essential level of ANC Overbosch G. et al [4]. For any reason, if the women cannot meet the WHO recommended number of visits, then a minimum of four visits are to be made at 10th, 20th, 30th and 36th week of pregnancy Overbosch G. et al [4]. According to the Federal Ministry of health (FMOH) of Ethiopia, the antenatal and delivery care coverage in Gambella region was one among the lowest coverage in the country UNICF/FMOH [6]. Most studies paid less attention to the assessment of antenatal care attendance (ANCA) among these highly vulnerable communities residing in Gambella region. Different studies have shown that the cause of low antenatal care attendance is associated with many socio-demographic, individual and health service related factors.

Statement of the problem

Even though an estimate of 85% women worldwide received antenatal care, only small number of those mothers received at least four times of antenatal care UNICF [7]. In India, only few of 70% women who had attended antenatal care had at least four antenatal care visits during pregnancy Patel BB et al [8].

Methods

Regardless of the fact that antenatal care coverage seems to be getting improving in Africa, still a need is required to encourage women to have antenatal care visits of at least four times during pregnancy so as to be in line with the WHO recommendation so as to achieve full life saving potential Ornella Lincetto et al [9]. In Ghana, a few women of the 71.3% were reported of having at least four time of antenatal care during pregnancy Sumankuuro J. et al [10].

In Sub-Saharan Africa, only 49% of the women received at least four antenatal care visits UNICF [7]. According to Ethiopian Demographic and Health Survey (EDHS) 2016, though 62% of the women had antenatal care attendance during pregnancy, only 32% of them had met the WHO recommendation of at least four antenatal care visits for their most recent birth EDHS [11].

Evident shown that newborns whose mothers die are less likely to survive. Inadequate maternal care during pregnancy and delivery is largely responsible for the estimated eight million stillbirths and newborn deaths that occur worldwide each year WHO [12]. Older children’s survival is also affected by the loss of their mothers WHO [12].

Essential interventions exist in ANC such as identification and management of obstetric complication such as pre-eclampsia, tetanus toxic, immunization, intermittent preventive treatment for malaria during pregnancy (IPTP) and identification management of sexually transmitted infection (STIs) Ornella Lincetto et al [9].

Though there were many studies conducted in Ethiopia, yet, little is known in Gambella Region with regard to the detailed assessment of antenatal care attendance. Many studies done in Ethiopia were done at health facility level, not community based studies unlike the current study. On the other hand, a few studies (if any) were done aimed at assessing antenatal care attendance in Gambella Region. A few (if any) did pay attention on the inclusion of the various influential factors. Hence, the aim of this study was to assess the antenatal care attendance in Gambella Region following community based cross-sectional study design with inclusion of most influential factors into focus.

Study area

This study was conducted in Gambella Regional State, which is one of the ten regional states of Ethiopia found about 766 km away from Addis Ababa. It is found in South West of the country and

bordered with the Oromiya Regional State in the East; with Benishangul-Gumuz Regional State in the North; with the Southern Nations Nationalities and People's Regional State in the South and East; with the Republic of South Sudan in the West and North. On the basis of Ethiopia census conducted by Central Statistical Agency (CSA), the Gambela Region had an approximate population of 307,096, comprising of 159,787 males and 147,309 females with 14 woredas Central Statistical Agency [13].

Study design and period

A community based cross-sectional study design was conducted from January 15, 2021 up to February 17, 2021 in the selected districts in Gambella Region.

Source population

All women in the reproductive age group and who have ever given birth in the study area

Study population

All Pregnant women in their third trimester of pregnancy

Inclusion criterion

All pregnant women in their third trimester of pregnancy during the time of data collection

Study variables

The dependent variable was the antenatal care attendance whereas independent variables include socio-demographic factors (maternal age, marital status, maternal educational status, maternal occupational status, gravidity, parity and family size), individual factors (illness experience for current pregnancy) and health services related factors (cost of health services, distance from health facility, health facility environment and healthcare provider skills).

Sample size determination

The sample size was calculated using single populations proportion formula taking the following assumptions into consideration; 95% level of confidence, $Z_{1-\frac{\alpha}{2}} = Z_{0.975} = 1.96$ with 9% margin of error $p = 0.762$ obtained from the study done in Southern Ethiopia Dubale Dulla et al [14].

$$n = \frac{\left[Z_{1-\frac{\alpha}{2}} \right]^2 pq}{d^2} = \frac{[1.96]^2 0.762 * 0.238}{0.09^2} = 86.01 \approx 87$$

Adding 10% for possible non-response rate and considering the design effect of 2, the sample size was as follows;

$$n = (87+9)*2 = 192 \text{ women}$$

Sampling methods

A multi-stages sampling technique was employed. Before the selection of women, the study area (Gambella Region) was divided into fourteen districts (clusters). Four district namely; Gambella town administration, Itang, Lare and Jekow districts were selected using simple random sampling. Women who meet the inclusion criteria in each household in the selected districts were included into the study systematically until the number of the mothers required (192) were completed.

Data collection

Data were collected through face to face women interview. Eight health professionals of BSc holders were recruited as data collectors and four health professionals of BSc holders were recruited as supervisors so as to assist the data collection process and to check the completeness of the questionnaire in each community.

Data quality assurance

Before the data collection, the questionnaires translation were made and review for the actual completion and the inclusion of all questions important for the objective of the study were done. The investigators were responsible for overall supervisions. Training were given to data collectors and supervisors for three days on data collection procedure, objectives of the study, the questions and the extent of explanations and the way to keep privacy as well as the pledge of confidentiality. For further assurance of the data quality, the questionnaires were pre-tested in one district that was not included in the study to identify the clarity of their sensitiveness and also to identify the gap on data collectors. Data were reviewed and checked for errors, legibility of handwriting, completeness and consistency by investigators and supervisors during the data collection.

Data processing and management

Date entry were done using Epi Info version 7 and transferred into statistical package for social science (SPSS) version 25 for analysis. Before the actual analysis, data were first checked for completeness and consistence. After checking was done, data were then cleaned, coded and analyzed using SPSS version 25.

Data analysis

After data entry was done using Epi Info version 7 and transferred into SPSS version 25 for analysis, descriptive and inferential statistics were performed. The descriptive statistics using measures of central tendency and dispersion (for continuous variables), tabular presentation using frequencies and proportions (for categorical variables) were done on one hand. Inferential statistics such as binary logistic regression model was performed to identify the factors associated with antenatal care attendance after reasonable assurance of the satisfaction of the

Results

This study was done on previously planned study subjects of 192 mothers resulting in 100% response rate. One hundred and eighty five (96.4%) of mothers are married whereas only seven (3.6%) of mothers are single. Forty three (22.4%) of mothers

assumptions of binary logistic regression model. Multivariable analysis was done after identified candidate variables for inclusion into multivariable analysis. Hence, the variables with $p \leq 0.20$ from bi-variable analysis were included into multivariable analysis so as to identify the factors significantly influencing antenatal care attendance in Gambella Region (having $p \leq 0.05$).

Ethical considerations

Ethical clearance was obtained from Ethic Review Committee (ERC) of Department of Public Health, Faculty of Natural and Computational Sciences, Gambella University.

Following the endorsement by the ERC, all selected districts were informed about the objectives of the study through support letter from Gambella University. The purpose and importance of the study were explained to the study participants. After explanation, verbal consent was obtained from each study participant.

are educated and one hundred and forty nine (77.6%) of mothers are uneducated. Ten (5.2%) of mothers are employed and one hundred and eighty two (94.8%) of mothers are unemployed. The minimum and the maximum age of mothers are 22 and 42 years respectively with mean and standard deviation of 33.35 ± 5.08 years (Table 1)

Table 1: Socio-demographic characteristics of study participants in Gambella Region, Ethiopia, September, 2021

Variable	Category	Frequency	Percent
Marital status	Married	185	96.4
	Single	7	3.6
Maternal educational status	Educated	43	22.4
	Uneducated	149	77.6
Maternal employment status	Employed	10	5.2
	Unemployed	182	94.8
	N	Min-Max	Mean \pm SD
Maternal age	192	22-42	33.35 \pm 5.08

Fourteen (7.3%) of mothers had at least 4 antenatal care visits during the current pregnancy whereas one hundred and seventy eight (92.7%) of mothers had less than 4 visits during the current pregnancy.

Twenty two (11.5%) of mothers had experienced illness during the current pregnancy and one hundred and seventy (88.5%) of mothers had no illness experience during the current pregnancy (Table 2)

Table 2: Individual characteristics of study participants in Gambella Region, Ethiopia, September, 2021

Variable	Category	Frequency	Percent
	≥ 4	14	7.3

Antenatal care attendance	<4	178	92.7
Illness experience for current pregnancy	Yes	22	11.5
	No	170	88.5

Thirty three (17.2%) of mothers responded that the cost of the health service is normal whereas one hundred and fifty nine (82.8%) of mothers indicated that the cost of the health service is high. Thirty two (16.7%) of mothers are near to the health facility but one hundred and sixty (83.3%) of mothers are far from the health facility. Fifty (26%) of mothers responded that the health facility environment is

normal whereas one hundred and forty two (74%) of mothers indicated that the health facility environment is overcrowded.

Sixty (26%) of mothers reported that the healthcare provider skill is high but one hundred and thirty two (74%) of mothers responded that the healthcare provider is skill is low (Table 3)

Table 3: Health services related characteristics of study participants in Gambella Region, Ethiopia, September, 2021

Variable	Category	Frequency	Percent
Cost of health services	Normal	33	17.2
	High	159	82.8
Distance from health facility	Near	32	16.7
	Far	160	83.3
Health facility environment	Normal	50	26.0
	Overcrowded	142	74.0
Healthcare providers skills	Low	60	31.3
	High	132	68.8

Proportion of antenatal care attendance

As it can be seen from the previous table (table 2) above, the proportion of mothers who had antenatal care attendance of 4 and above as per the WHO recommendation was estimated to be 7.3%.

As shown from the subsequent table, binary logistic regression analysis (multivariable analysis) was performed to identify the factors significantly associated with antenatal care attendance in

Gambella region. Furthermore, two factors significantly associated with antenatal care attendance were identified.

The odds of having antenatal care visits of less than 4 is 12.03 times higher for uneducated mother compared with mother who are educated (AOR = 12.03, 95% CI: (1.13, 127.75)). Unemployed mother have 18.61 time higher odds of having an antenatal care visits of less the recommended (4) than the employed mothers (AOR = 18.61, 95% CI: (2.62, 131.90)) (Table 4)

Table 4: Multivariable analysis for identifying factors associated with ANC in Gambella Region, Ethiopia, September, 2021 (n = 192)

Variable	SE	Sig	AOR	95% CI for AOR	
				Lower	Upper
Maternal educational status_(Uneducated)	1.21	0.039*	12.03	1.13	127.75
Maternal employment status_(Unemployed)	1.00	0.003*	18.61	2.62	131.89
Family size	0.32	0.193	1.52	0.81	2.84

Cost of health service_(High)	1.07	0.894	1.15	0.14	9.37
	Normal (Ref)				
Healthcare providers skill_(Low)	1.49	0.183	7.23	0.39	132.92
	High (Ref)				

*significant at 5%

Discussion

Antenatal care is the care given to pregnant women in order to have a safe pregnancy and a healthy baby. This is one of the most crucial indicators that plays significant role in measuring health status of the mothers and babies as it is one of facing factors with great public health concern worldwide. The proportion of women having antenatal care attendance of 4 and above as per the WHO recommendation was 7.3%. This is inconsistent with the study done in India (70%), Ghana (71.3%) and Ethiopia using EDHS (32%) Patel BB et al [8], Sumankuuro J. et al [10] and EDHS [11]. This inconsistency might be due to insufficiency of the number of respondent included in this study. Maternal educational and occupational statuses were identified as significantly associated with the antenatal care attendance. This finding is consistent with the study done in India, Pakistan and Boricha in Ethiopia [8,10,15]. Patel BB et al [8], Sumankuuro J. et al [10] and Sumera Aziz Ali [15].

Strength

This study is the first community based to be conducted in the area which may result in provision of more representativeness. Data were gathered within shortest time possible that possibly may minimize the recall bias. Being conducted at the regional level is believed to be an added value of the current work. On the other hand, the study has 100% of response rate and this may maximize the precision of the study.

Limitation

Despite its strengths, the study is a cross-sectional in nature, so it might not capture the seasonal variations. A certain level of recall bias was expected on some variables such as the number of visits to the health facilities during antenatal care, illness experience during current pregnancy. Exclusion of some important variables related to cultural norm of the respondents to supplement the quantitative findings and gain the insight of the respondents may affect detail capturing of the situation at greater term possible.

Conclusion

The proportion of the antenatal care attendance is very low in the region and so majority of the mothers have less antenatal care attendance than the WHO recommendation.

Two factors were identified to be significantly associated with the antenatal care attendance among variables included in the study and each has greater level of influence on the outcome variable.

These two important factors for the antenatal care attendance are maternal educational status and maternal employment status. ;

Declaration

Ethics approval and consent to participate

This study received ethics approval from Ethical Review Committee of Department of Public Health, Faculty of Natural and Computational Sciences, Gambella University (ID: DPH/002/021)

Consent for publication

All districts involved in this study were informed about the purpose of the study in local language appropriate for each, given opportunity to ask for clarity and their consents were received. Furthermore, all mothers participated in this study have given their verbal consents.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Funding

This study received fund from Gambella University.

Authors' contributions

GTH and **BCN** developed the proposal, designed the study and performed the statistical analysis. **BCN**

and GTH monitored the data collection and drafted the final paper. All authors read and approved the final manuscript.

Acknowledgement

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We are so much grateful to Gambella University for the approval of the ethical clearance and for funding this study. Furthermore, we would like to extend our sincere gratitude to all study participants, data collectors and supervisors for their exceptional contributions on this study.