Determinant Factors of Antenatal Care Service Utilization in Benishangul Gumuz region; West Ethiopia

Kindie Fentahun [1], KasahunTiruaynet [2]
[1]Department of Statistics, Debre Berhan University, Debre Berhan, Ethiopia
Email: mkindief@gmail.com
[2]Department of Civic and Ethical Education, Debre Berhan University, Debre Berhan, Ethiopia
Email: tirukassu21@gmail.com

Background: Antenatal care (ANC) is a preventive public health intervention to ensure healthy pregnancy outcomes and improve survival and health of mothers and newborns. In Benishangul Gumuz region, about 35.1% of pregnant women utilize ANC services at least once from formal trained persons. Nevertheless, women didn't obtain the services as recommended by WHO. Hence, this study examined potential risk factors associated with utilization of ANC services among reproductive women in Benishangul Gumuz Region.

Methods: Data of 674 women with complete information on last live birth from 916 women, who had at least one child during 2005 to 2011, out of 1259 individual women surveyed in Benishangul Gumuz were used from 2011 EDHS. Univariate analysis and multiple binary logistic regression analysis were used to analyze the data.

Results: As shown in Table 1, out of the sample taken only 37.7% of women received antenatal care services at least once from formal trained persons. Nearly all of the women (90.7%) resided in rural areas and 72.8% had no formal education. Out of rural residents 69.7% did not received ANC from formal source.

Result of chi-square test of association given in Table 1, for the purpose of selecting candidate predictors for the multiple binary logistic regression model, indicates that the variable marital status (p-value=0.955) is not associated significantly. Hence, in order to check whether marital status have confounding effect with other covariates two models were considered; Model-I containing all the seven covariates while Model-II excludes marital status from the analysis. The Hosmer and Lemeshow test of goodness of fit for each of the candidate models are shown in Table 2. Model-I adequately fits (p-value= 0.359) while model-II does not adequately fit (p-value=0.017) the data showing model-I is better fit of the data. Therefore model-I with all seven covariates under consideration was taken for the final analysis.

The result of the final model in Table 3 shows highest educational level, type of place of residence and Ethnicity of woman were significantly associated with utilization of antenatal care services from formal source like Doctors, Nurses or Midwives at 5% level of significance.

Table 1 Distribution of ANC by levels of socio-economic and demographic factors in Ethiopia

Variables	Categories	Counts (%)	Received ANC from formal source		Chi-Square	P-Value
			No	Yes		
Age of woman	15 – 19 years	52(7.7)	51.9%	48.1%	27.800	0.000
	20 – 24 years	150(22.3)	48.7%	51.3%		
	25 – 29 years	200(29.7)	62.0%	38.0%		
	30-34 years	124(18.4)	67.7%	32.3%		
	35-39 years	93(13.8)	73.1%	26.9%		
	40 – 49 years	55(8.2)	80.0%	20.0%		
Religion	Traditional, Catholic, others	218(4.5)	86.2%	13.8%	10.459	0.013
	Muslim	373(55.3)	61.7%	38.3%		
	Orthodox	167(24.8)	56.9%	43.1%		
	Protestant	104(15.4)	66.3%	33.7%		
Ethnicity	Others	63(9.4)	65.1%	34.9%	77.426	0.000
	Amhara	186(27.8)	38.2%	61.8%		
	Gumuz	137(20.5)	83.9%	16.1%		
	Berta	183(27.4)	69.4%	30.6%		
	Oromo	99(14.8)	61.6%	38.4%		
Educational Status	No education	491(72.8)	69.7%	30.3%	53.159	0.000
	Primary	165(24.5)	46.7%	53.3%		
	Secondary and Higher	263(2.7)	5.6%	94.4%		
Place of Residence	Rural	611(90.7)	65.6%	34.4%	30.600	0.000
	Urban	63(9.3)	30.2%	69.8%		
Marital Status	living with partner	632(93.8)	62.3%	37.7%	0.03	0.955
	Never in union/ no longer living together	42(6.2)	61.9%	38.1%		
Wealth Index	Poorest	209(31.0)	75.1%	24.9%	53.382	0.000
	Poorer	136(20.2)	38.4%	31.6%		
	Middle	135(20.0)	61.5%	38.5%		
	Richer	140(20.8)	52.1%	47.9%		
	Richest	54(8.0)	25.9%	74.1%		
Total		674(100)	62.3%	37.7%		

The likelihood of receiving antenatal care from Doctors, Nurses or Midwives are 0.074 times less for women of primary educational level than women of Secondary/Higher educational level (OR= 0.074). The finding of this study is consistent with previous studies reported elsewhere in the world including Ethiopia (Tewodros et al. 2010, Gurmesa T. 2004, Nigussie et al., 2004). The possible explanation for use of ANC by educated groups could be the higher the educational status the better understanding of information and the better the knowledge about the importance of the services. Education is likely to enhance female autonomy so that women develop greater confidence and capability to make decisions for their own health. It is also likely that educated women seek higher quality services and have greater ability to use health care inputs that offer better care.

Table 2 Hosmer and Lemeshow Test for models

Step	Model	Chi-square	df	Sig.
1	Model-I	8.804	8	.359
1	Model-II	18.687	8	.017

The odds of receiving antenatal care from Doctors, Nurses or Midwives are 3.77 times higher for women of ethnicity Amhara than women of ethnicity Oromo. The odds of receiving antenatal care from Doctors, Nurses or Midwives for women of ethnicity Gumuz are 51.9% lower compared to those women of ethnicity Oromo. This could be due to difference in various traditional, cultural, religious and other related practices among these ethnic groups. Further studies to identify these barriers are recommended.

Table 3: Estimates for significant factors of the final model

	B	S.E.	Wald	df	Sig.	EXP(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Primary	-2.600	1.089	5.699	1	.017	.074	.009	0.628
Amhara	1.327	.334	15.784	1	.000	3.770	1.959	7.257
Gumuz	-.732	.355	4.265	1	.039	.481	.240	0.963
Rural	-.778	.371	4.392	1	.036	.459	.222	0.951
Constant	2.147	1.231	3.043	1	.081	8.560		

The odds of receiving antenatal care from Doctors, Nurses or Midwives for women of rural resident is 54.1% lower compared to those women of urban resident(OR=0.459). Similar findings were obtained from studies in other parts of Ethiopia and other developing countries (Gurmesa T, 2009, Nigussie et al., 2004, Mekonnen 2003, Deki 2005) which could be explained by the fact that inaccessibility to health facility and information is better for urban dwellers.

Conclusion: Findings showed that type of place of residence, highest educational level and ethnicity are determinant factors associated with utilization of antenatal care services in the region. Raising the awareness about women's education and encouraging women in the region to pursue higher levels of education is crucial. It is also important to target women from rural areas about the importance of ANC services, to increase their awareness as well to increase their use of these services. Also further study to investigate the effect of difference in various traditional, cultural, religious and other related practices on utilization of ANC services among ethnic groups in the region is recommended.

Key words: Determinant factors, ANC Utilization, Benishangul Gumuz