Factors Associated with Antenatal Care Service Utilization among Women with Children under Five Years in Sunyani Municipality, Ghana

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ABSTRACT

Maternal and neonatal mortality remains a public health burden around the globe most especially in developing countries. A well utilized antenatal care (ANC) is however among the identified interventions to reduce this burden of maternal and neonatal mortality rates. A lot of factors therefore predispose, enable and cause mothers to identify the need to utilize this service (ANC).This study employed descriptive cross-sectional survey design. A semi-structured questionnaire consisting of demographic profile of the respondents, their knowledge about ANC services and the level of ANC utilization. Logistic regression analysis techniques and chi-square were used for the categorical variables to examine the associations between the dependent and independent variables. Data analysis was done using the Statistical Package for Social Science software (SPSS) version 22. Majority (87%) of postpartum mothers in the Sunyani municipality attended ANC at least once during their last pregnancy of which 95.6% had four or more visits and 77.1% initiated their ANC attendance within their first trimester. It was further observed that 97.3% of the mothers had good knowledge about ANC. Marital status and ANC knowledge were found to be significantly associated with ANC attendance.

KEYWORDS: Antenatal Care, Sunyani, Postpartum, utilization

INTRODUCTION

The International human rights law includes fundamental commitments of states to enable women and adolescent girls to survive pregnancy and childbirth as part of their enjoyment of sexual and reproductive health rights and living a life of dignity (Human Rights Council, 2012). The World Health Organization (WHO) also envisions a world where "every pregnant woman and newborn receives quality care throughout their pregnancy, childbirth and postnatal periods" [15]. The basic materialization of this vision is only through the efforts of a well utilized antenatal care service, as the world health organization have demonstrated a positive relationship between ANC service utilization and pregnancy outcomes [17].

Antenatal care (ANC) is a type of health service upkeep provided by skilled health professionals to pregnant women so as to ensure the best health condition of both the mother and the unborn baby throughout the pregnancy period [17]. This service is composed of risk identification, prevention and management of pregnancy related or concurrent conditions, and health education and health promotion with essential interventions such as early identification and management of obstetric complications (pre- eclampsia and eclampsia), identification and management of sexually transmitted infections (HIV/AIDS, syphilis and others), tetanus toxoid immunization, and intermittent preventive treatment for malaria during pregnancy (IPTp) enshrined in it [17].

Literature hasit that at least one ANC visit is associated with 1.04% points reduced probability of neonatal mortality and 1.07% points lower probability of infant mortality. Moreover, it was found in the same study that, at least one ANC visit is associated with 3.82% points reduced probability of giving birth to a low birth weight baby, 4.11% and 3.26% points reduced stunting and underweight probability respectively. Nonetheless, this is not seen among most women especially in developing countries [6] This study was aimed at determining factors associated with antenatal care (ANC) service utilization in Sunyani municipality of Ghana.

MATERIALS AND METHODS

This study employed cross sectional survey design, using quantitative data collection and analysis methods.

This study employed the convenience sampling method. The Sunyani municipal health directorate was consulted to identify the various community health nurses who were on rotation to the various sub-districts and communities for outreach services on child welfare and know their schedules for the various communities during the period allocated for data collection. The data collectors were then assigned to the various community health nurses to the CWC units of the

various communities for data collection. At each CWC unit, mothers who after explaining the purpose, benefits and risk of the study gives their consent to participate in the study were interviewed after they have received child welfare service for their child.

Data from the field were edited, and checked for completeness by the researcher before data entry was done. Data was entered into EpiData manager and was exported into the Statistical Package for Social Sciences (SPSS) software version 22 for analysis. Results were displayed in tables and graphs according to the study variables. Bivariate analysis was done to test for association using Pearson's correlation coefficient, Fisher exact test (for 2×2 tables where some of the expected counts are less than 10) and Likelihood Ratio (for bigger tables where 20% or more of the expected count is less than 5) in order to find out the relationship between the independent and dependent variables. P-value of less than 0.05 (i.e. p<0.05) was set as the significance level for the analysis.

Logistic regression model was then applied to variables which were significant at the bivariate analysis level to find out the strength of the association. Both simple and multiple logistic regression analysis were performed in order to get the crude and adjusted odd ratios respectively. The strength of the association for each independent variable was based on the odd ratios and the 95% confidence interval, while holding other factors constant. However, only the variables found to be significant for multiple logistics (adjusted odds ratios) were discussed in the study. A reliability analysis was carried out on the ANC knowledge items to check for internal consistency using Cronbach's alpha which gave an, $\alpha = 0.70$. Most items appeared to be worthy of retention, resulting in a decrease in the alpha if deleted. Responses for the Likert scale were however recoded into 'YES' or 'NO'. All responses of strongly agree and agree were recorded as 'yes' and all responses of no opinion to strongly disagree were recorded as 'no'. Median was computed as a measure of central tendency (what most respondents believe/think) to determine the knowledge level of respondents about ANC

services. A descriptive frequency analysis of the newly computed/generated variable (ANC Knowledge level) showed and grouped respondents' knowledge into either good or poor taking into consideration the interquartile rage (IQR) as a measure of spread/dispersion of responses.

The sample size of a study is a section of the population that is drawn to make inference or projections to the general population. The sample size for this study was calculated using the Cochran's (1977) formula: Sample size, n = (Z² Pq)/d² where;

Z being the confidence limits which in this study was 95% level of confidence and 1.96 as critical value. **P** as the assumed prevalence / proportion of the dependent variable; According to a report by the Ghana demographic and health survey, large proportion of pregnant women in Ghana (87 per cent) had four or more antenatal care visits for their most recent live births (GSS, 2014).**Q** as the acceptable deviation from the assumed proportion (1-0.87 = 0.13).**D** as the margin of error around p estimated as 0.05 in this study.

Therefore, n = [(1.96)^2×(0.87)×(0.13)] / [(0.05)²] = 173.79 ≈ 174

Adding 5% of 174 mothers (thus 174 × 0.05 = 8.7 ≈ 9), to compensate for errors during data collection, a total sample size of 183 (thus 174 + 9 = 183) mothers were recruited for the study.

RESULTS
Socio-demographic characteristics of respondents
Results in table 1, it is shown that majority 101 (56.4%) of the respondents are between the ages of twenty (20) and thirty (30) years with a mean (SD) age of 28.56 (SD = 5.99years). Marital status of the respondents indicates that most 151 (83.0%) of the respondents are married. In terms of employment status, most of the respondents 123 (69.1%) are self-employed. However, those who are unemployed 30 (16.9%) outweighed those who are government employed 25 (14.0%).

Table1: Socio-demographic Characteristics of Respondents

Variable	Frequency	Percentage (%)
Age group	Mean = 28.56years	SD = 5.99years
Less than 20	21	11.7
20 – 30	101	56.4
Above 30	57	31.8
Age group at first birth	Mean = 21.27years	SD = 3.46years
Less than 20	88	52.4
20 – 30	77	45.8
Above 30	3	1.8
Marital Status		
Married	151	83.0
Not married	25	13.7
Divorced	3	1.6
Widowed	3	1.6
Parity		
One	52	28.7
Two	38	21.0
Three	49	27.1
Four	22	12.2
More than four	20	11.0
Employment Status		

Government employed	25	14.0
Self employed	123	69.1
Unemployed	30	16.9
Educational Level		
Basic education	84	46.2
Secondary education	56	30.8
Tertiary education	28	15.4
No education	14	7.7
Husband's Employment Status		
Government employed	32	20.3
Self employed	126	79.7
Unemployed	0	0.0
Husband's educational level		
Basic education	56	36.4
Secondary education	49	31.8
Tertiary education	37	24.0
No education	12	7.8
Area of Residence		
Urban	76	41.8
Peri – urban	36	19.8
Rural	70	38.5
Religion		
Christian	137	83.5
Muslim	26	15.9
Traditionalist	1	0.6

Antenatal care attendance among study population
Data on antenatal care attendance revealed that, a high proportion of women in the Sunyani municipality attended ANC during their last pregnancy birth. Relating the frequency difference, about 87% of the respondents attended ANC during their last pregnancy with only 13% who did not attend ANC during their last pregnancy preceding the study preceding the study.
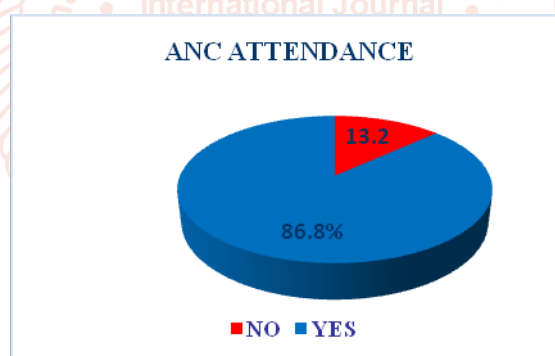

Fig.1: Antenatal care attendance at least once among post-partum mothers in the Sunyani municipality

Respondents number of ANC attendance per WHO recommendation
As shown in Fig. 2, majority of the study respondents attained WHO's recommendation for minimum ANC visit. Among mothers who attended ANC during their last pregnancy, about 95.6% had four or more contacts as recommended by WHO with only a few of them (4.4%) who had less than four contacts.
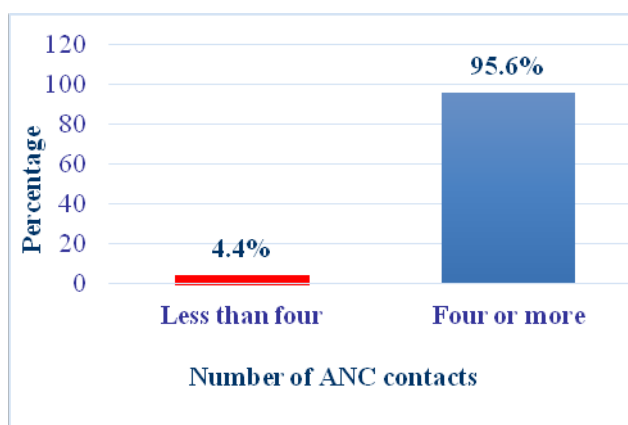

Fig. 2: Percentage of respondents who visited ANC per the WHO recommendation

Gestational age at which respondents initiated their first antenatal care
Analysis of data on gestational age at which respondents made their first ANC contact measured against WHO recommendation of having it within the first trimester shows that, most of the respondents met this recommendation. About 77.1% of mothers who visited ANC during their last pregnancy had their first contact within their first trimester (within 3moths) as recommended by WHO with few of them (22.9%) having their first ANC contact after their first trimester as clearly depicted in figure 3.
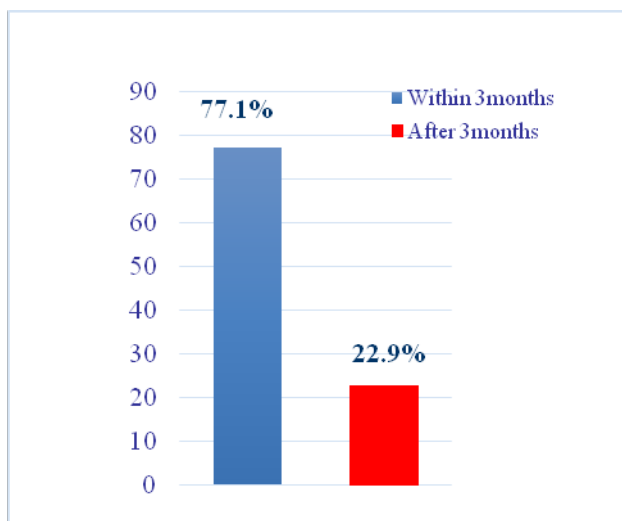

Fig.3: Respondents' gestational age at first ANC

Multivariate analysis socio-demographic characteristics associated with antenatal care (ANC) attendance
In the multivariate logistic regression analysis depicted in table 3, controlling for all possible confounders revealed that, marital status and ANC knowledge were statistically significant with ANC attendance. Respondents who were not married were 78.8% less likely to attend ANC as compared to those married (AOR = 0.212; CI: 0.054 - 0.834). In addition, respondents who had poor knowledge about ANC were 95.8% less likely to attend ANC using good knowledge as the reference category (AOR = 0.042; CI: 0.002 - 1.113). Employment status and educational level were found not to be statistically associated with ANC attendance during pregnancy. However, age group and area of resident shown significance in the bivariate analysis where mothers who were in the age group of 20 – 30years had 5.56times more odds of attending ANC than those less than 20years or being a teenager and also those residing in rural areas were 82% less likely to attend ANC than those in urban areas but after controlling for confounders, these two variables (age group and area of residence) lost their statistical significance in the multivariate analysis.

Table 2: Logistic regression analysis of factors associated with ANC attendance

Variable Categories	COR (95% CI) [P-value]	AOR (95% CI) [P-value]
Age group		
Less than 20years	Reference	Reference
20 – 30years	5.563(1.939 - 15.954) **[0.001]**	1.416 (0.231 - 8.688) [0.707]
Above 30years	13.50(3.171 - 57.474) **[0.00]**	1.692 (0.162 - 17.662) [0.660]
Marital status		
Married	Reference	Reference
Not married	0.090 (0.033 - 0.250) **[0.000]**	0.212 (0.054 - 0 .834) **[0.026]**
Divorced	0.035 (0.003 - 0.425) **[0.008]**	0.00 (0.00) [0.998]
Widowed	0.142 (.012 - 1.702) [0.123]	0.118 (0.008 - 1.681) [0.115]
Employment status		
Government employed	Reference	Reference
Self employed	0.000 (0.00) [0.998]	0.00 (0.00) [0.999]
Unemployed	0.000 (0.00) [0.998]	0.00 (0.00) [0.999]
Educational level		
Basic education	Reference	Reference
Secondary education	0.616 (0.247 - 1.538) [0.300]	0.537 (0.166 - 1.738) [0.3]
Tertiary education	2.29e-7 (0.00) [0.998]	0.00 (0.00) [0.999]
No education	0.904 (0.178 - 4.594) [0.903]	1.060 (0.130 - 8.630) [0.956]
Area of residence		
Urban	Reference	Reference
Peri-urban	0.144 (0.036 - 0.581) **[0.007]**	0.439 (0.084 - 2.279) [0.327]
Rural	0.180 (0.049 - 0.663) **[0.010]**	0.244 (0.052 - 1.140) [0.073]
Knowledge score		
Good knowledge	Reference	Reference
Poor knowledge	0.090 (0.014 - 0.569) **[0.010]**	0.042 (0.002 - 1.113) **[0.023]**

COR – Crude Odds Ratio; AOR – Adjusted Odds Ratio; CI – Confident Interval

Bivariate analysis of knowledge and ANC utilization

In table 3 results from cross tabulating knowledge against ANC service utilization shows that, there is a significant association between ANC knowledge and its service attendance, p < 0.05. No significant association was found between ANC knowledge and gestational age for first ANC visit as well as between ANC knowledge and number of visits, p > 0.05. About 98.7% of respondents who has good knowledge about ANC actually attended ANC during their last pregnancy preceding the study where about 87.5% of those with good knowledge not attending ANC. As opposed to those with poor knowledge score, only 1.3% attended ANC during their last pregnancy preceding the study.

Table 3: Respondent's knowledge score and association with ANC utilization

VARIABLE	ANC UTILIZATION		Fisher's Exact p-value *
Knowledge score	**ANC attendance in percentage (%)**		0.017
	YES	NO	
Good knowledge	98.7	87.5	
Poor knowledge	1.3	12.5	
Knowledge score	**Gestational age at first visit (%)**		1.00
	≤ 3months	≥ 3months	
Good knowledge	98.3	100	
Poor knowledge	1.7	0.0	
Knowledge score	**Number of visit in percentage (%)**		1.00
	< 4times	> 4times	
Good knowledge	100	98.7	
Poor knowledge	0.00	1.3	

*Where chi-square rule is violated; p < 0.05

DISCUSSIONS

The relatively high rate of ANC attendance observed in this study is found to be in agreement with some recent literatures including studies conducted in Ghana, and other Lower Middle Income Countries, Sierra Leone [1] [3] [18]. However, these findings are also found not to be in agreement with some other literatures finding a diverging results from the results obtained in this study[20] [4] [8]

Marital status and knowledge about antenatal care services were significant predictors of ANC attendance in this study. For marital status, mothers who were not married were about 78.8% less likely to attend ANC as compared to those who were married (AOR: 0.212; CI: 0.054 - 0 .834). These findings corroborate the results of a cross sectional study conducted in rural Ghana [14]. They found out that, cohabiting women and unmarried women were 43% and 61% respectively less likely to attend ANC at least four times relative to married women. Moreover, findings from a study among Adolescent Mothers in the Yendi Municipality of Northern Region, Ghana affirms that there is a significant association between marital status and ANC utilization [19].

This could be due to certain social norms defined in some societies and cultures including Ghana where unmarried women are expected to remain chaste until they are married [7] Therefore, unmarried women who becomes pregnant are more likely to avoid ANC services so as not to expose their pregnancy for fear of public ridicule. In addition, women who do not have partners could experience financial difficulty that might prevent them from attending ANC regularly. In variance to these findings, other studies also suggest no association between marital status and ANC attendance [5]

Knowledge on ANC services was found to be significantly associated with ANC service attendance. Mothers with poor knowledge were about 95.8% less likely to attend ANC compared to mothers with high knowledge about ANC services. This finding is therefore been buttressed by a lot of current literatures [12] [10] [9] [11]

CONCLUSION

It has been revealed by this study that, majority of postpartum mothers in the Sunyani municipality utilized antenatal care during their last pregnancy before birth. The utilization included increased number of ANC attendance (more than 4times) and early initiation (within the first trimester). These postpartum mothers were again observed to have an increased knowledge about antenatal care services with the exception of few whom were not aware about the minimum number of ANC contacts a pregnant woman should have before birth.

In addition, marital status and ANC knowledge were found to be factors which predisposes women either to use or not to use ANC services.

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