



PREDICTIVE ROLE OF AGE AND MARITAL STATUS IN ANTENATAL CARE UTILIZATION AMONG PREGNANT WOMEN IN BAMA LOCAL GOVERNMENT AREA, BORNO STATE

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ABSTRACT

The study examined age and marital status as predictors of antenatal care (ANC) utilization among pregnant women attending Primary Healthcare Clinics in Bama Local Government, Borno State. Two objectives were raised, two research questions answered, and two hypotheses tested using a cross-sectional research design. Data were collected with a twenty-item self-developed questionnaire on a four-point Likert scale with a Cronbach's alpha reliability index of 0.84. Four primary healthcare facilities were purposively selected across Bama Local Government. Within these facilities, the population comprised 1,431 pregnant women, from which a sample of 306 was determined using the Research Advisors table (2006). Systematic random sampling was employed for questionnaire administration, and 291 completed questionnaires were successfully retrieved. Descriptive statistics answered the research questions, while multiple regression analysis indicated that age and marital status were significant predictors of ANC utilization. It was recommended that health authorities in Bama design educational programs to inform younger women about early and regular ANC, provide additional support to unmarried or separated women, develop age-specific ANC initiatives, encourage family and partner support for pregnant women, integrate demographic factors into health planning, and establish monitoring systems to track ANC attendance patterns to enhance access and utilization across all primary healthcare facilities.

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Introduction

Antenatal care (ANC) is a pivotal component of maternal healthcare programmes designed to ensure the health and well-being of pregnant women and their unborn infants. Accessibility to and affordability of ANC services contribute significantly to early detection and management of pregnancy-related complications, reduce maternal and neonatal mortality rates, and promote healthy pregnancies (World Health Organization [WHO], 2016). Antenatal care is a set of health services provided to pregnant women to ensure a safe pregnancy and a healthy outcome for both mother and child. Ahmed, Creanga, Gillespie and Tsui, (2010) stated that, Effective utilisation of antenatal care services is an important determinant in the reduction of maternal mortality rates and is one of the basic components of maternal healthcare. Thus, antenatal care is a key strategy to improve maternal and infant health outcome. The provision of antenatal care services has a positive impact on pregnancy-related conditions by enabling early identification of risk factors and timely management of complications such as preterm delivery.

Antenatal care should begin in the early stages of pregnancy; timely access allows women to receive information on the full range of available screening tests (National Collaborating Centre for Women's and Children's Health [NCCWCH], 2018). Antenatal care provides an opportunity to monitor the health of mother and baby, to detect hypertension, anaemia or malaria, and offer tetanus toxoid immunization, iron and nutrition supplements as appropriate (Koblinsky, Conroy, Kureshy, Stanton, & Jessop, 2020).

Socio-demographic variables such as age and marital status have been identified as significant predictors of antenatal care utilization (Seidu, Ahinkorah, Hagan Agbaglo, Budu, Yaya & Ameyaw, 2010). These socio-demographic variables interact with cultural norms, economic constraints, and healthcare set-up, affecting the decision-making process related to seeking and utilizing ANC services. Younger pregnant women might face barriers due to limited autonomy and inadequate knowledge about the importance of ANC (Ahmed, Creanga, Gillespie & Tsui, 2010). Conversely, older pregnant women may be influenced by traditional beliefs and practices, impacting their ANC attendance. Higher educational attainment has been associated with improved health literacy and a greater understanding of the benefits of ANC services (Titaley, Dibley & Roberts, 2010).

Furthermore, the influence of age on the utilization of antenatal care (ANC) services among pregnant women in primary health facilities has been a subject of interest in several studies. Age can affect the utilization of ANC services, as older women may have more knowledge about the benefits of ANC, whereas younger women may face more barriers due to social and cultural factors. Several studies have shown that increasing maternal age is associated with an increase in ANC utilization rates (Seidu, Ahinkorah, Hagan Agbaglo, Budu, Yaya & Ameyaw, 2019). For instance, a study in Tanzania found



that women aged 35 years or older were more likely to access ANC services than those younger than 35 (Titaley, Dibley, & Roberts, 2010). Similarly, research in Ghana reported that women aged 25 years and above were more likely to utilize ANC services compared with younger women (Seidu et al., 2019). These findings suggest that maternal age is a significant predictor of ANC utilization, highlighting the need to examine age-related differences in service uptake.

Although the association between age and marital status on utilization of antenatal care is well established, this relationship is complex and may also depend on other contextual factors such as cultural norms, religious beliefs, occupation and socioeconomic status. For example, in some cultures, unmarried women may face pressure to avoid antenatal care visits due to societal norms that discourage pregnancy outside of marriage. Antenatal care (ANC) utilization is an important indicator of maternal and child health and has significant implications for reducing maternal and neonatal morbidity and mortality. Several factors influence the utilization of ANC services among pregnant women, including marital status.

Research has demonstrated that age and marital status are crucial determinants of ANC utilization among pregnant women. These factors may significantly influence antenatal care uptake among pregnant women. This study is conducted to examine demographic variables, age and marital status, as ANC utilization among pregnant women attending primary healthcare clinics Bama Local Government, Borno State.

Problem Statement

Despite global and national efforts to improve maternal health outcomes, the utilization of antenatal care (ANC) services remains suboptimal in many low-resource and conflict-affected settings, including Bama Local Government Area of Borno State, Nigeria. Antenatal care is a critical preventive health service that enables early detection and management of pregnancy-related complications, thereby reducing maternal and neonatal morbidity and mortality. However, evidence from primary healthcare facilities in rural and semi-urban communities indicates that a considerable number of pregnant women either initiate ANC late or do not utilize the services adequately.

Previous studies have identified socio-demographic factors as important determinants of ANC utilization, with age and marital status frequently reported as influential variables. Younger pregnant



women may face barriers such as limited decision-making autonomy, inadequate knowledge, and social stigma, while unmarried women may encounter cultural and societal constraints that discourage health-seeking behavior. Conversely, older and married women may have greater social support and experience, which can positively influence ANC attendance. Although these associations have been documented in various settings, their predictive role is highly context-specific and influenced by local socio-cultural and healthcare dynamics.

In Bama Local Government Area, where prolonged insecurity, population displacement, and fragile health systems have disrupted access to healthcare services, empirical evidence on how age and marital status predict antenatal care utilization remains limited. The absence of localized data hampers effective planning and implementation of targeted maternal health interventions tailored to the demographic characteristics of pregnant women in the area. Without a clear understanding of the predictive influence of age and marital status on ANC utilization, efforts to improve maternal healthcare service uptake may remain ineffective.

Therefore, there is a need to empirically examine the predictive role of age and marital status in antenatal care utilization among pregnant women attending primary healthcare clinics in Bama Local Government Area, Borno State. Findings from this study are expected to provide evidence-based insights that will guide policymakers, health administrators, and primary healthcare providers in designing targeted strategies to improve ANC utilization and maternal health outcomes in the area.

Objectives of the Study

The objectives of this study were to:

1. Examine age as a predictor of antenatal care utilization among pregnant women attending primary healthcare clinics in Bama Local Government Area, Borno State.
2. Examine marital status as a predictor of antenatal care utilization among pregnant women attending primary healthcare clinics in Bama Local Government Area, Borno State.



Research Questions

The following research questions guided the study:

1. To what extent does age predict antenatal care utilization among pregnant women attending primary healthcare clinics in Bama Local Government Area, Borno State?
2. To what extent does marital status predict antenatal care utilization among pregnant women attending primary healthcare clinics in Bama Local Government Area, Borno State?

Research Hypotheses

The following null hypotheses were tested at the 0.05 level of significance:

H₀₁: Age does not significantly predict antenatal care utilization among pregnant women attending primary healthcare clinics in Bama Local Government Area, Borno State.

H₀₂: Marital status does not significantly predict antenatal care utilization among pregnant women attending primary healthcare clinics in Bama Local Government Area, Borno State.

Methodology

A cross-sectional survey design was employed for this study, which is appropriate for examining relationships among variables at a single point in time (Cherry, 2019). The population for this study consisted of 1,431 pregnant women attending antenatal care service in primary healthcare in Bama Local Government (Local Government Primary Healthcare Agency, 2025). Based on Research Advisors table (2006), a sample of three hundred and six 306 pregnant woman were used for the study. Four primary healthcare facilities (Ngoru Soye, Mohammed Goni, Tashan Gotuwa, and IDPs Primary Healthcare Clinics) were purposively selected. Within these facilities, participants were selected using systematic random sampling to ensure representativeness.

Data were collected using a 20-item self-developed questionnaire, employing a four-point Likert-type scale: Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). The instrument



demonstrated good reliability, with a Cronbach’s alpha of 0.84. Descriptive statistics was used to describe the demographic characteristics of respondents and address the research questions; while inferential statistics, specifically multiple regression analysis, was conducted to test the hypotheses at a 0.05 significance level.

Results

291 completed questionnaires out of 306 were retrieved. Descriptive statistics (frequency counts and percentages) was used to answer the research questions, while inferential statistics using multiple regression analysis employed to test the hypotheses at the 0.05 level of significance.

Table 1: Demographic Characteristics of the Respondents

(n =291)			
Items	Responses	Respondents	Percentage (%)
Age	a. Under 18 years old	31	10.7
	b. 18-24 years old	80	27.5
	c. 25-34 years old	106	36.4
	d. 35-44years old	57	19.6
	e. 45 years and above	17	5.8
Marital Status	a. Married	189	64.9
	b. Single	18	6.1
	c. Divorce	60	20.6
	d. Separated	24	8.2

Table 1 presents the demographic characteristics of the 291 respondents in terms of age and marital status. The age distribution shows that the majority of respondents, 106 (36.4%), were between 25 and 34 years, followed by 80 (27.5%) aged 18–24 years, 57 (19.6%) aged 35–44 years, 31 (10.7%) under 18 years, and 17 (5.8%) aged 45 years and above. This indicates that most pregnant women attending primary healthcare facilities in Bama Local Government fall within the 25–34 years age group. Regarding marital status, 189 respondents (64.9%) were married, 60 (20.6%) divorced, 24 (8.2%) separated, and 18 (6.1%) single, showing that married women formed the largest proportion of the sample. These demographic distributions provide context for examining the influence of age and marital



status on antenatal care utilization.

Table 2: Level of Antenatal Care Utilization

	Frequency	Percent
Low Utilization	214	73.5
High Utilization	77	26.5
Total	291	100.0

Key = 1 - 2.49 Low Utilization **2.5 - 4.0** High Utilization

Table 2 shows the level of antenatal care utilization among the 291 respondents. The majority of pregnant women, 214 (73.5%), were classified as having low utilization of ANC services, while only 77 (26.5%) demonstrated high utilization. This indicates that most respondents do not consistently use antenatal care services at the recommended level. The key shows that low utilization corresponds to scores between 1 and 2.49 on the measurement scale, while high utilization corresponds to scores between 2.5 and 4.0, reflecting the overall limited engagement of the study population with antenatal care in Bama Local Government.

Hypotheses

Ho₁: Age does not significantly predict antenatal care utilization among pregnant women attending primary healthcare clinics in Bama Local Government Area, Borno State.

Ho₂: Marital status does not significantly predict antenatal care utilization among pregnant women attending primary healthcare clinics in Bama Local Government Area, Borno State.

Regression Analysis of Predictors of Antenatal Care Utilization

Table 3: Model Summary

Statistic	Value
R	0.530
R ²	0.280
Adjusted R ²	0.265
Std. Error of Estimate	0.30197

Table 3 explains that the model explains 28% of the variance in antenatal care utilization ($R^2 = 0.280$),



with an adjusted R^2 of 0.265 accounting for sample size and number of predictors, indicating modest predictive power. The Std. Error of Estimate of 0.30197 reflects reasonably accurate predictions with an average deviation of 0.302 units from observed values.

Table 4: ANOVA

Source	Sum of Squares	Df	Mean Square	F	Sig.
Regression	10.094	6	1.682	18.450	.000
Residual	25.896	284	0.091		
Total	35.990	290			

Table 4 indicates that the regression model is statistically significant, $F(6, 284) = 18.450$, $p < 0.001$, showing that age and marital status collectively explain a significant portion of variance in antenatal care utilization, though the explained variance remains moderate at 28%.

Table 5: Multiple Regression Coefficients

Predictor	B	Std. Error	Beta	t	P-value
Constant	1.568	0.092		17.052	<.001
Age	0.061	0.018	0.182	3.390	0.001
Marital Status	0.061	0.019	0.166	3.213	0.001

Table 5 indicates that age is a significant positive predictor of antenatal care utilization ($B = 0.061$, $\beta = 0.182$, $t = 3.39$, $p = 0.001$), indicating that older women utilize services more; marital status also significantly predicts utilization ($B = 0.061$, $\beta = 0.166$, $t = 3.21$, $p = 0.001$), showing higher use among married women. Consequently, both H_{o1} and H_{o2} are rejected. Both age and marital status significantly predict antenatal care utilization among pregnant women in Bama LGA. The model accounts for a moderate 28% of the variance, suggesting that other factors beyond these predictors also influence antenatal care utilization.

Thus, based on the regression results, both null hypotheses (H_{o1} and H_{o2}) were rejected. Age and



marital status significantly predicted antenatal care utilization among pregnant women attending primary healthcare clinics in Bama Local Government Area.

Discussion

The socio-demographic variables of age and marital status were examined to predict antenatal care utilization among pregnant women attending primary health facilities in Bama Local Government. The results of this study showed that age was a statistically significant predictor of antenatal care utilization among pregnant women attending these facilities. This finding is supported by several studies. Seidu, Ahinkorah, Hagan Agbaglo, Budu, Yaya, and Ameyaw (2019) showed that increasing maternal age is associated with higher ANC utilization rates. Age can influence the utilization of ANC services, as older women may have greater knowledge about the benefits of ANC, whereas younger women may face more barriers due to social and cultural factors.

Similarly, a study conducted in Tanzania found that women aged 35 or above were more likely to access ANC services than those younger than 35 years old (Exavery & Kanté, 2014). This finding aligns with Seidu et al. (2019), whose study in Ghana reported that women aged 25 years and above were more likely to utilize ANC services than younger women.

The findings of this study also indicate that marital status was a statistically significant predictor of antenatal care utilization among pregnant women attending primary health facilities in Bama Local Government. This finding is consistent with other studies that have shown marital status to significantly influence ANC utilization. Nisar and White (2024) reported that married or partnered women have better access to antenatal care due to increased financial and social support from their partners and families. Additionally, married women and those in stable relationships have greater knowledge and awareness of the importance of antenatal care as a result of discussions with their partners regarding pregnancy and childbirth.

A study conducted in Pakistan similarly found that women who were married or living with a partner were more likely to utilize antenatal care services than unmarried women, largely due to social and financial support from their partners (Nisar & White, 2024). In contrast, unmarried women may encounter more barriers to accessing ANC services, such as social stigma or discrimination based on their marital status. Findings from Nisar and White (2024) further indicate that unmarried women are more likely to have lower socioeconomic status and less social support, which can make it more challenging for them to access and utilize antenatal care services.



Conclusion

The study revealed that antenatal care utilization among pregnant women attending primary healthcare clinics in Bama Local Government Area was generally low, with most respondents falling within the low utilization category. The findings showed that age significantly predicted antenatal care utilization, as older women demonstrated higher levels of service use. Marital status also significantly influenced utilization, with married women more likely to utilize antenatal care services than their unmarried counterparts. The regression model was statistically significant and explained a moderate proportion of the variance in antenatal care utilization. Thus, the study concluded that age and marital status were important socio demographic predictors of antenatal care utilization among pregnant women in the study area.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. Health authorities in Bama should design educational programs to inform younger pregnant women about the importance of early and regular antenatal care.
2. Primary healthcare clinics in Bama should provide additional support and counseling to unmarried, divorced, or separated women to reduce social barriers and encourage ANC utilization.
3. Bama Local Government should develop ANC initiatives that address the specific needs of different age groups, ensuring that both younger and older women receive appropriate guidance and care.
4. Authorities in Bama should encourage families and partners in Bama to support pregnant women, especially married women, to strengthen social and financial support systems that promote ANC attendance.
5. Authorities in Bama should integrate demographic considerations, such as age and marital status, into health planning to improve access and utilization of antenatal care services across all primary healthcare facilities.
6. Authorities in Bama should establish a monitoring system in Bama clinics to track ANC attendance patterns by age and marital status to identify gaps and improve service delivery.



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