ISSN: 2753-7919
British Journal of Healthcare and Medical Research; Vol. 13 No. 05 (2026) (325-334)
https://doi.org/10.14738/bjhr.1305.12473

Knowledge and Utilization of Antenatal Care Services among Antenatal Care Attendees at General Hospital Wannune, Tarka Local Government Area, Benue State, Nigeria

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Abstract: Background: Antenatal care (ANC) represents an essential aspect of maternal healthcare, as it creates opportunities for health education, preventive care, early detection of pregnancy-related complications, and adequate preparation for delivery and parenthood. Although awareness of ANC is generally high in many communities, completing the recommended number of contacts continues to be challenging, especially in settings where financial and geographical constraints are present. Objective: The study examined the level of knowledge, utilization of antenatal care services, and barriers affecting utilization among pregnant women attending ANC at General Hospital Wannune, Tarka Local Government Area, Benue State, Nigeria. Methods: A descriptive cross-sectional survey was carried out among 80 pregnant women attending antenatal care at General Hospital Wannune. Data were obtained through a semi-structured, self-administered questionnaire that covered socio-demographic characteristics, knowledge of ANC, utilization of services, and factors affecting utilization. Face-to-face assistance was provided to respondents who experienced difficulty completing the questionnaire. The collected data were analyzed using SPSS version 25. Frequencies, percentages, means, standard deviations, and Chi-square tests were used for data analysis. Results: The findings showed that respondents had a generally good level of knowledge of antenatal care (ANC) services. General awareness of antenatal care was high, with 96.3% of respondents indicating awareness of ANC services. Similarly, 92.5% understood the importance of ANC in promoting maternal and fetal well-being, while 88.8% recognized its role in preventing pregnancy-related complications. However, only 48.8% correctly identified the WHO recommendation of eight ANC contacts, whereas 63.8% held the misconception that ANC should only commence when pregnancy-related symptoms develop. In terms of utilization, 53.8% of respondents commenced ANC during the first trimester, 83.8% had completed at least four ANC visits, while only 38.8% reported having eight or more ANC contacts. The major barriers to utilization included financial cost (78.8%), distance from the hospital (72.5%), transportation difficulties (68.8%), prolonged waiting time (63.8%), and the attitude of healthcare workers (57.5%). Educational level was significantly associated with adherence to the recommended eight-contact ANC model, $x^2(3, N=80) = 10.24$, $p=.017$, $V=.36$. Conclusion: The study revealed a disparity between knowledge of ANC and complete utilization of the recommended services. While general awareness and initiation of ANC during early pregnancy were relatively satisfactory, financial difficulties, geographical distance, transportation problems, lengthy waiting periods, and healthcare-provider-related factors continued to hinder the completion of recommended ANC contacts.

Keywords: Antenatal care, ANC attendees, knowledge, utilization, barriers, maternal health.

INTRODUCTION

Antenatal care covers education, nutritional counselling, immunization, preventive treatment, and screening for pregnancy complications, and it also prepares women for childbirth and parenting (WHO, 2016). In 2016 the WHO replaced its four-visit schedule with an eight-contact model, beginning with a first-trimester contact and ending with contacts near term (WHO, 2016). Group antenatal care is endorsed as an alternative delivery model.

Global data show a wide gap between starting and completing ANC. Most pregnant women make at least one visit, but far fewer complete the earlier four-visit standard, and fewer still reach eight contacts (WHO, 2022). A scoping review in sub-Saharan Africa reported median coverage of about 97% for one visit, around 61% for four visits, and only about 4% for eight or more (Lateef et al., 2024). Poor attendance matters because pre-eclampsia, heamorrhage, and infection, the leading causes of maternal death, are often detectable or preventable through routine contacts. Nigeria accounts for roughly one-fifth of global maternal deaths (UNFPA, 2023).

The 2018 Nigeria Demographic and Health Survey found that about one in five women (20.3%) had eight or more contacts, with a marked urban–rural gap (35.5% vs 10.4%) (NPC & ICF, 2019). The preliminary 2023–24 survey reported that 64.2% of women began ANC in the first trimester and 43.8% reached four visits (NPC & ICF, 2024). Reported drivers of low use include limited awareness, negative views of health services, preference for traditional birth attendants, cost, and poor access in rural areas (Tessema et al., 2023). Education is repeatedly linked to better use (Ogbo et al., 2021).

Local evidence from Benue State is mixed. In Makurdi, three-quarters of 300 mothers made four or more visits, but only 42% booked early (Ogbodo, 2017). In Logo LGA, overall utilization was rated high, yet uptake of nutritional supplementation and vitamins was low (Agera et al., 2023). Across Benue South, Onah et al. (2022) found good knowledge (86.4%) but adequate utilization in only 68.9%, with education, distance, cost, provider attitudes, and spousal support as influences. Similar knowledge–practice gaps were reported in Enugu (Boniface et al., 2023) and Ekiti (Jesuyajolu et al., 2022), and a Lagos teaching hospital study identified affordability, waiting time, and staff attitude as determinants (Ademuyiwa et al., 2020). Little is known about ANC use against the eight-contact standard in Tarka LGA. This study therefore assessed knowledge, utilization, and barriers among ANC attendees at General Hospital Wannune.

MATERIALS AND METHODS

Study Design

A descriptive cross-sectional survey design was used for the study. This design was considered suitable because the study aimed to determine the level of knowledge, patterns of current utilization, and perceived factors that hinder the use of ANC services among attendees within a specified period.

Study Setting

The study was carried out at General Hospital Wannune, a public secondary healthcare facility situated in Wannune, the headquarters of Tarka Local Government Area of Benue State, Nigeria. The hospital provides a range of maternal healthcare services, including antenatal care (ANC), to pregnant women within the community and surrounding areas.

Study Population

The study population comprised pregnant women who attended antenatal care at General Hospital Wannune during the period of the study. Pregnant women were eligible regardless of their gestational age, parity, or socio-demographic background, provided they were willing to participate and gave informed consent. Women who were unable to provide responses due to illness or other circumstances, as well as those who were unwilling to participate, were excluded from the study.

Sample Size

The sample size was determined using Yamane's formula, ($n = N/[1 + N(e)^2]$), based on an estimated ANC attendee population of approximately 100 and a 5% level of precision. The calculation produced a sample size of 80 participants. Therefore, a total of 80 ANC attendees were included in the study.

Sampling and Recruitment

Eligible participants were selected from pregnant women attending the ANC clinic during the study period. Women who satisfied the inclusion criteria and provided informed consent were recruited to participate in the study.

Instrument for Data Collection

Information was obtained using a semi-structured, self-administered questionnaire. The questionnaire was divided into four sections. Section A obtained information on the socio-demographic characteristics of the respondents. Section B focused on respondents' knowledge of antenatal care services. Section C assessed the utilization of ANC services, while Section D examined factors that influenced the utilization of ANC services. The questionnaire was subjected to face and content validation to ensure that the items were appropriate and relevant to the objectives of the study.

Reliability

The reliability of the research instrument was determined using the test-retest method. The questionnaire was administered to a pilot group on two separate occasions, with an interval of approximately 1–2 weeks between the two administrations. This procedure was used to assess the stability and consistency of responses over time. Data obtained during the pre-test were subjected to reliability analysis using Cronbach's alpha coefficient. A reliability

coefficient of 0.70 was obtained, indicating an acceptable level of internal consistency for the instrument.

Data Collection Procedure

An introductory letter was obtained from the Department of Nursing Sciences, and ethical clearance was secured from Rev. Fr. Moses Orshio Adasu University, Makurdi. Permission to conduct the study was subsequently obtained from the management of General Hospital Wannune. One research assistant was engaged and adequately trained to assist with the administration and collection of the questionnaires. The questionnaires were administered directly to eligible respondents and were completed by the participants themselves. However, face-to-face assistance was provided to respondents who had difficulty reading or interpreting the questions. Completed questionnaires were collected immediately after they had been filled out.

Data Analysis

The collected data were entered and analyzed using the Statistical Package for the Social Sciences (SPSS), version 25. Frequencies and percentages were used to present socio-demographic characteristics and categorical responses. Means and standard deviations were employed to summarize responses relating to knowledge and utilization of ANC services. Chi-square tests were used to determine the association between ANC utilization and selected socio-demographic variables. The level of statistical significance was set at $p < .05$.

Ethical Considerations

Ethical approval for the study was obtained from the Research and Ethics Committee of the university. Participation in the study was entirely voluntary and was based on informed consent from the respondents. Participants were informed that the information they provided would be treated confidentially and that their identities would remain anonymous. They were also informed of their freedom to withdraw from the study at any stage without any negative consequences. The information collected was used strictly for academic purposes and was securely stored to prevent unauthorized access.

RESULTS AND DISCUSSION

Results

Table 1: Socio-demographic characteristics

Variable	Category	N	%
Age	15–24	22	27.5
	25–34	38	47.5
	35–44	17	21.3
	45+	3	3.8
Marital status	Married	80	100.0
	Single	0	0.0

	Widowed	0	0.0
	Divorced	0	0.0
Education	No formal	18	22.5
	Primary	14	17.5
	Secondary	36	45.0
	Tertiary	12	15.0
Employment	Employed	10	12.5
	Unemployed	30	37.5
	Self-employed	32	40.0
	Student	8	10.0
Religion	Christianity	76	95.0
	Islam	3	3.8
	Traditional	1	1.3
Parity	None	14	17.5
	1–3	42	52.5
	4–6	19	23.8
	7+	5	6.3
Gestational age	1–12 weeks	12	15.0
	13–24 weeks	26	32.5
	25–36 weeks	28	35.0
	37+ weeks	14	17.5

The largest age group was 25–34 years (47.5%). All respondents were married. Secondary education was the most common educational category (45.0%), followed by no formal education (22.5%), primary education (17.5%), and tertiary education (15.0%). Self-employment accounted for 40.0%, while 37.5% were unemployed. Most respondents were Christian (95.0%). More than half (52.5%) had one to three children. Gestational age was distributed across the four categories, with 35.0% between 25 and 36 weeks.

Table 2: Knowledge of ANC services

Knowledge item	Mean	SD	Correct response
Know about ANC services	4.63	0.62	96.3%
ANC monitors/promotes maternal and fetal well-being	4.50	0.71	92.5%
ANC prevents pregnancy complications	4.38	0.78	88.8%
ANC should begin in first trimester	4.25	0.84	85.0%
ANC should start only when having pain/illness	2.13	1.05	36.3%
WHO recommends 8 ANC contacts	3.48	1.12	48.8%
Core ANC services are not provided	2.29	1.08	71.3% correct
Recognize pregnancy danger signs	4.13	0.92	78.8%

The findings showed that respondents had a generally good level of knowledge of antenatal care (ANC) services. Knowledge was highest regarding awareness of ANC services generally (96.3%), the role of ANC in promoting maternal and fetal well-being (92.5%), and prevention of pregnancy complications (88.8%). Most respondents also knew that ANC should begin in the first trimester (85.0%) and could identify pregnancy danger signs (78.8%). However, important knowledge gaps were observed. Only 36.3% correctly rejected the misconception that ANC should begin only when a woman experiences pain or illness, while

48.8% correctly identified the WHO-recommended eight ANC contacts. Overall, the findings indicate good general awareness of ANC, but inadequate knowledge of some specific ANC recommendations and misconceptions about when ANC should be initiated.

Table 3: Utilization of ANC services

Utilization indicator	Percentage	Mean	SD
Attended ≥4 ANC visits	83.8%	4.10	1.05
Attended ≥8 ANC visits	38.8%	2.90	1.18
Never missed an ANC appointment	36.3%	2.10	1.15
Received all core ANC services	71.3%	3.85	1.02
Attend ANC only when sick	67.5%	3.70	1.08

Utilization showed a mixed pattern. Attendance of at least four visits was reported by 83.8%, but only 38.8% reported eight or more contacts. The manuscript also reports that 53.8% initiated ANC during the first trimester. A substantial proportion reported receiving core ANC services, while continuity was less complete when measured against the eight-contact standard.

The findings indicate that initiation and intermediate attendance were more common than completion of the WHO-recommended contact schedule. This distinction is important because a facility may have a substantial number of ANC attendees while still experiencing low completion of recommended contacts.

Table 4: Factors influencing utilization

Barrier	Mean	SD	Percentage
Cost of ANC services	4.20	0.88	78.8%
Distance to hospital	4.05	0.92	72.5%
Transportation challenges	3.95	1.01	68.8%
Long waiting time	3.80	0.97	63.8%
Attitude of health workers	3.65	1.05	57.5%

Cost was the most frequently reported barrier, followed by distance and transportation. Long waiting time and health-worker attitude were also prominent.

Inferential Findings

A Chi-square test demonstrated a statistically significant association between educational level and adherence to the WHO-recommended eight-contact model, $x^2(3, N=80)=10.24$, $p=.017$, with Cramér's $V=.36$. Respondents with tertiary education had the highest proportion classified as high utilizers (83.3%), while respondents with no formal education had the lowest (22.2%).

Table 5: Association between Educational level and Adherence to the WHO-recommended eight-contact model

Education	High utilization	Low utilization	Total
No formal (n=18)	4	14	18
Primary (n=14)	5	9	14
Secondary (n=36)	20	16	36
Tertiary (n=12)	10	2	12
Total	39	41	80

Table 6: Utilization and Reported Barriers

Barrier	High utilization	Low utilization	Reported x^2
Cost	18 (46.2%)	33 (80.5%)	10.12
Distance	20 (51.3%)	31 (75.6%)	5.68
Long waiting time	19 (48.7%)	29 (70.7%)	4.32
Health-worker attitude	17 (43.6%)	28 (68.3%)	5.01

The study reports significant differences in the reporting of key barriers between high and low utilizers. Cost was reported by 80.5% of low utilizers compared with 46.2% of high utilizers (p=.001); distance was reported by 75.6% versus 51.3% (p=.017); long waiting time by 70.7% versus 48.7% (p=.038); and negative health-worker attitudes by 68.3% versus 43.6% (p=.025).

DISCUSSION

Knowledge of ANC

The findings showed that respondents had a generally good knowledge of antenatal care (ANC) services. Knowledge was highest regarding awareness of ANC (96.3%), its role in promoting maternal and fetal well-being (92.5%), and prevention of pregnancy complications (88.8%). Also, 85.0% knew that ANC should begin in the first trimester, while 78.8% could identify pregnancy danger signs. This suggests that most respondents understood the general importance and benefits of ANC.

The findings are consistent with Sabo et al. (2024), who reported high awareness of ANC and relatively good knowledge of pregnancy danger signs among women in Jigawa State, Nigeria. Similarly, Eze, Igbokwe, and Okeke (2023) found a generally good level of knowledge of ANC services among pregnant women in Enugu State. These similarities may be related to the exposure of pregnant women to health education during ANC attendance.

However, the study identified important knowledge gaps. Only 36.3% correctly rejected the misconception that ANC should begin only when a woman experiences pain or illness, while 48.8% correctly identified the recommended eight ANC contacts. This indicates that general awareness did not necessarily translate into accurate knowledge of specific ANC recommendations. Sabo et al. (2024) also reported misconceptions about the appropriate timing of ANC initiation among pregnant women in Jigawa State. Furthermore, Adewuyi et al. (2024) found that actual attainment of eight or more ANC contacts remained low among Nigerian women, particularly those living in rural areas.

Overall, the findings indicate that although respondents possessed good general knowledge of ANC, gaps remained regarding early initiation and the recommended eight contacts**.** Therefore, ANC health education should place greater emphasis on when ANC should commence, the number of recommended contacts, and the importance of attending ANC even when no pregnancy symptoms are present.

Utilization of ANC

Utilization was characterized by relatively high attendance of at least four visits but lower completion of eight contacts. Onah et al. (2022) similarly reported a gap between good knowledge and utilization in Benue South. Adewuyi et al. (2024) also documented major rural-urban disparities in eight-contact utilization. The present study therefore adds facility-level evidence showing that a knowledgeable ANC-attending population may still encounter barriers that interrupt completion.

Barriers to Utilization

Cost emerged as the leading reported barrier. This finding is consistent with Ademuyiwa et al. (2020) and Onah et al. (2022), both of whom identified financial constraints as important influences on ANC utilization. Where women have limited independent income, even modest costs associated with consultation, laboratory investigations, medicines, or transportation may reduce the ability to maintain repeated attendance.

Distance and transportation were also prominent. Physical access becomes increasingly important in later pregnancy when frequent contacts are required. A long journey may involve transport fares, time away from income-generating activities, and physical discomfort. The findings therefore support interventions that improve affordability and transport access rather than relying solely on health education.

Waiting time and health-worker attitude were additional barriers. These findings correspond with Ademuyiwa et al. (2020), who identified waiting time and provider attitudes as determinants of ANC utilization. Respectful maternity care and efficient organization of ANC services can influence women’s willingness and ability to return.

Education and Utilization

Education was significantly associated with adherence to eight ANC contacts. The observed gradient, in which the proportion of high utilization was greater among women with higher educational attainment, is compatible with literature linking education to health literacy, autonomy, and healthcare decision-making. However, education should not be interpreted as the sole explanation for utilization because the study also demonstrated strong effects of structural barriers.

CONCLUSION

The study assessed knowledge, utilization, and barriers to ANC among 80 pregnant women attending General Hospital Wannune. Overall knowledge was good for most respondents,

and awareness of the purpose and benefits of ANC was high. However, important gaps existed regarding the WHO-recommended eight-contact schedule and the preventive nature of ANC.

Utilization demonstrated a high-initiation and lower-completion pattern. Although 83.8% reported at least four visits and 53.8% reported first-trimester initiation, only 38.8% reported eight or more contacts. This indicates that the challenge is not simply whether women enter ANC, but whether they can continue attending at the recommended frequency.

Cost, distance, transportation, waiting time, and health-worker attitudes were the leading barriers. Education was significantly associated with utilization, while several structural barriers were more frequently reported by low utilizers. The findings therefore support a multidimensional approach to improving ANC utilization in Tarka Local Government Area, Benue State, Nigeria.

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