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Original Research Article

Utilization without equity: investigating gendered and structural inequities in antenatal care use in rural Kebbi State, Nigeria

Cyril Afamefuna Egbo*

Department of Community Health, College of Medicine, University of Benin, Benin City, Edo State, Nigeria

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***Correspondence:**
Dr. Cyril Afamefuna Egbo,
E-mail: egbocyril@gmail.com

ABSTRACT

Background: Antenatal care (ANC) is a proven strategy for reducing maternal and neonatal morbidity and mortality. Yet in many low- and middle-income countries (LMICs), including Nigeria, systemic and gendered barriers continue to undermine equitable utilization, particularly in rural settings. This study investigates structural and gender-based inequities influencing ANC utilization among women in rural Kebbi State, Nigeria.
Methods: A cross-sectional study was conducted with 420 women in Kebbi State. Data were collected using structured questionnaires and analysed using descriptive statistics, chi-square tests, means, and standard deviations via SPSS v20.
Results: Although 95.2% of respondents reported the presence of primary health centres (PHCs), service consistency was limited. Only 59% and 52.9% reported access to iron supplementation and deworming medications, respectively. Major barriers included long distances (48.8%), transport costs (41.0%), and absence of female providers (28.3%). Higher educational attainment and decision-making autonomy were significantly associated with increased ANC attendance ($p<0.05$). The mean number of ANC visits was 3.7 (SD±1.6), falling short of WHO recommendations, particularly among women with no formal education (mean=2.9, SD±1.4).
Conclusions: The availability of ANC services does not equate to equitable access and utilization. Deep-rooted structural and gendered inequities constrain maternal healthcare utilization in rural Nigeria. Interventions must prioritize equity, gender responsiveness, and community empowerment to ensure inclusive maternal health outcomes.

Keywords: Antenatal care, Gender inequality, Health access, Maternal health, Rural, Kebbi State, Nigeria, Structural barriers

INTRODUCTION

Antenatal care (ANC) utilization is essential to reducing maternal and neonatal morbidity and mortality, particularly in LMICs. The world health organization (WHO) recommends a minimum of eight ANC contacts to ensure optimal health outcomes during pregnancy.[1] However, research shows that availability alone does not guarantee utilization, especially in settings where structural and gender inequities shape health-seeking behaviour.[2]

Despite decades of global and national investment in maternal health, Nigeria remains among the top contributors to global maternal deaths, accounting for 20% of global maternal mortality.[3] ANC is widely recognized as one of the most cost-effective strategies to reduce adverse maternal and neonatal outcomes. Yet, utilization in rural Nigeria remains below expectations. According to the 2018 Nigeria demographic and health survey (NDHS), only 51% of women attended four or more ANC visits, with even lower rates in rural regions such as Kebbi State.[4]

These low levels of uptake are not merely reflective of infrastructural deficits but are deeply embedded in sociocultural and gendered inequalities. Women face limited autonomy, poor health literacy, poverty, and discriminatory experiences within health systems, all of

which deter consistent ANC engagement.[5] Even where facilities are present, access is obstructed by a lack of female health workers, inadequate supplies, poor geographical coverage, and patriarchal norms.

Although Nigeria's PHC system has expanded coverage, it has not sufficiently addressed these intersecting barriers. Previous studies indicate that education, spousal support, and cultural expectations critically shape maternal healthcare utilization patterns.[6,7] In rural northern Nigeria, such as Kebbi State, these dynamics are even more pronounced, requiring localized understanding of inequities.

This study investigates the structural and gender-related inequities affecting ANC utilization among rural women in Kebbi State. Using disaggregated data, it explores how variables such as education, distance, spousal control, and provider availability influence women's ability to access and benefit from ANC services.

METHODS

A community-based cross-sectional study was conducted among women in Kebbi State. The study was carried out over a six-month period between April and September 2023. A total of 420 women who had attended ANC at public PHC facilities were included in the study.

Informed consent was obtained from all willing participants. Women who declined to participate and those who were not within the reproductive age group (15-49 years) were excluded from the study. A pre-structured, interviewer-administered questionnaire was used to collect data.

Descriptive and inferential statistical analyses were performed. Chi-square tests and Fisher's exact tests (when expected cell counts were <5) were used to assess associations between categorical variables. Mean and standard deviation (SD) were calculated for continuous variables such as number of ANC visits. The level of significance was set at $p<0.05$. Statistical analyses were conducted using SPSS version 20.

Ethical approval

Ethical approval for this study was obtained from the Kebbi State ministry of health ethical committee, and all participants were fully informed about the study's purpose, procedures, and their rights before any data were collected. Written informed consent obtained from each respondent.

RESULTS

Table 1 shows the age distribution, educational attainment, marital status, and decision-making autonomy of the respondents. The majority of women (44.3%) were aged 25-34, while 36.7% had no formal education. A large proportion (96.2%) were married. Importantly, 46.0% reported having no autonomy in making healthcare decisions, highlighting gender-based limitations in reproductive health agency.

Table 2 illustrates the availability of core ANC services. While basic services like physical examination and blood pressure monitoring were widely available (97.9% and 96.7% respectively), more resource-dependent interventions such as iron supplementation (59.0%) and deworming (52.9%) were inconsistently provided. This reflects structural deficiencies in the PHC system.

As shown in Table 3, nearly half of respondents (48.8%) reported long distances to facilities as a barrier to ANC access. Other frequent limitations included transport costs (41.0%) and absence of female health workers (28.3%). Cultural factors, such as spousal permission (32.9%), also significantly affected healthcare seeking behaviours.

Table 4 demonstrates the association between education level and ANC utilization. Only 24.7% of women with no formal education completed four or more ANC visits, compared to 73.8% among those with secondary education or higher. The association was statistically significant ($\chi^2=18.2$, $p<0.001$), suggesting education as a major determinant of ANC uptake.

Analysis of women's preferences showed that 54% preferred PHCs with female providers, while 27% opted for the nearest facility regardless of provider type. The preference for female staff reflects gender sensitivities that influence care choices. Additionally, 12% preferred traditional birth attendants (TBAs), and 7% utilized private clinics highlighting ongoing reliance on informal and private sector care options (Table 5).

The mean number of ANC visits among respondents was 3.7 (SD±1.6), below the WHO-recommended minimum of 8. Among women with no formal education, the mean dropped to 2.9 (SD±1.4), compared to 4.3 (SD±1.3) among those with secondary or higher education. Figure 1 further illustrates this distribution, showing highest concentration of respondents (103) attended exactly four visits.

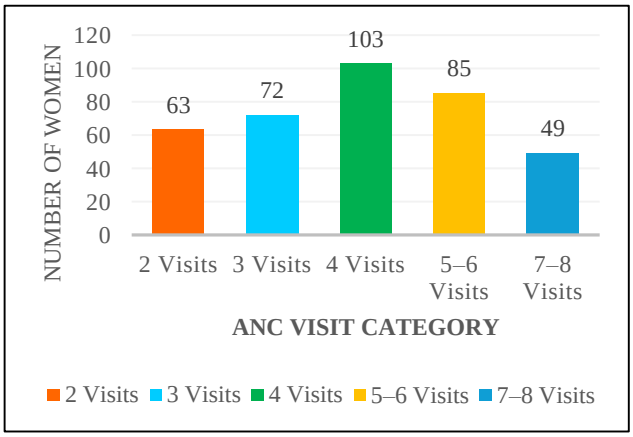

Figure 1: Frequency of ANC visits by women.

Table 1: Socio-demographic characteristics, (n=420).

Variables	Category	N	Percentage (%)
Age (in years)	15-24	96	22.9
	25-34	186	44.3
	35-49	138	32.8
Education	No formal education	154	36.7
	Primary	98	23.3
	Secondary or higher	168	40.0
Marital status	Married	404	96.2
	Single	16	3.8
Autonomy	Yes	227	54.0
	No	193	46.0

Table 2: Reported ANC services at PHCs.

ANC service provided	Yes, N (%)	No, N (%)
Physical examination	411 (97.9)	9 (2.1)
Blood pressure check	406 (96.7)	14 (3.3)
Tetanus vaccination	354 (84.3)	66 (15.7)
Iron supplement	248 (59.0)	172 (41.0)
Deworming medication	222 (52.9)	198 (47.1)

Table 3: Reported barriers to ANC access.

Barrier	N	Percentage (%)
Long distance to facility	205	48.8
High transport cost	172	41.0
Lack of female health workers	119	28.3
Long waiting time	143	34.0
Spousal permission required	138	32.9

Table 4: Association between education and ANC utilization.

Education level	≥4 ANC visits, N (%)	<4 ANC visits, N (%)	χ^2 (Chi-square)	P value
No formal education	38 (24.7)	116 (75.3)	18.2	0.000
Primary	61 (62.2)	37 (37.8)		
Secondary or higher	124 (73.8)	44 (26.2)		

Table 5: Women's preferences regarding ANC services.

Preferences	N	Percentage (%)
Female provider	227	54
Nearest facility	113	27
TBAs	50	12
Private clinics	30	7

DISCUSSION

This study reveals complex, interrelated factors influencing ANC utilization in rural Nigeria. While most respondents were married and of reproductive age, a significant proportion lacked autonomy in healthcare decision-making underscoring persistent patriarchal norms and gender-based barriers to accessing maternal health services. These findings affirm prior studies that identify limited autonomy as a fundamental impediment to women's use of reproductive health services in sub-Saharan Africa.[8,9]

Although the availability of basic ANC services such as physical examinations and blood pressure checks appears high, critical interventions like iron supplements and deworming medication remain inconsistently accessible. This gap reflects ongoing disparities in service quality and health system readiness in rural PHC facilities.[7] Contrasting studies from urban settings which document better access to such interventions, reinforcing evidence of a persistent rural-urban divide.[10]

Structural barriers including distance to health facilities, high transportation costs, and the absence of female health providers further compound cultural and gender-based restrictions such as the need for spousal permission to seek care. These multifaceted constraints align with WHO concerns about the acceptability and accessibility of maternal health services in vulnerable populations and which also echo findings in similar rural Nigerian contexts.[11-13] Comparable trends have also been reported in East Africa, where long distances and financial hardship significantly hindered ANC uptake in Tanzania and Uganda.[14]

Education emerged as a strong predictor of ANC attendance. Women with at least secondary education were significantly more likely to complete the WHO-recommended ANC visits, corroborating other studies findings.[15,16] This reinforces the importance of girl-child education as a strategic entry point to improving maternal and reproductive health outcomes. Global evidence also supports this relationship: a study in Nepal found maternal education to be one of the strongest determinants of complete ANC attendance.[17]

Women's preferences for gender-sensitive care particularly for female providers highlight the sociocultural dimensions of service acceptability. These

preferences, alongside continued reliance on TBAs, indicate lingering distrust or cultural mismatch with formal health systems. These trends are in consultant with other studies as they emphasize provider gender and interpersonal behaviour as critical influences on women's healthcare experiences, and Okereke et al who documented TBA preference in northern Nigeria.[18,19]

Although the average number of ANC visits reported in this study was 3.7, it falls short of the WHO-recommended minimum of eight contacts, reflecting inadequate continuity of care. Disaggregated data show that women with no formal education were less likely to complete the required visits. This aligns with findings a study conducted in Nigeria, who linked ANC dropout to health literacy gaps, weak follow-up systems, and affordability issues in rural areas.[20]

This study findings affirm that underutilization of ANC in rural Nigeria is not merely a consequence of supply-side limitations but is deeply rooted in systemic inequities related to gender, education, poverty, and geography. Addressing these challenges requires culturally sensitive, intersectional, and equity-focused policies that go beyond infrastructure development to confront the social determinants of maternal health. Aligning with sustainable development goals 3.1 (reduce maternal mortality) and 5.6 (ensure universal access to reproductive health), efforts must be grounded in reproductive justice frameworks that center women's rights, autonomy, and dignity.

This study is among the few to interrogate ANC utilization through a gendered, intersectional lens in northern Nigeria. It highlights how overlapping social, geographic, and institutional constraints restrict women's access, despite national improvements in coverage. The emphasis on women's preferences and autonomy offers new dimensions for maternal health reform.

Limitations

The limitations study of the data were self-reported, which may be subject to recall bias and social desirability bias, especially regarding sensitive issues such as autonomy and gender preferences. Despite these limitations, the study provides valuable insights into the structural and gendered dimensions of ANC inequities in rural contexts.

CONCLUSION

This study demonstrates that ANC utilization in rural Nigeria is hindered not only by infrastructural and supply-side limitations but also by deeply entrenched gender and structural inequities. Women's limited autonomy, low educational attainment, cultural norms, and lack of access to gender-sensitive services collectively diminish the likelihood of consistent ANC engagement. The findings underscore that achieving universal access to maternal healthcare requires interventions that extend beyond service availability to include cultural acceptability, community empowerment, and equitable policy reforms. Such efforts must be informed by principles of reproductive justice and aligned with global goals, including sustainable development goals 3.1 and 5.6, which emphasize maternal mortality reduction and equitable access to reproductive health services.

Recommendations

Prioritize the recruitment and retention of female health workers in rural PHCs to improve the acceptability of services and align with cultural preferences. Expand the geographic reach of ANC services through improved rural infrastructure and subsidized transport schemes to address physical accessibility challenges. Implement gender-sensitive health literacy programs that emphasize the importance of ANC, while also engaging men to challenge restrictive gender norms. Create pathways to improve girls' access to secondary education and livelihood support, which are strongly linked to better maternal health outcomes. Introduce routine training and monitoring systems for PHC staff to ensure respectful, non-discriminatory, and culturally appropriate services. Strengthen routine maternal health data collection disaggregated by gender, location, and education to inform context-specific maternal health policies and programming.

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