

Assessing Rural Residents' Perspectives on Healthcare Infrastructure, Access and Quality of Care: A Survey-Based Study in Anaocha LGA, Anambra State, Nigeria

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ABSTRACT

Background: Rural residents face numerous challenges, including inadequate healthcare infrastructure, limited access, and suboptimal quality of care, which leads to health disparities compared to urban populations. **Objectives:** To determine the rural residents' perspectives on healthcare infrastructure, access, and quality of care. **Materials and Methods:** A cross-sectional study involving 306 eligible rural residents from Anaocha Local Government Area in Anambra State, Nigeria was conducted after obtaining approval from the Nnamdi Azikiwe University Teaching Hospital Health Research Ethics Committee. Participants were selected using a multistage sampling technique, and data were collected using pre-tested, interviewer-administered questionnaires. Analysis was done using Statistical Package for the Social Sciences (SPSS) software, version 27.0 (IBM Inc., Armonk, New York, United States), with a significance level of $p \leq 0.05$. **Results:** This study involved 306 residents aged 15 to 65, comprising 116 males (38%) and 190 females (62%). A significant portion (66.7%) reported challenges in accessing healthcare services, primarily due to long waiting times (150, 50%) and high costs (51, 16.7%). Regarding healthcare facility visits, 50% attended sometimes, while 33.3% did so occasionally. The majority (83.3%) rated the quality of care as 'Neutral,' indicating potential areas for improvement in healthcare services to enhance patient satisfaction. **Conclusion:** The study reveals that rural residents face significant barriers to accessing healthcare, notably long waiting times and high costs, which lead to infrequent service use and neutral perceptions of care quality. Addressing these issues is essential to improving healthcare access and patient satisfaction in rural communities.

Keywords: Rural; Healthcare infrastructure; Utilisation; Community health; Anambra State

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INTRODUCTION

Access to healthcare services in rural areas worldwide remains a significant challenge, characterised by geographic isolation, limited infrastructure, and shortages of healthcare professionals, leading to disparities compared to urban regions. [1-2] Although rural residents constitute about half of Nigeria's population, they continue to experience severe shortages of healthcare facilities, trained personnel, and essential medicines, deepening existing health inequalities.[3] The Rural Development Act of 1972 defines a 'rural area' as one with no more than 10,000 residents.[4] According to the World Bank, Nigeria's rural dwellers constitute 53% of the country's total population.[5] Despite making up a significant portion of the population, rural Nigeria have limited access to healthcare facilities, with many communities lacking functional primary healthcare centres.[4-5]

Hospitals, clinics, and other healthcare facilities are scarcer in rural areas, and the existing infrastructure often lags behind that of urban centres.[6-8] This shortfall restricts access to emergency medical and specialised care, impeding timely and appropriate medical interventions. Patients rely on a coordinated network of services facilitated by healthcare providers and supported by organisations and the broader political and economic environment.[9-10] Efforts to improve healthcare access must consider various factors, including availability, affordability, cultural acceptability, and appropriateness of care.[11] In rural settings, structural barriers are more pronounced, necessitating comprehensive approaches to ensure equitable access to healthcare.[11] Moreover, inadequate infrastructure in many rural areas undermines the effectiveness of healthcare systems, limiting access to critical services and impeding the delivery of timely and appropriate care.[12]

Rural areas often experience unique socioeconomic challenges, including higher poverty rates, unemployment, and insufficient health insurance coverage. [13-14] These economic barriers compound rural residents' difficulties in accessing

and affording healthcare services, perpetuating disparities in health outcomes. [15-18]

In Nigeria, despite numerous healthcare reforms, a significant portion of the population still lacks access to adequate healthcare, particularly in rural areas.[19-20] The unique challenges facing rural healthcare systems are multifaceted, including underdeveloped economic infrastructures, geographical barriers, cultural disparities, differences in health-seeking behaviour and awareness, and variations in patient care approaches among healthcare professionals.[3,21] Understanding the specific challenges faced by rural populations is crucial for developing targeted interventions to address healthcare disparities.

While several studies have examined healthcare access in Nigeria, relatively few have focused on the distinctive challenges faced by rural communities.[2-3] This knowledge gap between rural and urban healthcare systems has led to a substantial shortfall in governmental budgets allocated to rural healthcare, exacerbating existing disparities and challenges in providing quality services to rural communities.[22]

This study aims to bridge this gap by conducting a comprehensive assessment of rural residents' perspectives on healthcare infrastructure, access, and quality of care. By elucidating the intricacies of healthcare delivery in rural areas, this research will provide valuable insights to inform policymaking, resource allocation, and healthcare interventions tailored to meet the specific needs of rural populations.

MATERIALS AND METHODS

Study Area: This study was conducted in Anaocha Local Government Area (LGA). Anaocha LGA is one of the 21 LGAs in Anambra State, southeastern Nigeria.[23] Anaocha LGA encompasses ten towns: Aguluzigbo, Agulu, Neni, Ichida, Adazi-Ani, Adazi-Enu, Adazi-Nnukwu, Akwaeze, Nri, and Obeledu. Neni serves as the administrative headquarters, while Agulu is the largest town. According to the 2006 census, Anaocha LGA had a population of 284,215, with a projected increase to approximately

405,000 by 2022, reflecting an annual growth rate of 2.2%. [23] The area covers approximately 104 square kilometres, resulting in a population density of about 3,600 people per square kilometre.

The predominant ethnic group in the area is the Igbo, with Christianity being the main religion. [24] Economically, the region thrives on agriculture, producing significant amounts of cassava, yams, and cocoyams. Trade and civil service are also vital economic drivers, complemented by fishing and commerce activities. Notable markets include Afor Market in Agulu and Nkwor Market in Adazi-Enu, which bolster the local economy. [24]

Study design: This study was a community-based descriptive cross-sectional survey in Anaocha LGA, Anambra State, Nigeria.

Study population: The study population consists of all the residents in Anaocha Local Government Area of Anambra State between the ages of 15 – 65 years. Participants were recruited from the total number of residents in the population and were selected by a multistage sampling with four stages.

Inclusion criteria: Residents within Anaocha LGA who have received any form of healthcare within the community. Residents between the ages of 15 – 65 years who have lived there for up to 12 months.

Exclusion criteria: All those who met the inclusion criteria but were not willing to participate.

Sample Size Determination:

The sample size was calculated using the Cochran formula. [25]

$$N = \frac{Z^2 PQ}{d^2}$$

Where:

N = minimum sample size,

z=1.96 (standard normal deviation corresponding to a 2-sided level of significance)

p=0.67 (expected proportion of outcome taking the prevalence to be 67%, as given by Ngugi et al). [26]

q=1-p

q=0.33

d=0.05 (proportion of sampling error tolerated)

$N = (1.96)^2 \times 0.767 \times 0.233 / 0.05^2$

N= 274.61

The minimum sample size is approximately 275

However, to account for possible non-responses and enhance the reliability of the study results, the sample size was increased to 306.

Study technique: A multistage sampling technique was adopted for this study. Participants were recruited from the total number of residents in the population and were selected by a multistage sampling with four stages. The first stage involved 10 towns within Anaocha as clusters, then three towns were randomly selected through a simple random sampling method. In the second stage, employing simple random sampling, three communities were selected from each town. In the third stage, the complete household list was not available, and a random walk method was adopted, starting from a random point and selecting households at regular intervals. At the final stage within each selected household, individuals aged 15 to 65 years who met the inclusion criteria were randomly selected using a table of random numbers and were recruited into the study.

Research Assistant Training: Three research assistants who were medical students at Nnamdi Azikiwe University Teaching Hospital (NAUTH) were recruited and trained. They were trained for two days on questionnaire administration and data collection procedures. The research assistants were interviewed and assessed for fluency in English and the local dialects of the communities. However, research assistants were not paid as participation was solely voluntary.

Pre-Testing of the Questionnaire: The questionnaire was pre-tested in Nnewi North Local Government Area, Anambra State, for quality assurance and feasibility. Necessary adjustments were made. The pre-tested data were not included in the main data.

Data Collection:

The procedure for the study was explained to each participant, and informed consent was obtained before they participated in the study. Information was obtained through a pre-tested semi-structured, interviewer-administered questionnaire. To enhance accuracy, all participants were informed that their responses would remain confidential. The questionnaire was divided into five (5) sections (A, B, C, D and E). Section A: assessed the socio-demographic characteristics profile of the respondents. Section B assessed the level of awareness and knowledge among rural residents about healthcare infrastructure among the respondents. Section C: assessed the rural residents' access to healthcare infrastructure. Section D assessed the determinants of the healthcare utilisation patterns among rural residents, and Section E assessed the determinants of the quality of care among the residents.

Data Analysis: Data obtained was checked for completeness, cleaned, entered, coded and analysed using SPSS version 27 developed by IBM Corporation. Descriptive statistics were used to describe the socio-demographic variables by the use of percentages and proportions for categorical variables and mean and standard deviation for continuous variables. The association between categorical variables was determined using chi-square or Fisher's exact test. Analysis of variance was used to summarise the association of mean differences. The level of significance for this study was set at $P < 0.05$ for all analyses.

Table 2 shows that most respondents are aware of the nearest hospital to them, 164 (53.6%). The majority, 209 (68.3%) of the respondent do not know the number of healthcare clinics in their town. Most people have heard of a Primary healthcare centre in their community 204(66.7%), whereas there's low

RESULTS

The study included a total of 306 participants. Table 1 shows the socio-demographic characteristics of the respondents. Among them, the age group 56–65 years had the highest representation with 88 participants (28.8%), followed by those aged 36–45 years with 84 participants (27.4%). Participants aged 15–25 years accounted for 52 (16.7%), while those aged 46–55 years comprised 49 (16.3%) of the sample.

Table 1: Socio-demographic characteristics of the respondents

Variable	Frequency(n)	Percentage (%)
Age		
16 – 25 years	52	16.7%
26 – 35 years	33	10.8%
36 – 45 years	84	27.4%
46 – 55 years	49	16.3%
56 – 65 years	88	28.8%
Gender		
Male	190	62.1%
Female	116	37.9%
Total	306	100%
Location		
Agulu	234	76.5%
Adazi	37	12.1%
Neni	26	8.5%
Ichida	9	2.9%
Level of Education		
Primary education	51	16.7%
Secondary education	153	50.0%
Tertiary education	102	33.3%
Occupation		
Farming	50	16.3%
Trading	204	66.7%
Civil service	52	17.0%

awareness of community health programs 28(9.2%). Only 102 (33.3%) of the respondents rated their knowledge of healthcare centres as good. This is commensurate with the general awareness and knowledge, also high 221 (72.2%).

Table 2: Awareness and knowledge of rural residents on healthcare infrastructure among participants

Variable	Frequency(N=306)	Percentage (%)
Are you aware of the nearest hospital to your location?		
Yes	164	53.6
No	142	46.4
Do you know the number of healthcare clinics in your town?		
Yes	97	31.7
No	209	68.3
Are there specialised healthcare facilities (maternity, pediatric, mental health) in your town		
Yes	255	83.3
No	51	16.7
Are you aware of any community health programs or initiatives in your area?		
Yes	28	9.2
No	278	90.8
Have you ever heard of Primary Healthcare Centre in your community?		
Yes	204	66.7
No	102	33.3
How would you rate your knowledge of healthcare centres in your community?		
Very poor	51	16.7
Poor	0	0.0
Good	102	33.3
Very good	153	50.0
Excellent	0	0.0
General awareness and knowledge		
High	221	72.2
Low	85	27.8
Total	306	100

The majority of the respondents, 245(80.1%), reported that healthcare facilities are distant, highlighting transportation as a major barrier, while 239(78.1%) rely on public transport to reach these facilities. More than half of the respondents, 204(66.7%), face challenges in accessing healthcare services, with long waiting times, 153(50%) and high costs, 51(16.7%), being the most common issues. The majority rated the overall healthcare infrastructure as poor, indicating a need for prompt improvements, as seen in Table 3 below.

Table 3: Access to healthcare infrastructure among the participants

Variable	Frequency (N=306)	Percentage (%)
How far is the nearest healthcare facility from your residence		
Very near	0	0.0
Near	16	5.2
Far	245	80.1
Very far	45	14.7
How do you usually get to the healthcare facility?		
Walking	35	11.4
Public transport	239	78.1
Private vehicle	32	10.5
Have you ever faced challenges accessing healthcare services?		
Yes	204	66.7
No	102	33.3
If yes, what are the challenges?		
Lack of transportation	0	0.0
Long waiting hours	153	50.0
High cost	51	16.7
Language barrier	0	0.0
Others	0	0.0
How would you rate the overall healthcare infrastructure in your rural community?		
Very poor	36	11.8
Poor	255	83.3
Good	15	4.9
Very good	0	0.0
Excellent	0	0.0

The study reveals that most respondents visit healthcare facilities either "sometimes" 153 (50%) or "occasionally" 102(33.3%), suggesting moderate engagement with formal healthcare services. Notably,

51(16.7%) never visit healthcare facilities, highlighting potential barriers to access or a lack of awareness about the importance of regular healthcare visits. Proximity 153(50%), cost 102(33.3%), and quality of care 51(16.7%) are the primary factors influencing healthcare-seeking behaviour. Additionally, 204(66.7%) of respondents have delayed seeking healthcare, primarily due to long waiting hours 153(50%) and high costs 51(16.7%). These findings underscore the need for interventions to address delays and financial barriers, which are critical issues impacting healthcare access and utilisation in the area. As seen in Table 4.

Table 4: Healthcare utilisation pattern among study participants

Variable	Frequency (N = 306)	Percentage (%)
How often do you visit a healthcare facility?		
Rarely	51	16.7
Occasionally	102	33.3
Sometimes	153	50
Frequently	0	0
Often	0	0
What factors influence your decision to seek healthcare		
Proximity	153	50
Cost	102	33.3
Quality of care	51	16.7
Others	0	0
Have you ever delayed seeking healthcare for any reason?		
Yes	204	66.7
No	102	33.3
If yes, what are the reasons?		
Lack of transportation	0	0
Long waiting hour	153	50
High cost	51	16.7
Language barrier	0	0
Others	0	0
What type of healthcare services do you usually seek?		
Primary care	306	100
Specialist care	0	0
Emergency care	0	0
Others	0	0
Have you ever utilised the services of community health workers (CHWs) in your area		
Yes	255	83.3
No	51	16.7

The study indicates that the majority of respondents 255(83.3%) rated the quality of care as "Neutral," suggesting room for improvement in healthcare services to enhance patient satisfaction. Notably, 51(16.7%) reported experiencing adverse events or complications, emphasising the need for enhanced safety measures. Regarding Community Health Workers (CHWs), 153(50%) of respondents perceive them as effective, while 102(33.3%) are neutral, and 51(16.7%) find them ineffective, indicating areas for potential improvement in CHW impact.

Table 5: Quality of care among rural residents accessing healthcare infrastructure in Anaocha LGA

Variable	Frequency (N = 306)	Percentage
How will you rate the quality of care you received from the healthcare facility	0	0
Very dissatisfied	0	0
Dissatisfied	0	0
Neutral	255	83.3
Satisfied	51	16.7
Very satisfied	0	0
Were you satisfied with the healthcare services you received		
Yes	255	83.3
No	51	16.7
Have you ever experienced any adverse events or complications from healthcare services?		
Yes	51	16.7
No	255	83.3
If yes, what were the adverse events or complications		
Medication error	51	16.7
Surgical complication	0	0
Hospital-acquired infections	0	0
Others	0	0
How do you perceive the role of community health workers (CHW) in improving healthcare access and quality in your community		
Very ineffective	0	0
Ineffective	51	16.7
Neutral	102	33.3
Effective	153	50
Very effective	0	0

A majority of respondents, 255(83.3%), have faced challenges accessing healthcare services, with lack of transportation, 102(33.3%) and high costs, 102(33.3%), being the primary barriers. The majority (83.3%) find healthcare services affordable, though a significant minority 51(16.7%) find them unaffordable. From the table above, lack of transportation and high cost are the primary barriers, followed by long waiting hours. This highlights the need for interventions that improve transportation infrastructure, reduce wait times, and make healthcare more affordable in Anaocha L.G.A. Addressing these issues could significantly improve healthcare access for rural residents. The most desired improvement is in the quality of care (66.7% of respondents), followed by increased access to specialised services (33.3%)

Table 6: Barriers to healthcare access in Anaocha LGA

Variable	Frequency (N = 306)	Percentage
Have you faced any challenges accessing healthcare services?		
Yes	255	83.3
No	51	16.7
If yes, what were the challenges?		
Lack of transportation	102	33.3
Long waiting hours	51	16.7
High cost	102	33.3
Language barriers	0	0
Others	0	0
How will you rate the affordability of healthcare services in your area?		
Very unaffordable	51	16.7
Unaffordable	0	0
Neural	0	0
Affordable	255	83.3
Very affordable	0	0
What improvements would you like to see in the healthcare services available in your community?		
Improved access to specialised care	102	33.3
Improved quality of care	204	66.7
Reduced waiting hours	0	0
Increased availability of community health workers	0	0
Others	0	0

DISCUSSION

This study assessed rural residents' perspectives on healthcare infrastructure, access, and quality of care in Anaocha Local Government Area of Anambra State. The findings provide valuable insights into the challenges and realities of healthcare delivery in rural communities.

The demographic distribution showed that most respondents were middle-aged to older adults, predominantly male, and mainly engaged in trading. This demographic pattern suggests that economically active individuals form the backbone of healthcare users in the area, aligning with findings from Duru et al, who reported that age and occupation significantly influence healthcare utilisation in rural and urban communities of South East Nigeria. [26] The predominance of traders may also indicate a population dependent on informal income sources, which could limit their ability to afford consistent medical care.

A major finding was that most respondents were unaware of the number of healthcare facilities within their community. This limited awareness may reflect inadequate health information dissemination and

weak community engagement by health authorities. Previous studies have emphasised that lack of information and poor community-level health communication significantly hinder access to available healthcare services in rural Nigeria. [27-28]

Furthermore, two-thirds of respondents reported facing challenges in accessing healthcare, with long waiting times and high costs identified as key barriers. These findings are consistent with national and regional studies that have highlighted system inefficiencies, shortage of personnel, and high out-of-pocket payments as primary obstacles to rural healthcare utilisation.[29-30] The prominence of financial barriers supports the view that lack of health insurance coverage and poverty remain persistent determinants of poor healthcare access in rural settings.

The study also revealed that 83.3% of respondents only occasionally utilised healthcare services, suggesting irregular healthcare-seeking behaviour. This sporadic utilisation pattern could stem from cost concerns, perceived poor service quality, and reliance on self-medication or traditional remedies—

issues that have been widely documented in previous research. [31-32] Compared to findings from Ekiti State, where 45.7% utilised primary healthcare regularly, the relatively higher rate of occasional use in Anaocha may indicate greater dependence on non-formal healthcare sources or mobility to nearby towns for medical care. [33]

Interestingly, primary healthcare centres were reported as the most frequently accessed facilities. This demonstrates the critical role of primary care in providing first-line services to rural populations. However, the persistent challenges identified—such as long waiting times and inadequate infrastructure—suggest that these facilities are under-resourced and overstretched, limiting their effectiveness in meeting community needs.

Overall, the results highlight the urgent need for investment in rural healthcare infrastructure, recruitment and training of healthcare personnel, and implementation of sustainable financing mechanisms such as community-based health insurance. Strengthening health information systems and promoting community awareness could also improve healthcare-seeking behaviour and facility utilisation.

Furthermore, based on the study, 50% of the respondents cited lack of transportation and long waiting hours as major challenges, with an additional 66.7% of respondents suggesting improvements in the quality of care and increased access to specialised services as necessary enhancements. The lack of transportation is consistent with a similar study conducted in Nepal, with all the participants mentioning the lack of resources as a major challenge. [34]

An exceeding number of respondents, 255(83.3%), find healthcare services affordable, though a significantly lower population, 51(16.7%), finds them unaffordable, creating disparities in a similar study done in Nepal, where medical costs were rated too expensive.[34] The latter is supported by a regional study done in Africa, with 90% of the healthcare costs paid by the patients.[17] Nonetheless, lack of transportation is a primary barrier to healthcare access, followed by long waiting hours and high cost; thus, addressing these

issues could significantly improve healthcare access for the rural residents.

The study conclusively showed, unsurprisingly, that there was poor access to healthcare services among rural residents in Anaocha Local Government Area. Consequently, the factors contributing to this included challenges faced in accessing healthcare services, such as longer waiting times and high costs. A major strength of this study lies in its focus on rural residents' perspectives, providing valuable insight into healthcare access and infrastructure in Anaocha Local Government Area. The use of a cross-sectional, community-based design and a relatively diverse sample enhances the relevance of the findings for rural healthcare improvement. However, the study has some limitations. The findings cannot be generalised to all healthcare personnel or populations, as the results are constrained by the sample size and the specific research setting. Additionally, difficulties in accessing participants due to their busy schedules and reliance on self-reported information may have introduced response bias, potentially affecting the accuracy of the data collected.

CONCLUSION

This study has revealed significant insights into the awareness, access, and utilisation of healthcare infrastructure in Anaocha Local Government Area for individuals aged 15 to 65 years. While there is a relatively high level of awareness among the respondents, access remains a challenge due to factors such as long waiting times and costs. The quality of care, although generally rated as neutral, requires lots of improvement, particularly in reducing adverse events. These findings underscore the need for targeted interventions to enhance healthcare delivery in the region.

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and ECU contributed to the implementation of the project and revision of the manuscript. All authors were involved in the writing and revision of the manuscript. The authors read, approved the final manuscript and agree to be accountable for all aspects of the work.

Data availability: The data used to support the findings of this study are available from the corresponding author upon reasonable request.

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Ethical considerations: Ethical approval was obtained from the Nnamdi Azikiwe University Teaching Hospital Health Research Ethics Committee (NAUTHHREC) with Ethical approval number

NAUTH/CS/66/VOL.17/VER.3/189/2024/134. The participants were assured of the confidentiality of their responses and were assured that any information given would be used primarily for academic research purposes.

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