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Socioeconomic Disparities in Access to Otorhinolaryngology, Head and Neck Surgical Care in a Semi-Urban Community in Oyo State, Nigeria

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ABSTRACT

Background: In low-and-middle-income countries, people living in rural and semi-urban areas do not have equitable access to Ear, Nose, Throat, Head and Neck Surgery (ENT-HNS) care, which is not readily available in their communities. Socioeconomic factors are important determinants of access to ENT-HNS services in Nigeria. The aim of this study is to assess the socioeconomic disparities influencing access to ENT-HNS care among residents of a semi-urban community in Oyo State, Nigeria.

Methods: A quantitative cross-sectional community-based study was conducted in Amuloko among 422 participants selected randomly using a multi-stage sampling technique. Data analysis was performed using SPSS version 29.0. Statistical significance was set at $p < 0.05$.

Results: Only 297 (29.66%) of the respondents has ever accessed ENT-HNS services, and 477 (47.70%) were aware of such services. Access to care was significantly associated with education level ($\chi^2 = 84.13$, $p < 0.001$), monthly income ($\chi^2 = 97.22$, $p < 0.001$), employment status ($\chi^2 = 62.74$, $p < 0.001$), and age ($\chi^2 = 33.86$, $p < 0.001$). Identified barriers to ENT-HNS services were lack of awareness, poverty, long distance to ENT facility, long waiting time, and cultural or religious beliefs.

Conclusion: The study demonstrates that access to ENT-HNS services is significantly influenced by socioeconomic factors, particularly education, income, and employment status. Addressing these disparities will require interventions such as community-based awareness programs and reducing the financial hardship of rural and semi-urban households by making formal education affordable for them. These will ensure equitable access to care for vulnerable and underserved populations.

Keywords: ENT-HNS, healthcare access, socioeconomic disparities, rural health, Nigeria, sub-Saharan Africa



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INTRODUCTION

Ear, Nose, and Throat (ENT) and Head and Neck Surgery (HNS) disorders represent one of the major components of the global burden of disease. These disorders include hearing loss, chronic otitis media, sinusitis, allergic rhinitis, head and neck cancers, upper airway obstructions, and many more.¹ In 2021, the World Health Organization (WHO) reported that over 1.5 billion people worldwide experienced some degree of hearing loss, with about 430 million requiring clinical or rehabilitative intervention.² In developing countries, these disorders frequently lead to significant disability and impaired quality of life.³ This is due to delayed diagnosis and poor access to specialist care.

Sub-Saharan Africa faces critical gaps in ENT-HNS service availability.⁴ This occurrence is largely due to a combination of insufficient workforce, poor infrastructure, limited funding, and lack of political prioritization. According to a multi-country review, there are fewer than one ENT specialist per million people in many African nations, compared with ratios of 20–40 per million in high-income countries.⁵ In Nigeria, although tertiary centers provide ENT-HNS services, unfortunately these tertiary centers are heavily concentrated in urban settings, limiting access for peri-urban and rural communities.

Social determinants of health are significant factors influencing access to ENT-HNS care. These include education, income, employment status, housing, and social context.^{6,7} Inequities in these determinants of health create barriers to accessing ENT-HNS services, particularly among rural and semi-urban communities in developing countries.⁶ These factors influence awareness, healthcare-seeking behavior, the ability to afford services, and health outcomes. Inclusive policies and health system reform are required to reduce disparities in access to ENT-HNS care.⁷ It has been shown that populations with lower socioeconomic status, predominantly in rural and semi-urban communities, underutilize healthcare services, including those for ENT-HNS conditions.⁸ Socioeconomically disadvantaged Nigerians remain underserved with respect to access to and utilization of health services, especially among residents of rural and semi-urban areas.⁹ Individuals with no formal education or those with little household income are not likely to access ENT-HNS services, even when they are having symptoms.

Previous studies from Nigeria have identified the cost of services, lack of awareness, geographic distance, and

preference for alternative treatments as major barriers to ENT-HNS care.¹⁰ For instance, a cross-sectional study showed that more than 40% of ENT patients presented after 6 weeks of symptom onset, with reasons including financial constraints and a belief in spiritual causes of illness.¹¹ In rural and peri-urban communities where income levels are low and health facilities are limited, these barriers are further magnified. The availability of ENT-HNS specialists is sparse, and patients are often referred to distant tertiary hospitals, which incurs transportation and opportunity costs.

There is a paucity of data on community-based studies assessing the impact of socioeconomic factors on ENT-HNS service access in Nigeria. Most available data are health facility-based, which inherently exclude individuals who do not or cannot present to formal healthcare systems, leading to an underestimation of the prevalence of ENT-HNS cases in the country. Community-based surveys provide a more accurate picture of utilization patterns, barriers, and equity gaps.¹² A study conducted in rural Malawi reported that integrating ENT services into community health campaigns improved detection and service uptake among underserved populations by up to 30%.¹³ These findings support the need for similar assessments and interventions in Nigeria's peri-urban settings like Amuloko.

The study area, Amuloko, is located in Ona Ara Local Government Area (LGA) of Oyo State. It is an underserved peri-urban Nigerian community with health system inequities. Despite its proximity to Ibadan, an urban city, ENT-HNS services are largely inaccessible to its residents. No prior community-based study has evaluated the socioeconomic disparities in access to ENT-HNS care in this area. This study is therefore necessary to assess the level of awareness, utilization, and access to ENT-HNS services. It also identifies the socioeconomic factors affecting access to these services.

METHODOLOGY

Study Design and Setting: This cross-sectional, community-based study was conducted to assess the socioeconomic disparities influencing access to ENT-HNS care among residents of the Amuloko community, a semi-urban community in Ona Ara LGA of Oyo State, Nigeria. The area is characterized by limited healthcare infrastructure and a mix of low- to middle-income households, with a predominant reliance on informal employment and limited specialist care availability.

Study Population, Sample Size, and Sampling Technique: The study population included all residents living in Amuloko for at least 6 months preceding the survey. Participants with cognitive impairment or who declined consent were excluded. The minimum sample size was determined using Leslie Kisher's formula for prevalence studies:¹⁴

$$n = \frac{z^2 pq}{e^2}$$

Where: n = minimum sample size, z = Standard normal deviate = 1.96

p = assumed access prevalence = 0.5, q = 1-p = 0.5, e = acceptable margin of error = 0.05

n = 384. Applying a design effect of 2 because this is a community survey and low utilization of ENT-HNS was anticipated, the sample size increased to $n \times 2 = 768$. After adjusting for 10% non-response, the required sample size increased to 845 which was then inflated to 1000.

Multi-stage sampling technique was adopted in recruiting study participants:

Stage 1: Random selection of ten enumeration areas (EAs) within Amuloko by balloting from a list of EAs collected from the office of the National Population Commission (NPC). The boundary of each of the selected EAs was determined with the aid of the EA maps collected from the NPC. Household numbering was done in each of the selected EAs.

Stage 2: Systematic sampling of households with eligible participants to be interviewed. Since equal allocation of the sample size was apportioned to each of the selected EAs, a sampling interval of two was calculated by dividing the total number of households in the ten EAs by the sample size. Thus, every third household was selected subsequently after randomly selecting the first household until the required sample size was attained.

Stage 3: Only one eligible participant, who was most of the time the household head, in each household was interviewed. In a situation where there was no eligible participant in a household, or a household with no person available at the time of the survey, such households were skipped and interviewers moved to the next households.

Method of Data Collection: The data collection instrument was a pretested, structured, interviewer-administered questionnaire adapted from various literatures. It comprised four sections, including socio-demographic characteristics, socioeconomic status (income, education, occupation), healthcare-seeking

behavior, and awareness of ENT-HNS services and barriers to accessing ENT-HNS care. The questionnaire was pretested in a similar semi-urban setting and refined accordingly.

Ethical Consideration: Ethical approval was sought and obtained from the Ethics Committee of Ekiti State University Teaching Hospital, Ado Ekiti, Nigeria. Informed consent was obtained from all participants. Participation was voluntary, and participants could withdraw from the study at any point should they wish to do so. Data confidentiality and anonymity were strictly maintained. Permissions were also obtained from the community leaders of the affected communities.

Data Analysis: Descriptive statistics were used to express the data as frequencies, percentages, means, and standard deviations. For inferential statistics, Chi-square tests were used for categorical variables. They were used to assess the association between different socioeconomic characteristics and the participants' access to ENT-HNS services. Statistical significance was set at $p < 0.05$. Results were presented in tables.

RESULTS

The age distribution showed a wide spread across age groups, with the highest representation in the 21–30-year bracket 194 (19.46%). The mean age was 38.13 years with a standard deviation of 19.37, indicating a diverse population. Over half, 540 (53.95%) fell within the economically productive age range of 21–50 years. Older adults (>50 years) comprised only 277 (27.66%), highlighting potential demographic or healthcare access disparities. These findings provide a strong demographic foundation for interpreting health service needs and outcomes in the study population (Table 1).

A slight female predominance was observed in the sample 535 (53.55%), suggesting gender-inclusive representation. Most participants had at least primary education. However, 164 (16.40%) had no formal education, which may reflect a barrier to health service navigation and awareness. More than one-third 387 (38.66%) of respondents lived below the ₦20,000 income mark, highlighting significant low-income prevalence in the community. One-quarter 267 (26.65%) earned >₦50,000 monthly. The commonest employment among the participants was business 502 (50.23%) mostly on a small scale, with an unemployment rate of 93 (22.05%). This is illustrated in Table 1.

Table 1: Socioeconomic Characteristics of Respondents

Variable	Frequency (N=1000)	Percentage (%)
Age Group(years)		
<21	184	18.39
21-30	194	19.46
31-40	183	18.31
41-50	162	16.18
>50	277	27.66
Mean age = 38.13 ± 19.37		
Gender		
Male	465	46.45
Female	535	53.55
Education Level		
None	164	16.40
Primary	279	27.86
Secondary	307	30.76
Tertiary	250	24.98
Monthly Income (₦)		
<20,000	387	38.66
20,000–50,000	347	34.69
>50,000	266	26.65
Employment Status		
Unemployed	221	22.05
Business	502	50.23
Civil servant	277	27.72

Less than half 477 (47.70%) of the participants had ever heard of ENT-HNS services, and only 297 (29.66%) had ever utilized such services. Government facilities were the most utilized among those who sought care 175 (59.03%). This is demonstrated in Table 2.

Table 2: Awareness and Utilization of ENT-HNS Services

Awareness and Utilization			
	Frequency (N=1000)	Percentage (%)	
Awareness of ENT-HNS Services			
Heard of ENT-HNS Services	477	47.70	
Ever Accessed ENT-HNS Services	297	29.66	
Accessed ENT-HNS in Past 12 Months	226	22.64	
Access Point (Among Accessed) n =297			
- Government Hospital	175	59.03	
- Private Hospital/Clinic	83	28.03	
- Traditional/Alternative Healer	39	12.94	

Lack of awareness 553 (55.34%) and cost 516 (51.56%) were the top barriers, reinforcing the socioeconomic angle of the study (Table 3).

Table 3: Reported Barriers to ENT-HNS Access

Barrier Type*	Frequency (N=1000)	Percent (%)
Lack of Awareness	553	55.34
Cost of Treatment	516	51.56
Distance to ENT Facility	382	38.19
Long Waiting Time	181	18.12
Cultural/Religious Belief	152	15.22

*Multiple responses

Statistically significant associations were found between access to ENT-HNS services and education, income, employment status, and age group. Gender was not significantly associated with access. This is demonstrated in Table 4.

Table 4: Association between Socioeconomic Factors and Access to ENT-HNS Services

Variable	χ^2	df	p-value
Education Level	84.13	3	<0.001*
Monthly Income	97.22	2	<0.001*
Employment Status	62.74	2	<0.001*
Gender	1.49	1	0.222
Age Group	33.86	4	<0.001*

χ^2 : Chi square; df: degree of freedom; *: p value <0.05 (i.e. statistically significant)

Summarily, access to ENT-HNS care is low (22.64%). Cost, awareness, and distance are major barriers to service utilization. No significant gender disparity, but age and employment status are important. Policy interventions should target the poor, unemployed, and those with low education to bridge the access gap.

DISCUSSION

The purpose of this study is to assess socioeconomic disparities in access to ENT-HNS care among residents of Amuloko, a semi-urban community, in southwest Nigeria. The findings reveal low levels of awareness and access, predominantly influenced by educational attainment, income levels, employment status, and age. Only one-fifth of the participants have accessed ENT-HNS services, and less than half (47.70%) are aware of such services. This is lower than the finding in urban areas like Lagos, where access rates were above 45% due to better proximity to tertiary ENT care centers.¹⁵ In a study conducted in a rural community, similar access disparities were reported, with awareness at 38% and access below 20%.¹⁶ The limited awareness in our study

underscores the lack of targeted health education and suggests a critical barrier to care-seeking behavior.

In this study, the level of education of respondents is significantly associated with access to ENT-HNS care ($\chi^2 = 84.13$, $p < 0.001$). Respondents with tertiary education are more likely to access care than those with no formal education. This aligns with findings from other studies that reported that health literacy significantly influences early detection and utilization of specialist services.¹⁷ Education likely improves knowledge about ENT symptoms, recognition of danger signs, and navigation of the healthcare system.

Income was also significantly associated with access, with those earning a high monthly income being more likely to utilize ENT-HNS services. Formal employment also significantly increased access to ENT-HNS services. This finding is consistent with global evidence showing that economic security enhances healthcare affordability and decision-making autonomy.¹⁸ In contrast, informal sector workers and unemployed individuals—comprising over 70% of the population in this study—are more vulnerable to financial barriers and catastrophic health expenditures.

Approximately two-fifths of respondents cited long distances to ENT centers as a barrier. This is corroborated by studies in which geographical inaccessibility is a major deterrent to ENT utilization, especially in rural communities.¹⁹ In our study, most ENT services were located in central Ibadan, far from Amuloko. The decentralization of ENT services is therefore imperative.

Interestingly, gender was not a statistically significant predictor ($\chi^2 = 1.49$, $p = 0.222$), suggesting that access issues in this setting cut across both sexes. However, 15.22% of participants attributed poor access to cultural or religious beliefs. Previous ethnographic studies have highlighted reliance on traditional remedies and spiritual healers for ENT complaints.²⁰ These beliefs may delay presentation to formal care or lead to complications from alternative therapies.

Compared with national averages, the ENT-HNS service utilization rate in Amuloko is low. The Nigeria Demographic and Health Survey reported that 38% of Nigerians with chronic ENT symptoms seek medical consultation.²¹ Our findings mirror the WHO's assertion that ENT disorders are under-addressed in primary health care globally, and that access is disproportionately affected by social determinants of health.²² In Malawi, a study showed that integrating ENT services into

community health programs improved uptake by 30%.²³ A similar integrated strategy may help bridge access gaps in Amuloko.

Based on the findings, the following recommendations are proposed: integration of ENT-HNS services into primary healthcare centers within communities such as Amuloko, establishment of mobile ENT outreach units to serve peri-urban and rural populations; and subsidizing ENT-HNS services for low-income households through the Basic Health Care Provision Fund (BHCPF) or health insurance schemes. Community-level interventions should include conducting community-wide awareness campaigns on ENT diseases and available services using local languages and media platforms.

Also, there should be capacity building by training community health extension workers (CHEWs) in basic ENT screening, especially for otitis media, hearing loss, and nasal obstruction. Increase ENT workforce deployment in underserved areas via rural health posting incentives. There should be research and monitoring by establishing a community ENT disease registry to monitor the burden and access trends over time, and conducting longitudinal studies on outcomes of decentralized ENT-HNS interventions in similar settings.

CONCLUSIONS

This study reveals significant socioeconomic disparities in awareness of, and access to, ENT-HNS services among residents of Amuloko. Factors such as low income, limited education, and unemployment significantly limit access. Access to ENT-HNS services remains low, driven by both financial constraints and low awareness of the services.

There is a clear indication that educational empowerment and economic capacity are crucial enablers of health access in this underserved population. Moreover, the concentration of ENT services in urban centers leaves peri-urban and rural residents disproportionately disadvantaged.

Declarations

Authors' contribution: Adegbiyi WA, Adetona A, Azeez IA, Adegbiyi KA, and Okon M were involved in the conception and study design. Falana SM, Yemi-Kekere MO, Oyewole EO and Ekpo DS conducted the literature search and review. The questionnaire was designed by Adeosun MO, Ojo JO and Abioye OO, while data collection was carried out by Ezekpo OO,

Ibirongbé AT, Aderibigbe YB, Ogunniyi OA and Adegbiyi WA. Abioye OO, Adeosun MO, Oguniyi OA and Ezekpo OO were involved in data entry. Data analysis was carried out by Azeez IA and Adegbiyi KA, and interpretation of findings was done by Adetona A, Yemi-Kekere MO and Falana SM. Okon M and Oyewole EO drafted the article. Ekpo DS and Ojo JO revised the article critically for important intellectual content. All authors read and approved the final version of the manuscript.

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