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# Healthcare decision-making in an African metropolis: Analysing determinants of health-seeking behaviour among Lagos residents

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## Abstract

**Introduction:** Health-seeking behaviour includes the actions taken by individuals upon perceiving illness or health concerns, impacted by demographic, socio-economic, cultural, religious, and organisational factors. This study assessed the health-seeking behaviours of Lagos State residents and identified the determinants influencing these behaviours.

**Method:** A descriptive cross-sectional survey was conducted with 2,492 respondents from four Local Government Areas in Lagos, Nigeria, using a multistage sampling technique between January and April 2023. Data were collected using pre-tested semi-structured questionnaires, and statistical analysis was performed in Stata 15.0. Significance was established at $p<0.05$, with adjusted odds ratios (aOR) and 95% confidence intervals calculated.

**Results:** The study found that purchasing drugs from chemists (43.4%) was the most common health-seeking action, while only 33.7% sought hospital care when symptoms worsened. At multivariable analysis, females (aOR= 1.29; 95%CI: 1.28–3.73; p= 0.014) had higher odds of appropriate health-seeking behaviour compared to males. Higher income was also positively associated with appropriate health-seeking behaviour, with respondents earning ₦50,000–₦100,000 (aOR = 2.50; 95%CI:1.77-3.53, $p < 0.001$) and >₦100,000 (aOR = 4.00; 95%CI: 2.71-5.92, $p < 0.001$) more likely to exhibit appropriate behaviour compared to those earning <₦30,000. In contrast, occupation was associated with lower odds of appropriate health-seeking behaviour (aOR = 0.64; 95% CI: 0.58–0.71; $p < 0.001$). Similarly, better perceived health status was associated with reduced odds of appropriate health-seeking behaviour (aOR = 0.85; 95%CI: 0.51–0.85; p = 0.011). Conversely, the presence of morbidity significantly increased the likelihood of appropriate health-seeking behaviour (aOR = 1.64; 95%CI: 3.23–18.24; $p < 0.001$).

**Conclusions:** The study concluded that socio-economic/demographic characteristics, such as gender, income, occupation, and morbidity status, among others, significantly predict health-seeking behaviour; hence, targeted interventions are crucial to enhance healthcare utilisation in Lagos.

**Keywords:** Healthcare decision-making in an African metropolis: Analysing determinants of health-seeking behaviour among Lagos residents

## Citation

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## Copyright statement

## Introduction

Health-seeking behaviour refers to actions individuals take when they perceive themselves to be ill or have health concerns. It involves seeking suitable solutions or treatments. Decision-making in health-seeking behaviour is influenced by various factors, including individual and family behaviours, societal norms, and healthcare provider actions [1].

Accessing healthcare is a crucial issue for every society, as it involves complex behaviours that individuals, communities or groups exhibit. Various factors influence the decision to seek healthcare, and these include demographic, socioeconomic, cultural, religious, and organisational factors, among others. The interaction among these elements is critical in determining the ultimate selection of a healthcare option [2-4].

In developing nations, the structure of the healthcare system significantly impacts health-seeking behaviours as well as health outcomes. Factors such as illiteracy, poverty, and insufficient health sector funding play a crucial role in determining how individuals seek healthcare. Numerous barriers, such as the high cost of healthcare services, inadequate knowledge about diseases and overall well-being, as well as deeply rooted cultural norms, significantly impede both the demand for and the delivery of health services. These formidable challenges inherent within the healthcare system exert a profound influence on the health-seeking behaviours of the community.

In Nigeria, the funding of healthcare comes from a variety of sources, and the effectiveness of healthcare delivery is largely dependent on these funding methods. The financial support for healthcare services includes government taxation, direct payments by individuals, contributions from donors, and different forms of health insurance, including social and community-based schemes, with direct payments by individuals or out-of-pocket payments being the most dominant. Despite these diverse funding streams, Nigeria has not yet attained Universal Health Coverage [5-7].

Delaying or refusing to seek proper diagnosis and treatment increases the likelihood of adverse outcomes [8]. Despite the increase in the number of public, private, and non-governmental health facilities in Nigeria from 1980 to 2019, inappropriate health-seeking behaviour (such as seeking care from chemists, traditionalists, spiritualists, or self-medication) rose steadily from 46.7% in 2013 to 68.1% in 2019 [9]. Additionally, a study done in Ibadan, Nigeria, showed that 71% of rural dwellers and 53% of urban dwellers reported inappropriate health-seeking behaviour during their last episode of illness [9]. Also, a study conducted in Lagos concerning health-seeking behaviours among patients with malaria found that most individuals resorted to self-medication [7]. These findings highlight the weakness of the nation's health-seeking behaviour.

Health-seeking behaviour may differ due to variations in sociodemographic and socio-cultural factors. Several pieces of literature have revealed that age influences health-seeking behaviour. Other factors such as gender, occupation, area of residence, distance to health facilities and marital status have also been identified as either facilitating or inhibiting health-seeking practices among individuals. Also, educational levels have been proven to play a significant role in health-seeking behaviour. Research findings have also shown that the decision to seek medical care is influenced by the severity of the illness. Specifically, unless individuals experience pain or their condition is severe, they tend not to seek medical attention [10, 11], and this may lead to poor health outcomes. A healthy population plays a crucial role in driving economic growth and enhancing overall productivity.

Numerous research works have explored the concept of health-seeking behaviours concerning different illnesses, as well as examining specific aspects of health-seeking behaviour, rather than capturing the multifaceted influences of complex factors on an individual's health-seeking behaviour [10]. Yet, there is a paucity of comprehensive understanding regarding health-seeking behaviours among the general population. This study assessed the health-seeking behaviour as well as identified the determinants of health-seeking behaviours among Lagos State residents. Findings from this study will provide insights into the barriers, facilitators, and patterns that influence individuals' willingness and ability to access and utilise healthcare services, enabling the development of tailored interventions, resource allocation strategies, and policies aimed at improving healthcare accessibility, promoting early detection, reducing health disparities, and ultimately enhancing the overall well-being of Lagos residents.

## Methods

### Study settings and conceptual framework

Lagos State is positioned in the southwestern coastal region of Nigeria; it extends over 180 kilometres along the Atlantic Ocean's coastline. It is recognised as the most densely populated state in the country, with an estimated population of 21 million people and a growth rate of 4% to 8% annually. The state covers an area of 3,577 square kilometres, resulting in a population density of approximately 16,067 individuals per square kilometre. It consists of 20 Local Government Areas with about 2,000 communities. The State is flanked by Ogun State to the North and East, the Republic of Benin to the West, and the Atlantic Ocean to the South. Lagos State operates a three-tier healthcare delivery system comprising primary health centres (PHCs), secondary facilities (general

hospitals), and tertiary institutions (teaching hospitals). The private sector accounts for a significant proportion of healthcare delivery, with numerous private hospitals, clinics, and pharmacies. Additionally, patent and proprietary medicine vendors (PPMVs), commonly referred to as chemists, are widely distributed across the state and serve as the first point of contact for many residents seeking care, particularly in underserved and rural communities.

This study is guided by the Andersen Behavioural Model of Health Services Use [11], which is widely applied in health services research to explain determinants of healthcare utilisation. The model states that health-seeking behaviour is influenced by three key domains: predisposing factors (e.g., age, gender, education), enabling factors (e.g., income, health insurance, access to services), and need factors (e.g., perceived health status, morbidity).

In this study, variables were selected and grouped according to this framework. Sociodemographic characteristics such as age, sex, marital status, and education were conceptualised as predisposing factors; income, occupation, and health insurance status as enabling factors; and perceived health status and presence of morbidity as need factors. This framework provides a structured basis for understanding how individual and contextual factors interact to influence health-seeking behaviour in the Lagos setting.

## Study design and population

This cross-sectional study was conducted to assess health-seeking behaviour and its determinants among Lagos residents. Study participants include consenting individuals aged 18 years or above residing in Lagos State, Nigeria, at the time of the study. Exclusion criteria included individuals who had resided in Lagos State for less than six months, those who were too ill to participate, and visitors or temporary residents at the time of data collection.

## Sample size calculation

The sample size determination was carried out using Fisher's formula for a population greater than 10,000. The standard normal deviation of 1.96 was used along with the proportion of respondents who had sought medical care from a medical doctor in a previous study, which was 61%[13]. The minimum required sample size calculated was 402. However, this figure was then adjusted upwards to 603, assuming a design effect of 1.5. To further enhance the study's statistical power, the sample size was increased to 750 per local government area (LGA). Consequently, with the selection of 4 LGAs for the study, the overall estimated sample size employed was 3000.

## Sampling method

A multi-stage sampling approach was employed for the selection process. In the first stage, four Local Government Areas (LGAs) were randomly selected using simple random sampling – three urban LGAs and one rural LGA were chosen from a sampling frame of 20 LGAs (16 urban and 4 rural) in the state, through a balloting process. Secondly, one ward was randomly picked from each of the selected four LGAs. Using a list of all streets in the chosen wards as a sampling frame, at least ten streets were selected in the third stage. Houses on each of these streets were then systematically randomly sampled based on a calculated sample interval. In each household, one consenting adult was approached for the study. In cases where multiple consenting adults were present in a household, one was chosen by balloting. One consenting adult from each of the selected households was enrolled in the study.

## Survey instruments and data collection techniques

The study instrument was a pretested self-administered questionnaire with both open and closed-ended questions to assess health-seeking behaviour as well as the determinants among the respondents, and was developed from a literature review on the subject. The instrument had four sections: the first section dealt with the sociodemographic and economic characteristics of the respondents, the second section assessed the respondents' health status and behaviour as regards treatment/care of ailments and the third and fourth sections investigated the respondents' illness in the past, payment for healthcare, including health insurance enrollment. Face validation of the instrument was done by all the investigators, and Cronbach's alpha reliability coefficient of 0.75 was computed.

Data was collected in real-time on REDCap hosted at the Lagos State University College of Medicine (LASUCOM). The data collected was made more accurate with the use of geo-coordinates.The primary outcome was the health-seeking behaviour, and the explanatory variables included age, sex, marital status, the highest level of education, income level per month (Naira), and current health status. Good/appropriate health-seeking behaviour was defined as health care sought from qualified medical professionals, and formal health facilities, including primary, secondary or tertiary care at private or public hospitals, while poor/inappropriate health-seeking behaviour was defined as health care sought from informal health facilities which include Patent Medicine stores, TBAs, herbal or traditional medicine, doing nothing, self-medication, open drug market or vendors etc. The primary outcome, health-seeking behaviour, was operationalised as a binary variable (appropriate vs inappropriate) based on the source of care sought. This classification is consistent with prior studies in similar settings and reflects the distinction between formal healthcare providers and informal or non-professional

sources (e.g., chemists, traditional healers, self-medication). However, we acknowledge that health-seeking behaviour exists along a continuum and may involve multiple or sequential care pathways. The binary categorisation adopted in this study simplifies these complex behaviours for analytical purposes. Responses initially categorised as "Others" (e.g., doing nothing, visiting traditional healers, self-medication from open drug markets) were reclassified as inappropriate health-seeking behaviour, as these actions do not involve care from qualified medical professionals or formal health facilities.

### Statistical analysis

Completed questionnaires from the REDCAP platform were cleaned and coded on Microsoft Excel 2018 and exported to STATA 15.0 software (StataCorp LLC, Lakeway Drive, College Station, Texas), where they were analysed. Sociodemographic information and information on health-seeking behaviour were presented using descriptive statistics. The relationship between explanatory variables such as age, gender, occupation, income, and the health-seeking behaviour of respondents was also analysed. The significance level was set at a p-value of 5%. Before analysis, data were reviewed for outliers and implausible values; records with data entry errors in the household size variable (n=7) were excluded from descriptive analysis of that variable. Variables significantly associated with health-seeking behaviour at the bivariate level ($p \leq 0.20$) were included in a multivariable logistic regression model using backward stepwise elimination; the final model retained variables independently significant at $p<0.05$, while theoretically important confounders were retained regardless of statistical significance. To account for the multistage cluster sampling design, the logistic regression was fitted using STATA's survey estimation commands (svy: logistic), declaring the cluster (street/PSU), stratum (LGA), and sampling weights to yield design-corrected standard errors and confidence intervals. Income was modelled as a four-level categorical variable (ref: <₦30,000). Multicollinearity was assessed using Variance Inflation Factors (VIF); all values were below 5.0 (mean VIF=2.23), confirming the absence of problematic collinearity. Model fit was evaluated using the C-statistic (AUC=0.699), indicating good discriminatory ability of the model. Adjusted odds ratios (aOR) with 95% confidence intervals (95% CI) and p-values are reported.

### Ethical considerations

The study was granted ethical approval by the Health Research Ethics Committee of the Lagos State University Teaching Hospital, Nigeria (LREC/06/10/1866). Each respondent provided written consent and was assured of the confidentiality of their information and their right to withdraw from the study at any point in time.

**Table 1.** Respondents' sociodemographic characteristics

| Sociodemographic characteristics | Frequency (N=2492) | Percentage (%) |
|---|---|---|
| **Age (years)** | | |
| ≤30 | 859 | 34.5 |
| 31–40 | 802 | 32.2 |
| 41–50 | 477 | 19.1 |
| 51–60 | 222 | 8.9 |
| >60 | 129 | 5.2 |
| Non-response | 3 | 0.1 |
| Mean ± SD | 36.35 ± 12.85 | |
| **Gender** | | |
| Male | 1260 | 50.6 |
| Female | 1230 | 49.3 |
| Non-response | 2 | 0.1 |
| **Marital Status** | | |
| Single | 926 | 37.2 |
| Married | 1406 | 56.4 |
| Widow/Widower | 121 | 4.9 |
| Others | 36 | 1.4 |
| Non-response | 3 | 0.1 |
| **Religion** | | |
| Christian | 1435 | 57.6 |
| Islam | 1039 | 41.7 |
| Others | 16 | 0.6 |
| Non-response | 2 | 0.1 |
| **Education Level** | | |
| Primary or below | 303 | 12.2 |
| Secondary | 1475 | 59.2 |
| Tertiary or above | 712 | 28.6 |
| Non-response | 2 | 0.1 |
| **Occupation** | | |
| Highly skilled professionals | 77 | 3.1 |
| Skilled professionals | 311 | 12.5 |
| Skilled workers | 731 | 29.3 |
| Semi-skilled workers | 413 | 16.6 |
| Unskilled workers | 514 | 20.6 |
| Non-response | 446 | 17.9 |
| **Income (Monthly, ₦)** | | |
| ≤30,000 | 458 | 18.4 |
| 30,000–50,000 | 852 | 34.3 |
| 50,001–100,000 | 849 | 34.2 |
| >100,000 | 324 | 13.0 |
| Median (Min–Max) | 50000.00 (0.00–3000000.00) | |
| **Location of household** | | |
| Rural | 623 | 25.0 |
| Urban | 1866 | 74.9 |
| Non-response | 3 | 0.1 |
| **Number of people in the household** | | |
| <4 | 1126 | 45.2 |
| 4–6 | 1267 | 50.9 |
| >6 | 96 | 3.9 |
| Mean ± SD | 3.65 ± 1.77 | |

## Results

A total of 2,492 respondents completed the survey out of 3,000 targeted, yielding a response rate of 83.1%. The study found that approximately 66.7% of participants were below 40 years old, with a mean age of 36.4 years (standard deviation of 12.9). Over half (56.5%) were married, and a significant majority (87.8%) had completed at least secondary education. For analysis, education level was recategorised into three groups: primary or below (12.2%), secondary (59.2%), and tertiary or above (28.6%). About a quarter (20.6%) worked in non-skilled labour

positions, and 18.4% earned less than the national minimum wage of N30,000. On average, each household had around 4 occupants, while a quarter of respondents lived in rural areas of Lagos (Table 1).

The study also revealed that 84.0% (2,093/2,492) of respondents reported no known morbidity, while 41.0% (1,022/2,492) rated their current health status as very good. Among respondents with a known health condition (n = 313), the most common morbidity was hypertension/cardiovascular disease (49.2%; 154/313). The most common behaviour when ill was purchasing drugs from chemists (43.4%; 1,081/2,492). Regarding the timing of healthcare seeking, 33.7% (839/2,492) reported visiting the hospital when symptoms worsened. The most commonly reported reasons for delaying hospital care among those who had ever delayed care (n = 1,882) were unaffordable healthcare costs (56.5%; 1,064/1,882) and perceiving the illness as mild (53.6%; 1,010/1,882) (Table 2).

Acute illness was experienced by 13.3% of the respondents in the last month, with an average duration of 3.5 days, and the commonest place where care was accessed was at the chemist (216/577; 37.4%). More than a third of the respondents (46%) reported that they had chronic illnesses (Table 3). [Note: The 46% chronic illness figure is derived from the sub-sample of 332 respondents who reported an acute illness in the past 30 days — a clinically selected sub-group with predictably higher chronic disease burden. This figure is not directly comparable to the 12.6% 'known morbidity' reported in Table 2, which reflects self-reported awareness of a diagnosed condition across all 2,492 respondents. These two measures capture different constructs in different denominators and are not contradictory.

Findings showed that about thirty per cent (29.7%) have ever gone for a routine medical check-up, with the last visit less than a year ago in 67.6%. Only 36.0% of respondents were aware of health insurance, with just 10.8% of them enrolled in any scheme (Table 4).

Age, marital status, educational level, employment status, occupation, personal income, number of people in the household, perception of current health status, location of a household, presence of morbidity, routine medical check-ups and enrolment in health insurance schemes were significantly associated with health-seeking behaviour with p-value <0.05. Although females (31.1%) had a marginally higher proportion of appropriate health-seeking behaviour compared to males (30.4%), this difference was not statistically significant (p = 0.754). Married individuals (35.4%) had significantly better health-seeking behaviour compared to singles (24.2%). Also, unskilled respondents (20.2%) sought health care from the hospital compared to skilled respondents (59.7%) or highly skilled professionals (53.2%) while respondents with personal income less than ₦30,000 ($38.5) had poor health-seeking behaviour (15.1%) compared to individuals earning ₦30,000-₦50,000 (23.1%), ₦50,000-₦100,000 (36.6%),

**Table 2.** Health status and health-seeking behaviours

| Variable | Frequency (N = 2492) | Percentage (%) |
|---|---|---|
| **Rating of current health status** | | |
| Excellent | 804 | 32.3 |
| Very good | 1022 | 41.0 |
| Good | 571 | 22.9 |
| Fair | 86 | 3.5 |
| Poor | 6 | 0.2 |
| Non-response | 3 | 0.1 |
| **Any morbidity (known health condition)** | | |
| Yes | 313 | 12.6 |
| No | 2093 | 84.0 |
| Don't know | 83 | 3.3 |
| Non-response | 3 | 0.1 |
| **Morbidity type (N = 313)** | | |
| Diabetes | 86 | 27.5 |
| Hypertension/Cardiovascular diseases | 154 | 49.2 |
| Others | 73 | 23.3 |
| **Usual behaviours regarding treatment/care when sick** | | |
| Do nothing/watch and wait | 45 | 1.8 |
| Use herbs and concoctions | 489 | 19.6 |
| Buy drugs from the chemist | 1081 | 43.4 |
| Visit traditional healers | 59 | 2.4 |
| Prayer houses/religious centres | 16 | 0.6 |
| Appropriate health-seeking behaviour | 765 | 30.7 |
| Others | 35 | 1.4 |
| Non-response | 2 | 0.1 |
| **Reasons for your choice** | | |
| Cheap | 813 | 32.6 |
| Fast services | 1374 | 55.1 |
| Close to my house | 1353 | 54.3 |
| Good attitude of care providers | 828 | 33.2 |
| Effective treatment | 1405 | 56.4 |
| Good equipment and facilities | 326 | 13.1 |
| Insurance coverage (NHIS/HMO) | 188 | 7.5 |
| Paid by employer | 60 | 2.4 |
| Other reasons | 62 | 2.5 |
| **When do you seek healthcare from hospitals** | | |
| When symptoms are mild or just starting | 610 | 24.5 |
| Symptoms are unremitting but still mild | 208 | 8.3 |
| When symptoms get worse | 839 | 33.7 |
| After trying other means without relief | 734 | 29.4 |
| When symptoms become life-threatening | 99 | 4.0 |
| Non-response | 2 | 0.1 |
| **When do you usually seek care from the hospital?** | | |
| Mild symptoms | 818 | 32.8 |
| Worse symptoms | 1672 | 67.1 |
| Non-response | 2 | 0.1 |
| **Usual causes of delay in seeking hospital care early (n = 1882)** | | |
| No money / cost not affordable | 1064 | 56.5 |
| Illness thought to be mild | 1010 | 53.6 |
| Illness not for medical treatment | 232 | 12.3 |
| Cultural/traditional/religious beliefs | 189 | 10.0 |
| Distance/transportation difficulties | 333 | 17.7 |
| Previous unsatisfactory experience | 377 | 20.0 |
| Long waiting time | 1025 | 54.4 |
| Poor staff attitudes | 695 | 36.9 |
| Drug unavailability | 265 | 14.1 |
| Lack of personnel/equipment | 92 | 4.9 |
| None | 286 | 15.2 |
| **Services accessed in any hospital within the last one year** | | |
| Outpatient care | 1373 | 55.1 |
| Hospital admission | 476 | 19.1 |
| Surgery | 163 | 6.5 |
| Obstetrics | 61 | 2.4 |
| Dental care | 213 | 8.5 |
| Eye care | 180 | 7.2 |
| Lab investigations | 815 | 32.7 |
| Radiology | 30 | 1.2 |
| Physiotherapy | 70 | 2.8 |
| Other | 428 | 17.2 |

and above ₦100,000 (57.5%) (p<0.05). Additionally, respondents who live in urban locations had better health-seeking behaviour (34.4%) compared to those in rural areas (19.7%), with p<0.05. Also, respondents who had ever gone for medical check-ups (49.1%) and those who had enrolled in health insurance (75.2%) had better health-seeking behaviour compared to those who had never gone for routine medical check-ups (23%) and those who did not enrol in health insurance (36.1%), p <0.05 (Table 5).

**Table 3.** Acute illnesses experienced within the last 4 weeks

| Variable | Frequency (N = 2492) | Percentage (%) |
|---|---|---|
| **Any recent illnesses in the past 30 days?** | | |
| Yes | 332 | 13.3 |
| No | 2154 | 86.4 |
| Non-response | 6 | 0.2 |
| **Care sought from a health provider in last 4 weeks** | | |
| Yes | 577 | 23.2 |
| No | 1910 | 76.6 |
| Non-response | 5 | 0.2 |
| **Where care was accessed (N = 577)** | | |
| Private Pharmacy/Chemist | 216 | 37.4 |
| Private clinic/Private hospital | 95 | 16.4 |
| Government hospital (PHC, general hospitals, etc.) | 199 | 34.5 |
| Healers | 54 | 9.4 |
| Others | 13 | 2.3 |

The result from binary logistic regression indicates that age, gender, income, occupation, perception of health status and presence of morbidity are significant explanatory variables of respondents' health-seeking behaviour with an adjusted odds ratio of 1.00, 1.29, [see income categories], 0.64, 0.85 and 1.64, respectively. The presence of morbidity showed significantly higher odds (1.64) of having appropriate health-seeking behaviour, and this is followed by gender, with an adjusted odds ratio of 1.29 at p<0.05 (Table 6). Specifically, design-corrected multivariable logistic regression (svy: logistic) identified six independent factors associated with appropriate health-seeking behaviour: age (aOR=1.00; 95% CI: 0.99–1.01; p=0.709, NS), gender (aOR=1.29; 95% CI: 1.05–1.58; p=0.014), income (categorical, ref: <₦30,000 — ₦30k–50k: aOR=1.30, 95% CI: 0.92–1.83, p=0.137 (NS); ₦50k–100k: aOR=2.50, 95% CI: 1.77–3.53, p<0.001; >₦100k: aOR=4.00, 95% CI: 2.71–5.92, p<0.001), occupation (aOR=0.64; 95% CI: 0.58–0.71; p<0.001), perception of current health status (aOR=0.85; 95% CI: 0.75–0.96; p=0.011), and presence of morbidity (aOR=1.64; 95% CI: 1.21–2.22; p=0.001). The income findings demonstrate a clear dose-response gradient: as income increases relative to the lowest bracket, the odds of appropriate health-seeking behaviour rise monotonically (Table 6).

## Discussion

In the context of this study, only 30.7% of the participants utilised formal healthcare services when sick. This

**Table 4.** Medical checkup and health insurance

| Variable | Frequency (N = 2492) | Percentage (%) |
|---|---|---|
| **Ever gone for routine medical check-ups (even when not sick)** | | |
| Yes | 741 | 29.7 |
| No | 1745 | 70.0 |
| Non-response | 6 | 0.2 |
| **When last? (N = 741)** | | |
| Less than a year ago | 501 | 67.6 |
| More than a year ago | 124 | 16.7 |
| More than 2 years ago | 98 | 13.2 |
| More than 5 years ago | 18 | 2.4 |
| **Awareness of any health insurance scheme** | | |
| Aware | 899 | 36.1 |
| Unaware | 1590 | 63.8 |
| Non-response | 3 | 0.1 |
| **Ever enrolled in any health insurance schemes** | | |
| Yes | 270 | 10.8 |
| No | 2219 | 89.0 |
| Non-response | 3 | 0.1 |

percentage of respondents demonstrated inappropriate health-seeking behaviour, and this is in contrast to what was observed in studies done in Ibadan (63.1%)[1], Ethiopia (58.4%)[14], but similar to what was previously reported by a study done in Ebonyi State (30%)[15]and Kwara State, Nigeria (31.6%) [16].

The study found that female participants exhibited a slightly higher likelihood of having appropriate health-seeking behaviour compared to their male counterparts (31.1% vs 30.4%); however, this difference was not statistically significant in the bivariate analysis (p = 0.754). Nevertheless, gender remained a significant independent predictor in the multivariable logistic regression (aOR = 1.29; 95% CI: 1.05–1.58; p = 0.014), suggesting that the effect of gender on health-seeking behaviour is better captured after adjusting for confounders. This aligns with previous research in Ibadan, Nigeria, where a similar pattern was observed[1]. The slightly higher likelihood of appropriate health-seeking behaviour among females compared to males could be attributed to societal gender norms and expectations. Women are often more attuned to health concerns and may prioritise seeking medical care for themselves and their families.

Marital status was also associated with health-seeking behaviour, as married residents were more likely to seek healthcare compared to single individuals. This finding is consistent with studies conducted in Jamaica and Ethiopia[17]. Being married may provide social support, shared decision-making, and practical assistance (e.g., transportation, childcare) that can facilitate access to healthcare services, potentially explaining the increased health-seeking behaviour among married individuals.

Monthly income emerged as a significant factor associated with health-seeking behaviour, with higher income levels linked to improved accessibility and better awareness of modern healthcare services. This observation aligns with research findings from Congo, Ethiopia, and Georgia, where income played a crucial role in determining health-seeking patterns [18]. Higher-income levels are

**Table 5.** Relationship between sociodemographic characteristics and health-seeking behaviour of respondents

| Sociodemographic variables | Behaviours Regarding Treatment | | Chi-square | P-value |
|---|---|---|---|---|
| | Appropriate health-seeking behaviour | Inappropriate health-seeking behaviour | | |
| **Age** | | | | |
| ≤30 | 219 (25.5) | 640 (74.5) | 25.7 | <0.001* |
| 31–40 | 287 (35.8) | 515 (64.2) | | |
| 41–50 | 148 (31.0) | 329 (69.0) | | |
| 51–60 | 61 (27.5) | 161 (72.5) | | |
| >60 | 50 (38.8) | 79 (61.2) | | |
| Mean ± SD | 37.50 ± 12.60 | 35.83 ± 12.93 | 3.0† | 0.003* |
| **Gender** | | | | |
| Male | 383 (30.4) | 877 (69.6) | 0.1 | 0.754 |
| Female | 382 (31.1) | 848 (68.9) | | |
| **Marital Status** | | | | |
| Single | 224 (24.2) | 702 (75.8) | 34.2 | <0.001* |
| Married | 498 (35.4) | 908 (64.6) | | |
| Widow/Widower | 32 (26.4) | 89 (73.6) | | |
| Others | 11 (30.6) | 25 (69.4) | | |
| **Education Level** | | | | |
| Primary or below | 43 (14.2) | 260 (85.8) | 224.6 | <0.001* |
| Secondary | 351 (23.8) | 1124 (76.2) | | |
| Tertiary or above | 371 (52.1) | 341 (47.9) | | |
| **Employment status** | | | | |
| Employed | 676 (33.0) | 1372 (67.0) | 27.7 | <0.001* |
| Unemployed | 89 (20.2) | 351 (79.8) | | |
| **Occupation** | | | | |
| Highly skilled professionals | 41 (53.2) | 36 (46.8) | 159.6 | <0.001* |
| Skilled professionals | 185 (59.5) | 126 (40.5) | | |
| Skilled workers | 238 (32.6) | 493 (67.4) | | |
| Semi-skilled workers | 108 (26.2) | 305 (73.8) | | |
| Unskilled workers | 104 (20.2) | 410 (79.8) | | |
| **Income (₦) Monthly** | | | | |
| ≤30,000 | 69 (15.1) | 389 (84.9) | 199.5 | <0.001* |
| 30,000–50,000 | 197 (23.1) | 655 (76.9) | | |
| 50,001–100,000 | 311 (36.6) | 538 (63.4) | | |
| >100,000 | 187 (57.5) | 138 (42.5) | | |
| **Number of people in household** | | | | |
| <4 | 318 (28.2) | 808 (71.8) | 6.6 | 0.036* |
| 4–6 | 419 (33.1) | 848 (66.9) | | |
| >6 | 28 (29.2) | 68 (70.8) | | |
| Mean ± SD | 3.80 ± 1.60 | 3.58 ± 1.84 | 3.0† | 0.002* |
| **Household head education level** | | | | |
| Primary | 8 (16.7) | 40 (83.3) | 53.7 | <0.001* |
| Secondary | 125 (27.8) | 324 (72.2) | | |
| Tertiary | 123 (46.9) | 139 (53.1) | | |
| Post Graduate | 29 (44.6) | 36 (55.4) | | |
| Don't Know | 10 (12.5) | 70 (87.5) | | |
| **Location of household** | | | | |
| Rural | 123 (19.7) | 500 (80.3) | 46.5 | <0.001* |
| Urban | 642 (34.4) | 1224 (65.6) | | |
| **Rating of current health status** | | | | |
| Excellent | 302 (37.6) | 502 (62.4) | 33.5 | <0.001* |
| Very good | 259 (25.3) | 763 (74.7) | | |
| Good | 170 (29.8) | 401 (70.2) | | |
| Fair | 32 (37.2) | 54 (62.8) | | |
| Poor | 2 (33.3) | 4 (66.7) | | |
| **Morbidity (known health condition)** | | | | |
| Yes | 129 (41.2) | 184 (58.8) | 20.8 | <0.001* |
| No | 618 (29.5) | 1475 (70.5) | | |
| Don't know | 18 (21.7) | 65 (78.3) | | |
| **Routine medical check-ups** | | | | |
| Yes | 364 (49.1) | 377 (50.9) | 165.6 | <0.001* |
| No | 401 (23.0) | 1344 (77.0) | | |
| **Health insurance enrolment** | | | | |
| Yes | 203 (75.2) | 67 (24.8) | 114.0 | <0.001* |
| No | 228 (36.1) | 403 (63.9) | | |

† Independent samples t-test; * statistically significant at $p < 0.05$

**Table 6.** Factors associated with appropriate health-seeking behaviour among respondents (n = 2,042)

| Variables | Adjusted OR | 95% CI | P-value |
|---|---|---|---|
| **Age** | | | |
| Continuous (per year increase) | 1.00 | 0.99–1.01 | 0.709 |
| **Gender** | | | |
| Female (Ref) | 1.00 | – | – |
| Male | 1.29 | 1.05–1.58 | 0.014* |
| **Religion** | | | |
| Christianity (Ref) | 1.00 | – | – |
| Islam | 0.94 | 0.64–1.37 | 0.743 |
| **Employment status** | | | |
| Unemployed (Ref) | 1.00 | – | – |
| Employed | 1.28 | 0.84–1.95 | 0.251 |
| **Education level** | | | |
| Primary or below (Ref) | 1.00 | – | – |
| Secondary | † | † | † |
| Tertiary or above | 1.28 | 0.99–1.66 | 0.060 |
| **Income (Monthly)** | | | |
| ≤₦30,000 (Ref) | 1.00 | – | – |
| ₦30,001–₦50,000 | 1.30 | 0.92–1.83 | 0.137 |
| ₦50,001–₦100,000 | 2.50 | 1.77–3.53 | <0.001* |
| >₦100,000 | 4.00 | 2.71–5.92 | <0.001* |
| **Occupation** | | | |
| Ordinal scale (per level increase) | 0.64 | 0.58–0.71 | <0.001* |
| **Perception of current health status** | | | |
| Ordinal scale (per level increase) | 0.85 | 0.75–0.96 | 0.011* |
| **Presence of Morbidity** | | | |
| No (Ref) | 1.00 | – | – |
| Yes | 1.64 | 1.21–2.22 | 0.001* |
| Constant | 0.33 | 0.05–2.11 | 0.242 |

Ref = Reference category; † = included in model but not separately reported; * = $p < 0.05$
AUC = 0.699; mean VIF = 1.52 (all < 5.0)
Model fitted using STATA svy: logistic accounting for complex survey design

associated with better health-seeking behaviour, likely due to increased financial resources that make healthcare more affordable and accessible. Individuals with lower incomes may face economic barriers to seeking medical care. In this study, income was modelled as a four-level categorical variable benchmarked against the national minimum wage (₦30,000) as at the time of this study, revealing a clear monotonic dose-response gradient: compared to respondents earning below ₦30,000, those in the ₦30,000–₦50,000 bracket had 30% higher odds of appropriate health-seeking (aOR=1.30; 95% CI: 0.92–1.83; p=0.137, not statistically significant), those earning ₦50,001–₦100,000 had 2.5 times higher odds (aOR=2.50; 95% CI: 1.77–3.53; p<0.001), and those earning above ₦100,000 had four times higher odds (aOR=4.00; 95% CI: 2.71–5.92; p<0.001). This income gradient underscores the critical role of financial protection mechanisms, particularly health insurance expansion, in enabling equitable healthcare utilisation.

Geographical location also influenced health-seeking behaviour, with urban residents tending to exhibit better health-seeking behaviour than their rural counterparts. This observation is consistent with previous studies in Ethiopia and Nigeria[14]. This observation can be because urban areas typically have better infrastructure, transportation networks, and a higher concentration of healthcare facilities, which can contribute to improved access and utilisation of health services compared to rural areas.

Additionally, the respondent's employment status and educational level were found to be important factors associated with appropriate health-seeking behaviour. Specifically, respondents with tertiary education or above had the highest proportion of appropriate health-seeking behaviour (52.1%), compared to those with secondary education (23.8%) and those with primary education or below (14.2%). Similarly, those who were employed demonstrated a significantly higher proportion of appropriate health-seeking behaviour (33.0%) compared to the unemployed (20.2%). These findings are consistent with what was observed in Anambra, South-East Nigeria[19]. The positive association with education may reflect increased knowledge and awareness of the advantages and health consequences of adopting appropriate health-seeking behaviours. Likewise, paid employment may be associated with access to employer-sponsored health insurance or other healthcare benefits, which can reduce financial barriers and

incentivise individuals to seek medical care when needed.

Furthermore, the study observed improved access to healthcare services among health insurance enrollees, which is consistent with previous research demonstrating that health insurance significantly enhances health-seeking behaviour. This finding highlights the importance of healthcare affordability and financial protection in facilitating access to medical services [11,19,20]. Having health insurance mitigates the financial burden of healthcare costs, making it more affordable and encouraging individuals to seek professional medical services when required.

### Strengths and limitations of the study

Our study's broad community-based approach across the entire state and the inclusion of a large sample size significantly enhance the quality of our research findings. To reduce recall bias, researchers limited inquiries about health-seeking behaviour to one month. Another limitation is that reported income levels may have been overestimated. Additionally, data cleaning identified a small number of miscoded entries in the household size variable (n=7), which were excluded from descriptive analysis of that variable; this did not affect the primary regression findings. The morbidity variable was based on self-report of known diagnosed conditions, which may underestimate true prevalence; however, the strong association between known morbidity and health-seeking behaviour (aOR=1.64; 95% CI: 1.21–2.22; p=0.001) is consistent with the established literature and reflects the expected behaviour of individuals already engaged in chronic disease management. Also, the cross-sectional nature of this study does not allow inferences to be made from its results. Additionally, due to the cross-sectional design of this study, the observed relationships represent associations and cannot establish temporal or causal relationships between explanatory variables and health-seeking behaviour

### Policy implication and future research

Findings from this study have provided insights into the barriers, facilitators, and patterns that influence individuals' willingness and ability to access and utilise healthcare services, which would enable the development of tailored interventions, resource allocation strategies, and policies aimed at improving healthcare accessibility, promoting early detection, reducing health disparities, and ultimately enhancing the overall well-being of Lagos residents. Conducting further research at sub-national or national levels to better understand the determinants of health-seeking behaviour would be an opportunity for further study.

## Conclusion

This study demonstrates that socio-demographic and economic characteristics such as gender, occupation, income, perceived health status, and morbidity status are significantly associated with health-seeking behaviour among Lagos residents. The findings highlight substantial reliance on informal care sources and low uptake of health insurance. Given the cross-sectional nature of the study, these findings should be interpreted as associations rather than causal relationships. However, they provide important insights into patterns of healthcare utilisation and potential barriers to accessing formal care. Efforts to expand financial protection mechanisms such as health insurance, alongside targeted public health education, may improve appropriate healthcare utilisation. Future research using longitudinal or mixed-methods approaches is recommended to better capture the complexity and dynamics of health-seeking behaviour.

**What is already known about this topic**

- Health-seeking behaviour in low- and middle-income countries is shaped by a complex interplay of socio-demographic, economic, cultural, and health system factors.
- In Nigeria and similar settings, inappropriate health-seeking practices such as self-medication, use of patent medicine vendors, and reliance on traditional or spiritual care remain common despite the availability of formal health services.

**What This Study Adds**

- Provides comprehensive population-based evidence on health-seeking behaviour among adults in Lagos State, Nigeria's largest and most densely populated metropolis.
- Shows that fewer than one-third of residents consistently utilise formal healthcare services, with purchasing drugs from chemists being the most common initial response to illness.
- Identifies key determinants of appropriate health-seeking behaviour, including age, gender, income, occupation, household size, perceived health status, morbidity status, routine medical check-ups, and health insurance enrolment.
- Highlights the critical role of socioeconomic status and financial protection in influencing healthcare utilisation.
- Offers context-specific evidence to inform policies aimed at improving healthcare utilisation, expanding health insurance coverage, and advancing progress toward Universal Health Coverage in urban African settings.

## Conflict of Interest

The authors of this work declare no competing interests.

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## Authors' contributions

AA, KOW, and AAA designed the study, while TF, OA, AAA, and FO were involved in the data collection and entry. OA and AAA developed the manuscript draft while KOW and AA critically reviewed the manuscript. All authors have read and approved the final manuscript.

### Data availability

The datasets generated and/or analysed during the current study are not publicly available due to ethical and data protection considerations, but are available from the corresponding author on reasonable request and subject to approval by the Lagos State University Teaching Hospital Health Research Ethics Committee.

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