Regional Disparities in Health-Seeking Behaviour in Nigeria: Evidence from the World Bank General Household Survey

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Regional disparities in socioeconomic factors shape health-seeking behaviour (HSB). This study examined HSB across Northern and Southern Nigeria and the role of socioeconomic factors on HSB. Data was drawn from Wave 4 of the 2018/2019 post-harvest General Household Survey of approximately 5,000 households. Logistic regression and Chi-square ($\chi 2$) tests were applied. Findings show that health care is predominantly sought from private providers, especially in the South. No significant regional difference was found between formal and informal care use. Older adults rely on informal care providers such as traditional healers and faith-based centres. Household income significantly influences provider choice, while gender matters mainly in the North, where women utilise public more than private facilities. Longer distances and waiting times increase the likelihood of public facility use, and severe illness drives reliance on public providers. Policy should improve formal health care access for older adults, strengthen public facilities to manage severe illnesses and women's health, especially in the North, and tighten oversight of private providers, particularly in the South, to ensure quality health care.

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Introduction

Health-seeking behaviour (HSB) is defined as any activity undertaken by individuals who perceive themselves to have a health problem or to be ill, for the purpose of finding an appropriate remedy (Ward et al. 1997). HSB can also be defined as any activity undertaken by persons who find themselves with a health-related problem with the aim of seeking an appropriate remedy. It captures decision-making regarding health

conditions and is usually not homogeneous, as it is determined by several demographic factors (Khadka et al. 2022).

Differences in HSB are evident across populations and reflect inequity and inequality in access to health care services (Ugwueje 2012; Reddy et al. 2020). It also limits the achievement of health targets, one of which is the Sustainable Development Goal (SDG) of better health across populations (Whitehead 1992; Gwatkin 2000; United Nations Development Program n.d.-a).

In Africa, non-inclusive payments for health care, cultural diversity and differences in norms, values and literacy rates often account for differences in HSB across populations. While this disparity exists, studies in the literature provide findings for HSB of individuals mainly across gender, and rural and urban location of residents (Reddy et al. 2020; Begashaw et al. 2016; Das et al. 2018). However, HSB across populations is commonly defined by the regional location of persons, as each region is often characterised by differences in culture, beliefs and perception that define provider choice of health care, and this in turn influences health outcome.

Although Nigeria operates under a unified health care system, striking disparities exist between the Northern and Southern regions in terms of health care access, utilisation, and outcomes. Abubakar et al. (2022), for instance, established that there is a greater concentration of hospitals and other formal health structures in the South as compared with the North, despite the proportionally larger population in the North. Southern states are generally better served by health facilities than the North, reflecting deep-rooted socioeconomic and infrastructural inequalities.

These disparities are reflected in maternal and child health outcomes, with the North reporting substantially higher maternal mortality rates and poorer reproductive health indicators compared to the South. Findings by Meh et al. (2019) and Ononokpono et al. (2020) show variations in the levels of maternal mortality between the Northern and Southern regions in Nigeria with maternal mortality more pronounced in the North than the South. In addition, Ononokpono et al. (2020) revealed a North-South divide in the use of postnatal care (PNC), with higher PNC uptake in the Southern than in the Northern region. This further establishes inequities in child health across the region.

In terms of routine immunisation, coverage remains consistently lower in the North, where children face both supply-side barriers, such as inadequate service points, and demand-side challenges linked to

sociocultural norms. Findings by Sani et al. (2025) using the 2018 Nigeria Demographic and Health Survey (NDHS) showed a low rate (26%) of children who were fully immunised in Nigeria, with marked regional disparities across North and South. Interestingly, the results showed the lowest rates of full immunisation coverage in the North West (13%) and North East (18%), compared with the South East (42%) and South South (41%), that had the highest rate.

With reference to population health outcomes, the figures reveal a high prevalence of poor health indicators in Nigeria, with notable differences across regions. For instance, it is shown that crude mortality rates as of 2020 were as high as 11 per 1,000 live births, and this figure exceeds that of 8 per 1,000 across the globe and in Sub-Saharan Africa (World Bank Group n.d.-a). Estimates of infant mortality rates are also high at approximately 72 per 1,000 live births compared to global estimates of 27 and SSA figures of 50 per 1,000 (World Bank Group n.d.-b). Across regions in Nigeria, infant deaths are higher in the North than in the South (Adeleke et al. 2022). This is often associated with low female literacy and high poverty statistics in the Northern region (World Bank Group 2024). Poor health outcomes in Northern Nigeria are also attributed to high insecurity concerns and unfavourable climatic conditions (Chukwuma and Ekhator-Mobayode 2019; Osayomi et al. 2020; Adeleke et al. 2022).

Given disparities in health outcomes, health infrastructure and socioeconomic conditions, this study seeks to provide answers to the question of the pattern of HSB in Nigeria across the North and Southern regions. The study focuses on whether differences in socio-demographic profiles, cultural and religious norms, economic inequalities, and health care system availability reflect HSB across the regions. The emphasis is to provide region-specific policies that can be implemented to improve health care access and utilisation and consequently health improvement in both regions. HSB is examined across the regions in terms of the use of private and public, formal and informal providers, using the General Household Survey data provided by the World Bank. Formal health care providers are qualified, licensed professionals delivering services within recognised health facilities such as hospitals, clinics, and health centres (Andersen 1995). In contrast, informal care providers generally include unlicensed or unregulated practitioners such as traditional healers, spiritualists, drug vendors, and unqualified medical practitioners. They operate outside the formal health care system and are often the first point of contact in low-resource settings (Sudhinaraset et al. 2013). Based on data

availability, informal care in this study is captured as persons who seek care from traditional healers and faith-based homes. This study adopts Andersen and Newman's (1973) model of health care use and in line with the model, the determinants of HSB are considered in three categories: predisposing, enabling and the need for care factors (Babitsch et al. 2012; Tesfaye et al. 2017; Saah et al. 2021; Tolera et al. 2020).

This study differs from earlier attempts to examine HSB in the extant literature in several ways:

1. First, previous studies in this area focused on settings such as urban and rural settlements and gender differences in HSB (Reddy et al. 2020; Das et al. 2018). Studies on HSB have also adopted a patient care perspective mainly for a particular disease condition or age group (Ugwueje 2012; Zhang et al. 2020; Gabrani et al. 2021; Abera Abaerei et al. 2017; Tiwari et al. 2022). However, findings on HSB, with no consideration for specific illness condition, are relevant as they reflect the general behaviour of the populace regarding health provider choice. This is because the social determinants that shape human interaction play an important role in health provider choice at the individual, family and community levels (World Health Organization 2010; United Nations Development Program n.d.-b).
2. Second, this study assesses the predictors of health care utilisation from a population base that includes all states in Nigeria; hence, the results possess high external validity. Studies in the literature generally made use of self-administered questionnaires and structured interviews using population samples, and findings in this regard may not provide external validity as they may not reflect the behaviour of the generality of the populace (Reddy et al. 2020; Zhang et al. 2020; Das et al. 2018; Gabrani et al. 2021; Abuduxike et al. 2019; Tiwari et al. 2022).
3. Third, the results are presented across regions and health care provider types, which is informative for specific regional health policy initiatives aimed at reducing disparities in health outcomes. Findings in this regard will aid the government, stakeholders, policymakers, and health service providers in adequately allocating and managing existing resources and pursuing the attainment of the SDG on health (Ngwakongnwi 2017; Bakar and Samsudin 2016; Poortaghi et al. 2015).

4. Last, this study contributes to Andersen and Newman's behavioural model of health services utilisation by introducing the distance to the health facility as an enabling factor, waiting time as a measure of perceived self-efficacy and illness severity as a need factor for HSB. Distance to health facilities is considered an enabling factor in terms of access to health information, and waiting time captures perceived self-efficacy as it reflects some form of patient satisfaction regarding early diagnosis and treatment. The need for care, as captured in the form of illness severity, influences where individuals seek care. These variables are important determinants of HSB, yet results are scarce on their effects in the literature, particularly in relation to Andersen and Newman's behavioural model of health services utilisation that is widely applied in studies of this type. Findings in this regard will contribute to the existing literature on the determinants of HSB.

The rest of this paper is organised in the following format. A review of the empirical literature is presented in the second section, while the methodology applied is discussed in the third section. The fourth section presents the empirical results and discussions, and the fifth section provides the conclusion and recommendations.

Literature Review

Theoretical foundations explaining HSB in the extant literature are mainly the Health Belief Model (HBM) and Andersen's Behavioural Model (ABM) (Rosenstock 1966; Andersen 1968; Andersen and Newman 1973). The Health Belief Model (HBM), first introduced by Rosenstock (1966) and later expanded by Becker (1974), predicts that an individual's likelihood of adopting a specific health behaviour depends on their perceptions of the disease severity, susceptibility to the disease, and the perceived benefits versus barriers to engaging in the behaviour. For an individual to seek health care, the perceived threat of illness and the expected benefits of treatment must outweigh the barriers. The model also incorporates factors such as self-efficacy and cues to action in seeking health care. The central tenet of the theory is that individuals are more likely to seek health care when they perceive themselves as vulnerable to a health problem, recognize it as serious, believe that treatment will be effective, and view barriers to care as minimal. Studies that have applied the Health Belief Model are often focused on preventive care (Nafisa and Murti 2024; Nisriina and Murti 2024; Haliza et al. 2024).

The ABM, first introduced by Andersen (1968) and further expanded by Andersen and Newman (1973), captures the drivers of health care utilisation in three forms: predisposing, enabling, and need factors. Predisposing factors include demographic characteristics, social structure, and health beliefs. Enabling factors refer to an individual's financial resources, such as income and access to health insurance, while need factors relate to an individual's perception of illness or a diagnosed condition. The model suggests that health care is sought not only when illness is perceived but also when diagnosed by health professionals, provided individuals have the enabling resources to access care. The ABM is more often adopted in explaining HSB across populations than the HBM, because it relies on the use of objective and measurable variables, which are easier to obtain and analyse. In contrast, the HBM depends heavily on subjective perceptions of susceptibility, severity, and barriers, which are difficult to quantify and analyse.

Recent studies have consistently demonstrated that HSB is shaped by a combination of demographic, socioeconomic, and structural factors. A recent study by Obels et al. (2025) in South Sudan employed a household survey and logistic regression to identify the determinants of HSB across three states. The findings showed that the state of residence and awareness of community health workers are key predictors of HSB. The findings also showed that the age of respondents, travel time, and distance to the health facility significantly influenced the choice of where care was sought.

Rata Mohan et al. (2025) focused on gender-based differences in HSB using data from the National Health and Morbidity Survey in Malaysia. The results revealed that professional treatment was preferred to self-medication, with women, particularly in urban settings and those with poor self-rated health, more likely to seek medical care. Education, ethnicity, and employment status also shaped care-seeking, with patterns differing between men and women.

Findings by Elfaki et al. (2024) explored HSB among Sudanese immigrants in Saudi Arabia using an online survey of 494 respondents. While most participants (66.6%) reported visiting primary health care centres, the prevalence of self-medication was also high (45.7%). Age and lack of health insurance emerged as significant determinants of HSB.

Similarly, Hamid et al. (2024) analysed HSB among older persons in Ethiopia, employing community-based cross-sectional data. The study identified literacy, community-based health insurance, chronic illness,

and family support as the main predictors of health care use. The findings suggest a key role of inclusive payment mechanisms, education and family structures as predictors of HSB among vulnerable groups such as the elderly.

Earlier findings by Apuleni et al. (2021) in Zambia examined HSB for common childhood illnesses using secondary data from the Health for the Poorest Population (HPP) Project. The results showed that most respondents sought care from health facilities, with maternal education and marital status identified as key predictors.

Regarding gender effects on HSB, Reddy et al. (2020) showed that most women in rural Telangana seek health care from unqualified medical practitioners and use home therapies as the first consultation source for their health medications. In a similar study, Das et al. (2018) highlight key differences in HSB across gender, based on the disparity in motives and expectations. The results shown using in-depth interviews and a semi-structured questionnaire revealed that men and women use formal and informal health care providers in an urban slum of Kolkata, India. However, females generally sought health care to maintain socio-cultural norms and prefer providers that offer long discussions and assist in preventing economic and social sanctions. On the other hand, males seek health care providers who offer fast and complete recovery to enable them to return to their role as breadwinners.

In terms of private and public health provider choice, Abuduxike et al. (2019) showed that in Cyprus, most individuals had a preference for public providers and only 39.1% of individuals preferred private health service providers. These differences can be attributed to the disparities in the socioeconomic characteristics of individuals who utilised public and private health sectors.

Findings by Abera Abaerei et al. (2017) showed the reverse, indicating that 95.7% of individuals utilised health care service providers in Gauteng, South Africa; however, most individuals (75%) in their study sample did not use public health facilities due to low-quality service provision.

In Nigeria, Olasehinde (2018) provides findings for HSB in Nigeria with a focus on health care service demand across socioeconomic variables using the multinomial logistic regression. Findings showed the key role of income, age, gender, place of residence, marital status, religion, educational attainment and household size on health care demand. These results, however, did not provide evidence of HSB across provider types and across regions in Nigeria. In a similar study, Mwami and

Oleche (2017) provide findings for the key role of socioeconomic variables in choosing a health service provider in Kenya. The findings showed an increase in the use of health services with rising costs, indicating that higher expenses are often perceived as a signal of quality provision. The findings, however, did not relate the perceived quality of health services, in terms of high cost, to the type of provider.

Findings by Begashaw et al. (2016) indicated that the choice of health care provider varies across settings and gender. Using descriptive methods and binary logistic regression, the findings showed a lower rate of care-seeking from modern facilities among rural dwellers (48.1%) compared to urban residents (80.7%). The results also showed a high self-treatment among persons in rural areas (46.1%) compared to those in urban settlements (35.3%). Other drivers identified include perceived severity of illness, acute disease duration, and distance from health facilities. Among rural residents, where cultural influence is stronger, marital status emerged as a major determinant.

Findings on HSB across health facilities are also provided by Dey and Mishra (2014) in India. The results revealed that older individuals, females, lower-income groups, illiterates, and those with access to primary public services are more likely to utilise government health facilities than private providers.

Overall, the empirical results in the extant literature showed the key role of socioeconomic status of individuals and place of residence in seeking health care; however, the results for HSB in Nigeria are scarce and particularly across provider types and regions. Northern and Southern regions in Nigeria are dissimilar in socio-demographic and economic characteristics, cultural disposition, social customs and religious practices (LeVan et al. 2019). These differences have the potential to influence the HSB of individuals in these areas, yet empirical findings in this regard are scarce in the literature, motivating further study on HSB in Nigeria and across the regional divide.

Methodology

This study adopts Andersen and Newman's (1973) framework of health care services utilisation in examining HSB. This is due to its wide applicability, objective and measurability of variables, and adaptability in developing countries (Pushpalata and Chandrika 2017). The model shows that an individual's use of health care depends on three components: predisposing, enabling and need for care factors. In Andersen and

Newman's model of health care use, the predisposing component reflects an individual's inclination to use health services before the onset of illness. Such factors include health beliefs, knowledge of health issues, values, attitudes and socio-demographic characteristics (Saah et al. 2021). They are often captured using age, gender, marital status, education, occupation, religion, and race/ethnicity. Enabling factors refer to access to health information, financial capacity, and perceived self-efficacy (Saah et al. 2021). The need for care factor refers to illness-related variables such as the perceived severity and duration of illness (Saah et al. 2021). That is, an individual will seek health care where there is the need for care or some perception of illness, to find an appropriate remedy (Ward et al. 1997; Oberoi et al. 2016).

EMPIRICAL MODEL

Given that health care as a good can enter directly into the individual's utility function because of the satisfaction derived from being healthy (Grossman 2017), the individual maximises a well-behaved utility function given as:

$$U_c = U(H, NH), \tag{1}$$

where H is the consumption of health service, and NH is the consumption of non-health good.

Subject to a budget constraint:

$$Y = P_h H + + P_{nh} N, \tag{2}$$

where Y represents the consumer's income, P_h is the price for health good, and P_{nh} the price for a non-health good. Using the conventional optimisation procedure, the Lagrange function is specified as:

$$L = U(H,\ NH) + \lambda(Y - P_h H - P_{nh} NH). \tag{3}$$

So, the first-order conditions for the individual's decision problem are:

$$H\text{: } H_H = \lambda_Y\ P_h \tag{4a}$$

$$NH\text{: } H_{NH} = \lambda_Y\ P_{nh} \tag{4b}$$

$$\lambda\text{: } Y - P_h H - P_{nh} N = 0 \tag{4c}$$

Equations (4a) to (4c) can be solved jointly to obtain the general form of the individual's demand function for health and non-health goods as:

$$H^{*} = D_{H}(\, Y, P_{h},\ P_{nh},\ ,\ ) \tag{5a}$$

$$NH^{*} = D_{NH}(\, Y, P_{h},\ P_{nh},\ ) \tag{5b}$$

Given the optimal demand specifications, it is apparent that the demand for health depicted by (H^{*}) can be influenced by the consumer's income Y, price of the health good P_h and the price of a non-health good P_{nh}. In this study, the demand model for health is used to capture HSB. This is because individuals generally demand health from a preferred health care provider. We focused on the need for medical care in the model, considering only persons who reported a particular health need. The model of health care demand is examined across formal and informal, as well as public and private, providers.

For the empirical model of the study, we omitted the price for non-health good due to data limitations. The price of health care is measured using the amount paid for medical consultation. We include additional independent variables in the model in line with Andersen and Newman's behavioural model of health services utilisation. The predisposing factors are captured using age (AGE) and aging (AGE^2), gender (GE), marital status (MS), educational attainment (EA), religion (REL), household size (HHZ), and place of residence of the individual (RES), whether in North or Southern Nigeria. Enabling factors were measured using the monthly income earnings of the individual (Y), employment status (Emp), distance to health provider (DIST) and waiting time (WT). Here, distance to a health facility is considered an enabling factor in terms of access to health information and waiting time as an additional measure to capture perceived self-efficacy. Based on available data in the GHS, the need for care factor in terms of illness severity (ILLSEV) is measured using the response to whether the individual had to stop usual activities in the four weeks preceding the survey due to illness. The empirical specification of the model for HSB is hence stated as:

$$HSB_i = D_{Hi}\begin{pmatrix} P_{hi},\ AGE_i,\ AGE_i^2,\ GE_i,\ MS_i,\ EA_i,\ REL_i, HHZ_i,\ _i, \\ RES_i,\ Y_i,\ Emp_i,\ DIST_i,\ \ WT_i,\ ILLSEV_i \end{pmatrix}, \tag{5a}$$

where D_{Hi} captures the decision to seek health care or not from a par-

ticular provider. Responses to where individuals sought health care comprised hospital, dispensary, pharmacy, chemist, clinic, maternity home, maternal and child health posts, consultant's home, traditional healers' home, and faith-based home. The first eight choices are grouped as formal and the last two as informal providers due to the lack of regulation of the medical activities of traditional healers and faith-based homes. Responses to who ran the establishment where individuals sought health care comprised federal, state, local government, private, community, NGO, religious bodies and others. The first three providers are government-related and grouped as public, while the others are private. Community, NGO, religious bodies and others are quite small in the sample (2.32%) and are included in the private category.

We expect that higher health care costs at formal providers will lead individuals to prefer informal treatment options. The stock of health capital declines with age, so older individuals often require more health care. However, the effect of age on health care choice is unpredictable, as individual cultural values play a crucial role. The role of gender in health care demand is uncertain, as it depends on health capital and individual preferences. Similarly, the effect of marital status cannot be stated definitively; married individuals may pool resources and utilise formal providers, or may choose otherwise based on cultural and religious inclinations. More educated persons are likely to earn higher incomes, access better health information, and therefore show a stronger preference for formal health care. The influence of religion is unpredictable due to the interaction between literacy and religious beliefs.

The effect of household size on health care provider choice is unpredictable, as decisions are primarily driven by affordability rather than household composition. Similarly, the influence of place of residence, whether North or South, cannot be determined, given that cultural beliefs and practices in these regions play a key role in provider selection.

Individuals with higher incomes are expected to prefer formal health care providers due to greater affordability. Employed persons are similarly more likely to use formal care because of financial empowerment, although utilisation across different employment types is uncertain. Longer distances to health providers are expected to reduce both access to health information and service use, meaning facilities located closer to communities will generally be more frequently utilised. Similarly, providers with shorter waiting times are likely to be more frequently used. The effect of illness severity on provider choice is uncertain: some in-

dividuals may prefer informal providers such as traditional healers or religious centres, while others may opt for formal health care providers.

ESTIMATION TECHNIQUE

Equation (6) is estimated using the logistic regression approach. The logistic regression quantifies the effect of a predictor in terms of a log-odds ratio using the maximum likelihood estimation (MLE) (Hailpern and Visintainer 2003). It translates the original logit coefficients to the odds ratio (OR) so that the parameter value is the exponential of the logit coefficient (Gujarati 2020). The odds ratio is preferred because HSB is a binary categorical dependent variable. It is also chosen above other categorical dependent variable models because it is less sensitive to changes in the marginal frequencies than other measures of association. The odds ratio is also commonly applied in most studies with a categorical dependent variable because it is appropriate for all study designs and easy to interpret (Sperandei 2014; Bewick et al. 2005). The logistic regression method is specified as follows:

$$\log it\,(p) = \log\left(\frac{p}{1-p}\right), \tag{7}$$

where p is the proportion of observations with an outcome of 1, and $1\text{-}p$ is the probability of an outcome of 0. The ratio $(p/(1\text{-}p))$ is called the odds and the logit is the logarithm of the odds.

An OR value which is more than 1 implies that the independent variable increases the probability of the occurrence of the event. In contrast an OR value which is less than 1 decreases this probability (Eren et al. 2014).

Findings are also shown using the chi-square ($\chi 2$) test. The chi-square statistic is applied for tests of independence using cross-tabulation. The distributions of categorical variables are simultaneously presented, and the test of independence assesses whether an association exists between the variables by comparing the observed pattern of responses to the pattern that would be expected if the variables were truly independent of each other. The chi-square statistic is stated as:

$$\chi 2 = \sum \frac{(f_o - f_e)^2}{f_e}, \tag{8}$$

where f_o is the observed frequency and f_e is the expected frequency if no relationship existed between the variables. In this case, the analysis is conducted to determine whether there is a significant association

between seeking care from public and private, formal and informal care providers in Northern and Southern Nigeria.

The logistic regression model is applied to determine the predictors of HSB while controlling for potential confounders such as age, gender, education, income, and location. This directly addresses the aim of identifying determinants of health care choices beyond simple associations, allowing for adjusted inferences. Chi-square tests were used to assess bivariate associations between categorical variables in terms of region and health care provider choices. This is to establish whether regional differences in health-seeking patterns exist at a descriptive level. The multivariate logistic regression allowed for the simultaneous adjustment of key socio-demographic and economic variables, thereby minimising potential confounding bias and ensuring that the observed associations between region and HSB reflected the combined effect of all included covariates, rather than being driven by any single characteristic. In addition, stratified analyses by region were conducted to check the consistency of patterns across different subgroups. Furthermore, non-response bias was addressed through the use of sampling weights provided by the GHS-Panel dataset, which ensured national and zonal representativeness of estimates.

DATA SOURCE

Data for this study were extracted from wave 4 of the 2018/2019 post-harvest General Household Survey (GHS) data in Nigeria (World Bank Group n.d.-c). The GHS panel is implemented by the National Bureau of Statistics (NBS) in collaboration with the World Bank. It is a nationally representative survey of approximately 5,000 households obtained from the six geopolitical zones in Nigeria. The GHS is a comprehensive analysis of agricultural information, welfare indicators and socio-economic characteristics of individuals and households. The 2018/19 is the fourth round, with prior rounds conducted in 2010/11, 2012/13, and 2015/16. The GHS-Panel households were visited twice: first after the planting season (post-planting) between July and September 2018 and second after the harvest season (post-harvest) between January and February 2019 (World Bank Group n.d.-c). The data is drawn from a two-stage sampling design. Wave 4 data comprised a refresh sample of 360 enumeration areas (EAS), 60 per geopolitical zone, drawn from the national master frame, from which 10 households were randomly selected, giving about 3,600 households. In addition, 159 EAS from the original 2010

sample were revisited, yielding approximately 1,507 households. Overall, 4,976 households across 519 EAs were successfully interviewed in both urban and rural areas. Due to security challenges, parts of Borno State and some conflict zones were excluded, with replacements drawn within zones. Survey weights were constructed to correct for non-response and ensure representativeness at national and zonal levels (World Bank Group n.d.-c).

Results and Discussion

DESCRIPTIVE STATISTICS OF STUDY VARIABLES

Descriptive statistics of variables used in the study across forms of HSB are shown in table 1.

The results from table 1 show that respondents who sought care from private providers spent almost twice as much on health care (41,267) as those who sought care from public providers (23,044). Higher health spending is also observed for those who sought informal (59,785) rather than formal care (30,815). In terms of age and the square of age, the results did not show any key difference in the age groups of persons who sought health care across provider types. However, those who seek health care from informal providers are slightly older than those who seek formal health care. In terms of gender, the percentage distribution of respondents shows that there are more females (54.5%) than males (45.5%) in the study sample, and a similar distribution is reflected across the HSB groups in the study. Similarly, the sample comprised more persons who are married or in a loose union (58.6%) than otherwise (41.4%). The number of persons with at least primary education (62.3%) is almost double of those with no formal education, who cannot read or do simple calculations (37.7%).

More respondents are Christians (88.1%) than Muslims (11.1%). The average household size is approximately 6, with slightly more household members found among households that seek public health care (7). The average income of respondents in the sample is N16,922, with the income of those who seek care from private sources slightly higher at about N17,453. Persons employed (88.8%) far outweigh those who do not have any form of employment. Travel distance in minutes to seek consultation is approximately 16 minutes. The time spent travelling to seek care is longer for persons who seek public care (17 minutes) than for all other forms of healthcare sought. Travel time to seek care is shorter for those seeking private care (9 minutes) compared to other healthcare types. The

TABLE 1 Descriptive Statistics of Variables Used in the Study Across Forms of HSB

Variables	Definition	Formal health care providers	Informal health care providers	Private providers	Public providers	Total
Price	Average of the sum of spending for the first consultation, transport cost to and from consultation, amount spent for over-the-counter drugs, and amount spent for admission where it applies in Naira	30,815	59,785	41,267	23,044	31,636
Age in years	Age of respondent in completed years	29	34	30	29	30
Age Square	Square of the age of respondents in completed years	1,415	1,752	1,427	1,384	1,456
Gender	Gender of respondent					
Male		1,849 (46.3)	150 (47.2)	1,292 (46.9)	541 (44.7)	2,152 (45.5)
Female		2,149 (53.8)	168 (52.8)	1,461 (53.1)	669 (55.3)	2,580 (54.5)
Marital Status						
Married/Loose union	Persons who are married or in a loose union	1,544 (57.7)	131 (56.7)	1,025 (54.8)	514 (65.7)	1,898 (58.6)
Not married	Persons who are divorced, separated or widowed or never married	1,131 (42.3)	100 (43.3)	846 (45.2)	268 (34.3)	1,339 (41.4)
Educational Attainment	Highest qualification attained					
No formal Education	No formal education	1,079 (38.9)	97 (47.6)	744 (36.9)	327 (44.1)	1,226 (37.7)
At least primary education	Persons with at least primary education – can read or do a simple calculation	1,694 (61.1)	107 (52.5)	1,271 (63.1)	415 (55.9)	2,025 (62.3)
Religion	Religion of respondents					
Christian		359 (88.2)	23 (92.0)	309 (92.0)	47 (69.1)	429 (88.1)
Muslim		48 (11.8)	2 (8.0)	27 (8.0)	21 (30.9)	58 (11.1)
Household Size	The average number of household members	6	6	6	7	6

Continued on the next page

TABLE 1 *Continued from the previous page*

Variables	Definition	Formal health care providers	Informal health care providers	Private providers	Public providers	Total
Residence	Place of residence of respondent during the survey					
North		2,051 (92.1)	176 (7.9)	1,090 (39.6)	941 (77.8)	3,998 (92.6)
South		1,947 (93.2)	142 (6.8)	1,663 (60.4)	269 (22.2)	318 (7.4)
Income	Total monthly per capita household consumption spending in Naira	16,787	14,733	17,453	15,143	16,922
Employment	Employment status of respondent					
Unemployed	Respondent is unemployed but worked on some subsistence agriculture	393 (11.7)	29 (10.4)	306 (13.1)	82 (8.3)	449 (11.4)
Employed	Respondent is employed	2,962 (88.3)	251 (89.6)	2,033 (86.9)	906 (91.7)	3,546 (88.8)
Distance	Travel distance for the respondent to seek medical consultation in minutes	16	18	15	19	16
Waiting time	How long respondent had to wait to be attended to for consultation in minutes	11	12	9	17	11
Illness Severity	Response to the question of whether the respondent					
Yes	had to stop usual activities in the past 4 weeks	2,011 (50.3)	176 (55.4)	1,217 (44.2)	779 (64.4)	2,226 (49.6)
No	because of illness?	1,987 (49.7)	142 (44.7)	1,536 (55.8)	431 (35.6)	2,265 (50.4)

SOURCE Author's computation from GHS 2018/2019 data. *Note*: Number of persons reported with percentage values in the bracket.

TABLE 2 Chi-square ($\chi 2$) Test for HSB Across Health Care Providers in Northern and Southern Nigeria

	South	North	Total	
Informal	142 (6.8)	176 (7.9)	318 (7.4)	Pearson chi-square(1) = 1.9301
Formal	1,947 (93.2)	2,051 (92.1)	3,998 (92.6)	Pr = 0.165
Private	1,663 (86.1)	1,090 (53.7)	2,753 (69.5)	Pearson chi-square(1) = 490.305
Public	269 (13.9)	941 (46.3)	1,210 (30.5)	Pr = 0.000

NOTE Average values reported with the percentage in the bracket.

statistics for illness sevErity are slightly lower for persons with severe cases (49.6%) and those without (50.4%).

HSB ACROSS HEALTH CARE PROVIDERS IN NORTHERN AND SOUTHERN NIGERIA

In table 2, there is a chi-square test for HSB across health care providers in Northern and Southern Nigeria

The results in table 2 show that health care is sought mainly from private (69.5%) rather than public (30.5%) providers in Nigeria. The use of private health facilities is twice that of public facilities. This finding suggests key implications for health outcomes as private health care providers in Nigeria, as in other developing economies, are characterised by a high distribution of unlicensed providers (Basu et al. 2012). The use of private facilities is greater in the South (86.1%) than in Northern Nigeria (53.7%). In contrast, more Northern residents use public facilities (46.3%) than Southerners (13.9%). From the results, it is evident that the use of public health facilities in the North is thrice that in Southern Nigeria. Findings for a higher preference for private health care providers over public are similar to that of Abera Abaerei et al. (2017), in Gauteng, South Africa, showing that most individuals (75%) in their study sample did not use public health facilities due to low-quality service provision. The findings are, however, contrary to that of Abuduxike et al. (2019), indicating that only 39.1% of individuals preferred private health service providers in Cyprus. These results suggest high usage of private health care providers in Africa.

The results showed that most individuals seek formal (92.6 %) rather than informal (7.4%) health care provision in Nigeria. The number of those that seek care from informal providers is slightly higher in the North (7.9%) than in Southern Nigeria (6.8%). On the other hand, the number of those that seek formal health care is slightly higher in the

South (93.2%) than in the North (92.1%). The finding of a high preference for formal care in Nigeria aligns with Rata Mohan et al. (2025), who showed that most individuals in Malaysia prefer professional treatment over self-medication.

The result of the chi-square test in table 2 shows no statistical difference in the HSB of persons in Northern and Southern Nigeria in terms of informal and formal health care use. Findings, however, suggest a 1% statistically significant difference in the proportion of persons seeking health care from private and public health facilities in Northern and Southern Nigeria. This indicates a significant variation in the use of private health facilities between Northern and Southern Nigeria. The results revealed a significantly higher preference for the use of public over private health facilities in the North compared to the South. These results enunciate arguments that differences in socioeconomic features and health infrastructure across regions imply some differences in HSB and, by extension, health outcome (Ugwueje 2012; Ononokpono et al. 2020; Reddy et al. 2020; Abubakar et al. 2022).

HSB IN NORTHERN NIGERIA

The results on the specific drivers of HSB across health care providers in Northern Nigeria are presented in table 3.

The logistic regression results in table 3 suggest that the variables that significantly influence HSB for formal health care providers in Northern Nigeria are age, the square of age and monthly income earnings. The findings associate lower odds of seeking formal health care services with an increase in age. This is reflected in the statistics for age (OR = 0.9922, CI [0.986 – 0.998], p = 0.01) and the square of age (OR = 0.9999, CI [0.9998 – 1.0000], p = 0.08). Older individuals in Nigeria generally have lower incomes and may be unable to afford formal health care, as access to services in the Nigerian health system often requires out-of-pocket payments (World Bank Group n.d.-e). This supports earlier findings by Basu et al. (2012) and Pandey et al. (2019), which underscore financial constraints as critical barriers to accessing care among older adults. The results are also in line with that of Elfaki et al. (2024), indicating age as a significant determinant of HSB among Sudanese immigrants in Saudi Arabia.

An increase in monthly income earnings is associated with higher odds of seeking formal care in Northern Nigeria (OR = 1.8276, CI [1.330 – 2.500], p = 0.001). The result suggests that those who use informal health

TABLE 3 Logistic regression estimates for the determinants of HSB in Northern Nigeria

Variables	Formal Providers OR (SE) [95% CI], p-value	Public Providers OR (SE) [95% CI], p-value
Log price of health care	0.866 (0.4552) [0.356 – 2.110], p = 0.75	1.0931 (0.2049) [0.746 – 1.600], p = 0.65
Age	0.9922** (0.003) [0.986 – 0.998], p = 0.01	1.006*** (0.0021) [1.002 – 1.010], p = 0.001
Age square	0.9999* (0.000) [0.9998 – 1.0000], p = 0.08	1.0001*** (0.000) [1.0000 – 1.0002], p = 0.002
Gender		
Male	1.0421 (0.1639) [0.770 – 1.410], p = 0.78	0.7993** (0.0713) [0.670 – 0.950], p = 0.01
Marital status		
Married/Loose union	1.0197 (0.203) [0.690 – 1.510], p = 0.93	1.5981*** (0.1943) [1.160 – 2.200], p = 0.004
Educational attainment		
No Educational attainment:	0.7339 (0.1597) [0.490 – 1.100], p = 0.14	0.8581 (0.1009) [0.690 – 1.070], p = 0.18
Religion		
Christian	0.9798 (0.000) [0.980 – 0.980], p = 0.99	0.4793 (0.2217) [0.260 – 0.880], p = 0.02
Household size	1.008 (0.0198) [0.970 – 1.050], p = 0.75	1.0069 (0.011) [0.985 – 1.030], p = 0.54
Log monthly income	1.8276*** (0.2787) [1.330 – 2.500], p = 0.001	0.9894 (0.0805) [0.840 – 1.160], p = 0.89
Employment status		
Employed	0.7988 (0.2064) [0.490 – 1.300], p = 0.36	1.5717*** (0.2649) [1.120 – 2.200], p = 0.009
Distance to the health facility in minutes	0.9973 (0.0039) [0.990 – 1.005], p = 0.54	1.0236*** (0.0036) [1.016 – 1.031], p = 0.001
Waiting time in minutes	1.0143 (0.0074) [1.000 – 1.030], p = 0.05	1.0584*** (0.0045) [1.050 – 1.070], p = 0.001
The severity of illness		
Stop work activities	0.313 (0.1829) [0.811–1.661], p = 0.42	1.7583*** (0.1603) [1.400 – 2.210], p = 0.001
Model Summary		
LR $\chi2$ (11)	Number of obs = 152 LR $\chi2$ (10) = 9.44	Number of obs = 145 LR $\chi2$ (10) = 21.41
Prob > $\chi2$	Prob > $\chi2$ = 0.4907	Prob > $\chi2$ = 0.0184
Pseudo R2	Log likelihood = −13.775811 Pseudo R2 = 0.2553	Log-likelihood = −78.288535 Pseudo R2 = 0.1203

NOTE: *** p < 0.01, ** p < 0.05, * p < 0.1.

care providers in Northern Nigeria are mainly low-income earners. The implication is that poverty rates prevalent in Northern Nigeria will induce high use of informal health care providers, which has negative implications for health status in the region. The result reinforces existing knowledge that income is a key enabling driver of HSB as reflected in the ABM. The findings are similar to that of Lagarde and Ostry (2018), who note that economic capacity significantly determines access to quality health care and provider choice. The suggestion that informal providers are more commonly used by the poor aligns with Agyemang-Duah et al. (2020), who observed that informal care is often a function of affordability rather than preference.

Regarding HSB across public and private health facilities in Northern Nigeria, findings showed that the key drivers are age, the square of age, gender, marital status, religion, employment, distance to the health facility, waiting time and illness severity.

The findings show that increase in age is associated with higher odds of seeking care from public health providers (OR = 1.006, CI [1.002 – 1.010], p = 0.001), with a similar pattern observed for the square of age (OR = 1.0001, CI [1.0000 – 1.0002], p = 0.002). This result is expected with low health care costs for the public relative to private providers and low earning chances for most people as they grow older. Males are associated with lower odds of seeking health care from public facilities (OR = 0.7993, CI [0.670 – 0.950], p = 0.01). The implication, therefore, is that females are more likely to seek health care from public providers of care in Northern Nigeria. This finding reflects the nature of economic empowerment across gender as males are better equipped financially and hence will demand more costly health care from private providers than females. The result aligns with Morales (2012), who suggests that men often opt for private services due to greater financial autonomy, while women, especially in resource-constrained households, rely more on subsidised public health care. The results also reflect the findings of Lagarde and Ostry (2018), indicating that economic capacity is a significant determinant of access to health care and provider choice. Similarly, the findings align with Das et al. (2018), showing that males tend to seek health care providers who offer rapid and complete recovery, enabling them to resume their role as breadwinners. Married individuals or those in a consensual or loose union have higher odds of seeking health care from public providers (OR = 1.5981, CI [1.160 – 2.200], p = 0.004) compared with unmarried persons. This finding can

be associated with a higher chance of using health insurance by married people and better health that often characterises married compared to unmarried persons. As noted by Pandey et al. (2019), higher usage of public services by married individuals supports the theory that marital status enhances access to health insurance, shared resources, and health awareness.

The results showed that Christians in the North are more likely than Muslims to seek care from public rather than private health facilities (OR = 0.4793, 95% CI [0.260 – 0.880], p = 0.02). This suggests the presence of religious and cultural influences in health care utilisation. This finding aligns with Gyimah et al. (2006), who found that religious affiliation influenced both maternal and child health care decisions in Ghana. The results also showed that employed persons are more likely to use a public health facility than those who are unemployed (OR = 1.5717, CI [1.120 – 2.200], p = 0.009). This can be associated with access to health insurance, often available for those employed, and insurance policies in public health facilities. Akokuwebe and Idemudia (2022) note that employment often provides insurance benefits that make public health services more accessible to working populations.

The results showed that increased distance to the health care facility is associated with higher odds of using public health providers (OR = 1.0236, CI [1.016 – 1.031], p = 0.001). Similarly, an increase in waiting time is associated with higher odds (OR = 1.0584, CI [1.050 – 1.070], p = 0.001) for the use of public health facilities. This finding is unexpected. The results suggest that longer distances and an increase in waiting time do not deter the use of public health facilities in Nigeria. These findings suggest a low spread of health facilities in Nigeria, particularly public health facilities. With a high prevalence of poverty in Nigeria, most persons will seek public health care providers where the government subsidises health care (World Bank Group n.d.-d). This finding can also be associated with perceived better-quality delivery of health care in public health facilities as they are characterised by the availability of well-trained providers of health care and health infrastructure that can be used to cater for diverse illness types and at cheaper rates (Basu et al. 2012; Agyemang-Duah et al. 2020). A similar finding for the use of health care facilities with longer distances was also shown by Osakede et al. (2016) using data from Nigeria. The results showing a higher likelihood of the use of public health facilities with longer distances in Nigeria are contrary to those of Obels et al. (2025) in South Sudan, indicating that longer distances from a health

facility, whether public or private, reduced the chances of seeking health care from that facility.

Findings also showed higher odds of seeking care from public providers in severe cases of illness (OR = 1.7583, CI [1.400 – 2.210], p = 0.001). Higher preference for public over private facilities, particularly for severe illness cases, can be associated with the availability of diverse health specialists and consultancy services in public health facilities, accommodated by government budgetary allocation to health. As shown by Osakede (2022), improvements in population health are connected to an increase in government spending on health care. The results may also reflect the lower cost of care in public facilities, particularly for severe cases that often entail higher treatment expenses. The findings align with Agyemang-Duah et al. (2020), noting that public health providers have better health insurance acceptance and more affordable health care services and this increases preference for public health care providers. The result is also in line with that of Singu and Kaur (2017), showing that public health facilities are preferred for health care service provision, particularly due to access to health insurance and affordability.

HSB IN SOUTHERN NIGERIA

Findings in table 4 showed that the determinants of HSB across formal and informal providers in Southern Nigeria are the price of health care, age and the square of age, educational attainment, employment status, waiting time and illness severity.

The results in table 4 showed that higher health care prices reduce the odds of seeking care from formal providers (OR = 0.3619, CI [0.198 – 0.662], p = 0.001). This suggests that seeking informal health care is explained by the inability to afford formal care providers. The results also associate lower odds of seeking formal health care providers with an increase in age (OR = 0.9892, CI [0.982 – 0.996], p = 0.002) and the square of age (OR = 0.9999, CI [0.9998 – 1.0000], p = 0.003). The implication is that older persons have a preference for informal health providers. This aligns with the World Bank Group (n.d.-e), emphasising that out-of-pocket payment systems in Nigeria disproportionately affect older persons with reduced income. This is worrisome as ageing is often associated with illnesses requiring greater expertise, and this skill is not readily available among informal health care providers, as shown by Agyemang-Duah et al. (2020).

TABLE 4 Logistic regression estimates for the determinants of HSB in Southern Nigeria

Variables	Formal Providers OR (SE) [95% CI], p-value	Public Providers OR (SE) [95% CI], p-value
Log price of health care	0.3619*** (0.1431) [0.198 – 0.662], p = 0.001	1.2578 (0.2353) [0.830 – 1.905], p = 0.27
Age	0.9892*** (0.0035) [0.982 – 0.996], p = 0.002	1.0075*** (0.0027) [1.002 – 1.013], p = 0.004
Age square	0.9999*** (0.0000) [0.9998 – 1.0000], p = 0.003	1.0001*** (0.0000) [1.0000 – 1.0002], p = 0.006
Gender		
Male	0.8904 (0.1552) [0.645 – 1.229], p = 0.47	0.8913 (0.1188) [0.688 – 1.155], p = 0.39
Marital status		
Married/Loose union	1.125 (0.2206) [0.743 – 1.703], p = 0.58	1.1159 (0.1678) [0.823 – 1.513], p = 0.47
Educational attainment		
No Educational attainment	0.706* (0.1477) [0.480 – 1.040], p = 0.07	0.8622 (0.1452) [0.627 – 1.185], p = 0.36
Religion		
Christian	0.0202 (1.99) [0.00006, 6.69], p = 0.23	0.5694 (0.4537) [0.234 – 1.386], p = 0.21
Household size	1.0215 (0.0366) [0.951 – 1.098], p = 0.56	0.9081*** (0.0262) [0.859 – 0.959], p = 0.001
Log monthly income	1.1147 (0.1751) [0.811 – 1.532], p = 0.50	1.5985*** (0.1893) [1.200 – 2.131], p = 0.001
Employment status		
Employed	0.5578** (0.1879) [0.311 – 0.998], p = 0.049	1.6339** (0.3937) [1.017 – 2.625], p = 0.042
Distance in minutes to the health facility	0.9934 (0.0083) [0.977 – 1.010], p = 0.41	1.0184*** (0.0048) [1.009 – 1.028], p < 0.001
Waiting time in minutes	0.9939** (0.0034) [0.987 – 1.000], p = 0.05	1.0515*** (0.0058) [1.040 – 1.063], p < 0.001
The severity of Illness		
Stop work activities due to illness	0.5552*** (0.0977) [0.398 – 0.774], p = 0.001	2.6745*** (0.3651) [2.010 – 3.560], p < 0.001
Model Summary		
LR $\chi2$ (11)	Logistic regression Number of obs = 70 LR $\chi2$ (9) = 16.15	Number of obs = 97 LR $\chi2$ (11) = 18.56
Prob > $\chi2$	Prob > $\chi2$ = 0.0639	Prob > $\chi2$ = 0.0695
Pseudo R2	Log likelihood = −9.9390352 Pseudo R2 = 0.4482	Log-likelihood = −50.716376 Pseudo R2 = 0.1547

NOTE Odds ratio reported with standard errors in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1.

Findings showed that those with no formal education are less likely to seek health care from formal than from informal providers (OR = 0.706, CI [0.480 – 1.040], p = 0.07). This is expected as persons with no formal education earn less, reducing their ability to afford formal health care. This result aligns with Raghupathi and Raghupathi (2020) and Zajacova and Lawrence (2018), noting large health inequalities across individuals with different educational attainments.

The results also showed that being employed is associated with lower odds of using formal providers compared to being unemployed (OR = 0.5578, CI [0.311 – 0.998], p = 0.049). While this result is not expected, it can be explained by the fact that employed individuals in Southern Nigeria may face time constraints and opportunity costs that reduce their likelihood of seeking care from formal providers that often require longer consultation times, waiting periods, and bureaucratic processes. Conversely, unemployed individuals may have more flexible time and thus greater ability to access formal services. Additionally, employed individuals may opt for cheaper or closer informal providers for minor ailments to avoid income losses.

The results showed that longer waiting time is associated with slightly lower odds of using formal providers (OR = 0.9939, CI [0.987 – 1.000], p = 0.05). Long waiting times at formal health facilities can discourage people from using these services, particularly when informal providers offer faster access to care. In the context of Southern Nigeria, crowded public hospitals and limited staff often result in prolonged waiting periods, which can reduce patient preference for formal care, even for those who can afford it. The results align with findings by Strobel (2024), who showed a decline in patients' demand for formal health care with an increase in waiting time, even during periods of emergencies. Similar results are shown by Adhikari et al. (2021) in India, revealing low use of formal health care due to the complexities of navigating various departments in hospitals and little confidence in the quality of formal health care.

In terms of illness severity, individuals who stopped work due to illness have lower odds of using formal providers (OR = 0.5552, CI [0.398 – 0.774], p = 0.001). Severe illness may push individuals toward immediate, accessible care from informal providers or pharmacies, rather than formal hospitals, especially if formal care is perceived as costly or time-consuming. The result again aligns with Strobel (2024), indicating a decline in the use of formal health care during emergencies. The findings

are also similar to that of Adepoju et al. (2023), showing a delay in the patronage of formal health centres in seeking health care for tuberculosis treatment in urban slums in Lagos.

In terms of HSB across private and public providers in Southern Nigeria, the results reveal that the main determinants include: age, the square of age, household size, monthly income earnings, employment status, the distance to the health facility, waiting time and illness severity. Findings showed that an increase in age raises the likelihood of seeking health care from public rather than private facilities (OR = 1.0075, CI [1.002 – 1.013], p = 0.004). Similar results are shown by the square of age (OR = 1.0001, CI [1.0000 – 1.0002], p = 0.006). The positive association between age and public facility use is consistent with Morales (2012) and Lagarde and Ostry (2018), who documented that older individuals are more inclined to choose cost-effective health care options due to reduced earning capacity. The results further showed that an increase in household size reduces the odds of seeking health care from a public health provider (OR = 0.9081, CI [0.859 – 0.959], p = 0.001). This result suggests that households with more members would likely use private health facilities. This is unexpected as public health care costs less than private. However, coordinating care for many household members can be time-consuming, especially if the public facility has long queues. Families may find it more convenient to access care nearby rather than travel to a public hospital.

Increase in income is associated with higher odds of choosing public providers over private providers (OR = 1.5985, CI [1.200 – 2.131], p = 0.001). High-income earners often reside in urban areas where well-equipped public hospitals are more accessible, further encouraging their use. In addition, they are more likely to be covered by formal health insurance, which is often used at public health facilities. A similar result was presented by Bhattacharya et al. (2016), showing that the demand for higher quality of public health services rises with income. However, where the rich become dissatisfied with the quality of available public services, they will be motivated to form their own club for self-provision of public health care services.

Findings also suggest that employed persons have a higher likelihood of using a public over private health facility (OR = 1.6339, CI [1.017 – 2.625], p = 0.042). It is expected that employed persons would prefer private over public health facilities; however, with access to health insurance, they are more likely to utilise public facilities, due to the broader coverage and integration of health insurance within public health centres

(Agyemang-Duah et al. 2020). The finding that employed individuals are more likely to use public facilities is supported by Akokuwebe and Idemudia (2022), who attribute this to employer-provided insurance and the prevalence of insurance acceptance in public facilities.

The results suggest that an increase in the distance to the health facility does not reduce the odds of using a public health facility (OR = 1.0184, CI [1.009 – 1.028], p = 0.001). Similarly, an increase in waiting time does not deter the use of public health facilities (OR = 1.0515, CI [1.040 – 1.063], p = 0.001). These results are unexpected and similar to those in Northern Nigeria. The results reflect the limited geographical spread of public health facilities and the affordability advantage of public health care. The findings can again be related to the fact that public health facilities are better equipped with adequate human resources and medical equipment that ensure quality health care delivery (Basu et al. 2012; Agyemang-Duah et al. 2020). Again, the perceived quality of public hospitals, especially tertiary or teaching hospitals, in terms of offering specialised services, advanced diagnostics, experienced staff and handling complex cases, can make them attractive despite longer distances and potentially longer waiting times. Furthermore, higher insurance uptake in public health facilities can encourage utilisation even with longer distances and waiting time as it implies a more inclusive form of payment for health care (Singu and Kaur 2017; Agyemang-Duah et al. 2020). As earlier stated, similar results were obtained by Osakede et al. (2016) using data from Nigeria. The results are contrary to those of Obels et al. (2025) in South Sudan, indicating that longer distance from a health facility reduces the likelihood of the choice of that facility for health care use.

The results also showed that persons with cases of severe illness have higher odds of using public over private health facilities (OR = 2.6745, CI [2.010 – 3.560], p = 0.001). As earlier mentioned, the expected quality delivery of health care in public health facilities motivates preference for health service provision in such facilities, especially where the illness is severe. This result is supported by Basu et al. (2012) and Agyemang-Duah et al. (2020), who highlight perceived higher quality and better insurance acceptance in public facilities. Similarly, Singu and Kaur (2017) note that affordability and insurance access drive the choice of public facilities. Osakede (2022) observed that government health budget allocations improve population health outcomes. The implication is that an increase in government health spending tends to favour public health care, thereby strengthening infrastructural capacity in these facilities to

manage critical illness cases, which in turn makes them a preferred option for patients with severe conditions.

Conclusion

This study examined HSB across Northern and Southern Nigeria, focusing on health care provider types. Findings revealed a general preference for private and formal providers across both regions, though public facility use was three times higher in the North. No significant regional difference was observed across formal versus informal care choices. Older persons in both regions rely more on informal providers. A rise in household income increased the preference for formal providers in both regions but reduced public facility use in the South and informal care use in the North. Gender differences as a driver of health care provider choice were observed only in the North, where women more frequently used public facilities. Public provider use was also associated with longer waiting times, greater distances, and severe illnesses, suggesting perceptions of higher-quality care for critical cases.

Policy interventions should therefore be regionally targeted. Efforts should focus on providing inclusive health care across regions, especially for older adults, to reduce reliance on unregulated care. Public facilities should also be strategically distributed, and well-equipped, and capable of managing severe illnesses. In the North, equipping public facilities with infrastructure that supports women's health is critical. Strategies should also address income-related disparities in health care access. Strengthening the private sector through regulation is also essential, given the high reliance on private providers nationwide. The regulation of private health care providers should be intensified in the South.

This study draws on a nationally representative population, covering all states in Nigeria, which enhances the external validity of the findings. The results across geographical zones and health care provider types offer practical insights for policy interventions aimed at reducing health disparities and advancing health-related SDGs. Though the reliance on secondary survey data limits its ability to fully capture cultural and subjective determinants of HSB, future research can employ mixed-methods approaches to explore contextual and qualitative factors that shape health care choices.

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