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ASSESSING OUT-OF-POCKET HEALTHCARE EXPENDITURE AND UTILIZATION IN NORTHWESTERN NIGERIA

[1]*Aminu Ma'aruf Nass & [2]Ismaila Adedeji Adeleke

Abstract

This study investigates healthcare utilization and out-of-pocket (OOP) expenses across Nigeria's northwestern states. Using primary data from household surveys and secondary data on state healthcare budgets, the study employs the frequency method and generalised logit regression model, it examines socio-economic and demographic determinants affecting healthcare access and expenditure. Results reveal that households spend an average of ₦73,347.24 annually on healthcare, equivalent to 14.81% of their income, surpassing the CHE threshold of 10%. Jigawa and Kaduna states exhibit the highest CHE percentages, at 15.94% and 15.82%, respectively, while Zamfara records the lowest at 11.92%. Rural households bear greater financial strain due to limited health insurance coverage (19% compared to 50% in urban areas) and reliance on coping strategies such as borrowing or selling assets. The study underscores the need for policy reforms, including expanded health insurance, subsidized healthcare for vulnerable states, and improved budget efficiency. These measures are crucial to alleviating the financial burden of healthcare, addressing urban-rural disparities, and achieving equitable access to health services in the region.

Keywords: healthcare utilization; out-of-pocket expenses; health insurance coverage

1. INTRODUCTION

Access to quality healthcare remains a fundamental right for all Nigerians, regardless of their location or socioeconomic status, yet numerous challenges hinder the realization of this ideal. The country's citizens should benefit from essential amenities such as safe drinking water, sanitation, adequate nutrition, education, and housing, which are critical for sustaining life and promoting well-being. The global community, through the United Nations Sustainable Development Goals (SDGs), emphasizes the importance of ensuring healthy lives for all, especially focusing on regions with the highest disease burdens and marginalized populations (UN, 2015). However, Nigeria's health system faces significant obstacles due to economic instability and rising inflation, which have led to increased out-of-pocket (OOP) healthcare costs. This financial strain shifts the burden onto households, pushing many into multidimensional poverty and deterring the poor from seeking necessary medical care. Factors such as long distances to healthcare facilities, limited resources, and low awareness further impede utilization among vulnerable groups, often forcing them to turn to traditional healers, self-medication, or other risky alternatives (Ibiwoye & Adeleke, 2007, 2009).

Despite efforts to improve access, affordability, and universal coverage, challenges persist. Nigeria introduced the National Health Insurance Scheme (NHIS) in 1999 to address these issues, aiming to expand coverage, involve private providers, and shield families from catastrophic costs. Nonetheless, the scheme has struggled with data gaps, unreliable health statistics, and issues related to pricing and risk management (Adeleke et al., 2012). The 2022 enactment of the NHIA Act seeks to strengthen these initiatives by promoting universal health coverage, regulating insurance schemes, and encouraging state-level healthcare programs (NHIA, 2022). Yet, in many developing regions—including Nigeria's northwestern states—limited healthcare access remains a pressing concern, largely due to socioeconomic barriers and the dominance of OOP payments, which constitute over 70% of health expenditures (Aregbeshola & Khan, 2018). This heavy reliance on direct payments not only restricts

[1]1.Department of Actuarial Science, Federal University Dutse, Dutse, P.M.B 7156, Jigawa State, Nigeria
2. Department of Actuarial Science & Insurance, University of Lagos, Lagos, Lagos State, Nigeria
*Corresponding Author:aminunass@fud.edu.ng

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access but also increases the risk of impoverishment, with rural households especially vulnerable, as many lack insurance coverage.

Although the government has allocated resources toward healthcare infrastructure, these investments do not automatically translate into increased utilization, as socioeconomic factors and insurance coverage heavily influence access. Despite the introduction of the NHIS, less than 5% of Nigeria's population is enrolled, predominantly formal sector employees, leaving informal workers and impoverished communities exposed to financial hardship and catastrophic health expenses (Adebisi et al., 2020). This context underscores the urgent need to examine healthcare utilization patterns, identify key socioeconomic and demographic determinants, and quantify out-of-pocket expenses in Nigeria's northwestern states, aiming to inform targeted policy interventions that can bridge existing gaps and promote equitable healthcare access across the region.

2. LITERATURE REVIEW

The theoretical foundation of this study is rooted in utility and risk theories, which are used to analyze healthcare utilization and out-of-pocket expenditures. Healthcare utilization reflects the demand for healthcare services, and the demand curve illustrates the quantity of goods or services purchased at various price points. The healthcare market is unique due to the involvement of third-party payers, such as government budgetary provisions, public-private initiatives, or private health insurance providers.

Healthcare financing in developing countries is heavily reliant on out-of-pocket (OOP) payments, which often expose households to financial hardship and inequality in healthcare access. Several studies emphasize the persistent gaps in risk protection, particularly in low-income and rural settings where insurance uptake remains low and healthcare costs are rising.

Adeyeye and Ogungbenle (2019) conducted an analysis revealing that a significant form of moral hazard among NHIS service providers is that patients are subjected to out-of-pocket expenses not reflected in receipts, especially when providers suspect that patients may claim refunds from NHIS. Their study also uncovered that health workers sometimes orchestrate the disappearance of enrollees' files, using these records for their close associates, which compromises service integrity. From an economic perspective, moral hazard occurs when the party with information alters its behavior in a way that influences risk (Adeyeye & Ogungbenle, 2019). This behavior leads to increased costs and reduced efficiency in service delivery.

Supporting this, Simmons et al. (2018) demonstrated that OOP expenditures are notably high among vulnerable populations and vary across demographic groups. Their research on adults with diabetes in the United States highlighted racial and socioeconomic disparities in OOP costs, indicating that socioeconomic status intersects with disease management expenses. These findings are relevant in the Nigerian context, where rural and low-income groups face greater financial burdens.

In order to assess service efficiency, a study examined the impact of operational efficiency, information asymmetry, and moral hazard on health sector service delivery, revealing that hospitals are efficient by 26.4%, but exhibit moral hazards and nondisclosure of information, leading to a 5.2% reduction in service delivery (Adeyele, Ogungbenle, & Isimoya, 2019). Regarding information disclosure, Adeyele et al. (2019) used five criteria to evaluate whether NHIS providers fairly disclose information to patients. While providers generally educated clients about services, some patients reported being made to pay full costs at referral hospitals, indicating gaps in transparency.

Furthermore, studies such as Abiiro and McIntyre (2013) have shown that the design and governance of health insurance greatly influence financial risk protection. The mere presence of insurance does not guarantee protection from catastrophic expenses if benefit packages are narrow or access is limited. Institutional trust, clarity of coverage, and responsiveness are crucial factors influencing enrollment and utilization.

Other Nigerian studies (e.g., Akande, 2012; Onwujekwe et al., 2012) reinforce that weak implementation, fragmented administration, and low awareness contribute to poor enrollment and continued dependence on OOP financing. Despite insurance schemes, high co-payments and exclusion of medicines contribute to dissatisfaction and underutilization.

Edeh (2022) found that catastrophic health expenditure (CHE) increased significantly between 2010 and 2016, disproportionately affecting the poor.

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This underscores the urgency of reducing reliance on OOP payments and expanding insurance coverage to mitigate financial risks. Similarly, Adebisi et al. (2020) highlighted underfunding in Nigeria's health sector, with health spending below the Abuja Declaration target, resulting in poor infrastructure and overreliance on OOP payments, which account for over 70% of total health expenditure.

On methodological approaches, Piontkowski (2019) proposed a functional data model for forecasting inpatient healthcare expenses based on age, demonstrating the potential for data-driven models to improve future cost projections. Powers et al. (2005) compared predictive modeling techniques using pharmacy claims data, emphasizing the importance of appropriate econometric models in health expenditure forecasting.

Third-party payments influence the healthcare demand curve by shifting it rightward, making it more inelastic, as they reduce direct costs for consumers and increase service demand (Adeleke, 2018; Mehmud & Yi, 2012). This increased demand, however, can lead to moral hazard—where insured individuals consume more services than necessary, and providers expand utilization to maximize reimbursements, potentially leading to inefficiencies and fraud.

In sum, the literature highlights several key themes: inadequate public funding, low insurance coverage, moral hazard, information asymmetry, and disparities in access and protection. These insights underscore the importance of context-specific policies, such as improving insurance transparency, expanding coverage, reducing OOP payments, and increasing government investment. Such approaches are vital for addressing the challenges of health financing and service delivery in Northwestern Nigeria, forming a basis for the present study's focus on OOP health expenditures.

3. METHODLOLOGY

Characteristics of the study Area: The study focuses on Nigeria's Northwest geopolitical region, which includes Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto, and Zamfara states. This region is home to over 35 million people, accounting for approximately 25.56% of Nigeria's total population, as per the 2006 census. Despite its significant agricultural and industrial potential, the Northwest faces several challenges, including high poverty rates, food insecurity, and inadequate infrastructure. These factors contribute to substantial out-of-pocket (OOP) healthcare expenses, exacerbating financial hardship for households. Many families resort to borrowing or relying on informal support networks to cover medical costs.

Access to healthcare facilities remains a daunting challenge, particularly for residents in rural areas. Although both government-owned and private healthcare providers operate within the region, economic realities such as the devaluation of the naira and the skyrocketing prices of goods and services make medical care increasingly unaffordable. Expenses such as consultation fees, medication costs, hospitalizations, and other private hospital charges are often beyond the reach of most households (Ibiwoye and Adeleke, 2007).

In government facilities, citizens face additional barriers, including long queues, pharmacies lacking essential medications, shortages of trained medical professionals, and inadequate infrastructure. Moreover, the predominance of informal sector workers in the region limits access to employer-sponsored healthcare schemes. Addressing the financial burden of healthcare in the Northwest could significantly improve healthcare coverage, affordability, and accessibility.

Several state governments have introduced health insurance initiatives to increase access to healthcare through state health insurance schemes. Additionally, legislators have implemented constituency-based healthcare interventions, many of which are subsidized—either directly through state contributions or indirectly through fully funded programs. These efforts aim to reduce the financial burden of healthcare costs for the region's residents and enhance access to quality healthcare services.

Data

Primary Data: Primary data were collected through structured questionnaires administered to 600 households across rural and urban areas in Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto, and Zamfara states. A purposive sampling strategy was employed to ensure representation of diverse socio-demographic groups. The questionnaires, available in both English and Hausa for inclusivity, covered the following themes: Socio-demographic variables; Out-of-pocket (OOP) expenditures; Health insurance coverage; Financial coping mechanisms.

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Secondary Data: Secondary data were obtained from state government health expenditure reports for 2023. These reports provided detailed information on health budgets and actual expenditures across the seven states.

Variable and Hypotheses: Out-of-pocket are expenses which are paid for and are not reimbursed by government or any insurer. When household do not have any form of health insurance, they are left with no option but to finance their healthcare expenditure. This is a major concern with low community when people are looking for spare in the form of savings. Relying on the earlier works of Adeleke (2018) on out-of-pocket health expenses, the variables considered in this study are categorised into households characteristics, accessibility characteristics and cost characteristics. Household size and income are used for household characteristics while time to reach facilities from houses and workplace measure accessibility characteristics. Amount spent on healthcare, percentage of income spent on healthcare and cost covered by insurance constitute the cost characteristics.

Sample Characteristics: Of the respondents, 82.9% are male, while 16.6% are female. The age distribution indicates a wide coverage of the survey population, with 13.4% in emerging adulthood, 34.1% in early adulthood, 32.4% in middle age, and less than 3% in late adulthood. Approximately 66.4% of the respondents reside in urban areas, whereas 33.2% live in rural areas.

In terms of household size, 35.5% of respondents reported having more than seven people in their household, while 33% live in households with 5–7 people. About 31.5% of households consist of 2–4 people. A significant portion of households, 40%, have incomes below the minimum wage, and over 80% of respondents earn less than $80 per month.

Regarding healthcare accessibility and utilization, 81.2% of respondents reported having consulted a healthcare provider at least once for various reasons. Among these, 49% indicated that they frequently visit their healthcare provider monthly.

When it comes to financing healthcare, 87.8% of respondents reported paying their medical bills themselves. Alarmingly, 57.9% have had to borrow money or sell personal belongings or assets to cover healthcare expenses. Additionally, 59% of respondents reported delaying or skipping medical treatment due to financial constraints, and over 53% consider the cost of accessing healthcare services in the region to be expensive.

Model specification: To investigate the determinants of healthcare utilization in the north east region of the country, the generalised logit regression model is considered suitable for modelling and testing the requisite hypothesis about the predictors of utilization in this region. Generalised logit models use the linear combinations of explanatory variables of the form

$$V_{i,j} = x_i'\beta_j \qquad (1)$$

with the response variable being modelled as a linear combination of explanatory variables, plus an error term and uses the probabilities

$$\Pr(y_j = j) = \pi_{i,j} = \frac{\exp(V_{i,j})}{\sum_{k=1}^{c}\exp(V_{i,j})} \qquad (2)$$

Where β_j is the corresponding vector of parameters, and x_i are the explanatory variables.

A measure of the goodness of fit is the pseudo-R^2, obtained from

$$\frac{L(b_{MLE}) - L_0}{L_{Max} - L_0} \qquad (3)$$

Where L_{Max}, L_0 are the log-likelihood, based on maximum achievable and on intercept only, respectively, and

$$R^2 = 1 - \left(\frac{\exp\left(\frac{L_0}{n}\right)}{\exp\left(\frac{L(b_{MLE})}{n}\right)} \right) \qquad (4)$$

Frequency Method: The frequency method was used to quantify household healthcare visits and expenditures, allowing for the identification of patterns and calculation of average costs per encounter.

4. RESULTS

In 2023, health spending across the northwestern states demonstrated significant variation. Kano State allocated the highest amount, spending ₦37 billion, which translates to an average of ₦2,282 per resident. In contrast, Katsina State had the lowest per capita health expenditure at ₦1,127. Among all states, only

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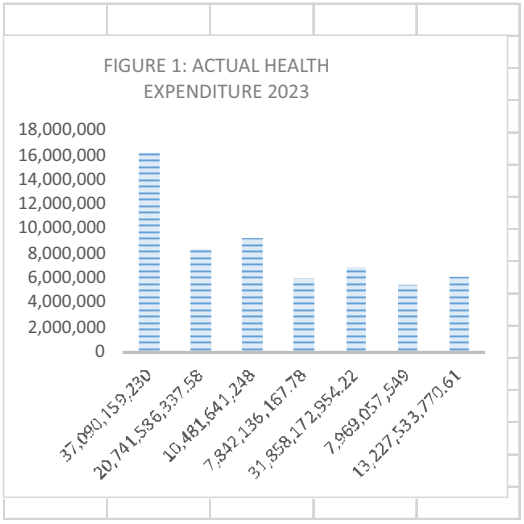
Jigawa met the recommended benchmark by dedicating 15.13% of its budget to health, whereas Katsina allocated merely 3.5% of its total budget to healthcare.

The average health expenditure per person in the region was approximately ₦2,195, with the overall average proportion of state budgets allocated to health around 8%. This figure falls substantially short of the 15% benchmark, reflecting differing state-level priorities and healthcare policies. States like Katsina and Kebbi, with their lower per capita spending, may encounter greater difficulties in providing equitable healthcare access, potentially worsening health disparities within the region.

Table 1: Health Expenditure by State

STATE	HEALTH EXPENDITURE (?)	POPULATION	Per Capita Health Expenditure (?)	% OF THE TOTAL BUDGET
KANO	37,090,159,230	16,253,549	2,281.97	10.59
KADUNA	20,741,586,337.58	8,324,285	2,491.70	5.58
KATSINA	10,481,641,248	9,300,382	1,127.01	3.50
KEBBI	7,842,136,167.78	6,001,610	1,306.67	7.57
JIGAWA	31,858,172,954.22	6,979,080	4,564.81	15.13
ZAMARA	7,969,057,549	5,517,793	1,444.25	6.47
SOKOTO	13,227,533,770.61	6,163,187	2,146.23	6.66

Source: Authors' computation



Out-of-Pocket Expenditure: Around 87.8% of households experienced out-of-pocket health expenses, with 59.1% reporting delays or forgoing medical care due to financial difficulties. Additionally, over 57.9% of respondents stated that they resorted to borrowing money or selling assets to cover healthcare costs. Importantly, more than 54% of individuals in the region reported spending over 10% of their income on healthcare expenses.

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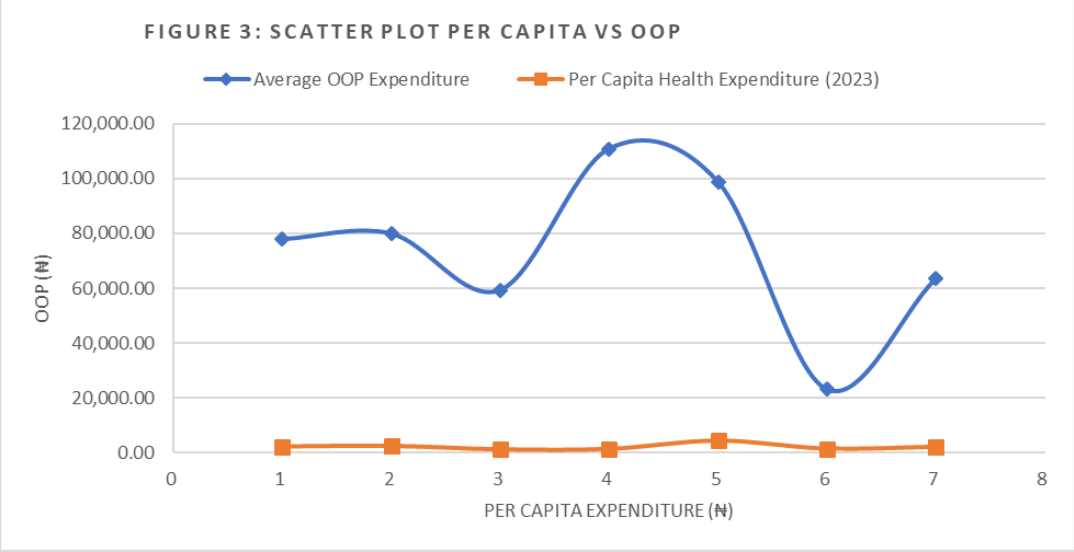
Table 2: Catastrophic Health Expenditure (CHE)

STATE	Average OOP Expenditure	Per Capita Health Expenditure (2023) (₦)	% of Income Spent on Healthcare	10% CHE Met?
KANO	77,872.34	2,282	15.07	YES
KADUNA	79,925.37	2,492	15.82	YES
KATSINA	59,333.33	1,127	13.33	YES
KEBBI	110,753.42	1,307	15.34	YES
JIGAWA	98,780.49	4,565	15.94	YES
ZAMARA	23,205.13	1,444	11.92	YES
SOKOTO	63,560.61	2,146	14.94	YES

Source: Authors' computation

OOP expenditures were the predominant mode of healthcare financing, with households spending an average of ₦73,347.24 annually on healthcare. This equates to 14.81% of household income, significantly exceeding the CHE threshold of 10%. As shown in Table 2, households in Jigawa experienced the highest financial burden, with out-of-pocket (OOP) expenditures constituting 15.94% of their income, followed closely by Kaduna at 15.82% and Kebbi at 15.34%. Zamfara recorded the lowest catastrophic health expenditure (CHE) at 11.92%, although this still exceeds the global benchmark. Figure 3 clearly illustrates a stark disparity between the average OOP expenditure and the average per capita health expenditure, emphasizing the significant financial strain placed on individuals due to heavy reliance on OOP payments in the region. The analysis highlights the substantial financial burdens households face, underscoring the urgent need to address these disparities to enhance healthcare access and financial protection for vulnerable populations.



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Health Insurance Coverage and Willingness to Pay: The implementation of the NHIA Act of 2022 has faced hurdles, resulting in limited health insurance coverage across the region. Among surveyed households, only 39.8% reported having health insurance, with rural areas showing significantly lower enrollment. Urban residents aged 35-44 had the highest coverage at 25.5%, while rural residents aged 18-24 had the lowest at 0.5%. Notably, urban Kano recorded the highest coverage (16.9%), whereas rural Kebbi had the lowest (0.5%). These disparities, detailed in Tables A7-A9, emphasize the urgent need to expand insurance access in rural communities. Gender disparities are also pronounced, with urban males exhibiting the highest coverage (46.7%) and rural females the lowest (1.5%). Overall, urban areas had a significantly higher coverage rate (50%) compared to rural areas (19%). Addressing this gap requires community-based insurance initiatives tailored specifically for rural populations.

Despite these challenges, willingness to enroll in government-sponsored health insurance schemes remains promising, with 62.8% of respondents expressing interest if schemes are affordable and well-managed. Rural females were the least willing (3.5%), likely due to socioeconomic barriers, while urban males showed the highest willingness (65.2%). Willingness was highest among urban residents aged 35-44 (31.1%), and among rural residents aged 25-34 (16.7%). Urban Kano residents exhibited the greatest willingness (22.0%), while rural Zamfara had the lowest (2.0%). These findings highlight the need for subsidized insurance plans and gender-sensitive outreach programs to boost participation, especially among rural women.

Regarding household size, healthcare costs, and travel time, all seven northwestern states showed similar patterns. The average household size is about five members, with some households comprising up to seven. Katsina has the smallest average household size, while Kebbi has the largest (~6 members). Zamfara residents face the longest travel times to healthcare facilities (average 37.4 minutes), compared to Kaduna (20.77 minutes), with a regional average of 26.6 minutes—indicating significant access barriers. Approximately 74% of rural households report difficulties accessing healthcare, compared to 24% in urban areas. Overall, 71% of households encountered barriers to healthcare access, and 85% received no financial assistance in the past year. Insurance coverage for healthcare costs averages 18.5% regionally, with Kano at 22% and Zamfara at just 4.9%.

Preferences for health insurance types vary by location, gender, and culture. Urban males predominantly prefer regular insurance (46.2%), while rural males favor Takaful (30.8%). Among urban residents aged 35-44, 18.7% prefer regular insurance, whereas rural communities show a stronger preference for Takaful, notably in Sokoto (11.1%) and Kano (13.6%). These differences underscore the importance of flexible insurance options that respect cultural and demographic preferences. Expanding awareness campaigns, integrating Takaful into the national framework, and offering flexible payment plans can improve coverage. Policymakers should consider regional and cultural differences to design inclusive and effective health insurance schemes.

Awareness of government health programs varies significantly between rural and urban populations. Urban males have the highest awareness (38.9%), while rural females have the lowest (1.5%). Awareness tends to increase with age, with the 35-44 age group showing the highest levels in both urban (19.2%) and rural (5.1%) areas. State-level disparities are evident, with Jigawa leading rural awareness (8.6%) and Kano the urban (22.0%). These findings highlight the need for targeted, state-specific strategies—such as tailored campaigns—to improve awareness and understanding of available healthcare programs, especially among younger, older, and rural populations.

The generalized logit regression analysis (Table 3) further explores the determinants influencing healthcare utilization in Northwestern Nigeria

Table 3: Logistic Regression Results for healthcare utilization

	B	S.E.	Wald	df	Sig.	Exp(B)
State of residence			19.064	6	.004	
Jigawa	1.305	.594	4.819	1	.028	3.688
Kaduna	1.493	.633	5.555	1	.018	4.450
Kano	2.012	.580	12.043	1	.001	7.478
Katsina	.764	.719	1.129	1	.288	2.146
Kebbi	2.019	.611	10.938	1	.001	7.532
Sokoto	1.444	.624	5.353	1	.021	4.239
Household size			12.457	6	.053	
1 person	2.139	1.640	1.700	1	.192	8.492
2-4 people	1.149	.510	5.075	1	.024	3.154
5-7 people	.349	.319	1.199	1	.274	1.418
More than 7 people	-.051	.338	.023	1	.880	.950
Constant	-3.145	.606	26.965	1	.000	.043

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Table 4: Goodness of Fit for the Logit regression

Variable	Model Log Likelihood	Change in -2 Log Likelihood	df	Sig. of the Change
State of residence	-273.465	24.545	6	.000
Household size	-267.829	13.272	6	.039

The results presented suggest that the fitted generalised logit regression model is significant with model loglikelihood statistic of -273.465 and -267.829 and p-value of less than 0.05 or both state of residence and household size respectively. Of the socio-econo-demorgrahic variables investigated, only state of residence and household size are significant predictors of healthcare utilization in this region.

4. CONCLUSION AND POLICY RECOMMENDATIONS

This study thoroughly analyzed healthcare utilization patterns and the out-of-pocket expenses faced by households in Nigeria's northwestern states. Employing an exploratory survey research approach, data were collected on socio-economic, demographic, and health-related factors influencing healthcare use. The research aimed to identify determinants of healthcare access and costs, verifying assumptions through statistical tools such as descriptive analysis, chi-square tests, and logistic regression.

Findings revealed that over 59% of households rely primarily on out-of-pocket payments for healthcare, with many lacking health insurance coverage. This aligns with global trends linking high out-of-pocket expenses to catastrophic health spending, increased poverty, and limited access to essential services. Many households reported spending more than 30% of their income on healthcare, often resorting to borrowing, asset sales, and reducing expenditures on basic needs like food and education.

Disparities along urban-rural and gender lines were evident. Urban households generally had better access, higher insurance coverage, and shorter travel times to health facilities. Rural households faced logistical challenges, limited infrastructure, and depended more on traditional healers or self-medication. To address these inequalities, expanding rural healthcare facilities, improving transportation, and deploying mobile health services are crucial. Financial incentives for health workers in remote areas and targeted measures to reduce financial burdens on rural populations are also necessary.

Policy recommendations include implementing state-level health insurance schemes as per the NHIA Act of 2022, with subsidized premiums for low-income and rural households. Recognizing Takaful as a formal insurance option and collaborating with community and religious organizations can enhance enrollment. Improving rural health infrastructure, transportation, and workforce incentives, alongside expanding access to subsidized medications and establishing emergency health funds, are vital. Additionally, increasing budgets for underfunded states like Katsina and Kebbi will help address regional disparities and promote equitable healthcare access

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Table 5: Average households size, healthcare costs and time spent to access facilities

In which state do you reside?		Households size	Income	Time to reach facility	From work to facility	Spent on healthcare	Percent spent on health	Cost covered by Insurance
Jigawa	Mean	4.93	109024.39	25.65	27.886	98780.49	15.94	15.897
	Std. Deviation	2.001	40334.963	15.3372	17.4121	76825.706	6.721	22.646
	Median	6	105000	20	20	75000	15	13
	Range	6	105000	50	50	195000	20	88
	Kurtosis	-1.587	-1.322	-0.06	-0.864	-1.623	-0.553	2.566
	Skewness	-0.241	-0.445	1.037	0.745	0.296	0.915	1.73
Kaduna	Mean	5.16	108750	20.772	24.007	79925.37	15.82	15.119
	Std. Deviation	1.784	38297.49	9.9744	13.9304	67028.333	5.813	24.3757
	Median	6	105000	20	20	75000	15	0
	Range	6	105000	50	50	195000	20	88
	Kurtosis	-1.424	-1.353	3.826	0.632	-0.795	0.455	3.061
	Skewness	-0.479	-0.349	1.7	1.198	0.784	1.161	1.967
Kano	Mean	5.35	118732.39	23.327	25.727	77872.34	15.07	21.989
	Std. Deviation	1.703	41146.842	13.5686	15.5481	65987.645	6.352	28.2882
	Median	6	150000	20	20	75000	15	13
	Range	6	105000	50	50	195000	20	88
	Kurtosis	-1.258	-0.852	0.869	-0.286	-1.001	0.475	0.392
	Skewness	-0.637	-0.914	1.267	0.957	0.703	1.287	1.278
Katsina	Mean	4.82	120000	22.722	24.667	59333.33	13.33	18.547
	Std. Deviation	2.269	37568.12	13.1515	13.9561	53815.763	4.395	22.4711
	Median	6	135000	20	20	25000	15	13
	Range	6	105000	50	50	195000	20	88
	Kurtosis	-1.275	-0.594	1.976	1.193	0.572	4.957	1.265
	Skewness	-0.576	-0.936	1.562	1.402	1.12	1.984	1.385
Kebbi	Mean	5.54	119794.52	28.596	28.851	110753.42	15.34	12.638
	Std. Deviation	1.784	40964.402	15.411	15.3062	74905.826	5.754	18.8808
	Median	6	150000	20	20	75000	15	0
	Range	6	105000	50	50	195000	20	88
	Kurtosis	-0.992	-0.783	-0.852	-0.786	-1.714	0.342	3.268
	Skewness	-0.819	-0.944	0.763	0.741	0.01	1.14	1.78
Sokoto	Mean	5.02	110227.27	28.75	26.5	63560.61	14.92	14.115
	Std. Deviation	2.138	38445.084	12.8471	15.6362	54644.059	5.512	18.1729
	Median	6	105000	20	20	25000	15	13
	Range	6	105000	50	50	195000	20	88
	Kurtosis	-0.822	-1.263	-0.446	-0.22	0.104	0.71	3.629
	Skewness	-0.839	-0.419	0.497	1.005	1.115	1.239	1.716

Source: Authors' computation