



Factors Associated With The Utilization Of Healthcare Services In Osun State; Implication For Enrolment Into Health Insurance Scheme

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ABSTRACT

Background: Millions of Nigerians are unable to access healthcare due to the high cost and lack of health insurance, resulting in significant out-of-pocket expenses. The government introduced health insurance to reduce financial hardship and move toward universal health coverage. This study aimed to determine the factors associated with the utilization of healthcare services in Osun State with implications for enrolling in the health insurance scheme.

Methods: This was an analytical cross-sectional study of 420 respondents selected using multi-stage sampling method. A structured interviewer-administered questionnaire was used to elicit data. Composite variables for healthcare service utilization were computed from the questionnaire and categorized as good or poor for both enrolled and non-enrolled respondents. Data analysis was done using IBM SPSS version 24 and $p \leq 0.05$ was taken as statistically significant.

Results: A significantly higher proportion of enrolled respondents utilized healthcare services compared to the non-enrolled (90.2%, $p < 0.001$). Good utilization among enrollees was associated with age 40–49 (34.1%, $p = 0.001$), higher income ($p = 0.004$), larger households ($p = 0.028$), and more dependents ($p = 0.054$). Among non-enrollees, age 30–39 (44.9%, $p = 0.002$) and larger households (74.5%, $p = 0.052$) also showed higher utilization. Income level significantly predicted utilization for both enrollees (OR = 6.875, CI = 1.056–44.778) and non-enrollees (OR = 2.579, CI = 1.111–5.987).

Conclusion: Health insurance enrollment improves access to healthcare and reduces financial burden. Lack of enrollment may worsen barriers to care. The government should expand coverage to include more workers and the broader population to achieve universal health coverage.

Key words: Predictors, Healthcare Services, Utilization, Implication, Enrolment, Insurance

1. INTRODUCTION

Health is a necessity and quality healthcare requires adequate finances.¹ “A good health financing system raises adequate funds for health so that people can use needed services, protected from financial catastrophe or impoverishment associated with having to pay for them. It provides incentives for providers and users to be efficient”¹.

Health services include all services dealing with the diagnosis and treatment of disease or the promotion, maintenance, and restoration of health. They include; personal and non-personal health services which are the most visible functions of any health system, both to users and the general public. Service provision refers to a combination of equipment, money, staff, and drugs to deliver appropriate health interventions. In providing healthcare for a country, various equity issues have been of concern about healthcare services, healthcare financing, utilization of services, privatization, and the state's role concerning equity in healthcare².

The World Health Organization (WHO) defines access to health as universal health coverage which means that all people have access to the health services they need, when and where they need them of sufficient quality to be effective, without financial hardship. The goal should include the full range of essential health services, from health promotion to prevention, treatment, rehabilitation, and palli-

active care and beyond to holistic improvement of well-being and quality of life³. The World Bank and WHO reported that at least half of the world's population still lacks access to essential health services. Thus, improving access, coverage, and quality of services depends predominantly on available resources, ways services are organized and managed, and incentives that influence either the providers or the users⁴.

Utilization of healthcare services is a complex behavioral phenomenon. Empirical studies have often found that preventive and curative services are related to the availability, quality, and cost of services, health beliefs, and users' characteristics. The major factors that contribute to the utilization of healthcare services are; socio-economic, demographic, level of knowledge, access, and quality factors. These factors are found to be interrelated and determine whether a healthcare service would be utilized or not^{5,6}.

Generally, healthcare utilization depends on age, gender, income status, social class, race, and socio-economic status. Furthermore, the level of income, health insurance coverage, or third-party payment whether or not the individual has a regular source of care and the accessibility of the source influence the utilization of healthcare services^{7,8}. The cost of health services and its impact are of great concern in many societies. With recent recessions, universal coverage being a main pillar of social cohesion and welfare is endangered, with profound implications on equity and financial protection¹. In Nigeria, Millions of people cannot use health services because they cannot afford to pay and often suffer financial hardship from such payments⁹.

To achieve universal health coverage, the Nigerian government in 2014 passed into law the National Health Bill to allow increased access to healthcare by all. Disappointingly, even with this law in place, many Nigerians still pay out of their pocket for medical expenses, thereby experiencing catastrophic health expenditure (CHE)⁶. Lack or inadequate health insurance coverage are important reason for high out-of-pocket health expenditures. About 97% of Nigerians are exposed to financial hardship of huge medical bills and among these are the less privileged and vulnerable groups. The WHO revealed in its 2010 report that a country can achieve financial protection, indicated by negligible levels of incidence of financial catastrophe when her out-of-pocket (OOP) payments fall to 15–20% of THE. However, OOP payment in Nigeria remains worrisomely high, as its proportion of total health and gross private health expenditure is still above 70 and 90% respectively¹⁰. There are many Public Health Insurance Programs offered by the Government that cover the cost of hospitalization for people below the poverty line (BPL), but their coverage is still not complete^{11,12}.

To ensure that there is effective demand for healthcare in Nigeria, the method of healthcare financing must have the ability to generate revenue for the health sector, ensure equity in the distribution of quality health packages, pool health risks together for the entire nation to reduce problems of income inequality, ensure efficiency in funding and managing the health sector and in addition ensure sustainability in healthcare funding^{13,14,15}. Healthcare should be made universally accessible without any form of barrier based on affordability, physical accessibility, or acceptability of services¹⁶.

For equitable access to healthcare in Nigeria, the government introduced the National Health Insurance Scheme (NHIS) as an alternative source of funding for a rapidly extending and increasingly costly healthcare system. Nigeria is still far below the UHC

(Universal Health Coverage) health insurance financing target of 90%, as its health insurance contribution to total health expenditure (THE) remains at an average of only 2%. The scheme is critical to achieving universal access to healthcare and reducing the financial burden of out-of-pocket payments particularly among the less well-to-do and the disadvantaged sectors of Nigerian society^{17,18}. The expectation is that paying for healthcare should not be a burden to households enrolled in the scheme as a result of the financial protection that the scheme confers^{19,20}. Nigeria's population is projected to increase from approximately 200 million people in 2019 to an estimated 400 million in 2050, and 733 million people by 2100 becoming the world's third most populous country after India and China, with an attendant increase in demand for health services²¹.

However, NHIS despite being operational in Nigeria since 2005, the uptake has remained low. The scheme currently covers less than 5% of the Nigerian population which is largely made up of Federal Government employees and their dependents. This implies that most of the vulnerable population, often marginalized, are left at the pitey of healthcare services which in most cases are not affordable²².

Promoting universal health coverage (UHC) has become a key policy focus globally and is now a target of the Sustainable Development Goals (SDGs). In recent years, the government has made significant efforts to improve access to healthcare for its citizens through the National Health Insurance Scheme (NHIS) and the State Health Insurance Schemes. However, despite these efforts, enrolment in the scheme remains unacceptably low at less than 5 percent. This low coverage rate is a cause for concern, particularly given the poor health indices and the threat it poses to achieving universal health coverage. The low level of enrolment can be attributed to complaints of poor quality of services by enrollees, thereby, threatening increased coverage and scaling up of the scheme due to loss of confidence by current and potential enrollees^{23,24}.

Conducting research in communities with such low enrolment rates in insurance schemes is crucial as it can provide valuable insights into the barriers that prevent people from enrolling in the scheme. Understanding these barriers can help policymakers develop targeted interventions to increase the uptake of health insurance schemes and improve access to healthcare, thereby acting as a positive driver towards achieving universal health coverage for all Nigerians.

This study aims to identify the predictors of the utilization of healthcare services as an implication for enrolment in health insurance schemes in Osun State, Nigeria.

2. MATERIALS AND METHODS

2.1 Description of Study Area

The study was carried out in Osun State, a state carved out of the old Oyo State which covers a landmass of about 14,875 square kilometers¹⁹. The state is divided into three senatorial districts namely Osun Central, Osun East, and Osun West, each comprising ten local governments (thus making thirty local governments and one area office located in Osun East senatorial district). According to the National Population and Housing census exercise conducted in 2006, Osun State is 2.448% of the total Nigeria population having a population of 3,423,535 people 25 with rural to urban ratio of 1.4:1 As of 2022, the projected population was

4,435,800 based on a 1.6% annual population change from 2006 to 2022. It has an infant mortality rate of 40 per 1000 live births, under-five mortality rate of 56 per 1000 live births, and a maternal mortality rate of 814 per 100,000 live births²¹⁻²³. There are 562 public health facilities (512 primary and 48 secondary health facilities and 2 tertiary health institutions). In addition, there are 345 private and 10 missionary health institutions¹⁹.

Only 5% of Osun State's population, approximately 260,000 has health insurance coverage through the NHIS. The Osun Health Insurance Scheme is an agency of the state government established in 2018 and currently has over 150,000 enrollees excluding the 111,698 enrollees on the social register that are still being validated across the state. OHIS is currently in partnership with about 432 health facilities across Osun State comprising of 332 focal primary healthcare facilities, 17 public and 82 accredited private healthcare facilities²¹⁻²³.

2.2 Research Design

An analytical cross-sectional design was employed to determine the predictors of healthcare services utilization in Osun State and explore its implication for enrolment into the health insurance scheme.

2.3 Study Population

The study population comprised of employees within the public sector (federal and state government service) who represented enrollees while non-enrollees were either self-employed or those recruited from private sectors.

Enrollees inclusion criteria were registered clients with either the national or state health insurance scheme who had been receiving care for at least one year while public servants who are or whose spouses are medical personnel were also excluded. Non-enrollees with at least one year experience in a job were recruited to participate in the study but those who are or whose spouses are medical personnel were also excluded.

2.4 Sample Size Determination

The sample size was determined using the formula () for comparison of two independent proportions²⁷.

Z =Standard normal deviate corresponding to the confidence level for this study, at 95% equals 1.96, Z =Standard normal deviate corresponding to the power of the test to detect a difference between the groups, at 90% equals 1.28, P_1 =Prevalence of utilization of healthcare services among enrollees of NHIS (74.7%)²⁸, P_2 =Prevalence of utilization of healthcare services among non-enrollees (58.9%)²⁹, P_0 = Means of the 2 prevalence in the 2 comparison groups i.e. $(P_1 + P_2) / 2$, d = Difference between P_1 and P_2 ($P_1 - P_2$)

The minimum sample size calculated after adjusting for an envisaged 10 percent non-response was 210 respondents for each study group. Thus, a total of 420 respondents participated in the study.

2.5 Sampling Technique

The respondents were selected using a multi-stage sampling technique.

In stage one, simple random sampling method (balloting) was used to select one-third of the total number of ministries and parastatals in the state. In stage two, a proportionate allocation was done to select respondents based on their respective population size. A simple random sampling method by balloting was done at

stage three to select the first respondent from each of the selected ministries and agencies while subsequent respondents who met inclusion criteria were recruited by systematic sampling technique using a calculated sampling interval.

2.6 Pretest and Data Collection

Data was collected using a pretested, structured, and interviewer-administered questionnaire. The questionnaire was designed to seek information about the respondents' socio-demographic status, knowledge of health insurance, types and level of healthcare services utilized and factors associated with utilization. The questionnaires were pre-tested among fifty employees in Ogbomosho, Oyo State. They were categorized into two groups based on their enrolment status into enrolled and non-enrolled respondents, with each group allotted 25 questionnaires. Four postgraduate students who are junior residents in the Department of Community Medicine, Osun State University, Osogbo, were recruited and trained as research assistants to administer the questionnaire. The internal consistency of the questions was tested with Cronbach's alpha which yielded 0.85, signifying that the items exhibit strong reliability. All necessary corrections and modifications to questions and options of responses were made before the final administration of questionnaires to respondents.

2.7 Data Management and Analysis

Data was analyzed using IBM Statistical Product and Service Solutions (SPSS) version 24 software and presented using frequency distribution tables and charts. Univariate analysis was conducted to generate frequencies of variables.

There were open and close ended questions to measure health services utilization from both physician's and patient's perspective. Each appropriate response was scored 1 point and an inappropriate response was scored 0. The sum of the scores for individual respondents were calculated, and the mean of all the scores was determined. Using selected variables based on literature, the respondents who scored up to and above the mean were categorized as having made "good" utilization of healthcare services while those who scored up to, or below the mean were categorized as having made "poor" utilization.

Bivariate analysis (Chi-square test and Fischer's exact test) was employed to describe associations between categorical variables. Multivariate analysis was done using binary logistic regression to examine the predictors of knowledge of health insurance and healthcare services utilization. The level of significance was set at a p-value less than or equals 0.05

2.8 Ethical Consideration

The respondents were duly informed about the nature of the study and that participation was voluntary. Written informed consent was obtained while confidentiality was ensured throughout the stages of data collection and statistical analysis using just serial numbers to replace name identifiers. Ethical approval was obtained from the ethics and research committee of UniOsun Teaching Hospital, Osogbo (Protocol Number: UTH/REC/2021/12/1087)

2.9 Data Availability Statement

The dataset that supports the findings of this study is freely available at the Open Science Framework (OSF) repository at <https://doi.org/10.17605/OSF.IO/JEV4C>

3. RESULT

Table 1: Socio-Demographic Characteristics of the Respondents by Their Enrollment Status. (N=420)

Variables	Enrollment Status (%)			Chi-square (χ^2)	df	p-value
	Enrollee n= 210	Non-Enrollee n= 210	Total N=420			
Age (Years)						
20-29	8 (3.8)	23 (10.9)	31 (7.4)	11.165	3	0.025*
30-39	70 (33.3)	75 (35.7)	145 (34.6)			
40-49	74 (35.2)	69 (32.9)	143 (34.0)			
≥ 50	58 (27.7)	43 (20.5)	101 (24.0)			
Mean =	43.3 ± 8.68	40.9 ± 9.44				
Gender						
Male	147 (70.0)	122 (58.1)	269 (64.0)	6.462	1	0.011*
Female	63 (30.0)	88 (41.9)	151 (36.0)			
Religion						
Christianity	150 (71.4)	156 (74.3)	306 (72.9)	2.171	3	0.538
Islam	58 (27.6)	52 (24.8)	110 (26.2)			
Traditional	1 (0.5)	2 (0.9)	3 (0.7)			
Others (Grail Movement)	1 (0.5)	0 (0.0)	1 (0.2)			
Ethnicity						
Yoruba	197 (93.8)	199 (94.8)	396 (94.3)	5.400	3	0.145
Igbo	4 (1.9)	7 (3.3)	11 (2.6)			
Hausa/Fulani	6 (2.9)	4 (1.9)	10 (2.4)			
Others	3 (1.4)	0 (0.0)	3 (0.7)			
Marital status						
Married	192 (91.4)	181 (86.2)	373 (88.8)	9.798	4	0.044*
Single	13 (6.2)	22 (10.5)	35 (8.3)			
Divorced	0 (0.0)	3 (1.4)	3 (0.7)			
Widowed	4 (1.9)	1 (0.5)	5 (1.2)			
Separated	1 (0.5)	3 (1.4)	4 (1.0)			
Level of Education						
Secondary	4 (1.9)	8 (3.8)	12 (2.9)	1.373	1	0.241
Tertiary	206 (98.1)	202 (96.2)	408 (97.1)			
No of Biological Children						
< 3 Children	136 (64.8)	139 (66.2)	275 (65.5)	0.096	2	0.953
3-5 Children	73 (34.8)	70 (33.3)	143 (34.0)			
> 5 Children	1 (0.5)	1 (0.5)	2 (0.5)			
HouseHold Size						
1-3	29 (13.8)	32 (15.2)	61 (14.5)	0.331	2	0.847
4-6	155 (73.8)	155 (73.8)	310 (73.8)			
7-10	26 (12.4)	23 (11.0)	49 (11.7)			

* Statistically significant association

A total of four hundred and twenty questionnaires were administered and completely retrieved and analyzed giving a response rate of one hundred percent. Two hundred and ten questionnaires (210) were administered each to enrollees and non-enrollees of the health insurance schemes in Osun State.

3.1 Sociodemographic Characteristics of Respondents

Table 1 presents the socio-demographic characteristics of the respondents by enrolment status. The respondents' ages ranged from 25 to 60 years, with a mean age of 43.3 ± 8.68 years among enrollees and 40.9 ± 9.44 years among non-enrollees. In both groups, the highest proportion of respondents were found within the age group 30 – 39 (34.6%) while the lowest was among those who were less than 30 years. The bivariate analysis of the association between the variables and enrolment status showed that the enrollees and non-enrollees showed a statistically significant difference across age categories ($p=0.025$). The gender distribution of respondents was such that 269 (64.0%) were males with 151 (36.0%) females. The distribution of respondents by marital status shows that 192 (91.4%) of enrolled respondents were married compared with 181 (86.2%) of non-enrollees. The proportion of enrollees was significantly higher among male respondents (70%) and respondents who were married (91.4%). The table shows that 295 (65.5%) had less than 3 biological children while 143 (34.0%) had between 3 – 5 children.

From table 2, a significantly higher proportion of enrolled respondents (71.4%) accessed government-owned health facilities compared to 38.6% of non-enrollees. Meanwhile, 24.3% of enrollees and 30.0% of non-enrollees used private health facilities. Almost all respondents in both groups reported availability and accessibility of medical services (99.0% of enrollees and 98.1% of non-enrollees), including surgical and diagnostic/laboratory services. More than half of enrollees (51.9%) routinely visited health facilities when ill, whereas only 1.4% of non-enrollees did the same. On the contrary, 17.6% of non-enrollees and 2.9% of enrollees sought care only during complications.

Healthcare utilization was generally higher among enrollees, with 66.2% visiting health facilities 3–4 times in the last three months, compared to just 16.2% of non-enrollees. In contrast, 67.6% of non-enrollees visited a facility only once or twice, while 9.5% of them had not used any health facility in the past three months (compared to none among enrollees). Enrollees (100%) made only copayments from personal savings, whereas 90.4% of non-enrollees bore the full cost from personal funds. Other payment strategies among non-enrollees included borrowing (6.7%), partial or deferred payments (2.4%), and property sales (0.5%). More non-enrollees (59.4%) than enrollees (51.3%) rated healthcare workers' attitudes as good, and 81.5% expressed satisfaction with the quality of care, compared to 69.5% of enrollees. Most respondents in both groups had never been referred, though

Table 2: Healthcare Services Utilization Pattern by Enrollment Status

Variable	Enrolment Status		Total (420)	X ²	p-value
	Enrollee n (%)	Non-Enrollee n (%)			
Healthcare Facility Ownership					
Privately Owned	51 (24.3)	63 (30.0)	114 (27.1)	65.194	<0.001*
Government	150 (71.4)	81 (38.6)	231 (55.0)		
Both	9 (4.3)	66 (31.4)	75 (17.9)		
Types of Services ##					
Medical	208 (99.0)	206 (98.1)	414 (98.6)	3.007	0.222
Surgical	193 (91.9)	112 (53.3)	305 (72.6)	69.561	<0.001*
Diagnostic/Laboratory	204 (97.1)	165 (78.6)	369 (87.9)	33.936	<0.001*
Vaccination	47 (22.4)	73 (34.8)	120 (28.6)	16.372	<0.001*
Reasons for Use					
Complications	6 (2.9)	37 (17.6)	43 (10.2)	178.058*	<0.001*
Ill Health	67 (31.9)	143 (68.1)	210 (50.0)		
Ill Health, Access to Services	3 (1.4)	0 (0.0)	3 (0.7)		
Ill Health, Attitude of HCWs	2 (1.0)	0 (0.0)	2 (0.5)		
Ill Health, Available Fund	1 (0.5)	18 (8.6)	19 (4.5)		
Specialty Clinic Appointment	12 (5.7)	2 (1.0)	14 (3.3)		
Routine	10 (4.8)	7 (3.3)	17 (4.0)		
Routine, Ill Health	109 (51.9)	3 (1.4)	112 (26.7)		
Frequency of Hospital Visits (Within the Last 3 Months)					
None	0 (0.0)	20 (9.5)	20 (4.8)	122.066	<0.001*
1-2	56 (26.7)	142 (67.6)	198 (47.1)		
3-4	139 (66.2)	34 (16.2)	173 (41.2)		
≥ 5	10 (4.8)	6 (2.9)	16 (3.8)		
No response	5 (2.4)	8 (3.8)	13 (3.1)		
Mean	(2.9 + 1.0)	(1.7+ 1.2)			
Commonest Means of Transportation					
Public Transport	130 (63.4)	122 (58.4)	252 (60.9)	10.496	<0.015*
Privately Owned car	72 (35.1)	71 (34.0)	143 (34.5)		
Motorcycle	3 (1.5)	8 (3.8)	11 (2.7)		
Others (e.g. Trekking)	0 (0.0)	8 (3.8)	8 (1.9)		
Transportation Cost (Naira)					
<500	69 (33.8)	64 (33.7)	133 (33.8)	9.610	<0.022*
500 – 1000	107 (52.5)	109 (57.3)	216 (54.8)		
>1000	26 (12.7)	10 (5.3)	36 (9.1)		
Cannot Remember	2 (1.0)	7 (3.7)	9 (2.3)		
Waiting Time					
Less than 30mins	103 (49.5)	77 (37.0)	180 (43.3)	7.868	<0.020*
30 min. – 1 hr.	85 (40.9)	98 (47.1)	183 (44.0)		
Greater than 1hr	20 (9.6)	33 (15.9)	53 (15.9)		
Mode of Payment for Services					
Personal Savings	210 (100.0)	190 (90.4)	400 (95.3)	21.000*	<0.001*
Borrowed Money	0 (0.0)	14 (6.7)	14 (3.3)		
Sell Properties	0 (0.0)	1 (0.5)	1 (0.2)		
Others (Defer Payments, Make Part Payments)	0 (0.0)	5 (2.4)	5 (1.2)		
Rating of Healthcare Workers' Attitude					
Excellent	21 (10.3)	7 (3.4)	28 (6.8)	11.593	<0.009*
Good	104 (51.3)	123 (59.4)	227 (55.3)		
Fair	62 (30.5)	69 (33.3)	131 (32.0)		
Poor	16 (7.9)	8 (3.9)	24 (5.9)		
Satisfaction with Quality of Care					
Yes	146 (69.6)	171 (81.5)	317 (75.5)	13.335	<0.001*
No	40 (19.0)	15 (7.1)	55 (13.1)		
Indifferent	24 (11.4)	24 (11.4)	48 (11.4)		
Past Hospital Referral					
Yes	23 (11.0)	20 (9.5)	43 (10.2)	0.233	<0.629
No	87 (89.0)	190 (90.5)	377 (89.8)		
Experience of Challenges					
Yes	91 (45.5)	150 (72.1)	241 (59.1)	28.873	<0.001*
No	109 (54.5)	58 (27.9)	167 (40.9)		

* Statistically Significant

+ Likelihood ratio

Multiple response

---Category totals may vary due to missing responses from some participants.

the proportion was slightly higher among non-enrollees (90.5%) than enrollees (89.0%). Lastly, 72.1% of non-enrollees reported experiencing challenges or barriers in accessing care, significantly

more than 45.5% of enrollees.

3.2 Level of Utilization of Healthcare Services

Table 3: Utilization Level of Healthcare Services by Enrollment Status.

Utilization of Healthcare Services	Enrolment Status		Total N=407	Chi-Square	df	p-value
	Enrollee n=205	Non-Enrollee n= 202				
Good	185(90.2)	98 (48.5)	283(69.5)	83.631	1	<0.001*
Poor	20 (9.8)	104 (51.5)	124(30.5)			

*Yates continuity correction for a 2x2 cross-tabulation.

Table 3 shows the overall level of utilization of healthcare services by enrollment status. After scoring of outcome variables for utilization of healthcare services, 90.2% and 48.5% of enrollees and non-enrollees respectively made good utilization. Only 9.8% of enrollees and 51.5% of non-enrollees respectively made poor utilization of these services. The difference in utilization rate between the two groups with respect to good utilization is statistically significant ($p < 0.001$).

3.3 Association Between Respondents' Characteristics and the Utilization of Healthcare Services

Table 4 shows the association between respondents' characteristics and the utilization of healthcare services.

Among non-enrolled respondents, age and household size showed significant associations with healthcare service utilization. For both enrolled and non-enrolled respondents, utilization was significantly associated with age ($p=0.001$ and $p=0.002$ respectively). Participants' income was statistically significantly associated with utilization of health care services among enrollees ($p=0.004$). However, this association was not statistically significant among non-enrollees ($p=0.133$).

Respondents in households of 4–6 members had the highest utilization (74.5%), with a marginally significant p-value ($p=0.052$) among non-enrollees while (74.1%) also demonstrated better service use at a statistical significance, $p=0.028$.

Interestingly, all non-enrollees who utilized healthcare services well reported experiencing barriers. Unlike non-enrollees, enrolled respondents with fewer barriers and longer enrolment duration tended to report better utilization, though not all associations reached statistical significance. Overall, insurance enrollment appears to enhance service uptake across more socio-demographic groups, especially among higher-income and middle-aged individuals.

3.4 Predictors of Utilization Among Respondents

Tables 5 and 6 present the results of predictors of healthcare services utilization among enrollees and non-enrollees, respectively using a logistic regression model. The level of income was a significant predictor of healthcare services utilization among both enrollees ($p = 0.044$) and non-enrollees ($p = 0.027$).

Male enrolled respondents are about five times more likely than females to utilize healthcare services, and those whose level of income is greater than eight were six times more likely to use the services than those with lower grade levels. Also, enrolled respondents who were older than 40 years were less likely to have utilized healthcare services than those aged less than or equal to 40 years (Table 5).

Non-enrolled respondents whose grade level is greater than 8 were two and half times more likely to utilize healthcare services than those with lower grade levels. Likewise, non-enrollees with household sizes greater than four were about half times less likely to utilize healthcare services. (Table 6)

4. DISCUSSION

This study examined the factors associated with healthcare services utilization in Osun State as a possible implication for enrollment in the health insurance scheme. The relationship between healthcare utilization and enrollment in health insurance schemes can be complex, and both factors likely influence each other. When individuals utilize healthcare services under an insurance scheme and have a positive experience, they're more likely to enroll or continue their enrollment. Enrollment in a health insurance scheme can increase access to healthcare services, leading to higher utilization rates.

Age, gender and level of income were significant socio-demographic predictors for healthcare services utilization among enrollees, while household size and level of income significantly predict the same among non-enrollees of the health insurance schemes. The findings of this study in the multivariate analysis revealed that age is a predictor of utilization of healthcare services among the enrolled participants. Enrollees older than 40 years were less likely to have consumed healthcare services than those much younger. This finding is similar to that reported by Abel on Level and Correlates of Health Insurance Coverage in Nigeria, where it was found that older individuals had increased odds of health insurance coverage among low and middle-income individuals in Nigeria³⁰. Another study conducted among migrants in Kenya found that there is a positive relationship between age and health insurance ownership, where an increase in migrant age by a year increases the likelihood of using health insurance services³¹. This relationship could be explained by the fact that older individuals are the ones who are mostly employed and retained in the formal sector compared to the younger population in Nigeria; this might make them more likely to be enrolled in government and employer-financed health insurance schemes³².

Our study found that a higher proportion of males made good utilization of healthcare services compared with females among both enrolled and non-enrolled respondents. This is similar to the findings of Amu and Erinoso, having more males with health insurance plans than females (11.6% and 7.7% then 3.1% and 1.1% respectively^{33,34}). These studies conducted in Nigeria which revealed a trend where men are utilizing healthcare services at a higher rate than women, is troubling as it may indicate that women face barriers to accessing necessary medical care. Gender equality in access to health services is not only a matter of fairness but also crucial for the overall well-being of the population.

Similarly, income and household size were notable predictors of healthcare service utilization. Respondents on grade levels higher than eight were more than six times more likely to utilize healthcare services than those on lower grade levels among the enrolled. This is similar to the findings in a study conducted by Ibok on Socio-economic and Demographic Determinants of Health Insurance Consumption in Akwa Ibom State, where respondents

Table 4: Association Between Respondents' Characteristics and the Level of Utilization of Healthcare Services

Variables	Utilization of Healthcare Services by Non-Enrolled Respondents			Utilization of Healthcare Services by Enrolled Respondents		
	Good (n=98)	Poor (n=104)	Statistics	Good (n=185)	Poor (n=20)	Statistics
Gender			$\chi^2=3.194$			$\chi^2=2.649$
Male	50 (51.0)	66 (63.5)	df=1	134 (72.4)	11 (55.0)	df=1
Female	48 (49.0)	38 (36.5)	p=0.074	51 (27.6)	9 (45.0)	p=0.104
Age (Years)						
20 – 29	2 (2.0)	17 (16.3)		4 (2.2)	3 (15.0)	
30 – 39	44 (44.9)	30 (28.8)	$\chi^2=15.240$	60 (32.4)	7 (35.0)	$\chi^2=***16.307$
40 – 49	35 (35.7)	34 (32.7)	df=3	63 (34.1)	10 (50.0)	df=3
≥ 50	17 (17.3)	23 (22.1)	p=0.002*	58 (31.4)	0 (0.0)	p=0.001*
Income (Grade Level)						
1 – 7	20 (20.4)	22 (21.2)	$\chi^2=3.958$	22 (12.1)	9 (45.0)	$\chi^2=10.938$
8 – 12	72 (73.5)	67 (64.4)	df=2	140 (75.8)	7 (35.0)	df=2
13 – 16	6 (6.1)	15 (14.4)	p=0.133	21 (12.1)	4 (20.0)	p=0.004*
Level of Education						
Lower	4 (4.1)	22 (1.9)	$\chi^2=0.816$	4 (2.2)	0 (0.0)	$\chi^2=0.441^{**}$
Higher	94 (95.9)	102 (98.1)	df=1	181 (97.8)	20 (100.0)	df=1
			p=0.366			p=0.507
Household Size						
1– 3	10 (10.2)	17 (16.3)	$\chi^2=5.915$	22 (11.8)	6 (30.0)	$\chi^2=7.184$
4 – 6	73 (74.5)	81 (77.9)	df=2	137 (74.1)	14 (70.0)	df=2
7 – 10	15 (15.3)	6 (5.8)	p=0.052*	26 (14.1)	0 (0.0)	p=0.028*
Waiting Time						
≤30minutes	50 (50.8)	23 (22.2)	$\chi^2=2.804$	94 (50.8)	8 (44.4)	$\chi^2=0.266$
>30minutes	48 (49.2)	81 (77.8)	df=1	91 (49.2)	10 (55.6)	df=1
			p=0.094			p=0.606
Experience of Barrier						
More	98 (100)	102 (98.1)	$\chi^2=**1.903$	1 (0.5)	0 (0.0)	$\chi^2=0.077^{**}$
Less	0 (0.0)	2 (1.9)	df=1	162 (99.5)	14 (100.0)	df=1
			p=0.168			p=0.782
Years of Enrolment						
≤5years	NA	NA	NA	33 (17.8)	5 (25.0)	$\chi^2=0.613$
>5years				152 (82.2)	15 (75.0)	df=1
						p=0.434
Number of Dependents						
< 3				36 (19.6)	8 (40.0)	$\chi^2=5.824$
3 – 5	NA	NA	NA	129 (70.1)	12 (60.0)	df=2
> 5				19 (10.3)	0 (0.0)	p=0.054*

* Statistically significant association **Fisher's exact test used

***Likelihood ratio

NA= (Not Applicable)

with higher income levels showed higher odds of seeking biomedical treatments³⁵. Higher income is a significant predictor of increased utilization of healthcare services. Individuals with higher levels of income are more likely to seek medical attention when needed, as they have the financial means to access and afford healthcare services. A rise in income increases the desire to purchase more health insurance, to get better quality healthcare services³⁶. This highlights the importance of addressing economic disparities to improve overall health outcomes. This may further be attributed to the person's use of healthcare services, which typically increases along with his or her income, creating a demand for insurance to safeguard the income potential of the insured³⁵.

In this study, an overall higher prevalence of good utilization of healthcare services was observed among respondents who are enrolled in a health insurance scheme compared with those with no health insurance coverage. A similar observation was reported in some Nigerian studies and also in Tanzania, Gabon, and Pakistan, where membership in health insurance has been linked with good utilization of health services. Increased prenatal and intrapartum utilization of services and an increase in the number of hospital visits of insured children, respectively, were observed upon implementation of healthcare insurance^{37, 38, 39}.

More so, NHIS enrolment has been shown to cause improvement

in maternal healthcare utilization, thereby increasing the percentage of children whose mothers obtained at least four antenatal visits and skilled healthcare services. A study conducted to review NDHS identified a positive association between higher income and larger household size with increased utilization of healthcare services and identified factors influencing healthcare utilization in the country³⁰. Larger household size has also been linked to greater use of healthcare services. Larger households may face a greater burden of illness and therefore require more frequent medical attention⁴⁰.

Overall, these findings underscore the importance of addressing socioeconomic factors when seeking to improve healthcare utilization in Nigeria. By understanding how income and household size impact access to healthcare, policymakers can develop targeted interventions to reduce barriers and ensure equitable access for all individuals. Efforts must be made to address these disparities to promote better overall health outcomes for all Nigerians towards achieving universal health coverage.

A key limitation of the findings from this research is the potential influence of unmeasured variables such as cultural beliefs, geographic location, and quality of healthcare services, which may also significantly impact access to healthcare. The cross-sectional nature of the study would not have allowed the assessment of true

Table 5: Predictors of Utilization Among Enrolled Respondents.

Indices					
Variables	Categories of Variables	p -value	Odds Ratio	95% Confidence Interval	Lower Upper
Age	≤ 40	0.045*	0.259	0.069	0.969
	> 40				
Gender	Female	0.037*	5.452	1.108	30.704
	Male				
HouseHold Size	≤ 4	0.111	0.367	0.161	4.550
	> 4				
Year of Enrolment	≤ 5	0.855	0.856	0.161	4.550
	> 5				
Level of Income	≤ 8	0.044*	6.875	1.056	44.778
	> 8				
Waiting Time (minutes)	≤ 30	0.345	1.711	0.561	5.216
	> 30				
Number of Dependents	≤ 3	0.216	0.426	0.110	1.646
	> 3				
Marital Status	Single	0.732	1.429	0.185	11.042
	Married				

* Statistically Significant Association

temporal relationships between the exposure variables and utilization of health services. Future study is therefore suggested to address the possible relationship between income, household size, and healthcare

4.1 Conclusion

Socio-demographic factors such as age, gender, level of income, and household size were significant predictors of utilization of healthcare services. These socio-demographic factors were further deepened by registration with the health insurance scheme. The National Health Insurance Scheme and the State Health Insurance Scheme have been found to facilitate access and utilization of quality healthcare services while also impacted positively on healthcare funding through a considerable reduction in huge medical bills and relieving catastrophic spending by minimizing out-of-pocket expenditure on such services. However, the government must expand its scope in terms of coverage by accommodating other tiers of its workers and the general population to meet the overall objectives of the scheme towards achieving universal health coverage.

Recommendation

It is essential to delve deeper into the factors responsible for the observed discrepancies and work towards addressing any system-

ic issues preventing participants from seeking and receiving adequate healthcare. The findings of this study should serve as a call to action for policymakers, healthcare providers, and communities to prioritize equal access to healthcare for all individuals, regardless of age, sex, and economic status. To boost income and thereby improve healthcare utilization in Nigeria, various stakeholders must take targeted actions. The government should implement social protection schemes, invest in vocational education, and improve rural infrastructure. NGOs are encouraged to provide skills training, financial literacy programs, start-up support for income-generating activities, and help communities form cooperatives. Communities can establish microfinance groups and organize vocational training using communal spaces. Households should diversify income sources, participate in savings schemes, and run small home-based businesses. Lastly, individuals are encouraged to acquire marketable skills and practice sound financial management. Through concerted efforts, we can begin to bridge this gap and ensure that both men and women have equal opportunity to receive the medical attention they need while encouraging Nigerians to enroll in health insurance schemes.

Contributor Roles Taxonomy (CRediT) Statement

Faramade IO: Conceptualization, Methodology, Drafting of data instrument, Data Curation, Statistical Analysis, Writing – Original

Table 6: Predictors of Utilization Among Non-Enrolled Respondents

		Indices			
Variables	Categories of Variables	p-value	Odds Ratio	95% Confidence Interval	Lower Upper
Age	≤ 40				
	> 40	0.940	0.972	0.457	2.066
Level of Income	≤ 8				
	> 8	0.027*	2.579	1.111	5.987
Household Size	≤ 4				
	> 4	0.039*	0.445	0.207	0.959
Gender	Male				
	Female	0.062	0.552	0.295	1.031
Marital Status	Single				
	Married	0.283	0.570	0.204	1.592
Level of Education	Lower				
	Higher	0.841	1.217	0.179	8.258
Occupation	Semiskilled				
	Professional	0.925	0.961	0.419	2.205

* Statistically Significant Association

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Adeoye OE: Methodology, Data Cleaning, Data Curation, Statistical Analysis, Writing –Original draft, Writing – review and editing

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