



# Factors Influencing Utilization of Health Insurance in a Tertiary Hospital in Southeast Nigeria

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

**Aims:** Sixteen years after the formal sector social health insurance program (FSSHIP) was introduced for the federal civil service in Nigeria. However, there is the paucity of information on how this has affected the level of utilization and satisfaction of the enrollees in Southeast Nigeria. To evaluate the health services utilization among enrollees and their satisfaction with the scheme.

**Methods:** Data were analyzed using SPSS version 25. Descriptive statistics-logit models were used to investigate the factors influencing the satisfaction and utilization of health insurance in a tertiary hospital.

**Results:** The mean age of respondents was 34.0±13.4 years. The program improved the utilization of health insurance services for 60.0% of respondents. However, they have low satisfaction at 36.6% with health service delivery. Factors responsible were long waiting time (80.6%), and payment of extra cost (61.0%), with 36.0% having catastrophic health expenditure. The chi-square value of 29.3,  $p = 0.02$ ,  $df = 4$  showed a significant association between these variables and poor utilization. Logistic regression showed, females and the married, were more likely to use health

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services (AOR 2.21,  $p = 0.02$ , 95% CI 1.03-2.17 and AOR 4.18,  $p=0.02$ , 95% CI; 0.11- 4.60 respectively).

**Conclusion:** FSSHIP had some positive effects in increasing the utilization of health care. However, the low level of satisfaction in the scheme is a cause for attention for both the HMO's and the NHIS regulators. The variables causing this should be mitigated. The operators can leverage these factors that increase utilization through public enlightenment.

**Keywords:** Health insurance; utilization; satisfaction; out-of pocket payments; coverage of care: Nigeria.

## 1. INTRODUCTION

The efforts aimed at addressing unacceptably high out-of-pocket payments (OOPs) for health care with its attendant poor National health indices, led to the establishment of the National Health Insurance Scheme, (NHIS) 16 years ago. It is a social security prepayment system which provides financial risk protection [1,2]. Since then only formal sector social health insurance (FSSHIP), catering for the federal civil service has been operational, with low coverage of about 4-5% [1,2].

Out-of-pocket payment constitutes a larger share of total health expenditure in Nigeria, ranging from 65 – 72%. The contributions of NHIS to health funds remain low at about 2% of overall expenditure on health [3-5]. This is also challenged by low awareness and acceptance, poor managerial and regulatory function and non-comprehensive benefit packages [6-8].

The evidence on utilization of health insurance services is mixed. Some reported no higher utilization among the enrollees, while some noted higher utilization, especially in outpatient care. The determinant of utilization show that elderly females with young children, more educated persons and higher income groups are more likely to utilize health insurance [6,7,9-11].

The service satisfaction by clientele has been low. They are still experiencing catastrophic expenditure and displeasure with care contrary to the aim of the scheme [8]. However, health insurance has been shown in other clime to reduce catastrophic health expenditure with higher satisfaction [12,13]. The reasons for low satisfaction in this environment include non-comprehensive coverage of care. These have heavy cost implications on clients [8,14,15].

The gap therefore is, that although the NHIS was ratified in Nigeria 16 years ago; in Enugu the coverage and quality of healthcare is suboptimal [16,4] the study aims to investigate the utilization

and satisfaction level of the enrollees in the scheme.

## 2. METHODS

### 2.1 Study Design

The study was a cross-sectional survey that was conducted from October 2018 to April 2019 at the University of Nigeria Teaching Hospital (UNTH), Enugu in Southeast Nigeria. UNTH is a premier tertiary health institution in Nigeria and serves as National Cardiothoracic Center of Excellence and provides multispecialty care. It is accredited by NHIS as a service provider and health management organization (HMO).

A standardized self - self-administered questionnaire was used for data collection among adults attending the General Outpatient Department (GOPD) and the Staff of UNTH. A convenience consecutive sampling was undertaken to recruit 120 of the respondents in equal proportions of 60 enrollees and 60 non-enrollees using Fisher's formula [17].

The minimum sample size (n) was calculated thus.

$$n = z^2 (pq) / d^2$$

Where

n = minimum sample size,

z = 95% confidence interval i.e. (1.96)

P = median prevalence of coverage (7.0 %), [18]

d = level of precision (0.05)

q = 1-p; so,  $n = 1.96^2 \times 0.07(0.93) / 0.05^2$ ,

n= 100 subjects.

The final value of 120 was used to cover attrition and subgroup analysis.

## 2.2 Conceptual Framework

The conceptual framework for health services utilization was by Andersen [19]. It postulates that health services utilization is an interaction of three categories namely, individual' predisposition for health services, their level of need, and the presence of factors that enable the use. These determine the individual's utilization status.

## 2.3 Data Analysis

Statistical analysis of all data collected was done using Statistical Package for Social Sciences (SPSS) Version 25.0 Descriptive statistics was presented as both mean and Standard deviation (SD) for continuous variables or percentages for discrete variables. Chi-squared ( $\chi^2$ ) was used to test comparable categorical variables while Student's t-test was used for continuous variables. A value of  $p < 0.05$  was considered statistically significant.

The strength of the relationship between dependent variables; utilization and independent variables such as socioeconomic, demographic and facility level factors were analyzed by Pearson's correlation using the logistic regression analysis.

## 3. RESULTS

There were 60 enrollees and 60 non- enrollee respondents that participated in the study.

Their mean age was  $34.0 \pm 13.4$  years. Most 26 (43.3%) of the non-enrollees were younger between 31 and 40 years old, compared with 33.3% of the enrollees aged between 41 and 50 years.

There was a significant gender difference in both groups ( $\chi^2=9.3$ ;  $p = 0.02$ ), with M: F ratio of 1:2. Most 42 (70.0%) of the enrollee respondents were married compared to 25 (41.6%) of the non-enrollees. This difference was statistically significant, ( $\chi^2=1.8$ ;  $p < 0.04$ ).

**Table 1. Association between sociodemographic characteristics of respondents**

Variable	Enrollee n = 60 (%)	Non-enrollee n = 60 (%)	Chi-Square Test	P-value
<b>Mean Age (SD)</b>	44 (13.6)	32 (10.5)	4.1(2)	0.13
<b>Mean Household</b>				
<b>Size</b>	8 (1.9)	4 (2.9)	5.2 (1)	0.02
Gender M:F ratio	1:2	1: 0.6	9.3 (2)	0.02
<b>Marital Status</b>				
Single	10(16.6)	32(53.3)	1.8(2)	0.04
Married	42(70.0)	25(41.6)		
Widowed	5(8.3)	2(3.3)		
Divorced	3(5.0)	1(1.7)		
<b>Employment Status</b>				
Feerdal Government	48 (80.0)	12(20.0)	6.8(3)	0.02
State Government	0	6(10.0)		
Local Gov. Areas	0	5(8.3)		
Self-employed	10(16.6)	17(28.3)		
Unemployed	2 (3.3)	20 (33.3)		
<b>Socio – economic status</b>				
Q1 (most poor)	0	18 (30.0)	13.0 (5)	0.01
Q2 (very poor)	32 (53.3)	30 (50.0)		
Q3 (poor)	10 (16.6)	7 (11.6)		
Q4 (least poor)	18 (30.0)	5 (8.3)		
<b>Catastrophic</b>				
<b>expenditure</b>	15 (25.0)	22 (36.0)	2.9 (1)	0.56
<b>Timeliness of Service</b>				
Timely	25 (41.6)	10 (16.6)	3.1(3)	0.03
Untimely	35 (58.3)	50 (83.3)	3.5(2)	
<b>Out-of-pocket</b>				
<b>payment</b>	18 (30.0)	60 (100.0)	2.4(1)	0.02

Catastrophic expenditure was higher in the non-enrollee, seen in 22 (36.0%) compared to 15 (25.0%) in the enrollee, however, this difference does not reach a significant level. ( $\chi^2= 2.9$ ;  $p < 0.56$ ) On the timeliness of required health care, there was a statistically significant difference between enrollee and non-enrollee respondents (Table 1).

There was a statistically significant difference between female gender: (AOR = 2.21,  $p = 0.02$ , 95% CI 1.03 -3.17) marriage (AOR = 4.18,  $p = 0.02$ , 95% CI = 0.11 – 4.20) government employment ( AOR = 3.54,  $p = 0.03$ , 95% CI = 1.86 – 4.09) poor SEC (AOR = 4.03,  $p = 0.02$ , 95% CI = 0.20 – 3.18) and self-reported quality of health (AOR = 3.80,  $p = 0.01$ , 95% CI = 1.50-2.00) and utilization of the National Health Insurance Scheme among enrollee (Table 2).

From Table 3, it can be seen that the major challenge faced by the respondents who utilize the NHIS services is the long waiting time which accounted for 80.6%. This is followed by payment of extra cost costs with 61.0%, bad attitude of Staff accounted for 45.5%, while poor transportation network accounted for 40.0%.

The chi-square value of 29.3, p-value of 0.02,  $df = 4$  showed that there is a high association between these variables and utilization of NHIS services in UNTH (Table 3).

## 4. DISCUSSION

### 4.1 Level of Utilization of Health Services by FSSHIP Enrollees in UNTH

Evidence has demonstrated that social health insurance improves access to healthcare and has better potential to increase utilization and reduce out-of-pocket expenditures [20-22,8]. This was a similar finding in this index study, where above half 36 (60.0%) of respondents had utilized health insurance services. The utilization was high for outpatients and chronic care. It may be due to the high prevalence of acute illnesses like Malaria and respiratory tract infections in Africa and of chronic illnesses like Diabetes and Hypertension. This is similar to the finding in Ghana by Kusi [23] in 2015, where malaria, respiratory problems and diarrhoea were the top three diseases that were commonly accounted for in health insurance utilization.

**Table 2. Logistic regression analysis of factors influencing utilization of health services among the enrollee**

Variable	Model 1 OR Bivariate (Unadjusted)			Model 2 AOR Multivariate (Adjusted)		
	OR	p value	95%CI	AOR	p value	95%CI
<b>Gender</b>						
Male	1.00			1.00		
Female	1.20	<b>0.03</b>	2.14-5.10	2.21	<b>0.02</b>	1.03-3.17
<b>Marital status</b>						
Single	1.00			1.00		
Married	0.18	0.05	3.30-7.71	4.18	<b>0.02</b>	0.11-4.20
Divorced	1.31	0.29	1.60-3.12	2.27	0.12	0.50 -3.30
Widow	0.80	0.11	2.06-4.10	2.16	0.07	2.00 -2.50
<b>Employment status</b>						
Unemployed	1.00			1.00		
Self-employed	1.90	0.36	2.81-5.10	2.50	0.70	0.10-5.00
Private	3.11	<b>0.01</b>	1.70-0.60	2.20	0.45	1.40-4.54
Government	4.60	<b>0.02</b>	3.89-8.10	3.54	<b>0.03</b>	1.86-4.09
<b>Socio-economic status</b>						
Q1(most poor)	1.00			1.00		
Q2 (very poor)	2.18	0.18	0.20-4.21	2.50	0.18	0.01-1.20
Q3(poor)	3.18	<b>0.02</b>	1.30-5.04	4.03	<b>0.02</b>	0.20-3.18
Q4(least poor)	3.34	<b>0.03</b>	2.22-6.40	4.60	<b>0.03</b>	1.17-4.40
<b>Self-reported quality of health</b>						
Poor	1.00			1.00		
Good	2.70	<b>0.04</b>	1.10-2.08	3.80	<b>0.01</b>	1.50-2.00

**Table 3. Factors influencing utilization of FSSHIP among enrollees in UNTH**

Frequency*(n=60)		
Variable	Yes	%
Long distance to hospital	36	60.0
Poor transportation network	24	40.0
Long waiting time	48	80.6
Bad attitude of Staff	27	45.5
Non-coverage of some Medical care/drugs	36	60.7
Drug insufficiency	31	51.9
Extra cost for service	37	61.0

Calculated  $\chi^2=29.3$ ;  $df = 4$ ;  $p = 0.02$

\*Multiple responses

## 4.2 On Factors Influencing Utilization

At the individual level, these include the gender of respondents as shown in Table 2. The findings on gender and utilization showed variability; some suggest that females are more likely [23] others reported higher utilization with males [24] and yet others reported no difference between the genders [25,26]. However, the conceptual framework for this index study postulates that since the healthcare burden is more on women, regarding issues from conception, delivery and childcare, they need more health care and hence the finding showing more females utilization may be explainable.

The index study also finds that government employees are 4 times more likely to utilize health care than self or other employees, as shown in Table 2. Similar findings have been reported [27,24]. This indicated that employment was a predictor of utilization. This can be associated with the fact that government employee's insurance premiums in Nigeria is deducted directly at source from their salaries. Kimani [28] in 2012 also reported the same in Nairobi and Owusu-Sekyere [24] in Ghana in 2014. However, emphasis may not be on the sector of employment but on wage earning as employment in other sectors is positively associated with utilization.

Other factors negatively affecting the utilization of health insurance in UNTH, as shown in Table 3, are facility-level factors like long waiting time, which accounted for 80.6%, payment of extra cost (61.0%) and bad attitude of Staff seen in 45.5%. This is similar to previous authors [20,8] who noted that delayed timeliness of services is a cause of poor utilization and may be a system barrier. Payment at the point of care and poor

attitudinal manners of healthcare workers was also reported [27,20,8].

## 4.3 On Satisfaction Level

The index study noted that service satisfaction was higher in the non-enrollees, as shown in Table 1. This is unacceptable; as despite being enrollees under the NHIS, respondents are still experiencing catastrophic expenditure, and displeasure with the operational system contrary to the aim of the scheme. The reasons may include non-comprehensive coverage of care and poor operational systems. It may be necessary to overhaul by modifying the standard operational procedure to include; comprehensive coverage of care, improved quality of care and increased to international standards [8,28]. Nigeria still ranks high in private health expenditure when compared to other African countries like Ghana, Uganda and Tanzania [1,24].

## 5. CONCLUSION

It can be deduced that FSSHIP improves access to health. However, the health management organizations (HMOs) should therefore ensure quality care delivery by monitoring the activities of care providers in conformity to its standard operating procedures, this will mitigate service dissatisfaction. Therefore, NHIS should step up their regulatory role in the area of monitoring and evaluation of the HMOs roles.

## 6. LIMITATION OF THE STUDY

The study was conducted in a tertiary hospital that serves as a national centre of excellence. However, this study area is limited and may not serve universal application. The study design was cross-sectional and may be inconclusive to establish causality.

## CONSENT

It is not applicable.

## ETHICAL APPROVAL

It is not applicable.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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