Health Insurance and Health Care Demand Pattern among Staff and Students of Selected Universities in Southwestern Nigeria

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Authors' contributions

This work was carried out in collaboration between both authors. Authors AAG and ICO designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author ICO managed the analyses of the study and the literature searches. Both authors read and approved the final manuscript.

Article Information

Original Research Article

ABSTRACT

Background: Providing accessible and affordable healthcare services is a challenge for most developing economies including Nigeria. Currently, about 25-50% of all sick children and adults in Nigeria do not receive needed healthcare, while about 100 million live below the poverty line. The general poor state of the nation's healthcare services, the excessive dependence and pressure on government for provision of health facilities have motivated the present study. This study was therefore designed to identify the determinants of healthcare demand pattern, with a focus on the role of health insurance among staff and students of selected universities in southwestern Nigeria.
Methods: This study relies on cross-sectional data collected from four universities covering four states of Southwestern Nigeria namely: Olabisi Onabanjo University, University of Ibadan, Obafemi Awolowo University, and Ekiti State University. A three-stage sampling techniques was applied in

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selecting 800 staff and students, while data were collected using structured questionnaire. The data was analyzed using SPSS v 20 and STATA v 12.1.

Findings: Altogether, 47.6% of the respondents were staff while 52.4% were students. The overall proportion of insured staff and students were more than the uninsured staff and students. Also, the usage of the university's healthcare center or hospital was observed to be higher (43.9%) than any other healthcare facility, although more than half of the participants (57.8%) that chose this provider are female. From the regression results, it was evident that health insurance and gender among other factors have positive and significant impact on the healthcare demand of staff and students of universities in Nigeria.

Conclusion: Thus, policy makers should re-intensify the massive public awareness and education on the benefits of health insurance with the aim of improving demand for healthcare in Nigeria. Besides, for maximum efficiency, the public awareness should necessarily be gender-focused.

1. INTRODUCTION

The demand for healthcare, which is the amount of healthcare services that people are willing and able to purchase, is a derived demand, because it depends on the demand for good health [1]; and it serves as a means for consumers to achieve a larger stock of health capital. To ensure that the demand for health care is adequately met among the Nigerian populace, the National Health Insurance Scheme (NHIS) was established. The establishment of the health insurance scheme was justified by the general poor state of the nation's healthcare services, the excessive dependence and pressure on government provided health facilities, poor integration of private health facilities in the nation's healthcare delivery system and an overwhelming dependence on out-of-pocket expenses to purchase healthcare services [2].

In 2006, [3] estimated 1.3 billion people worldwide, who lacked access to effective and affordable healthcare, while annually an additional 150 million persons in 44 million households faced financial catastrophe as a direct result of having to pay for healthcare. In 2015, an estimated 400 million persons across the world did not have access to essential healthcare services while 6% of people in low and middle income countries were pushed further into extreme poverty because of health spending [4]. More than 100 million individuals around the world are pushed into poverty each year due to excessive healthcare cost, and majority of Nigerians cannot afford and access healthcare services because it is beyond their means, this is evidenced by the poverty index which increased from 54.7% in 2004 to 70% in 2010 [5].

Furthermore, about 60% of Nigerians live in rural areas and these rural households tend to suffer disproportionately from higher level of ill health, mortality, malnutrition and inadequate healthcare [6]. The out-of-pocket expenditure has remained a dominant mode of financing healthcare in Nigeria and it constitutes about 69% of the total healthcare spending. Nigeria's out-of-pocket expenses as a percentage of private expenditure on health increased from 90.4% in 2002 to 95.8% in 2013, as one of the highest in the world [7]. This implies that health care can place a significant financial burden on households. On an average, about 4% of households spend more than half of their total household expenditures on healthcare, while 12% spend more than a quarter of their total household expenditures on healthcare. Hence the government of Nigeria continues to look for ways of restructuring the welfare state of the country to meet the changing needs, demands and expectations of a changing population.

In the area of healthcare demand, studies such [8-10] have indicated that the actual consumption of healthcare differs in accordance with factors that influence demand such as income, age, cost of care, distance, waiting time, quality of care of the service provided and health insurance. However, studies in Nigeria have focused on the impact of health insurance on the quality of healthcare [11]; factors affecting the consumption of health insurance [12]; and the relationship between health insurance and healthcare demand [13,14]. Thereby creating a gap for this study.

This study attempts to contribute to existing knowledge by providing some evidence on the key determinants of healthcare demand pattern

in Nigeria, while focusing on the impact of health insurance. The research questions addressed in this paper are; has the provision of health insurance influenced the decision of staff and students towards demanding for healthcare at any healthcare facility? What is the preferred healthcare facility in the study area? What are the factors that determine a staff or students demand for healthcare at a formal healthcare facility? Since the data generated for this study was from a field survey, there is no guarantee of a fully randomized experiment and that participation in health insurance is entirely random. Relying on the consumer behavioral model and subsequent modifications [8,15-16], this paper addresses the research questions raised above. Therefore, the government will find the results of this study useful in subsequent policy issues concerning the healthcare of her citizenry.

The next section presents an overview of the health sector as well as the health insurance system in Nigeria. It also presents a brief review of empirical literature. Section three describes the method of estimation while the fourth section presents the results and discussion on findings. The last section contains the conclusion and policy recommendations.

2. LITERATURE REVIEW

2.1 Healthcare and Health Insurance in Nigeria

International institutions, including the World Bank and the World Health Organization (WHO), have recommended that countries should adopt universal healthcare coverage, believing that adequate healthcare is a basic human right. In the same vein, Germany adopted the social health insurance scheme to promote the well-being of workers and was the first nation in the world which began with the 'sickness' insurance in 1883, designed by Chancellor Otto Von Bismark. Nigeria, like other developing countries contemplated implementing this social health insurance but with minimal success. Although, the Nigerian National Health Insurance Scheme (NHIS), which is a social health insurance scheme was later promulgated under Act 35 of 1999 but commenced operation in 2005. This then served as a policy response to the rapid escalating cost of health services and the lack of accessibility to health services by majority of Nigerians.

Six years after the official flag off, the NHIS had given cover to about 4.5 million people in the formal sector which included 95% of federal government employees [17] and there has been a gradual increase in coverage from less than 150,000 lives in 2004 to about 5 million (about 3% of the population) in 2014. It has developed specific programmes for the population such as: The Tertiary Institutions Social Health Insurance Programme (TISHIP), Retirees Social Health Insurance Programme (RSHIP), the Community Based Social Health Insurance Programme (CBSHIP), Voluntary Contributors Social Health Insurance Programme (VCSHIP) for students, retirees, persons in rural and semi-urban communities as well as Nigerians who are not accommodated on other service platform of the scheme respectively.

Through the NHIS, the Tertiary Institution Social Insurance Programme (TISHIP) in Nigerian tertiary institutions cater for healthcare services of students. Her funds are created by pooling the financial contributions of students and government in order to address the health needs of students and also ensure they have access to quality healthcare while schooling. Equitable access to healthcare facilities at a minimum premium of N1600 per annum is provided such that parents and guardian are protected from the financial hardship of huge medical bills [17]. It further ensures equitable distribution of healthcare costs among different students.

2.2 Empirical Review of Literature

There is a vast and growing literature on the analysis of healthcare demand in both developed and developing countries including Nigeria, while a variety of empirical specifications have used discrete models to estimate parameters of these demand models in literature. The models specification includes the nested multinomial logit [18]; multinomial logit [9]; and binary logistic regression [8]. These studies centered on the multi-stage decision making process in healthcare [15] using the concept of utility maximization. The first decision is on whether or not an individual reports illness or an injury; the second is on whether or not to seek formal health care when ill; while the third is on the choice of health care provider once the decision to seek care is made. In these three decisions, the emphasis is mainly on individuals who report an illness or an injury during a specific recall period.

Some of these studies have found that when prices increase, there will be a decline in the use of healthcare facilities and that prices are indeed important determinants of demand for medical care [8,15,16], while [16,18] revealed that quality is an important determinant of health demand because demand for health care will increase if people have the option to see a better doctor/nurse. Also, [19] discovered an insignificant relationship between age and healthcare while [8,20] found that the demand for health care decreases with increase in the age of the patient suggesting that elderly persons are less likely to seek health care than young people. In the same vein, [8,9] indicated that distance has a significant and negative impact on the choice of a health facility, while [8,10] identified a positive relationship between waiting time and the demand for healthcare implying that patients would like to wait for better quality of treatment.

With respect to health insurance, the analysis of demand for insurance started with a paper by [21] which first suggested the concepts of utility and diminishing marginal utility. However, the modern analysis of the demand for insurance can be drawn from [22] who assumed that utility will increase with income or wealth but at a decreasing rate. In addition, [23] argued that the income effect caused by premiums paid to finance the insurance can be shown to be empirically negligible in its effect on demand for healthcare. Hence, the consumer, who is faced with the prospect of losing a pre-specified amount of income or wealth by chance, will choose to purchase insurance because the expected utility is greater with insurance than without it. A Nigerian study by [13] revealed that

NHIS focuses on the employed, and so it has not significantly increased healthcare demand, while [14] revealed that health insurance has a significant effect on the demand for healthcare in Oyo State, Nigeria.

In summary, the issue of the factors that determine health care demand in Nigeria and elsewhere has remained unresolved in the literature. This constitutes a critical gap in the extant body of knowledge that the present study intends to direct its focus.

3. METHODOLOGY

3.1 Sampling and Data Collection

A multi-stage sampling technique was adopted to solicit information on university staff and students. Four universities (Obafemi Awolowo University, Olabisi Onabanjo University, University of Ibadan and Ekiti State University) were selected from four out of the six states in Southwestern Nigeria. Cochran [24] formula for determining sample size was employed in calculating the minimum sample size for the target population, while a sample size of 800 respondents (400 academic and non-academic staff; and 400 students) was used in order to cater for the possibility of a high non-response rate among university staff and to ensure adequate representation of the universities. Within each university, five Faculties and five Departments with the highest population of staff and students were selected. In each of the selected departments, four students, two academic and two non-academic staff members were selected, summing up to twenty students
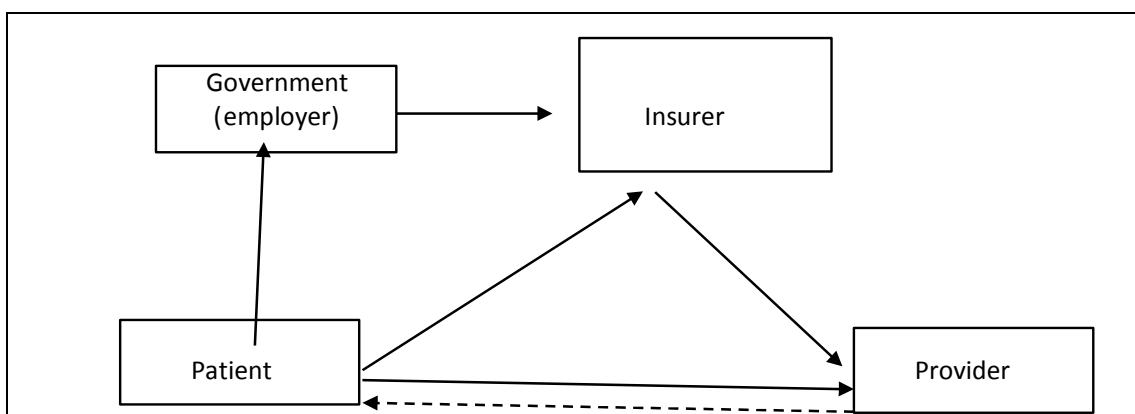

Fig. 1. The demand for healthcare triad. Solid lines represent money flow; the dashed line represent service flows
Source: [25]

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and twenty staff from each of the Faculties; giving a total of 200 from each university. Sample was restricted to those Staff and student who have stayed in the university environment for more than 6 months to ensure that information given relates to the university's experience.

The pre-tested questionnaire was administered on individual staff and students between October 2015 and February 2016. Data was collected on each individual characteristic (income, age, education, gender, marital status, distance, waiting time, and health insurance status). Three level of analysis were performed, first, the frequency distribution of respondents across their health insurance status, secondly, cross tabulation of dependent variable within each category of interest, and thirdly, a binary logistic regression model. The logistic regression model was used to investigate the link between the healthcare demand, socio-economic factors, need factors, enabling factors and health insurance. The data was analyzed using Statistical Package for Social Sciences (SPSS v 20) and STATA v 12.1

3.2 Econometric Model

To empirically assess the factors determining healthcare demand, the theoretical framework is based on utility maximization similar to that used in most healthcare studies. Firstly, an individual derives utility from health and consumption of non-health goods, so he/she must decide between the use and non-use of health services. Secondly, the individual is assumed to choose the bundle of health and non-health goods that maximizes his/her welfare function (utility). Various versions of the model have been used by scholars including [8,15,16,25].

The binary logistic model is preferred because of its ability to handle dependent variables as dummy characteristics (that is, two mutually exclusive outcomes) and also because it can take an input with any value from positive infinity to negative infinity.

The generalized form of the binary logistic regression models can be expressed as follows:

$$\ln\left[\frac{\lambda}{1-\lambda}\right] = \alpha + \sum\nolimits_{j=1}^{n}\beta_j\chi_j \tag{1}$$

Hence, dependent variable in this study is the healthcare demand Q_d which is a dichotomous variable and it will take the value ($Q_d = 1$) with probability λ if respondents have demanded for

healthcare at a formal healthcare facility in the past 6 months and zero ($Q_d = 0$) with probability $1-\lambda$ if respondent has not demanded for healthcare. The explanatory variables used were quantitative such as income, age, sex, education, quality of care, distance, waiting time and health insurance.

Therefore, the logit form of the demand for healthcare function is expressed as:

$$\ln\left[\frac{\lambda}{1-\lambda}\right] = \beta_0 + \beta_1 Ic + \beta_2 Gd + \beta_3 Ag + \beta_4 Ms$$
$$+ \beta_5 Ed + \beta_6 Qc + \beta_7 Dc + \beta_8 Wt + \beta_9 Hs + \mu_i \tag{2}$$

Where $\ln\left[\frac{\lambda}{1-\lambda}\right]$ is the log odds of the outcomes; that is, the probability that a respondent will demand for healthcare. β_0 is the intercept, β_i's are the slopes while

Ic = income of respondent;
Ed = education;
Dc = distance;
μ_i = error term.

Gd = Gender;
Ms = marital status;
Wt = waiting time;

Ag = age;
Qc = quality of care;
Hs = health insurance status;

In this paper, a formal healthcare facility includes the university hospital/clinic/healthcare center, public clinic/hospital/healthcare center, private hospital/clinics, and government hospital/clinics. Also, when modeling the effect of health insurance on various outcomes such as healthcare demand, the problem of endogeneity or self-selection may occur. To control for this, proxies for health status was included and the model was tested for stability.

3.3 Ethical Consideration

The study was approved by the Obafemi Awolowo University's health center research ethics committee, while written informed consent was obtained from all respondents before recruitment. Confidentiality of the information was ensured by removing all personal identifiers from the survey questionnaire and participation in this study was voluntary.

3.4 Data Description and a Priori Expectation on Parameters

- **Age:** In this study, age was a categorical variable and it was expected that older persons need and consume more health care. Hence the coefficient for age was expected to be positively related to health care demand.
- **Gender:** Generally, females are expected to have greater health challenges than males, including reproductive health issues. We thus expect females to demand for healthcare more than men.
- **Marital Status:** The expected role of marital status in healthcare utilization is not defined a priori. We expect the parameter sign to be either positive or negative.
- **Education:** Theoretically, education has an ambiguous impact on the demand for healthcare. Although, it can improve understanding and access to healthcare in several ways like increasing awareness, knowledge, motivation and patience for good health. Thus, we expect its coefficient to have positive sign.
- **Income:** Individuals with higher income seek more formal healthcare and are expected to utilize healthcare services more since financial constraint is minimal.
- **Quality of care:** Other things being equal, an individual will demand for healthcare from a formal healthcare provider when the quality of care is perceived high/good. This is expected to have a statistically significant impact on the demand for healthcare, as individuals will increase their use of healthcare services if the quality increases while price remained unchanged.
- **Distance:** Generally, respondent will prefer short distance for getting treatment. Hence, it was expected to have a negative relationship with demand for healthcare services because, distance has effect on choice of healthcare services. This was measured in kilometer.
- **Waiting time:** This was measured in terms of minutes and positive demand shocks may lead to higher waiting time as patient may wait for a provider who has a good reputation, but if waiting time is increased, people will opt for informal care or self-treatment.
- **Health insurance cover:** Persons whose medical expenses are covered by insurance or any form of reimbursement are expected to consume more of healthcare services especially from a formal healthcare provider.

4. FINDINGS AND DISCUSSION

4.1 Socioeconomic and Demographic Characteristics of Sampled Staff and Students

In total, 761 respondents were included in the survey. 47.6% of the respondents were staff while 52.4% were students. Table 1 further shows that there are slightly more students (54.7%) than staff who are uninsured while there is no obvious disparity between staff and students who are insured. Approximately half (50%) of the participants are male as well as female, while there exists both insured and uninsured respondents in both gender. It also shows that health insurance cut across different age groups although majority (36.9% and 19.8%) of the participants aged between 21-30 and 41-50 years respectively. There exists a higher percentage of single respondents (54.0%), while majority of the respondents had a minimum of secondary education, which is expected due to the nature of the study area. In addition, majority of the respondents earned less than #60,000 monthly, while majority (61.9% and 57.6%) of uninsured and insured participants lived less than 3kilometer to a formal healthcare facility.

4.2 Choice of Care among Individuals Seeking Care by Insurance Status

Table 2 presents the choice of health care provider among individuals seeking care by the respondents' insurance status. The overall proportion of insured staff and students is greater than the uninsured staff and students. The proportion of insured male who prefer demanding for healthcare services at the private clinic or hospital is more female, while the uninsured female respondents who prefer this facility is more. Also, there are more uninsured male (69.3%) who prefer utilizing a chemist/pharmacy than the uninsured female, in the same vein more uninsured male (62.5%) respondents prefer self-medication. However, irrespective of the insurance status, some respondents still prefer indulging in self-medication which is not an advised means of seeking healthcare. The usage of the university's health center or hospital was observed to be higher than any other healthcare facility as 67.8% of uninsured female respondents utilize this facility, while there is a very slight difference in the usage of the

healthcare center for both genders in the insured category. More male respondents prefer to use a spiritual or traditional healer irrespective of their insurance status, but more insured female respondent prefer utilizing the spiritual healer when compared with the male. This is because Nigeria operates a pluralistic health care delivery system with the orthodox and traditional health care delivery systems operating alongside each other, albeit with hardly any collaboration.

4.3 Preferred Health Care Provider of Staff and Students by Gender

In general, respondents (staff and students of the selected universities) from Fig. 2 indicates that the mostly used healthcare facility is the university's healthcare center/hospital. Also, more than half of the respondents (57.8%) that chose this provider (the university's healthcare center/hospital) were female respondents, hence females utilize this provider more than males (42.2%). However, this was observed only for the university's health center/hospital. For self-medication, male respondents utilized it more than female respondents and this also applied to the use of the chemist/pharmacy, spiritual as well as the traditional healers. However, there was no obvious disparity in the gender distribution of the preferred healthcare provider for the private clinic/hospital, as both gender preferred the use of this facility equally.

Table 1. Socio-economic and demographic characteristics of respondents

Characteristics	Variable	Participants	Health insurance	
			Uninsured	**Insured**
Cadre	Staff	362(47.6)	151(45.3)	211(49.3)
	Students	399(52.4)	182(54.7)	217(50.7)
Gender	Male	378(49.7)	169(50.8)	209(48.8)
	Female	383(50.3)	164(49.2)	219(51.2)
Age	< 20	125(16.4)	65(19.5)	60(14.0)
	21-30	281(36.9)	123(36.9)	158(36.9)
	31-40	112(14.7)	49(14.7)	63(14.7)
	41-50	151(19.8)	55(16.5)	96(22.4)
	51-60	70(9.2)	32(9.6)	38(8.9)
	> 60	22(2.9)	9(2.7)	13(3.0)
Marital status	Single	411(54.0)	187(52.6)	224(52.3)
	Married	304(39.9)	133(39.9)	171(40.0)
	Widowed	24(3.2)	7(2.1)	17(4.0)
	Separated/Divorced	22(2.9)	6(1.8)	16(3.7)
Education	Primary School	5(7.0)	2(6.0)	3(7.0)
	Secondary Sch/OND	205(26.9)	84(25.2)	121(28.3)
	HND/B.Sc.	299(39.3)	153(45.9)	146(34.1)
	M.Sc./Ph.D.	252(33.1)	94(28.2)	158(36.9)
Income	< #30,000	328(43.1)	149(44.7)	179(41.8)
	#30,001-60,000	132(17.3)	58(17.4)	74(17.3)
	#60,001-90,000	69(9.1)	29(8.7)	40(9.3)
	#90,001-120,000	53(7.0)	13(3.9)	40(9.3)
	#120,001-150,000	57(7.5)	21(6.3)	36(8.4)
	> #150,000	122(16.0)	63(18.9)	59(13.8)
Religion	Christianity	626(82.3)	276(82.9)	350(81.8)
	Islam	127(16.7)	54(16.2)	73(17.1)
	Traditional	1.1(8)	3(9.0)	5(1.2)
Distance	< 1 km	75(22.5)	153(35.7)	228(30.0)
	2-3 km	98(29.4)	112(26.2)	210(27.6)
	4-5 km	52(15.6)	59(13.8)	111(14.6)
	6-10 km	39(11.7)	35(8.2)	74(9.7)
	> 10 km	69(20.7)	69(16.1)	138(18.1)
Total		761(100)	333(100)	428(100)

Note: Figures are frequencies and percentages within each category

Table 2. Choice of care provider among individuals seeking care by insurance status

Insurance status	Gender	Private clinic/hospital	Chemist/ pharmacy	Self-medication	University health center/ hospital	Traditional healer	Spiritual healer	Total
Participants		120(15.4)	122(16.0)	158(20.8)	334(43.9)	11(1.4)	16(2.1)	761(100)
Uninsured	Male	28(47.5)	46(63.9)	45(62.5)	38(32.2)	(5)100	7(100)	169(50.8)
	Female	31(52.5)	26(36.1)	27(37.5)	80(67.8)	0(0.0)	0(0.0)	164(49.2)
Insured	Male	32(52.5)	21(42.0)	44(51.2)	103(47.7)	(5)83.3	4(44.4)	209(48.8)
	Female	29(47.5)	29(58.0)	42(48.8)	113(52.3)	1(16.7)	5(55.6)	219(51.2)

Note: Figures are frequencies and percentages within each category

Table 3. Logistic regression

Number of observation = 761			**LR chi2(30)**	**= 176.99**
Hosmer-Lemeshow = 0.184			**Prob > chi2**	**= 0.0000**

Determinants	Variables	Coeff. (Odds Ratio)	Std. Err.	[95% Conf. Interval]	
Distance	< 1 km				
	2-3 km	1.2973 (0.2604)	0.2283	-0.1872	0.7079
	4-5 km	-0.3089 (0.7342)	0.284	-0.8656	0.2478
	6-10 km	-0.8053 (0.4470)**	0.3315	-1.455	-0.1556
	Over 10 km	-0.5139 (0.5982)*	0.277	-1.0568	0.0291
Quality	Very poor				
	Poor	-1.2550 (0.2851)	1.0627	-3.3379	0.8279
	Fair	-0.5295 (0.5889)	0.9322	-2.3565	1.2975
	Good	0.4375 (1.5489)	0.9378	-1.4006	2.2757
	Very good	1.1078 (3.0276)	0.961	-0.7758	2.9913
Waiting time	< 15 min				
	15-30 min	-0.1633 (0.8494)	0.2698	-0.6921	0.3656
	31-45 min	-0.2625 (0.7691)	0.29	-0.831	0.3059
	46-60 min	-1.0916 (0.3357)***	0.323	-1.7247	-0.4585
	> 60 min	-0.4511 (0.6369)	0.3153	-1.0691	0.1668
Education	Primary				
	Secondary	-1.0450 (0.3517)	1.2751	-3.5441	1.454
	Tertiary	-1.4116 (0.2437)	1.264	-3.8891	1.0658
	Post-graduate	-1.3318 (0.2640)	1.2678	-3.8166	1.153

| Number of observation = 761 | | | | LR chi2(30) | = | 176.99 |
| Hosmer-Lemeshow = 0.184 | | | | Prob > chi2 | = | 0.0000 |
Determinants	Variables	Coeff. (Odds Ratio)	Std. Err.	[95% Conf. Interval]		
Age	< 20					
	21-30	-0.1041 (0.9011)	0.3096	-0.7109		0.5027
	31-40	-0.8485 (0.4281)	0.5172	-1.8621		0.1652
	41-50	-0.6738 (0.5098)	0.5814	-1.8133		0.4656
	51-60	-1.4643 (0.2312)**	0.636	-2.7108		-0.2178
	> 61	-1.3730 (0.2534)*	0.7786	-2.899		0.1531
Gender	Female	0.4872 (1.6278)***	0.174	0.1461		0.8283
Marital status	Single					
	Married	1.0701 (2.9157)**	0.4187	0.2495		1.8907
	Widowed	0.9169 (2.5016)	0.6386	-0.3346		2.1685
	Separate/Divorced	2.6578 (14.2655)***	0.8591	0.9741		4.3416
Income	< ₦ 30,000					
	₦ (30-60)000	0.4293 (1.5362)	0.2908	-0.1407		0.9993
	₦ (60-90)000	0.0425 (1.0434)	0.3817	-0.7055		0.7906
	₦ (90-120)000	0.4308 (1.5384)	0.4819	-0.5138		1.3753
	₦ (120-150)000	0.4274 (1.5333)	0.4548	-0.464		1.3188
	> ₦ 150,000	0.5595 (1.7498)	0.4735	-0.3686		1.4876
Health insurance	Yes	0.3621 (1.4364)**	0.1769	0.0154		0.7088
constant		1.0829 (2.9531)	1.601	-2.055		4.2207

Note: *, **, *** significant at 10%, 5% and 1% respectively. The Odd-ratios were derived from the coefficient, and we however interpreted the odd-ratio results without multiplying with 100 for clarity of interpretation
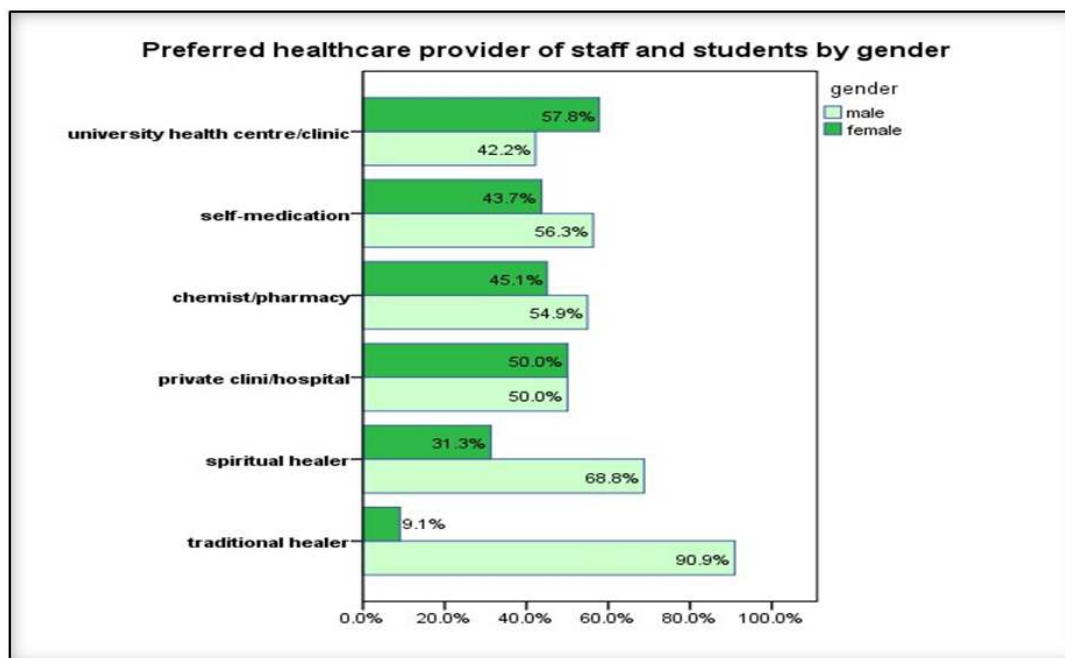
Fig. 2. Preferred Healthcare provider by Gender

4.4 Factors Determining Healthcare Demand Pattern

The result of the logistic regression shows that the log-likelihood ratio tests of goodness-of-fit of the estimated model is statistically significant. The omnibus test of model coefficient which examines the model in comparison to the null hypothesis produces a chi-square value of 176.992, and a p-value less than 0.05 (p-value = 0.000) suggesting that model is significant and it will be a good predictor. The Nagelkerke R-square indicated that between 20.8% and 27.7% of variance in the outcome is being predicted by the model while the Hosmer-Lemeshow test also indicated a good model (P > 0.05; P = 0.184). Also, from the classification table, about 69.1% of the outcomes was correctly predicted by the model (this is above the 65% threshold).

The estimated result from Table 3 summarizing the factors influencing the demand of healthcare demand for staff and students revealed that among the sample, respondents whose distance from residence is less than 1 serves as a reference category. Therefore, respondents whose distance is between 2-3km from any healthcare center/hospital are 1.297 times more likely to demand for healthcare services than respondents living less than a kilometer away from a healthcare center/hospital. Also,

respondents living 4-5 km, 5-6 km and above 10 km away from a healthcare center are 0.734, 0.447 and 0.598 times less likely to demand for healthcare services respectively. Hence the farther the distance, the lesser the likelihood of a respondent demanding for healthcare services and vice-versa. This finding is in contrast with the work of [8] who found that respondents would like to avail long distance for better quality of treatment, but in agreement with [9].

The table further revealed that the perception of the quality of care respondents receive has a significant but negative relationship with the demand for healthcare services. Using very poor as the reference category, respondents who consider the healthcare service as poor are 0.285 times less likely to demand for healthcare than those who consider it very poor. Also, those who perceive it as fair are 0.589 times less likely to demand for healthcare than those who perceive the service as very poor. However, respondents who perceive the quality of healthcare services as good and very good are 0.641 and 0.249 times more likely to demand for healthcare than respondents who perceive the healthcare service given them as very poor. Hence, staff and students who perceive the quality of care received from a healthcare center/hospital as good and very good are more likely to demand for healthcare than those

who consider a healthcare provider's service as poor.

The relationship between waiting time and healthcare demand on Table 3 revealed that, the higher the waiting time, the less likely a respondent will demand for healthcare service. That is, respondents prefer a shorter waiting time, contrary to the findings of [8]. With respect to education, respondents with secondary education, tertiary education and post-graduate education were 0.352, 0.244 and 0.264 times less likely to demand for healthcare respectively. That is, staff and students with lower forms of education visit the healthcare center/hospital more than respondents with higher education, implying that the more educated an individual is, the more the probability of the respondent opting for self-care. This finding was not found to be consistent with [18] who discovered education to be a major determinant of healthcare demand and that the more educated a household is, the more likely to consult medical treatment at the time of illness.

Furthermore, as the age of a respondent increases, the less likely it is for the respondent to demand for healthcare using below 20 as the reference category. A respondent between 21 and 30 years of age is 0.901 times less likely to demand for healthcare, while those between 31-40 years of age are 0.428 times less likely to demand for healthcare. Also, respondents aged between 41-50, 51-60, 61 and above are 0.510, 0.231, 0.253 times less likely to demand for healthcare in a formal healthcare provider respectively. This is consistent with [8] but contrary to the a priori expectation and the findings of [20] that older individuals demand for healthcare services more due to the deteriorating health condition.

Gender was found to be statistically significant at (P = 0.005) and the odds ratio 1.628 implied that gender is one of the major factors influencing the demand for healthcare. That is, a female respondent is 1.628 times more likely to demand for healthcare than a male respondent, which is consistent the a priori expectation, [9] and the hypothesis that a female is more sensitive to her health status than male. Marital status as another factor which was found to have influenced the demand pattern of staff and students and was statistically significant at 95%. This is in conformity with the expected result, that a married, widowed and separated/divorced respondent is 2.916, 2,502 and 14.265 times

more likely to demand for healthcare than a single respondent respectively.

In addition, the influence of income on the demand for healthcare is found to be positive, that is, the higher a person's income, the higher the probability of the person demanding for healthcare with a formal healthcare provider. This finding is in agreement with [10,16] that an individual is likely to demand for healthcare has his/her income increases because of the affordability and that the lower income group are more price sensitive than the rest. Furthermore, with a positive correlation coefficient 0.362, (P = 0.041), and odd ratio of 1.436 from the analysis presented in 3. The results indicated that a staff or student with health insurance is 1.436 times more likely to demand for healthcare services with a formal healthcare provider than a respondent who is not. This is consistent with [14] that there's a significant effect of health insurance on the demand for healthcare. Hence, from the binary logistic regression model, health insurance plays an important role in influencing the demand pattern for healthcare among staff and students of universities in southwestern Nigeria.

5. CONCLUSION AND POLICY RECOMMENDATIONS

In general, most staff and students prefer utilizing their university's healthcare center or hospital when in need of healthcare services, while gender and enrolment with health insurance indicates the most significant influence on healthcare demand. Distance, quality of care, marital status and age also determine healthcare demand among staff and students in the study area. Based on these, we recommend that the young age group should be encouraged through public enlightenment to be conscious of their health by addressing their minds to more demands for health care that will go a long way towards improving their health status and health endowment. Secondly, there is the need for healthcare providers to address gaps in human resources, logistics and other internal procedures aimed at reducing waiting times, and ensure an effective healthcare delivery system. Thirdly, since distance is an issue in health care demand, some other light healthcare facilities should be provided closer to residences of staff and students on campus, so as to reduce the negative effect of distance on healthcare demand. Fourthly, health care providers should ensure that all the interests of the male and

female are taken into consideration in designing strategies towards meeting their health care demands. Conclusively, government should ensure that health insurance funds budgeted for the purpose of providing healthcare are monitored and not diverted for personal purposes; while the minimum standard for service providers should be clearly defined, followed by proper supervision by the supervisory agencies. This is to ensure that cutting edge services are provided to university staff and students through improved quality of drugs and services.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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