

Level and Correlates of Health Insurance Coverage in Nigeria: Evidence from 2013 Nigeria Demographic and Health Survey.

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Abstract

Health insurance is key to Universal Health Coverage. In Nigeria, there are various health insurance schemes but coverage has been reported to be very low for various reasons. In developing policies and strategies to increase coverage, understanding the barriers to uptake is vital. Hence, this study investigated the level and correlates of health insurance coverage in Nigeria. Data from the 2013 Nigeria Demographic and Health Survey (n=54,948) was analyzed using Stata 14. It was found that health insurance coverage is low in Nigeria and the factors that significantly predict ownership of health insurance are age, level of education, household wealth index, type of occupation, ethnicity, and level of exposure to mass media. In ensuring good health and wellbeing for all by 2030, health insurance is important and it is recommended that just as it is being done in some states, the national government should consider subsidizing health insurance for all.

Keywords: Health Insurance, Nigeria, Universal Health Coverage

Introduction

Health is wealth like they say, a healthy population means a healthy nation having a healthy labour force making productive contributions to the economy (1). One of the ways of ensuring a healthy population is by achieving the universal health coverage, which has been defined as the ability for people to gain access to the healthcare they need without experiencing financial hardship as a result (2), which is one of the goals of the SDG 3 which seeks to ensure access to essential medicines and vaccines . Health insurance, identified as one of the best ways to achieve universal health coverage in a number of studies and reports (3-5), has been defined as an arrangement whereby a social security arrangement guarantees the provision of needed health services to individuals at the payment of an agreed amount known as premium at regular intervals usually monthly or yearly. It is basically designed to pay the costs of healthcare by paying the bills and therefore to protect people against the high cost of health care by making pre-payment before people fall ill (4, 6-8). It ensures that a greater amount of the population is provided with health services at low cost but requires concerted efforts from government and other concerned stakeholders in terms of policies, financing and proper coordination for it to be functional.

The Nigerian government has done its part by developing a national health insurance scheme (NHIS) first in the military era in 1999 and later implemented under a democratic government based on the military decree in 2005 (9-11), also some states have introduced different forms of contributory health insurance schemes to ensure that people have access to health insurance. In Nigeria, health insurance comes in various forms such as; social health insurance, private health insurance, and community based health insurance which is similar to what obtains in some other countries (12), despite all these efforts, a 2013 national report stated that less than 5% of the population is covered by health insurance and the majority of health expenditure in Nigeria is out-of-pocket financed, it remains over 90% (13), which is one of the highest in the world and this arrangement has negative impact on the individual and the nation at large like greater hardship for the poor and render people unprepared for most medical expenses by taking so much out of pocket (10) but health insurance arrangement helps to avoid all these disadvantageous situations and protect from the financial burden of diseases especially among the poor in the population (6, 14-17).

Studies have found a number of factors to be associated with health insurance uptake and coverage. These factors include wealth index or financial status (18-26), which in most cases has been considered the most important. For instance, it was reported in the 2013 NDHS that majority of individuals who have health insurance coverage are those in the richer and richest level of household wealth index (38), other factors include; occupation (12, 16, 18, 21, 23, 27, 28), age (12, 18, 20, 29-31), exposure to mass media, awareness and knowledge of health insurance (12, 18, 23, 28, 32), household size (18, 25), level of education (1, 12, 20, 21, 24, 25, 29-34)

with majority of these studies reporting that the higher education is associated with increased odds of having health insurance coverage, type of place of residence has also been identified as an important determinant of health insurance ownership (19). In a study in India considering the effect of community factors on health insurance uptake, it was found that districts with none poor households are more likely to participate in a health insurance scheme (35). Religion has also been found to be a significant predictor of health insurance usage (29). Given the obvious importance of health insurance as stated earlier, this study will seek to contribute to the body of knowledge on the factors associated with health insurance coverage in Nigeria where there is a dearth of studies on health insurance coverage and associated factors, especially among the low income earners. Hence, this study aims to assess the level and investigate the correlates of health insurance coverage among the poor and the low income individuals in Nigeria, findings of this study will prove vital in developing strategies and plans to improve the use of health insurance among the low and middle income individuals in Nigeria because of its obvious importance of being able to improve the utilization and affordability of healthcare among the poor (36, 37).

Methods

The study location is Nigeria, a country with a population of over 180 million people which ranks the country as the most populous in Africa and 6th most populous in the world (38). This study used the 2013 Nigeria Demographic and Health Survey data, which is a nationally representative survey involving a two-stage cluster sampling design with stratification for urban and rural residence. Based on the stated objective of the study, which is to assess the level and investigate the correlates of health insurance coverage among individuals in low and middle income families in Nigeria. The main dependent variable in the study is Health insurance coverage, from the questionnaire, the respondents were asked if they are covered by health insurance and the response was “Yes” or “No”. The interviewers then went further to ask specifically about the type of insurance they are covered by and responses given are “social security”, “private or commercially purchased”, “mutual /community-based”, “provided by employer”.

Prior to the data analysis, the individual recodes (women data) and men recode were merged into a single data since there is no combined data for men and women in the NDHS data set. The sample size for the study included all the respondents in the survey who responded to the question of ownership of health insurance, hence, the sample size for the study is 54,948 men and women. Based on the literature reviewed, the socio-economic and demographic variables selected include; age group of respondents, employment, gender, age of household head, sex of household head, type of place of residence, marital status, level of education, religion, exposure to mass media, ethnic group, marital status, number of household members. The data were analyzed using the Stata 14 software and in the analysis section, descriptive analysis was conducted to examine the level of health insurance coverage as well as the level of the various types of health insurance coverage the

respondents have. Bivariate analysis was also conducted using the Pearson chi-square to test the association between health insurance coverage and the various independent variables and variables that were found to be significant at this level were entered into the multivariable logistic regression models to investigate the correlates of health insurance coverage.

Model Specification

For the model specification, in an experiment with possible outcomes as either success or failure, coded 1 or 0 respectively representing a binary outcome, the rate of change in the outcome of interest with respect to an explanatory variable(s) can be achieved examining its log odds as shown in the binary logistic model below;

$$\ln \frac{p}{1-p} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n$$

Where; $\ln \frac{p}{1-p}$ represents the log odds of having a health insurance coverage, β_0 represents the risk of owning a health insurance without interplay with any explanatory variable, and $\beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n$ represents the fraction by which the ownership of health insurance is altered by a unit change in the respective explanatory variables $X_1, X_2, X_3, \dots, X_n$, which in this case includes the respondents' socio-economic and demographic characteristics

Results

Table 1: Percentage distribution of respondents by selected socio-economic and demographic characteristics

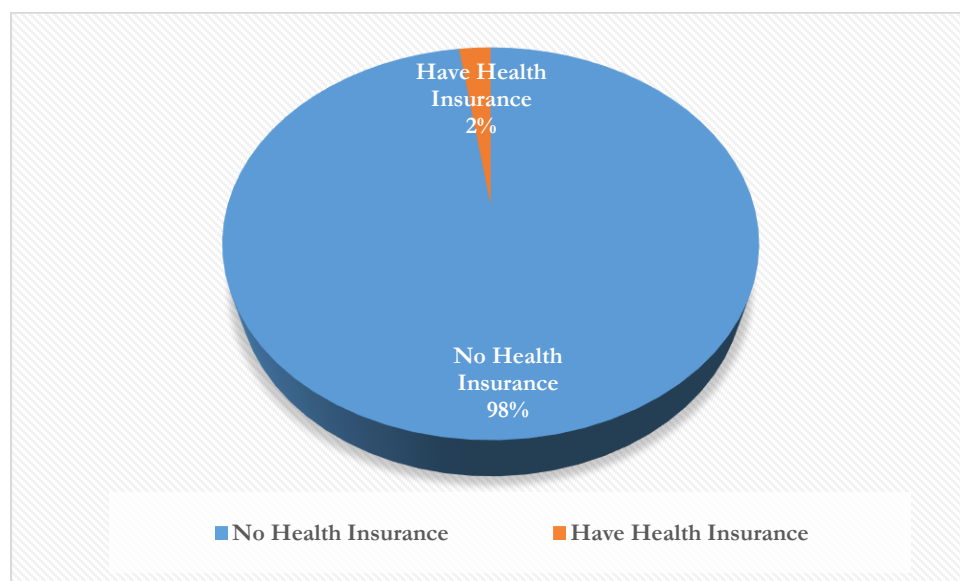
Variable	Number	Percentage
Age		
15-24	20544	37.4
25-34	17335	31.6
35+	17070	31.1
Level of Education		
No Education	17922	32.6
Primary	9387	17.1
Secondary	21718	39.5
Higher	5923	10.8
Religion		
Catholic	6184	11.3
Protestants	19782	36.0
Islam	28444	51.8
Trad./ Others	538	1.0
Occupation		
Not working	17404	31.7
Professional/Sales	18938	34.5
Agriculture/Services	11228	20.4
Manual/ Others	7379	13.4
Wealth Index		
Poorest	9713	17.7
Poorer	10163	18.5
Middle	10558	19.2
Richer	11527	20.9
Richest	12987	23.6
Sex of Household Head		
Male	46971	85.5
Female	7977	14.5
Age of Household Head		
15-24	2641	4.8
25-34	11458	20.9
35-54	27794	50.6
55+	13057	23.8
Place of residence		
Urban	23517	42.8
Rural	31431	57.2
Gender		
Male	8962	29.48
Female	21435	70.52
Ethnic group		

Yoruba	7757	14.1
Ibo	7843	14.3
Hausa/ Fulani	18473	33.6
Others	20873	37.9
Exposure to Mass Media		
Not Exposed	20003	36.4
Low Exposure	30665	55.8
High Exposure	4279	7.8

Source: Author's Computation

Table 1 above presents the characteristics of the study respondents. 37% of the respondents are youth, 31% each are in the age groups 25-34 and 35+. It can also be reported that about two-fifth of the respondents have secondary education, 17% have primary education and 33% have post primary education. More than half are adherents of Islam. 36% are Protestants while 11% are Catholics. More than 32% are not working, about one-fifth are in Agriculture and services sector while about 13% are in manual and other types of employment. 86% of the households where the respondents come from are headed by males. More than half of all the households represented by the respondents are headed by individuals aged 35-54 and 21% are headed by people aged 25-34 while those from households headed by youths are about 5%. More than half of the respondents reside in rural areas (57%). 34% of the respondents are from the Hausa/ Fulani ethnic group, the lowest ethnic group represented in the distribution are Yoruba and Ibo with 14% each. More than half of the respondents can be categorized as having low exposure to mass media messages and those highly exposed are less than 10%. For the wealth index, 24% are from the richest households, 21% are from the richer households and the lowest are from the poorest households with 18%.

Figure 1: Level of Health Insurance coverage in Nigeria, NDHS 2013



The chart above shows the level of health insurance coverage in Nigeria. It can be reported that the level of insurance coverage is very low in Nigeria with 2% of the study population reporting that they have health insurance coverage. about 98% of the study population reporting not having health insurance coverage. Only

Table 3: Bivariate association between respondent's characteristics and health insurance coverage in Nigeria.

Variables	Have no health insurance	Have health insurance
Age		
15-24	11576 (98.6%)	281 (1.37%)
25-34	9056 (97.5%)	433 (2.5%)
35+	9711 (96.8%)	584 (0.52%)
$\chi^2=145.7$ df=2 p<0.05		
Level of Education		
No Education	17889 (99.82%)	33 (0.18%)
Primary	9325 (99.34%)	62 (0.66%)
Secondary	21256 (98.95%)	462 (2.13%)
Higher	5216 (88.07%)	707 (11.93%)
$\chi^2=2922.50$ df=3 p<0.05		
Religion		
Catholic	5978 (96.65%)	207 (3.35%)
Protestants	19091 (96.51%)	691 (3.49%)
Islam	28082 (98.73%)	44 (1.27%)
Traditional/ Others	535 (99.43%)	3 (0.57%)
$\chi^2=296.19$ df=3 p<0.05		
Occupation		
Not working	12137 (98.46%)	267 (1.54%)
Professional/Sales	182821 (96.54%)	656 (3.46%)
Agriculture/Services	11184 (97.89%)	237 (2.11%)
Manual/ Others	7276 (98.61%)	103 (1.39%)
$\chi^2=187.73$ df=3 p<0.05		
Wealth Index		
Poorest	9711 (99.98%)	2 (0.02%)
Poorer	10142 (99.80%)	21 (0.20%)
Middle	10461 (99.08%)	97 (0.92%)
Richer	11295 (97.99%)	232 (2.01%)
Richest	12076 (92.98%)	911 (7.02%)
$\chi^2=1804.88$ df=4 p<0.05		
Sex of Household Head		
Male	45901 (99.61%)	1070 (2.28%)
Female	7785 (97.59%)	193 (2.41%)
$\chi^2=0.55$ df=1 p>0.05		
Age of Household Head		
15-24	2605 (98.64%)	36 (1.34%)

25-34	11201 (97.76%)	257 (2.24%)
35-54	27007 (97.17%)	787 (2.83%)
55+	12874 (98.60%)	183 (1.40%)
$\chi^2=92.87$ df=3 p>0.05		
Place of residence		
Urban	22580 (96.01%)	939 (3.99%)
Rural	31107 (98.97%)	324 (1.03%)
$\chi^2=524.65$ df=1 p<0.05		
Ethnic group		
Yoruba	7492 (96.58%)	266 (3.42%)
Ibo	7612 (97.04%)	232 (2.96%)
Hausa/ Fulani	18343 (99.29%)	131 (0.71%)
Others	20240 (99.34%)	634 (3.04%)
$\chi^2=317.15$ df=3 p<0.05		
Level of exposure to Mass Media		
None	19412 (97.04%)	591 (2.96%)
Low exposure	30068 (98.05%)	597 (1.95%)
High exposure	4205 (98.26%)	16 (1.74%)
$\chi^2=61.30$ df=2 p<0.05		

Source: Author's Computation

Table 2 above shows the association between the respondent's individual characteristics and health insurance coverage. All other variables were found to be significantly associated with ownership of health insurance coverage apart from the sex of the household head. The highest percentage of individuals with no health insurance coverage are youths ($\chi^2=145.7$, $p<0.05$). By education, the highest number of people with health insurance are the highly educated ones ($\chi^2=137.13$, $p<0.05$), for the association between religion, protestants have the highest number of people with health insurance coverage ($\chi^2=38.26$, $p<0.05$). The higher percentage of those with health insurance coverage by occupation are the professionals/ sales ($\chi^2=14.80$, $p<0.05$). In addition, by the household head, the analysis revealed there are more people with health insurance coverage in male headed households ($\chi^2=1.18$, $p<0.05$), there are more individuals with health insurance coverage from households where the household head is between the ages 35-54 ($\chi^2=5.67$, $p<0.05$). In the analysis, it was also found that there are more health insurance holders in rural areas than urban areas ($\chi^2=6.69$, $p<0.05$). Also, there are more people with health insurance coverage among the other ethnic groups outside the three major ethnic groups of Hausa, Ibo and Yoruba ($\chi^2=47.42$, $p<0.05$). Finally, the analysis revealed that there are more people with health insurance coverage among those who are not exposed to mass media of any form ($\chi^2=61.30$, $p<0.05$).

Table 4: Binary logistic regression of the correlates of health insurance coverage in Nigeria

Variables	Model 1		Model 2	
	OR	CI	OR	CI
Age				
15-24	1.00		1.00	
25-34	1.13	0.91-1.40	1.12	0.90-1.39
35+	1.69**	1.35-2.12	1.65**	1.31-2.07
Level of Education				
No Education	1.00		1.00	
Primary	1.43	0.81-2.51	1.50	0.85-2.63
Secondary	3.50**	2.12-5.79	3.57**	2.15-5.92
Higher	13.61**	8.15-22.70	12.90**	7.72-21.56
Religion				
Catholic	1.00		1.00	
Protestants	0.80	0.61-1.05	0.81	0.61-1.07
Islam	1.00	0.63-1.60	1.03	0.65-1.64
Trad./ Others	0.67	0.22-2.04	0.66	0.22-1.99
Occupation				
Not working	1.00		1.00	
Professional/Sales	1.28**	1.02-1.60	1.29	1.03-1.61
Agriculture/Services	1.90**	1.42-2.54	1.92**	1.43-2.58
Manual/ Others	0.87	0.63-1.21	0.87	0.63-1.21
Place of residence				
Urban	1.00		1.00	
Rural	0.92	0.67-1.27	0.91	0.66-1.27
Wealth Index				
Poorest	1.00		1.00	
Poorer	6.02**	1.48-24.37	6.30**	1.55-25.50
Middle	19.03**	5.11-70.92	20.62**	5.53-76.87
Richer	33.92**	8.92-128.94	36.81**	9.66-140.29
Richest	80.97**	21.31-307.65	85.90**	22.56-327.09
Ethnicity				
Yoruba	1.00		1.00	
Ibo	1.10	0.79-1.52	1.06	0.77-1.48
Hausa/ Fulani	1.24	0.81-1.91	1.19	0.78-1.82
Others	1.99**	1.42-2.78	1.94**	1.38-2.72
Age of Household Head				
15-24	1.00		1.00	
25-34	1.11	0.70-1.77	1.11	0.70-1.77
35-54	1.24	0.79-1.93	1.25	0.80-1.96
55+	0.80	0.49-1.29	0.80	0.49-1.29
Sex of Household Head				
Male	1.00		1.00	
Female	0.80**	0.65-1.00	0.81	0.65-1.01

Level of exposure to Mass Media		
No exposure	1.00	
Low exposure	0.72**	0.61-0.85
High exposure	0.65**	0.48-0.87

**** implies significance at p< 0.05** **Source: Author's Computation**

Table 4 shows the logistic regression of the correlates of health insurance ownership in Nigeria. In the analysis, variables that were found to be associated with the bivariate analysis were included in the multivariate analysis. Two models were presented below, but in the second model, exposure to mass media was included in the analysis. The result revealed that age, level of education, occupation, wealth index, ethnicity and sex of the head of the household were found to significantly determine the ownership of health insurance coverage in Nigeria. Specifically, the study found a dose relationship between age of individuals and health insurance coverage, as the age increases, the higher the likelihood of being covered by health insurance. Level of education was found to significantly determine ownership of health insurance, the study found that individuals with primary education were found to be more likely to have health insurance coverage compared to those with no education same for those with secondary as they are 3 times more likely (OR=3.57; CI: 2.15-5.92) and those with higher education are 12 times (OR=12.90; CI: 7.72-21.56) more likely to have health insurance compared to those with no education.

Furthermore, the result showed that individuals of the protestant religious group are less likely to have health insurance coverage compared to the Catholics, while individuals who are of Islam are as likely as Catholics, while traditionalists and other religions are likely than catholic to have health insurance. Rural residents were found to be less likely to have health insurance coverage compared to urban residents. Individuals in professional/sales (OR=1.92; CI: 1.03-1.61) and Agricultural jobs (OR=1.92; CI: 1.43-2.58) were found to be more likely to have health insurance respectively compared to those who are not working while those in manual jobs were less likely to have health insurance coverage. For the wealth index, the analysis revealed that the richer the household an individual comes from, the more likely they are to have health insurance coverage. Compared to the Yoruba ethnic group, the Ibos, Hausas (OR=1.19; CI: 0.78-1.82) and other ethnic groups (OR=1.94; CI: 1.38-2.72) are more likely to have health insurance coverage. It was also revealed that individuals from female headed households are less likely to have health insurance compared to those from male headed households (OR=0.81; CI: 0.65-1.01). For the age of household head, it was found that older the household head, the more likely it is for the members of the household to have health insurance but those in households headed by 55+olds are the least likely to have health insurance compared to those in households headed by 15-24 years old (OR=0.80; CI: 0.49-1.29).

Finally, when exposure to mass media messages were included in the second model, the analysis further revealed similar findings as in the first model and the result revealed a sort of inverse relationship between exposure to

mass media message and ownership of health insurance. The more exposed an individual is to mass media, the less likely it is to have health insurance. The same set of variables that were found to be statistically significant in the first model were also found to be statistically significant in the second model.

Discussion

The study has been able to find that the level of health insurance coverage among low and middle income individuals is very low in Nigeria. This echoes the reports in the literature where it has been reported that health insurance coverage is only high among those in the highest wealth quintile in Nigerian implying that the coverage is low among the middle and low wealth quintile. Possible reasons for this could be that many of these low and middle income individuals do not work for the government and are not privy to information about contributory health insurance schemes being offered by the government to civil servants and other government employees. Findings of the study in the multivariate analysis revealed that showed that age is significantly associated with health insurance coverage among low and middle income individuals in Nigeria, this finding is similar to what has been found in the work of (18) where it was found that older individuals had increased odds of health insurance coverage. Other studies that have found the relationship between age of individual and health insurance coverage are (29, 30, 34), one of the studies found that there is a positive relationship between age and health insurance ownership among migrants in the study location in Kenya. It was specifically stated that an increase in migrant age by a year increases the probability of using health insurance services. This relationship could be explained by the fact that older individuals are the ones that are most employed in the professional and formal sector compared to the younger population in Nigeria, this might make them more likely to be enrolled in government and employer financed private health insurance schemes available.

Level of education was also found to be a significant correlate of health insurance coverage among low and middle income individuals in Nigeria, specifically the higher the level of education, the higher the odds of being covered by health insurance. The findings mirror the findings of (1, 21, 29, 30, 32-34), where most of these studies found a significant association between health insurance coverage and level of education of an individual. In these studies, most of them reported that having secondary or higher education is associated with higher odds of being covered by health insurance. This present study has also found that the occupation of an individual is a significant correlate of health insurance coverage, specifically, it was found that being employed as a professional or in the formal sector is associated with increased odds of having a health insurance coverage, while those in the informal sector are significantly less likely to have health insurance coverage. This result finds support in the findings of several studies reviewed where it was also reported that being employed in the formal sector is associated with increased odds of owning health insurance (12, 16, 21, 27, 28, 33).

Conclusions & Recommendations

In this study, the level and correlates of health insurance coverage among low and middle income individuals in Nigeria have been investigated using the 2013 Nigerian Demographic and Health Survey data. It was found that the level of health insurance coverage is very low among this group of people. Socio-economic and demographic correlates of health insurance coverage that have been identified in this study are age, level of education and occupation of individuals.

With the financial disadvantage faced by this group of people, some of the recommendations that can be given based on the findings of this study include; that the government should ensure that health insurance is subsidized for individuals in low and middle income levels in the country to increase the enrolment among this group of people. Better awareness should also be created among people in low and middle income class, individuals with a low level of education, people in the agricultural and other unskilled types of jobs as well as younger people in order to increase the awareness about the advantages of the health insurance scheme. Finally, plans should be put in place to subsidize the premium for the poor in the short term to absorb them into the scheme and in the long term enact laws and policies to make health insurance compulsory due to the obvious benefits of health insurance.

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