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

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Abstract

Background: Health insurance provides a veritable means of achieving Universal Health Coverage (UHC), i.e., the ability of people to gain access to healthcare they need without experiencing financial hardship as a result. Nigeria has a national health insurance scheme, but coverage has been reported to be very low for various reasons. Gaps exist in literature as previous studies on health insurance in Nigeria have not assessed the level and predictors of ownership of health insurance using a national survey. Hence, this study investigates the level and correlates of health insurance coverage in Nigeria. The findings will be of great importance to health programmers and government and extend the body of knowledge on the determinants of health insurance in Nigeria while also offering recommendations.

Method: Using data from 2013 Nigeria Demographic and Health Survey (n=54,948), individual (women) and men recode were merged, and the data were analyzed at three stages of univariate, bivariate, and multivariate using Stata 14. The bivariate level involved the use of chi-square to determine the association between selected socio-economic and demographic variables and health insurance. The multivariate level involved the fitting of two binary logistic regression models.

Findings: The findings showed that health insurance coverage is low in Nigeria as the majority of the respondents reported not having a health insurance, and the factors that were found to significantly determine ownership of health insurance in Nigeria include; age (OR=1.69; CI: 1.35 – 2.12), level of education (OR = 13.61; CI: 8.15 – 22.70), household wealth index (OR=80.97; CI: 21.31 – 307.65), type of occupation (OR = 1.28; CI: 1.02 – 1.60), ethnicity (OR=1.99; CI: 1.42 – 2.78) and level of exposure to mass media (OR=0.65; CI: 0.48 – 0.87).

Conclusion: The paper concludes that the level of health insurance coverage in Nigeria is low; which does not augur well for plans of achieving UHC. The national government as part of recommendations, should consider subsidizing health insurance coverage not just for government workers but the population at large as it is done at the state levels.

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 with a productive contribution 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 designed basically to pay for 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 healthcare. 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 over 90% of over healthcare expenditures in Nigeria is through out-of-pocket expenditures [13], the highest in the world. This development has so much negative impact on the populace

especially the indigent ones and the nation at large [10]; but with a functional health insurance scheme, the financial burden of having to pay for healthcare through out-of-pocket will be reduced especially among the poor in the society [6, 14-17].

Studies have found some factors 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, 2013 NDHS report shows 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]. A study in India; considering the effect of community factors on health insurance uptake revealed that districts with none poor households are more likely to participate in 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 in 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

purchased," "mutual /community-based," "provided by the employer."

Prior to the data analysis, the individual recode (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 on 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

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; and, 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

outcome of interest with respect to explanatory variable(s) can be achieved examining its log odds as shown in the binary logistic model below;

$$\ln \frac{\rho}{1-\rho} \; \beta_0 + \; \beta_1 \, X_1 \; + \; \beta_2 \, X_2$$
$$+ \; \beta_3 \, X_3 + \ldots + \beta_n \, X_n$$

Where; $\ln \frac{\rho}{1-\rho}$ 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 $\beta_0 + \; \beta_1 \, X_1 \; + \; \beta_2 \, X_2 + \beta_3 \, X_3 + \ldots + \beta_n \, X_n$ 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, $\ldots X_n$, which in this case includes the respondents' socio-economic and demographic characteristics.

Results

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%.
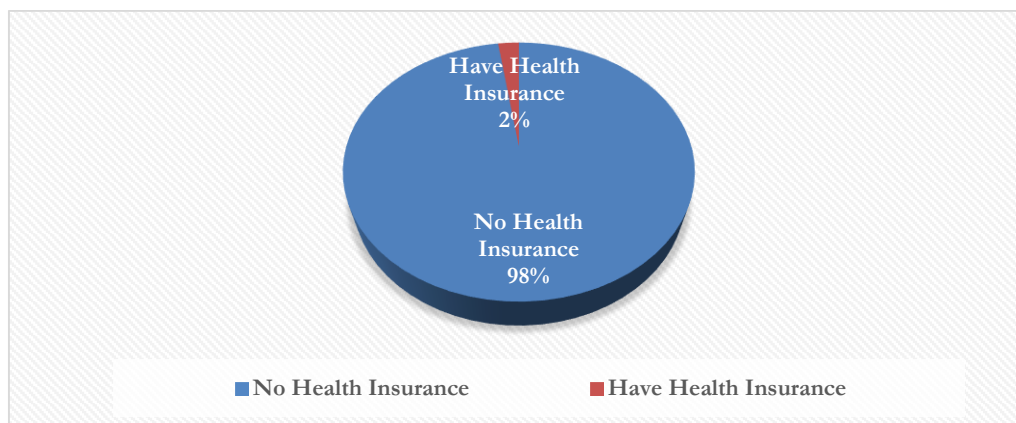

Figure 1: Level of Health Insurance coverage *(Source: Author's computation, 2019)*

Figure 1 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.

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

Variable	Number	Percentage
Age		
15-24	20544	37.4
25-34	17334	31.6
35+	17070	31.1
Level of Education		
No Education	17921	32.6
Primary	9387	17.1
Secondary	21717	39.5
Higher	5923	10.8
Religion		
Catholic	6184	11.3
Protestants	19782	36.0
Islam	28444	51.8
Traditional/ Others	538	1.0
Occupation		
Not working	17404	31.7
Professional/Sales	18937	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	11457	20.9
35-54	27794	50.6
55+	13056	23.8
Place of residence		
Urban	23517	42.8
Rural	31431	57.2
Gender		
Male	16971	29.48
Female	37977	70.52
Ethnic group		
Yoruba	7758	14.1
Ibo	7843	14.3
Hausa/ Fulani	18474	33.6
Others	20873	37.9
Exposure to Mass Media		
Not Exposed	20003	36.4
Low Exposure	30666	55.8
High Exposure	4279	7.8

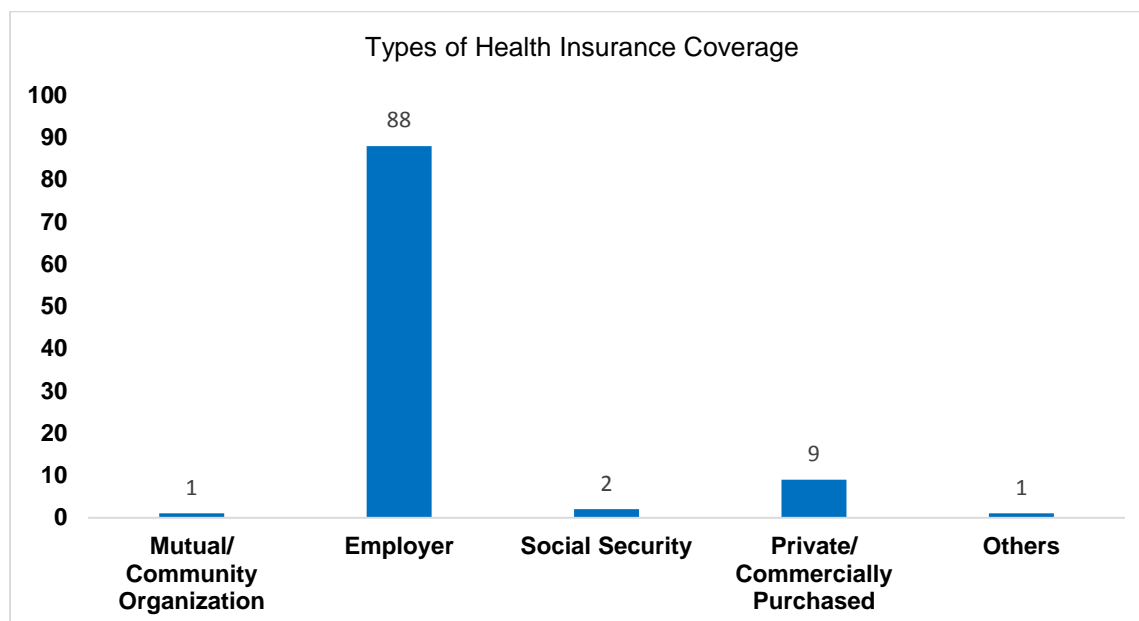*Source: Author's computation, 2019*

Figure 2: Types of Health Insurance coverage owned by the respondents
(Source: Author's computation, 2019)

Figure 2 shows the type of health insurance coverage owned by those who reported having health insurance. The most used type of health insurance is the one provided by the respondents' employers with 88%; the lowest types are the mutual/ community insurance and other types with just 1% while those who owned social security are just 2% of the total respondents who reported having health insurance.

Table 2 shows the association between the respondent's 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 the youths ($\chi2=145.7$, p<0.05). By education, the highest number of people with health insurance are the highly educated ones ($\chi2=137.13$, p<0.05), for the association between religion, protestants have the highest number of people with health insurance coverage ($\chi2=38.26$, p<0.05). The higher percentage of those with health insurance coverage by occupation are the professionals/ sales ($\chi2=14.80$, p<0.05). Also, by household head, the analysis revealed there are more people with health insurance coverage in male-headed households ($\chi2=1.18$, p<0.05), there are more individuals with health insurance coverage from households where the household head is between the ages 35-54 ($\chi2=5.67$, p<0.05). In the analysis, it was also found that there are more health insurance holders in rural areas than urban areas ($\chi2=6.69$, 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 ($\chi2=47.42$, 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 ($\chi2=61.30$, p<0.05).

Table 2: Bivariate association between respondent's characteristics and health insurance coverage in Nigeria.

Variables	Have health insurance (%)
Age	
15-24	281 (1.37)
25-34	433 (2.5)
35+	584 (0.52)
χ^2=145.7 df=2 p<0.05	
Level of Education	
No Education	33 (0.18)
Primary	62 (0.66)
Secondary	462 (2.13)
Higher	707 (11.93)
χ^2=2922.50 df=3 p<0.05	
Religion	
Catholic	207 (3.35)
Protestants	691 (3.49)
Islam	44 (1.27)
Traditional/ Others	3 (0.57)
χ^2=296.19 df=3 p<0.05	
Occupation	
Not working	267 (1.54)
Professional/Sales	656 (3.46)
Agriculture/Services	237 (2.11
Manual/ Others	103 (1.39)
χ^2=187.73 df=3 p<0.05	
Wealth Index	
Poorest	2 (0.02)
Poorer	21 (0.20)
Middle	97 (0.92)
Richer	232 (2.01)
Richest	911 (7.02)
χ^2=1804.88 df=4 p<0.05	
Sex of Household Head	
Male	1070 (2.28)
Female	193 (2.41)
χ^2=0.55 df=1 p>0.05	
Age of Household Head	
15-24	36 (1.34)
25-34	257 (2.24)
35-54	787 (2.83)
55+	183 (1.40)
χ^2=92.87 df=3 p>0.05	
Place of residence	
Urban	939 (3.99)
Rural	324 (1.03)
χ^2=524.65 df=1 p<0.05	
Ethnic group	
Yoruba	266 (3.42)
Ibo	232 (2.96)
Hausa/ Fulani	131 (0.71)
Others	634 (3.04)
χ^2=317.15 df=3 p<0.05	
Level of exposure to Mass Media	
None	591 (2.96)
Low exposure	597 (1.95)
High exposure	16 (1.74)
χ^2=61.30 df=2 p<0.05	

Source: Author's computation, 2019

Table 3: Binary Logistic Regression of the Correlates of Health Insurance Coverage in Nigeria

Variables	Model 1 OR	CI	Model 2 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, 2019*

Table 3 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 determine the ownership of health insurance coverage in Nigeria significantly. 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 Catholics 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 was 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 literature where report has it 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 his 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 age is associated significantly with health insurance coverage among low and middle-income individuals in Nigeria; this finding is similar to the findings of [18] where it was found that older individuals had increased odds of health insurance coverage. Other studies that have been found to have 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 stated specifically 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 mostly employed in the professional and formal sector compared to the younger population in Nigeria; this might make them be 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 correlates 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].

Conclusion and 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 in Nigeria. 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 low level of education, people in the agricultural and other unskilled types of jobs, as well as younger people 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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