ORIGINAL ARTICLE

DETERMINANTS OF IMPOVERISHMENT DUE TO OUT OF POCKET PAYMENTS IN NIGERIA

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Background: Poverty is an extreme consequence of out of pocket payments in countries with health systems that do not provide financial risk protection through mandatory health insurance coverage for people in both the formal and informal sectors. The study assessed the determinants of impoverishment due to out of pocket payments in Nigeria. **Methods:** Secondary data from the Harmonized Nigeria Living Standard Survey (HNLSS) of 2009/10 was utilized to assess factors associated with impoverishment in Nigeria. Household and individual characteristics associated with impoverishment were determined using binary logistic regression. A significance level of $p<0.05$ was used. **Results:** Results show that lack of health insurance, having a member above 65 years, large household size, household socio-economic status, type of illness suffered, type of health facility visited, geo-political zones, education of household heads and location were major determinants of impoverishment due to out of pocket health expenditure. **Conclusion:** Findings from the study show that most households and individuals are vulnerable to financial risk due to this regressive source of payments for health care services. This explains why the level of poverty keeps increasing in spite of the numerous poverty alleviation programs across the country. Policy makers and political actors need to design a new health system financing policy that will increase financial risk protection for people in both the formal and informal sectors. Governments and decision makers have to focus on health as a determinant of economic well-being.

Keywords: Out of pocket payments; Impoverishment; Harmonized Nigeria living standard survey; Financial risk protection; Health equity

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INTRODUCTION

Poverty is an extreme consequence of out of pocket payments for health care in countries with health systems with lack of provision of financial risk protection through mandatory health insurance coverage for people in both the formal and informal sectors. Financial protection ensures the access to health care services regardless of one's ability to pay and reduces the chances to experience financial hardship as a result of seeking medical care. Out of pocket payments for health care can make households incur catastrophic health expenditure that can exacerbate poverty.[1] Globally, many households incur catastrophic health expenditure and are pushed into poverty due to out of pocket payments.[2]

According to World Health Organization in 2010, it was estimated that 150 million people incur catastrophic health expenditure while 100 million people are pushed into poverty.[3] Empirical evidence show that the incidence and intensity of catastrophic health expenditure ranges between 1–25% in twelve Latin American and Caribbean countries.[4] Also, a study conducted in Uganda on the impoverishment impact of out of pocket payments showed that out of pocket payments increase poverty head counts by 4.2%.[5] There is a consensus that pre-payment and risk pooling mechanisms brings countries closer to universal health coverage thus reducing financial catastrophe.[6] Nigeria still lags far behind from moving closer to universal health coverage due to lack of financial risk protection in spite of an agreement made by all countries in 2005 to achieve universal coverage as well as the support for universal health coverage by Ministers of Health and Finance at the African Union meeting in 2012. Out of pocket health payments remain consistently the main source of financing health system in Nigeria.[7] The provision of health insurance is for only less than 5% of the population serving mostly people in the informal sector of the National Health Insurance Scheme (NHIS) established under Act 35 of 1999.[8]

Only 3% of the population are under private health insurance which is voluntary.[9] Efforts to scale up the community based health insurance scheme as a way of extending health insurance coverage for rural population have not yielded substantial results. Most states are reluctant to provide the expected health insurance to those in the formal sector covered through the NHIS. Result of the Harmonized Nigerian Living Standard Survey (HNLSS) of 2010 indicated that the proportion of Nigerian population living in poverty increases every year.[10] Statistics show that more than half of the Nigerian population is living below the poverty line. All the measures of poverty including the

relative poverty, absolute poverty and dollar per day showed a trend of constant rise and estimated to further rise in the coming years.[11] There have been numerous efforts by the government at all levels to alleviate poverty in Nigeria through different initiatives and programs but there has been no change observed in the status of poverty according to statistics. Evidence suggests that ill-health can lead to poverty[12,13] while poverty can lead to ill-health[14] besides the out of pocket payments further exacerbate both poverty and ill-health[14–16]. It is imperative for policy makers and political actors to take into account the issues of health while addressing the alleviation of poverty. Evidence around the world suggests that better health improves the productivity and the income of the individuals in a country and this in turn helps to alleviate poverty.[17] In addition to education, infrastructure and good governance, the health spending is also a determinant of economic well-being and investment in health will lead to income growth. Studies in Nigeria have shown that poor people experience catastrophic health expenditure while accessing health care services due to inappropriate financing arrangements.[18–21] These challenges their economic status that leads to their impoverishment that limits their capacity to meet the basic household needs due to the huge strain of out of pocket payments for health care services.

The aim of this study is to determine the factors associated with impoverishment due to out of pocket payments. Few studies in Nigeria have estimated the determinants of impoverishment due to out of pocket payments. The study provides evidence and contributes to the scanty literature on the factors associated with impoverishment due to out of pocket payments for health care services.

MATERIAL AND METHODS

Secondary data from the Harmonised Nigeria Living Standard Survey (HNLSS) 2009/10 was used for the study. HNLSS is a nationally representative cross sectional study conducted by the National Bureau of Statistics (NBS) with funding by UK DFID and the World Bank as a follow up to the Nigeria Living Standard Survey (NLSS) of 2003/2004. The HNLSS 2009/10 has an enlarged scope that include health, household income, consumption and expenditure, demography, education and skill/training compared with previous surveys. HNLSS is a combination of Nigeria Living Standard Survey (NLSS) household questionnaire and Core Welfare Indicator Questionnaire (CWIQ) jointly developed by National Bureau of Statistics (NBS) and the World Bank. Thirty-six states of the federation and the federal capital territory (FCT), Abuja was covered in the survey. The first part of the survey using the welfare approach was conducted among 77,400 households while the second part of the survey using the consumption approach covered 50 households in each local government area (LGA). In total, 38,700 households were interviewed. Sampling frame for the survey used Enumeration Areas specified by the National Population Commission (NPC). Two stage sample design was employed. The first stage involved the selection of Enumeration Areas (EAs) while the second stage involved the selection of households. Data was collected through interviews conducted by NBS enumerators with household members on a quarterly basis from November 2009 to October 2010.

Data were analysed using SPSS version 22 software. A significance level of $p<0.05$ was used. *Chi* square analysis was done to determine the association between impoverishment and selected variables. Discrete choice approach was thereafter used to estimate the determinants of impoverishment as in previous studies.[22–28] Using the formula:

$$\ln\left(\frac{\hat{p}}{(1-\hat{p})}\right) = b_0 + b_1X_1 + b_2X_2 + \ldots + b_pX_p$$

The dependent variable (p) is the poverty status of individual dichotomized and defined as 1 when the individual expenditure is less than poverty line and zero otherwise. The independent and/or explanatory variables in the logistic regression equation above included the following dichotomized variables: location: urban and rural; gender of household head: male and female; education of household head: educated, and non-educated; health insurance coverage: insured and uninsured; household socio-economic status (quintile); household size: less than five members and more than five members; type of health facility visited: public or private; type of illness suffered: chronic or non-chronic; catastrophic health expenditure: experience catastrophe and did not experience catastrophe; age: elderly (member above 65 years) and very young (member below 5 years old) and geo-political zones.

The study used impoverishment methodology in assessing vulnerability to financial risk earlier used in a study done in Mexico[22] and according to World Bank.[29] An individual is poor if the individual's pre-payment adult equivalent household expenditure is less than the $1.25 a day and $2.00 a day World Bank poverty lines.

RESULTS

The population characteristics of households and individuals used in the study are given in table-1. Table-2 shows the determinants of impoverishment due to out of pocket payments using chi square analysis. There is a statistically significant association between impoverishment and variables such as lack of health insurance coverage, having a member above 65 years, having more than 5 members in the household, experiencing catastrophic health expenditure, household

socio-economic status, type of illness suffered, type of health facility visited, geo-political zone, gender of household heads, education of household heads and location. The likelihood of becoming impoverished having member below 5 years in the household is statistically insignificant. Table-3 present results of the determinants of impoverishments using logistic regression model. Having a member below 5 years was included in the model despite the insignificant result in chi square analysis due to its importance as a demographic characteristic. The result shows that lack of health insurance coverage is statistically significant (OR: 23.91, 95% CI: 15.52–36.83) with impoverishment due to out of pocket payments. Having a member above 65 years is also a significant determinant of poverty (OR: 1.02, 95% CI: 0.88-1.18). Household size is strongly associated with impoverishment due to out of pocket payments (OR: 3.86, 95% CI: 0.64–0.91). Having more than five household members increases the probability of becoming impoverished. Furthermore, household socio-economic status is positively associated with poverty (OR: 0.80, 95% CI: 0.71-0.90). Type of illness suffered increases the risk of impoverishment due to out of pocket payments (OR: 1.01; 95% CI: 1.00–1.02). In addition, the type of health facility visited is associated with poverty (OR: 1.14, 95% CI: 1.12–1.16). Geo-political zones are also a significant determinant of impoverishment due to out of pocket payments (OR: 0.93, 95% CI: 0.90–0.97). Education of household heads is positively associated with the risk of impoverishment (OR: 0.80, 95% CI: 0.77–0.84,). Location is also an important determinant of poverty (OR: 1.73, 95% CI: 1.50–2.01). Gender of household heads, catastrophic health expenditure and having a member below 5 years are not significant determinants of impoverishment due to out of pocket payments.

Results for table-4 show that impoverishment due to out of pocket payments for health care was associated with lack of health insurance coverage (OR: 6.238, 95% CI: 4.725–8.235), having a member above 65 years (OR: 0.753, 95% CI: 0.651–0.8714), large household size (OR:4.157, 95% CI:3.598–4.803), catastrophic health expenditure (OR:0.373, 95% CI:0.296–0.469), household socio-economic status (OR:0.844, 95% CI:0.771–0.925), type of illness suffered (OR:1.010, 95% CI:1.004–1.017), type of health facility visited (OR:1.142, 95% CI: 1.126–1.157), geo-political zone (OR:0.945, 95% CI:0.914–0.976), education of household heads (OR:0.804, 95% CI:0.768–0.842) and location (OR:1.628, 95% CI:1.447–1.831). Gender of household heads and age of member below 5 years are not significant determinants of impoverishment due to out of pocket payments.

Table-1: Population characteristic

Household and Individual Characteristics	n=305000 Percentage	Mean Statistics	Std. Err.	SD
Age	-	24.85	0.035	19.361
0–14	38.6			
15–24	18.4			
25–54	33.3			
55–64	5.1			
65 and above	4.6			
Education	-	17.19	0.042	23.379
None	46.2			
Nursery	0.1			
Primary	31.8			
Secondary	16.8			
Post-Secondary	5.1			
Gender	-	1.49	0.001	0.500
Male	50.9			
Female	49.1			
Household Size	-	17.19	0.042	23.379
Less than 5 members	22.5			
More than 5 members	77.5			
Location	-	1.74	0.001	0.438
Urban	25.9			
Rural	74.1			
Geo-political Zone	-	3.42	0.003	1.655
North Central	16.9			
North East	12.5			
North West	27.7			
South East	12.3			
South South	15.0			
South West	15.5			
Socio-economic status	-	2.36	0.001	0.484
Quintile 1	0.1			
Quintile 2	64.1			
Quintile 3	35.7			
Quintile 4	0.1			
Quintile 5	0			

Table-2: Determinants of impoverishment using *Chi*-square test

Explanatory variables	$1.25 a day Poverty Line		$2.00 a day Poverty Line	
	Chi square	*p*-value	*Chi* square	*p*-value
Lack of Health Insurance	20680.59	0.000	22093.68	0.000
Member below 5 years	0.134	0.714	0.41	0.839
Member above 65 years	136.11	0.000	206.44	0.000
Household Size	9979.43	0.000	12575.15	0.000
Catastrophic Health Exp	7164.431	0.000	9320.32	0.000
Socio-economic status	9098.74	0.000	644.57	0.000
Type of Illness Suffered	1163.75	0.000	1473.04	0.000
Type of Facility Visited	873.04	0.000	964.21	0.000
Geo-political Zones	3994.65	0.000	3596.99	0.000
Gender of Household heads	16.10	0.000	22.38	0.000
Education	6072.72	0.000	6057.07	0.000
Location	8070.77	0.000	042.930	0.000

Table-3: Determinants of impoverishment using logistic regression model

$1.25 per day Poverty Line	Coeff	Std Err.	*p*-value	Odds Ratio	95% C.I	
					Lower	Upper
Lack of Health Insurance	3.17	0.22	0.000	23.908	15.522	36.825
Member below 5 years	0.20	0.75	0.778	1.020	0.881	1.181
Member above 65 years	-0.28	0.09	0.002	0.759	0.637	0.905
Household Size	1.35	0.09	0.000	3.855	3.236	4.592
Catastrophic Health Exp.	0.36	0.21	0.087	1.429	0.950	2.150
Socio-economic Status	-0.22	0.06	0.000	0.802`	0.717	0.895
Type of Illness Suffered	0.01	0.004	0.004	1.011	1.004	1.019
Type of Facility Visited	0.13	0.01	0.000	1.139	1.121	1.158
Geo-political Zones	-0.07	0.02	0.001	0.934	0.897	0.972
Gender of Household heads	-0.02	0.06	0.669	0.977	0.878	1.087
Education	-0.22	0.02	0.000	0.804	0.768	0.842
Location	0.55	0.08	0.000	1.732	1.495	2.007

Table-4: Determinants of impoverishment using logistic regression model

$2.00 per day Poverty Line	Coeff.	Std Err.	*p*-value	Odds Ratio	95% C.I	
					Lower	Upper
Lack of Health Insurance	1.83	0.14	0.000	6.238	4.725	8.235
Member below 5 years	0.04	0.06	0.573	1.036	0.917	1.171
Member above 65 years	-0.28	0.07	0.000	0.753	0.651	0.871
Household Size	1.42	0.07	0.000	4.157	3.598	4.803
Catastrophic Health Exp.	-0.99	0.12	0.000	0.373	0.296	0.469
Socio-economic Status	-0.17	0.05	0.000	0.844`	0.771	0.925
Type of Illness Suffered	0.01	0.003	0.003	1.010	1.004	1.017
Type of Facility Visited	0.13	0.01	0.000	1.142	1.126	1.157
Geo-political Zones	-0.06	0.02	0.001	0.945	0.914	0.976
Gender of Household heads	-0.07	0.05	0.148	0.937	0.857	1.023
Education	-0.18	0.02	0.000	0.833	0.802	0.865
Location	0.49	0.06	0.000	1.628	1.447	1.831

DISCUSSION

Lack of health insurance coverage is a significant determinant of impoverishment in Nigeria. Alarmingly, over 90% of the Nigerian population are not under any health insurance coverage. Majority of these households and individuals pay out of pocket for health care services that make them vulnerable to incur catastrophic health expenditure which exacerbates the level of poverty. This is in line with findings from a study in Vietnam that supports the finding that lack of health insurance is strongly associated with impoverishment.[27] Having a member above 65 years is significantly associated with impoverishment in the study. Similar studies in Kenya[24] and Vietnam[27] supports this finding. However, this is in contrast with a study in Eritrea[28] where age was found to be insignificant in determining poverty. Household size is positively associated with impoverishment due to out of pocket health expenditure. This is in line with findings from similar studies in Kenya,[23–26,30] Nigeria[31–33] and Vietnam[27] but in contrast with studies in Ethiopia[34] and Eritrea[28] where there was a weak association between household size and poverty. Our study reveals that low level of education of household heads is associated with impoverishment. This is supported by similar studies in Kenya,[24,25,34,35] Nigeria,[31–33] Eritrea,[28] Uganda[36,37] and Albania[38] where level of education was a significant determinant of poverty but in contrast with a study in

a South African Township[39] where the level of education was not associated with poverty. Location whether rural or urban is also an important determinant of impoverishment. Similar studies in Kenya,[24,30,35] Nigeria[31,33] and Uganda[36] support this finding. Geo-political zone is significantly associated with impoverishment due to out of pocket payments for health care services in Nigeria. This is in line with a study in Kenya.[35] Our study also revealed that household socio-economic status, type of illness suffered and type of health facility visited are strongly associated with the vulnerability of households and individuals to poverty. Gender of household heads and having a member below 5 years are not significant in determining impoverishment due to out of pocket payments.

Findings from the study show that most households and individuals are vulnerable to financial risk due to this regressive source of payments for health care services. This explains why the level of poverty keeps increasing in spite of the numerous poverty alleviation programs across the country. Policy makers and political actors need to design a new health system financing policy that will increase financial risk protection for people in both the formal and informal sectors. Governments and decision makers have to focus on health as a determinant of economic well-being.

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AUTHORS' CONTRIBUTION

All authors contributed equally.

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