

FINANCIAL BURDEN ASSOCIATED WITH ILL-HEALTH: EVIDENCE FROM THE ELDERLY POPULATION IN NIGERIA

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Abstract

This study investigated the financial burden associated with ill-health among the elderly in Nigeria. Data were drawn from the 2010 National Living standard survey covering the six geopolitical zones with rural-urban dimension. The World Health Organization capacity to pay single threshold approach was adopted. The results showed that there is a huge financial burden associated with out-of-pocket health expenditure among the elderly in Nigeria and this financial burden increases with increase in income. This was attributed to the wide disparities in healthcare utilization between the rich and the poor, in favour of the rich. Also, more than 50% of elderly people in Nigeria have unmet healthcare needs due to poverty hence, there is need to protect them from the financial burden associated with ill-health. The study also showed that the National Health Insurance Scheme is not popular and does not make any provision for the elderly hence, there is need to establish centres for elderly care throughout the country. This can have substantial positive effect on healthcare utilization among elderly people in the country.

Keywords: catastrophe; elderly; equalized food expenditure; income quintile, Nigeria; out of pocket health expenditure

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1. Introduction

Ill-health is a random phenomenon that afflicts any member of the society irrespective of class, tribe, religion or political affiliation. However, the concern for nations has

been the aftermath effect of accessing treatment. In the absence or near absence of a third-party payment system, consumers pay for healthcare services at the point of

use and treatment is continued and stopped only at the point they are able to pay for it. This can lead to situations where people may not be able to afford other necessities of life after treating an episode of ill-health therefore imposing some measure of burden on their finances. This financial burden associated with ill-health is referred to in the literature as catastrophic out-of-pocket (OOP) health expenditure.

Xu et al, (2003a), postulates that Out-of-pocket health care expenditure is an important feature of health care systems all over the world. The impact of health care financing systems on the welfare of households, particularly poor households is an important issue for policymakers in developing healthcare systems and insurance mechanisms. Spending too much of household's resources on health care can lead to financial catastrophe or impoverishment (Wagstaff and van Doorslaer, 2003; Major, 2017).

According to the World Health Report (2000), a high proportion of out-of-pocket payments for health care can keep a country from attaining equitable financing, because out-of-pocket payments for health care tend to be regressive and often impede access to health services. Therefore, national health financing systems should be designed not only to facilitate access to health services when needed, but also to protect households from financial catastrophe through the development of risk pooling and prepayment mechanisms and reducing reliance on out-of-pocket payments.

According to Gustafsson-Wright and Schellekens (2013), Nigeria has

one of the highest out-of-pocket health expenditure and poorest health indicators in the world. Private healthcare expenditure is well over 70% of the total healthcare spending, out-of-pocket healthcare payment accounted for over 90% of this (Federal Ministry of Health (FMoH), 2003; World Health Organisation, 2005; WHO Global Health Expenditure database at <http://apps.who.int/nha/database>; Onoka *et al*, 2010). The 2013 Nigerian Demographic and Health Survey (NDHS) report showed an under-5 mortality rate of 128 per 1,000 live births for the five years preceding the survey and infant mortality rate of 69 per 1,000 live births. This implies that one in every 15 Nigerian children die before their first birthday and that one in every eight die before their fifth birthday (National Population Commission (NPC), 2014). Though there seem to be a considerable decline in all levels of childhood mortality the achievement is far from the MDGs targets as both under-5 and infant mortality rates at least doubles the MDGs' targets of 64 per 1000 live births and 30 per 1000 live births at the end of 2015, respectively. Infant mortality declined by 26 percent over the 15-year period preceding the survey, from 93 deaths per 1,000 live births to 69 deaths per 1,000 live births. Under-5 mortality declined by 31 percent over the same period, from 185 deaths per 1,000 live births to 128 deaths per 1,000 live births. The report showed that infant and child survival are strongly influenced by the socio-economic characteristics of residence, zone, mother's education and household wealth. Mother's education is inversely

related to a child's risk of dying. Under-5 mortality among children born to mothers with no education (180 deaths per 1,000 live births) is almost twice as high as that among children born to mothers with a secondary education (91 deaths per 1,000 live births) and about three times as high as that among children of mothers with more than a secondary education (62 deaths per 1,000 live births). The beneficial effect of educating mothers is evident for all childhood mortality categories. Also, childhood mortality generally decreases as wealth increases (NPC, 2014). This strongly revealed that the poor, weak and vulnerable are at the receiving end.

In an attempt to address the precarious and dismal situation in the health sector, and provide universal access to quality healthcare service in the country, the National Health Insurance Scheme (NHIS) policy which was drafted in 1997 and signed into law in 1999 became operational after it was officially launched by the Federal Government in 2005 (Kannegiesser, 2009). The provisions of the NHIS toward the healthcare needs of Nigerians is targeted at the formal sector of the population with emphasis on federal civil servants engaged in the Ministries, parastatals, agencies and extra-ministerial corporations. It provides for outpatient and inpatient care for the insured, spouses and siblings under 18years (Akande, Salaudeen and Babatunde, 2011). The specific objectives of the NHIS include:

- the universal provision of healthcare in Nigeria;

- to control/reduce arbitrary increase in the cost of healthcare services in Nigeria;
- to protect families from high cost of medical bills;
- to ensure equality in the distribution of healthcare service cost across income groups;
- to ensure high standard of healthcare delivery to beneficiaries of the scheme;
- to boost private sector participation in healthcare delivery in Nigeria;
- to ensure adequate and equitable distribution of healthcare facilities within the country;
- to ensure that, primary, secondary and tertiary healthcare providers are equitably patronized in the federation; and
- to maintain and ensure adequate flow of funds for the smooth running of the scheme and the health sector in general (NHIS Decree No. 35 of 1999, part II: 5; NHIS, 2009).

It is sad to note that as laudable as its objectives are the coverage of the NHIS is far from that of universal health coverage (UHC) and people still spend enormously out-of-pocket to satisfy their healthcare needs. Also, there is no provision for the healthcare need and social security for the elderly. In a society that is gradually moving away

from the extended family kind of relationship, elderly people may soon have to stay alone with none to take care of their health and other physical needs, hence it becomes pertinent to study the financial burden associated with ill – health among the elderly in Nigeria.

2.0 Literature Review

A growing literature has emerged to examine the extent of catastrophic health payments, and the impoverishing impact of OOP health expenditures, in a wide range of countries, and using different methodologies.

Wang, Li, and Chen (2015) analysed the extent, associated factors and inequality of Catastrophic Health Expenditure (CHE) in elderly households with chronic disease patients in China and showed that CHE incidence and intensity were relatively high among elderly households with chronic disease patients. The main associated factors of CHE include household size, having members > 65 years, having members with ≥ 2 chronic diseases, per capita income, and elderly household members demonstrating healthcare-seeking behaviours. Healthcare insurance did not significantly affect CHE risk. Disproportionate concentration of CHE was noted among elderly households, and poor elderly households demonstrated a higher probability of experiencing CHE. They also showed that the unequal usage of inpatient and outpatient services reduces CHE inequality among elderly households with chronic disease patients. Rezapour, Ghaderi, Azar, Larijani, and Gohari (2013) studied the effects of out-of-pocket payment for

health care services on households in Tehran and revealed the existence of health care inequality. They also demonstrated that although the need for health care utilization has been concentrated in the poor, inequality in receiving and using health care services has been distributed in favour of the rich. Over 4% of households who utilized healthcare services were impoverished. Different levels of catastrophic health expenditures occurred in the households using health care services. Variables such as education status of household head, household size, and number of the times that outpatient health services had been used appeared to have a positive relationship with the incidence of catastrophic health expenditure while preschool children living in HHs is negatively associated with catastrophic health expenditure. But insurance coverage had no significant correlation with preventing catastrophic health expenditure.

Van Doorslaer et al. (2007) examined the impoverishing impact of OOP payments for healthcare in 11 Asian countries, and found that OOP expenditures exacerbated the extent of poverty. In particular, poverty estimates after controlling for OOP health expenditures were much higher than the conventional estimates, ranging from an additional 1.2% of the population in Vietnam to 3.8% in Bangladesh. In another study, Van Minh et al. (2013) examined the catastrophic and poverty impacts of OOP health expenditures in Vietnam, and found that between 2002 and 2010, 4 to 5% of households have incurred catastrophic health expenditure, and between 3 to

4% of households have been impoverished because of OOP payments for healthcare. Shahrawat and Rao (2012) found that 5% of the households in India suffered from catastrophic health expenditures, and that the poverty deepening impact of OOP health payments was at a maximum among people below the poverty line compared to those above the poverty line. Narci et al. (2015) reported an increase in catastrophe, and poverty in Turkey due to OOP health expenditures during the period 2004 to 2010.

It has been documented that government health financing plays a vital role in protecting households from financial catastrophe. In a study of 59 countries, Xu et al. (2007) found a negative correlation between the extent of catastrophic expenditure, and the size of public health spending. In addition, reducing reliance on OOP payments in financing healthcare also contributes to the protection of households from financial catastrophe resulting from illness. Xu et al. (2003a) identified three preconditions for catastrophic health expenditure: expensive healthcare, poor population and the lack or failure of health insurance to cover health expenses.

In a cross-country study, Elgazzar et al. (2010) examined the extent of OOP payments for healthcare, and its effect on living standards in Six Middle East and North African countries including, Yemen, the West Bank and Gaza, Egypt, Iran, Tunisia, and Lebanon. They found that on average, OOP expenditures constituted 49% of total national healthcare expenditure, and that households paid an average of 6% of their total expenditure on

healthcare services. 7 to 13% of households faced catastrophic health expenditures, and poverty rates increased by up to 20% after healthcare spending is accounted for. They also found that lower-income, and rural households faced greater risk of experiencing catastrophic health expenditure.

Macha (2015) explored the magnitude of catastrophic expenditure, and determined its contributing factors in Tanzania and showed estimated overall incidence of catastrophic health expenditure of 30.3% using threshold of 20% of capacity to pay, and 26.6% amongst insured respondents. Macha also showed that households whose heads are involved in social organisations or networks were more protected against catastrophic health expenditures. On the other hand, households headed by a female and involved in farming, were more likely to experience catastrophic health expenditure. Households whose heads had low levels of education and households having members with recurring or chronic illness were more likely to experience catastrophic health expenditure. Also, households with insurance cover were more likely to be protected from the risk of catastrophic health expenditure compared with those not covered by insurance schemes. Rahman and Chowdhury (2014) showed that micro health insurance program in Bangladesh has improved, but the increased access has not been able to reduce the essential health-related out-of-pocket expenditure.

Olumide (2015) investigated the determinants of catastrophic health expenditure (CHE) among poorly

insured elderly households in Nigeria. Data on out-of-pocket payments and self-reported health status were sourced from the Nigerian General Household Panel Survey (NGHPS) conducted by the National Bureau of Statistics in 2010, with technical support from the World Bank. CHE was defined at the 10 % of total consumption expenditure threshold. Results showed that over 9% of elderly households faced CHE. Poorer and smaller elderly households were most at risk of CHE. Female-headed households were less likely to incur CHE compared to male-headed households. Households with informal health financing arrangements were less likely to incur CHE. Education and utilising a health promoting tool, such as treated bednets increased the probability of incurring CHE in Urban Nigeria.

Olaniyan and Lawanson (2010) investigated the differences in the Northern and Southern regions' patterns of health financial flows, and the implication for health outcomes using the National Health Accounts (NHA) framework. They found that healthcare financing in both the North and South of Nigeria is heavily dependent on household and the proportional share by the household is disproportionately against the North. With lower health financial flows in the North, the health outcomes in this region remain relatively significantly poor. This raises equity concerns as those who are least able to pay are made to bear the greater burden. The current overburden of the household requires exploration of alternative financing mechanisms by the government. The dominance of public

providers is more prominent in the North, where more than 71% of health service providers are public facilities, while both the public and private facilities in the South receive approximately equal share of the health spending in the region. Uzochukwu and Ezenekwe (2012) analysed out of pocket healthcare spending of Nigerian households to determine if they are catastrophic. Using intensity and incidence methods, findings revealed that 24% of Nigerian households incur catastrophic health expenditure and this was more prevalent among the richest income quintiles in Nigeria and as such has succeeded in changing the poverty situation (pushing households below poverty line) of most households who were originally on or above the poverty line.

Onwujekwe *et al* (2010) assessed the determinants of OOPS and strategies for coping with payments for healthcare in urban, semi-urban and rural areas of southeast Nigeria. The study areas were three rural and three urban areas from Ebonyi and Enugu states in South-east Nigeria. Cross-sectional survey using interviewer-administered questionnaires to randomly selected householders was the study tool. A socio-economic status (SES) index that was developed using principal components analysis was used to examine levels of inequity in OOPS and regression analysis was used to examine the determinants of use of OOPS. Results revealed that all the socioeconomic groups equally sought healthcare when they needed to. However, the poorest households were most likely to use low level and informal providers such as traditional healers,

whilst the least poor households were more likely to use the services of higher level and formal providers such as health centres and hospitals. The better-off more than worse-off socio-economic groups used OOPS to pay for healthcare. The use of own money was the most common payment-coping mechanism in the three communities. The sales of movable household assets or land were not commonly used as payment-coping mechanisms. Declining socioeconomic status was associated with increased sale of household assets to cope with payment for healthcare in one of the communities. Fee exemptions and subsidies were almost non-existent as coping mechanisms in the study area.

Etiaba, Onwujekwe, Uzochukwu and Adjagba (2015) examined the coping mechanism of different population groups to payment for malaria treatment in the South-eastern region of Nigeria. Two hundred households were studied. The results showed the average expenditure incurred in treating malaria to be \$22.9 and was through out-of-pocket payments. The coping strategies of households included running down of savings and reduction in other household consumption expenditure but health insurance was not among them. The average socio-economic household had to forego other basic household expenditures in order to cope with malaria illness; otherwise there were no other significant differences in the coping mechanisms across the different socioeconomic groups.

Ilesanmi, Adebisi, and Fatiregun (2014) examine if households enrolled in the NHIS were protected from

catastrophic health expenditure. The element of study was 714 households in urban communities of Oyo State. CHE was measured using a threshold of 40% of monthly non-food expenditure. Principal Component Analysis was used to divide households into wealth quintiles. Chi-square test and binary logistic regression were also used. Results showed that 9.4% of households in the state were enrolled in the NHIS scheme. Healthcare services were utilized by 82.9% and CHE occurred in 6.6% households. CHE occurred in 10.9% of households in the lowest quintile and 2.5% in the highest wealth quintile. Households not enrolled in the NHIS were two times more likely to face CHE.

Onwujekwe, Uzochukwu, and Kirigia (2011) presented information about the socio-economic status (SES) and geographic differences in affordability, catastrophic costs and altruism within the context of instituting effective Community-Based Health Insurance (CBHI) schemes. The study took place in a rural, urban and semi-urban community in two states in Nigeria. A questionnaire was used to collect information from 3070 randomly selected householders. Contingent valuation method was used to elicit altruistic willingness to pay. Catastrophic health expenditures were examined at 40%, 10% and 5% thresholds based on household non-food expenditures. Affordability was measured as proportion of total household expenditure that will be consumed by the existing per capita monthly premium for CBHI, which is 500 Naira. Data was examined for links between affordability, catastrophic costs

and altruistic WTP with SES and geographic area of residence. Results showed that Households are currently spending between 1139.6 Naira (US\$ 9.5) and 3846.5 Naira (US\$ 32.1) monthly on healthcare, and this was mainly out-of-pocket. At the 40% household non-food expenditure threshold, 28.7% of households incurred catastrophic healthcare costs. Incidence of catastrophic costs was least in the urban area and amongst the highest quartile. A monthly premium of 500 naira (US\$ 4.2) was found to be less than 3% of households' monthly expenditures. The mean altruistic WTP was 202.7 Naira (US\$1.7) per year. They concluded that there were high levels of catastrophic costs, but with appreciable levels of affordability and altruistic WTP for CBHI, coverage can be increased and financial risk protection assured for most people that need CBHI.

Onoka, Onwujekwe, Hanson and Uzochukwu (2010) measured catastrophic healthcare expenditure in Nigeria and examined its implications for financial risk protection. Data were collected from 1128 households (4988 individuals) between January and June 2008. Households were randomly selected from four Local Government Areas in Enugu and Anambra states, Southeast Nigeria (1 rural and 1 urban area in each state) Diaries were used to gather information on illness, expenditure on health, transportation, food, education, entertainment, clothing, cooking and fuel over a one month period. Diary entries were supervised by trained field workers and replaced weekly. Beginning with variable threshold levels of 5% and

40%, ratios of food expenditure of different socio-economic status groups were used as weights to determine the levels of catastrophe appropriate for various socio-economic status groups. Findings showed high incidence of catastrophic expenditure on healthcare. About 15% of households studied experienced catastrophe when the threshold level was set at 40% of non-food expenditure. The highest proportion (23%) was amongst the poorest households (Q1) and the difference with other groups was significant. For the richest quintile (Q5) less than 8% of households experienced catastrophic costs.

From the foregoing, it is obvious that the literature is replete with empirical works on catastrophic health expenditure with references to different countries of the world but there is dearth on empirical evidence concerning the incidence of catastrophic health expenditure among the vulnerable groups, especially, the elderly around the world in general and Nigeria in particular. Therefore this study adds to the existing literature by providing empirical evidence on the prevalence of catastrophic out-of-pocket health payments among the elderly population in Nigeria.

3. Methodology

3.1 Data

The data for this study was generated from the Harmonized Nigeria Living Standard Survey (HNLSS) conducted by the National Bureau of Statistics between 2009 and 2010. The survey was part of an effort of the Federal Government of Nigeria to

provide statistical information on welfare and poverty trends in the country. The survey spreads across the six geopolitical zones of Nigeria, the: South-South (SS), South East (SE), South West (SW); North Central (NC), North East (NE), and North West (NW) as well as urban and rural locations, and the Federal Capital Territory (FCT), Abuja covering all 774 Local Government Areas of the country. Each zone is made up of six states except the SE that has five states and the NW with seven states. This study covered the six geopolitical zones as well as the rural-urban dimensions.

The survey covered such issues as: demography, education, health, employment and time use, migration, housing, social capital and community participation, agriculture, household expenditure, non-farm enterprise, credit, assets and saving, income transfer and household income schedule (NBS, 2012). The analyses in this study were based on three key variables:

- household total per capita expenditure;
- household per capita health expenditure;
- household per capita expenditure net of health expenditure and
- household per capita food expenditure.

Household per capita expenditure (pcexpdr) refers to the total annual household expenditure (food and non-

food) in regionally deflated current prices.

Household per capita health expenditure (pchl) refers to out-of-pocket components of treating an episode of ill-health in the household, which include the cost of consultation, cost of drugs, and hospitalization (NBS, 2012).

A two-stage stratified sampling technique was used in the survey. At the first stage clusters of housing units were selected to form the primary sampling units (the Enumeration Areas, EAs). At the second stage individuals and household units were sampled. One hundred and twenty (120) EAs were selected from each of the 36 states of the country and 60 from the Federal Capital Territory (FCT). The study data were drawn from households with at least a member that is sixty years of age and above. There were altogether 9002 such households covered by the survey used in this study.

3.2 Estimation Technique and Justification

This study adopted the World Health Organization researchers' measure of COOPHE that uses the Capacity – to – Pay (Financial Burden) approach which allows for a single threshold (Xu, *et al*, 2003b; Xu, 2005; Alam & Mahal, 2014 and Karimo & Okumoko, 2016). Xu, *et al*, (2005) recommended the following computation of CTP:

$$CTP_i = TEXP_i - \text{Min}\{SE_i, FEXP_i\} - - - - (1)$$

Where *TEXP* is total household expenditure. It represents the financial situation of the household.

Total expenditure is used rather than income because it has been found to be a more reliable measure of the household's financial situation than income. Household total expenditure fluctuates less than household total income. Also, people are more likely to accurately state estimates of their expenditure than income (Xu, et al, 2003c).

FEXP is food expenditure and *SE* subsistence expenditure. In calculating *SE* the economies of scale in household food consumption are considered. A household of four does not need four times the food expenditure needed for a household of one. Therefore the first step is to calculate the equalized food expenditure per household member as:

$$EQFEXP_i = \frac{FEXP_i}{household\ size^\beta} \dots \dots \dots (2)$$

To determine household subsistence expenditure, a food share based poverty line was used. This is based on the observation that the share of food expenditure to income falls as household income rises, and that the poor have higher shares of food in total income or consumption than the rich (Deaton & Muellbauer, 1980). The food expenditure of the household with the median share of food expenditure in total expenditure, adjusted for household size, was taken to reflect subsistence requirements and the poverty line. The subsistence expenditure for a household is then calculated as:

$$SE_i = individual's\ food\ poverty\ lin \times household\ size^\beta$$

β measures the rate of change of food expenditure with respect to a percentage change in household size. The value of β was obtained following the work of Xu, et al (2003c) by estimating the following regression model:

$$lnfood = \alpha + \beta lnhhsize + \sum_{i=1}^{k-1} \gamma_i Z_i + u_i \dots (3)$$

Where: *lnfood* is the logarithm of food expenditure;

lnhhsize is the logarithm of household size;

Z_i ($i=1, 2, \dots, 6$) represents the six geopolitical zones (1=North Central; 2=North-East; 3=North-West; 4=South-East; 5=South-South; 6=South-West) in Nigeria and the North-Central zone is the reference category; and

u_i is an idiosyncratic error term.

Equation (1) then measures the *i*th household's capacity to pay. For households whose food expenditure is larger than their subsistence expenditure, capacity to pay is total expenditure minus subsistence expenditure. The reason for this is that a richer household may be expected to have higher food expenditure than what reflects basic necessities. Measuring it this way, would not give an appropriate measure of capacity to pay for a household whose actual food expenditure is lower than its estimated subsistence expenditure. This may happen for poorer households in which case capacity to pay is total expenditure minus actual food expenditure. A household will, with this approach, have catastrophic health expenditure when

its OOP payments for healthcare equal or exceed 40% of its capacity to pay.

4. Results and Discussion

The distribution of elderly households in the survey is presented in Table 1. Columns 1 and 2 showed the frequency and percentage contribution of the six geopolitical zones to the elderly sample, in columns 3 and 4 the frequency and percentage of elderly households utilizing healthcare services are presented and in columns 5 and 6 the frequency and percentage of elderly households with health insurance policy are presented. The North-Central, North-East and North-West contributed 12.7, 10.53 and 20.12 percent to the overall elderly population sampled, respectively while 20.42, 13.06 and 23.17 percent were sampled from the South-East, South-South and South-West, respectively. In all the zones less than 50 percent of the elderly population utilizes healthcare services. There is also a marked difference between the North and the South in healthcare utilization amongst the elderly. This is worrisome given that this is a vulnerable group and more than 50 percent of them in each zone would have unsatisfied health needs. Specifically, about 39%, 37% and 34% of elderly households in the North-Central, North-East and North-West effectively sought healthcare services respectively, while in the South-East, 54% sought healthcare services, which is the highest in the country. The South-South and South-West both had 49% of elderly households seeking healthcare services each. Clearly greater percentage of elderly

households in the North have unmet health needs compared to the south. The distribution based on income group is presented in Table 2 and it clearly showed that the percentage of elderly households effectively seeking healthcare services increased with income. While in the lowest quintile a meagre 13 percent sought healthcare services, in the middle class it was about 40 percent and 82 percent in the upper income group. This implies that more elderly people in the lower income group have unmet health needs.

To estimate catastrophic health expenditure, the study first estimated the relationship between food expenditure and household size. The results are presented in Table 3. The essence was to generate estimate for β which was then used in the estimation of equalized food expenditure and subsistence expenditure. The equalized food expenditure and subsistence expenditure were subsequently used in estimating households' capacity to pay. The results showed that increasing household size by 100 percent increases food expenditure by about 34 percent (the coefficient of $\ln hsize$, $\beta = 0.341$). This indicates that food expenditure increases as household size increases but by less than proportion, that is a household of 4 for example does not need 4 times the food expenditure of a household of 1. Coefficients on the zone dummy for North-East and South-East were positive it was the coefficient on North-East that was statistically significant indicating that the average food expenditure amongst the elderly population in the North-East zone is greater than that of the North-Central zone by about 8 percent. The

coefficients on North-West, South-South and South-west were all negative it was the coefficients on the South-South and South – West that were statistically significant, indicating that elderly households in the south-south and

south-west on average expend 11 and 37 percent less on food than the North Central. The North-West and the South-East expenditure on food were equal to that of the North-Central.

Table 1: Distribution of Elderly Households according to Geopolitical Zone

Zone	Elderly Households		Healthcare seeking Elderly Households		Elderly Households with health insurance Policy	
	Freq.	Percentage	Freq.	Percentage	Freq.	Percentage
North-Central	1143	12.70	445	38.93	0	0.00
North – East	948	10.53	353	37.24	0	0.00
North – West	1811	20.12	619	34.18	0	0.00
South – East	1838	20.42	1000	54.41	1	0.05
South – South	1176	13.06	578	49.15	2	0.17
South – West	2086	23.17	1015	48.66	4	0.19
Nigeria	9002	100	4010	44.55	7	0.08

Source: Own computation Based on the National Bureau of Statistics, 2010 National Living Standard Survey Data

Table 2: Distribution of healthcare utilizing elderly households based on socioeconomic group

Healthcare utilization	Q1	Q2	Q3	Q4	Q5
YES	13.33	26.94	39.98	60.72	81.78
NO	86.67	73.06	60.02	39.28	18.22

Source: Own Computation Based on the National Bureau of Statistics, 2010 National Living Standard Survey Data

The results for catastrophic health expenditure are presented in Table 4. The results showed that over 29 percent of elderly households in the country faced catastrophic OOPHE and 30 percent of those in rural settlements experienced the phenomenon compared

to 28 percent of urban dwellers. Though catastrophic health expenditure was high in all the zones but the southern part of the country had greater percentage of people spending more than 40 percent of their non-food consumption expenditure on health

compared to the North. The North – Central, North – East and North – West had 23%, 27% and 24% of their inhabitants experiencing COOPHE respectively but in the South – East, South – South and South – West it was 39%, 33% and 28%, respectively. The percentage of people experiencing the phenomenon in the southern part of the country was also higher than the national average except for the south-west. COOPHE was also high in both

rural and urban centers in all the zones. While 30 percent or more of rural dwellers in the south (south-east 40%, south-south 34% and south-west 30%) faced COOPHE 27 percent or less of northern rural dwellers (North-central 21%, North-East 27% and North-west 24%) experienced the phenomenon. The observed difference between the North and South is attributable to differences in healthcare utilization.

Table 3: Household size and Food Expenditure Relationship

Infood	Coefficient	Std. error	t-stat	p-value
Inhhsiz	0.341	0.014	23.52	0.000
North-East	0.087	0.040	2.18	0.029
North-West	-0.058	0.034	-1.71	0.088
South-East	0.010	0.034	0.30	0.767
South-South	-0.110	0.038	-2.91	0.004
South-West	-0.368	0.034	-10.77	0.000
Constant	10.900	0.033	329.28	0.000
Obs	9002			
R-squared	0.1079			
Adj. R-squared	0.1073			
F-stat (6, 8995)	181.39			
Prob F-stat	0.0000			

Source: Own Computation Based on the National Bureau of Statistics, 2010 National Living Standard Survey Data

The distribution based on income class showed that catastrophic health expenditure increased with income, that is more and more elderly households face financial catastrophe as moving from lower to higher income class due to COOPHE. While about 5 percent of the lowest income class experienced catastrophic health expenditure, 24 percent of the middle class and 65 percent of the upper class experienced the phenomenon. This means that 5

percent of poor elderly households became poorer due to COOPHE while 24 percent and 65 percent of the middle and upper income group have fallen into poverty due to COOPHE. At first look it seems that lower income households are better off compared to the higher income class, but this is a reflection of the wide disparity in healthcare utilization between the rich and the poor, and that majority of poor households do not pay for health

expenditure because they did not utilize healthcare services and therefore have unmet health needs. This is also true for all the geopolitical zones except for little

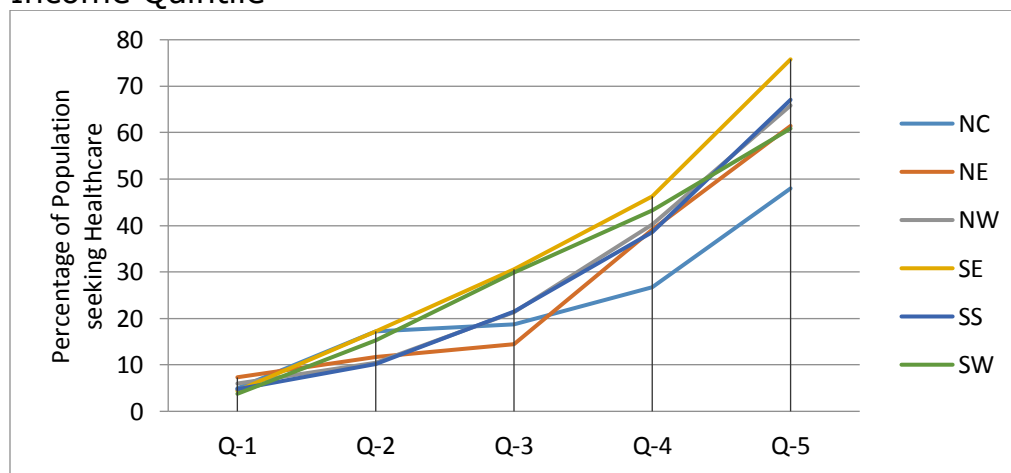
disparities within the income groups (Table 4 & Graph 1).

Table 4: Incidence of Catastrophic Healthcare Expenditure among Elderly People in Nigeria

Category	Households with Catastrophic Out-of-Pocket Healthcare Payments (%)							
	All	Rural	Urban	Q1	Q2	Q3	Q4	Q5
Nigeria	29.49	30.03	28.03	4.94	13.67	23.76	39.89	65.22
North – Central	22.75	21.22	28.02	4.95	17.18	18.67	26.77	48.00
North – East	27.22	27.03	28.57	7.34	11.70	14.43	39.09	61.45
North – West	24.46	24.12	26.32	5.99	10.48	21.41	40.20	65.84
South – East	39.23	39.80	36.00	4.42	17.24	30.52	46.31	75.79
South – South	32.65	34.01	27.23	4.76	10.22	21.43	38.57	67.08
South – West	28.24	30.46	26.78	3.78	15.25	29.89	43.31	60.89

Source: Own Computation Based on the National Bureau of Statistics, 2010 National Living Standard Survey Data

Graph 1: Zonal Distribution of Elderly Catastrophic Healthcare Expenditure based on Income Quintile



Source: Own Computation Based on the National Bureau of Statistics, 2010 National Living Standard Survey Data

5. Conclusions and Policy Implications

Significant proportion of elderly households in Nigeria are having financial burden arising from out-of-pocket health expenditure. Over 29 percent of elderly households in the country faced catastrophic OOPHE and 30 percent of those in rural settlements experienced the phenomenon compared to 28 percent of urban dwellers.

Also, greater proportion (33%) of elderly households in the south faces financial burden due to OOPHE compared to the North (25%). While between 30 and 40 percent rural dwellers in the south faced COOPHE, between 21 and 27 percent of northern rural dwellers experienced the phenomenon. The implication is that there are likely more elderly households in the north with unmet healthcare needs, as the poor who did not spend on health care may likely not face any financial burden arising from it. Though the observed difference between the North and South is attributable to differences in healthcare utilization, the financial burden on elderly households in general is outrageous compared to findings from Rezapour *et al* (2013) who showed that in Tehran, 4% of households who utilized healthcare services were impoverished.

Furthermore, healthcare utilization among elderly households in Nigeria is below average both at the national and zonal levels. Healthcare utilization among the elderly was higher in the South compared to the North, and increased with income implying that, rich elderly households in Nigeria utilized healthcare services more than their poor counterparts.

More so, catastrophic health expenditure increased with income that is, more and more elderly households faced financial burden due to COOPHE moving from lower to higher income group. About 5 percent of poor elderly households faced financial burden due to COOPHE while 24 percent and 65 percent of the middle and upper income group experienced the phenomenon. The observed disparities in COOPHE are a reflection of the wide disparities in healthcare utilization between the rich and the poor. Majority of poor households do not incur out-of-pocket health expenditure because they did not utilize healthcare services and therefore may have unmet health needs. This is also true for all the geopolitical zones except for little disparities within the income groups. This is not consistent with the findings of Wang, Li, and Chen (2015) who observed disproportionate concentration of CHE among elderly households, and showed that poor elderly households demonstrated a higher probability of experiencing CHE. But in tandem with the findings of Rezapour, *et al* (2013) who showed the existence of health care inequality in Terhan and demonstrated that the need for health care utilization has been concentrated in the poor, but inequality in receiving and using health care services has been distributed in favor of the rich. Hence, the need for a third party intervention in the Nigerian health system, especially for elderly care. The NHIS lacks popularity among the elderly population in Nigeria with only 0.08 percent insured elderly population. This calls for policy reform.

The policy implication is that more than 50% of elderly people in Nigeria

have unmet healthcare needs because they cannot afford it, about 29 percent face financial burden due to out-of-pocket health expenditure and 30 percent elderly households in the rural areas experienced the phenomenon therefore risk not being able to afford other household needs of clothing, shelter, education amongst others. But, if there is an intervention (third party payment system) such that reduces the dependence on out - of - pocket payment for healthcare services the demand for healthcare (healthcare utilization) could be otherwise affected and more elderly people will have access to healthcare services. Specific intervention could be the establishment of centres for elderly care throughout the country. This can have substantial positive effect on healthcare utilization among elderly people in the country, reduce the cost of accessing healthcare services and perhaps provide some form of financial protection. There is also the need to widen and deepen the scope of the NHIS to include vulnerable groups and special care for the elderly.

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