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Effect of Out-of-Pocket Health Expenditure on the Welfare of Rural Households in Kwara State, Nigeria

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Abstract: Serious illness can induce utilization of health services which can impose high costs on households at a time when household ability to earn income is hampered due to inability to work of the ill individual and caregivers and as such affecting the welfare of the household as a whole. This study was carried out to examine the effect of out-of-pocket health expenditure (OOP) on welfare of rural households in Kwara State Nigeria. Using a Two-stage sampling technique, 180 rural households were sampled out of which 175 households were used for the analysis of the study. The study employed descriptive statistics and Ordinary least square (OLS) regression in analysing the data collected for the study. The result of the descriptive statistics shows that on the average, household head in the study area was 42 years of age with 7 years of schooling, 22 years of farming experience, about household size of 5 in adult male equivalent, a per capita income of ₦4,960, calorie consumption of 3151.46kcal/AE/day and monthly health expense of ₦676. The result of the analysis carried out to examine the effect of health expenditure on per capita calorie intake and income of households, shows that out-of-pocket health expense has a positive significant effect on both per capita calorie intake and income at 10% statistical level. The results of the study have shown the adverse effect of OOP on welfare of households in the study area and as such add to existing literatures on the welfare effect of health expenditure in developing countries. The study therefore recommends that the government should promote and sustain alternative health care financing mechanism like insurance schemes to assist poor households in benefiting from health services to reduce their OOP. Also, government should encourage the establishment of private health insurance schemes by creating enabling environment for them to thrive.

Keywords: Out-of-Pocket Health Expenditure (OOP), Calorie Intake, Income, OLS Regression

1. Introduction

The primary goal of a good health care system is to ensure that people have easy access to high quality care of the appropriate type in order to maintain and improve their health status. At the same time, a good health system should as much as possible ensure that, in seeking care, households are protected from incurring health care expenditure that is so high that it adversely affects household welfare. This is often known as the 'financial protection' goal of health systems [1]. Rural dwellers in Nigeria constitute over 70% of the country's population, and yet are deprived of access to quality health facilities that are essential for good living [2]. A major consequence of this has been the migration to urban centres for medical treatment [3]. Other consequences are the loss of about 25% of their annual income treating various grades of sicknesses, increase risk of mortality of both children and adult, impaired productivity of able men and women etc. Poor access to healthcare by the poor households is not only due to inadequate or absence of health facilities but also because of their low purchasing power evidenced by their earnings and expenditure patterns. This is as a result of the nature of their predominant healthcare financing mechanism which is mostly out -of -pocket [4]. Out-of-pocket (OOP) costs are those health-care expenses paid that are not reimbursed by a health insurance company. Some common out-of-pocket costs

include deductible, co-pay, and co-insurance. In countries where out-of-pocket expenditure is the most important source of health care financing, as is the case in most developing countries [5]; [6], the effect of health expenditure on household welfare can be severe, particularly among the poor.

Serious injuries and illnesses typically increase medical expenses of household which could directly cause severe financial hardship and reduce a household income and home production indirectly through inability to work [7]; [8]; [9]; [10]. Households could use their savings, borrow or even sell assets to cope with health shocks. Moreover, households with severe financial constraints may have no option but to cut down on their spending on necessary goods to cover health expenses. To obtain adequate healthcare, many households rely on out-of-pocket healthcare expenditures (OOP), which tend to increase the risk of becoming impoverished if the OOP were for a prolonged period and quite substantial [10]. Each year, approximately 150 million people experience financial catastrophe, meaning they are obliged to spend on health care more than 40% of the income available to them after meeting their basic needs [11]. In addition to this, poor households often forgo high-value care, yet still often pay substantial sums for care of low quality [12]. High health care expenditures mean a short-term health shock and can lead to debt, asset sales, and removal of children from school – creating long-term increases in poverty [13]; [14]; [15]. The catastrophic nature of this kind of healthcare financing mechanism for the poor and often rural population has been a source of worry for the Nigeria and other low and middle income countries of Africa. Advocates therefore have recently been in favor of developing alternative financing scheme to cater for the unexpected nature of health care expenditure which should cover vulnerable rural dwellers [6].

There is a growing concern on the effects of health expenditure on household welfare in developing countries of the world. A number of empirical studies have explored the catastrophic effect of health expenditure in East, Central and South Asia, including China [16], Thailand [17], India [18], Vietnam [7], as well as Bangladesh, Nepal, Sri Lanka, Malaysia and the Kyrgyz Republic [19].

Among the few African countries for which detailed studies are available are Zambia [20], Uganda [21], and Egypt, Jordan and Palestine [10]. In an article, using survey data from 89 countries, it was found that 3% of households in low-income countries, 1.8% of households in middle-income countries and 0.6% of households in high-income countries incur 'catastrophic' health expenditures [22]. It is difficult to compare the findings of these studies because of the variation in the comprehensiveness of the types of health expenditure covered by surveys and the different methodologies employed to measure financial protection. Nevertheless, there is strong evidence that out-of-pocket health expenditures have significant influence on the welfare of rural households.

This paper adds to existing literatures by providing empirical evidence of the effect of out-of-pocket health expenditure on household welfare in Kwara State of Nigeria.

2. Methodology

The study was carried out in Kwara State of Nigeria whose capital is Ilorin. Kwara State of Nigeria was created on the 27th of May, 1967 along with 11 other states of the federation. The state was originally called west central state, having been carved out of the defunct northern Nigeria. At the time of creation, the state had a landmass of but this has reduced to following the boundary adjustments that accompanied excision of a segment of its eastern part to Benue State in 1976 and 6 local government areas to the present Kogi State and Niger State in 1991. However, recent survey shows that the state has a total land area of about which is about 3.5 of the total land area of the country, which is put at [23]. Considering the geographical location, Kwara State occupies a vantage position on the map of Nigeria. Situated between latitudes and of the equator and longitudes E and E of the equator, it lies midway between the Northern and Southern parts of Nigeria. Kwara State shares boundaries with Osun, Oyo, Ondo, Kogi, Niger and Ekiti States as well as an international boundary with the Republic of Benin in the West.

The study was carried out in 2014 and a Two-stage sampling technique was used in selecting sampled households for the study. In the first stage, 6 Local Government Areas (LGA) were randomly selected from the 16 Local Government Areas in the state using the hat method of randomization. In the second stage, 30 households were randomly selected from each of the selected LGA using the table of random numbers to pick from the complete household listing made available in each LGA. Thus, a total of 180 households were sampled for the purpose of the study. However, only 175 questionnaires were used for the analysis of this study as the remaining 5 were discarded due to incomplete information.

Primary data were collected through the use of interview schedule method in which trained enumerators administered well-structured questionnaires to elicit information from sampled households. Information was collected on the socio–economic characteristics of rural households in the study area such as age of household head, gender of household head, years of schooling of household head, household farm size, total household asset, e.t.c. Also, information was collected on the monthly health expenditure of rural households, income and food consumption of households. Data collected were analyzed using descriptive statistics and ordinary least square (OLS) regression method.

The econometric model is implicitly stated as:

$$Y_i\ X_{1,}\ X_{2,}\ X_{3,}\ X_{4,}\ X_{5,}\ X_{6,}\ X_{7,}\ X_{8,}\ldots\ldots\ U$$

Where,

Y_1 Per capita calorie intake (Kcal/AE/Day), Y_2 = Per capita Income (Naira) and,

X_1 Age of Household Head (Years)

X_2 Years of schooling of Household Head (Years)

X_3 Farm size (Hectares)

X_4 Household size (Adult Equivalent)

X_5 = Monthly health expense of household (Naira)

X_6 Gender of Household Head (F

X_7 Household Access to credit (scoring household having access as 1, 0 otherwise)

X_8 = Farm Experience (years)

X_9 = Total household asset (Naira)

U Random error term

3. Results and Discussions

3.1. Socioeconomic Characteristics of Households

The results in table 1 show the summary statistics of some socioeconomic variables of households in the study area. It can be deduced from the table that, the average age of household head in the study area is 42 years while the mean years of schooling is 7 years. Also, the average farm size cultivated by household is 2.74 hectares and the mean years of farming experience by household head is about 22 years. Table 1 further show that household head have an average monthly per capita income of ₦4960, consumes an average of 3151.46kcal/AE/day and spent an average of ₦676 on health related issues in a month.

Table 1. *Summary statistics of the socioeconomic characteristics of respondents.*

Variable	Mean	Minimum	Maximum
Age (years)	42.09 (11.938)	22	85
Education (Years of schooling)	7. 30 (5.069)	0	16
Household size (Adult Equivalent)	4.56 (1.802)	1	8.5
Farm size (Hectares)	2.74 (1.489)	0.5	9.6
Farm experience (years)	21.66 (11.254)	4	70
Dependency Ratio	0.46 (0.218)	0	0.78
Income (₦'000)	4.96 (2.548)	1.67	15.63
Total Asset (₦'000)	400.57 (277.84)	45.9	1539.7
Health Expense (₦'000)	0.676 (0.482)	0	3.53
Calorie Intake (Kcal/AE/day)	3151.46 (990.702)	1543.89	8087.42

Source: Data Analysis, 2014; Figures in parenthesis represents the standard deviation.

3.2. Monthly Health Expenditure of Households

The monthly out-of-pocket health expenditure (OOP) of the respondents was adjusted by the adult male equivalent household size to avoid biasness due to the fact that larger households may tend to spend more than smaller ones. Table 2 shows the distribution of respondents by their monthly per capita health expenditure.

Table 2. *Distribution of Respondents by monthly per capita health expenditure.*

Per capita health Expenditure (₦)	All Households (N=175)	
	Frequency	Percentage
<500	72	41.2
500-1000	77	44.0
1001-1500	17	9.7
>1500	9	5.1
Total	175	100.0
Mean	676.01	
Standard dev.	482.24	

Source: Field Survey, 2014; ₦ = Naira

Table 2 shows that 44% of the respondents in the study area have per capita health expenditure of between ₦ 500 and ₦1000 in a month, while only about 5% have monthly per capita health expenditure of more than ₦1500. The average monthly per capita health expenditure of households in the study area was estimated to be ₦676.

3.3. Health Expenditure and Calorie Intake of Households

Table 3 shows the Ordinary Least Square regression result of the determinants of per capita calorie intake of households. It can be deduced from the table that the out of pocket health expense (OOP) have a significant negative effect on the calorie intake of households in the study area at 10% statistical level of significance. This may be interpreted as households which spend more on health related issues tend to consume less food. One way this might have happened may be as a result of the fact that households that spend higher proportion of their income on health will have less amount of income available to spend on food to augment own production and as such consumes lower calorie.

Other significant household variables in the analysis as shown in the table include: Age (positive) at 5% level of significance, Gender (positive) at 10% level of significance, Years of farming experience (positive) at 5% level of significance, and Total Asset (positive) at 5% level of significance. However, years of schooling, household size, farm size, and credit access variables were insignificant in the regression analysis.

Table 3. *Effect of Health Expenditure on Per Capita Calorie Intake.*

Variable	Coefficient	Standard Error	t-value
Age (years)	34.2457**	13. 3799	2.56
Gender (male =1)	901.8535*	542.5998	1.66
Years of schooling (years)	-1.5185	16.4925	-0.09
Household size (Adult Equivalent)	-82.2550	62. 3493	-1. 32
Farm size (Hectares)	52.9824	53.7147	0.99
Farm experience (years)	27.4891**	13.7821	1.99
Credit Access (yes =1)	133.2234	235.2938	0.57
Health Expense (Naira)	-0.0002*	0.1155	-1.72
Total Asset (Naira)	0.0001**	0.0003	1.98
Constant	1358.5510*	752.7167	1.80
Adjusted R^2	0.4366		
F	5.73**		

Source: Data Analysis, 2014; *, ** indicate statistical significance of the coefficients at 10% and 5% level respectively.

3.4. Health Expenditure and Income of Households

Table 4 shows the Ordinary Least Square regression result of the effect of out-of-pocket health expense on the per capita income of households. It can be deduced from the table that the out-of-pocket health expense (OOP) have a significant negative effect on income of households in the study area at 10% statistical level of significance. This implies that households which spend more on health related issues tend to realize lower amount of income. This may be due to the fact that households that spend a lot on health would have spent greater proportion of their productive time in treating the various ailments and as such, will only be able to earn little amount of income at the end of the day.

It can also be seen in the table that, household size (negative) and farm size (positive) have a significant relationship with household per capita income at 1% level of significance. However, gender of household head, age of household head, years of schooling, farming experience, access to credit, and total asset of household were found to be insignificant variables to the per capita income of households in the study area.

Table 4. *Effect of Health Expenditure on Per Capita Income.*

Variable	Coefficient	Standard Error	t-value
Age (years)	-40.6675	30. 6175	-1.33
Gender (male =1)	199.9199	1241.644	0.16
Years of schooling (years)	-20.4681	37.7401	-0.54
Household size (Adult Equivalent)	-711.316***	142. 6755	-4.99
Farm size (Hectares)	447.1199***	122.9166	3.64
Farm experience (years)	15.955	31.5379	0.51
Credit Access (yes =1)	-309.0587	538.4283	-0.57
Health Expense (Naira)	-0.0507*	0.0264	-1.92
Total Asset (Naira)	0.001	0.0007	1.40
Constant	6744.215***	1722.459	3.92
Adjusted R^2	0.2375		
F	7.02***		

Source: Data Analysis, 2014; *, *** indicate statistical significance of the coefficients at 10% and 1% level respectively.

4. Conclusion and Recommendations

The study has shown that household out-of-pocket health expense (OOP) have a significant impact on welfare of households. The analysis of the study revealed that OOP was a significant variable that negatively affect both calorie intake and income of households in the study area at 10% statistical level of significance. The results of the study have shown the detrimental welfare effect of OOP in the study area and as such add to existing literatures on the welfare effect of health expenditure in developing countries of the world. The study therefore recommends that the government should promote and sustain alternative health financing mechanism like insurance schemes to assist poor households in benefiting from health services to reduce their OOP. Also, government should encourage the establishment of private health insurance schemes by creating enabling environment for them to thrive. Likewise, rural households should be well informed by Non-Governmental Organizations (NGOs), Government at all levels, Extension Officers and private individuals through trainings, seminars, media advertisements, e.t.c., about essential diets and general hygiene of the body necessary for staying healthy and as such reducing their OOP. Finally, to ensure adequate health care services for the rural poor, government and health insurance providers should make available hospitals in the rural areas and not just the urban and peri-urban regions.

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