Economic Burden of Illness among the Self-Employed in the Commercial City of Port-Harcourt

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Authors' contributions

This work was carried out in collaboration between both authors. The authors designed, analysed and interpreted and prepared the manuscript. Both authors read and approved the final manuscript.

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ABSTRACT

Introduction: The informal sector in Port-Harcourt harbours the small-scale and self-employed activities which are mainly for generating employment and incomes. Self-employed activities in Port-Harcourt is huge and well spread, which contributes over 50% of the state Gross Domestic Product. Even though the informal sector is an opportunity for generating reasonable incomes for many people, most informal workers are without secure income, employments benefits and social protection. For this they often face health related shocks, such as unpredictable illnesses that weaken their health status. This results into massive loss of income but also meagre resources that has been in a hard way saved over a long period of time. This study investigated the economic burden of illness among the self-employed in Port-Harcourt, Rivers State, in addition to the mechanisms that self-employed individuals used to pay for health services and cope with payments.
Methodology: This study was a cross-sectional descriptive in design which comprises of 204 self-employed individuals who were selected from seven different trade association in Port-Harcourt using asemi-structured interviewer-administered pre-tested questionnaire. A Socio-economic Status (SES) index was used to divide the households into quintiles, and ANOVA test was used to test for significant differences in the mean cost of illness by SES quintiles. Data collected were analysed using the statistical package for social science (SPSS), version 23 software.

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Results: The results show that malaria was the illness most people had. The total cost of illness was ₦4602.93 ± 13194.072 ($12.7US) per month with Malaria contributing 102(50%) most recent self-reported cause of illness and most 145(71.0%) seeking treatment highlighted that their choice of healthcare provider are the patent medicine vendor popularly known as chemist. Total direct cost of illness accounted for 72.7% of the total cost of illness and 3.8% of income per month while the total indirect cost of illness accounted for 27.30% of the total cost of illness and 1.40% of income per month also the total cost of illness for respondents amounted to 6% of the poorest quintile monthly income, 1.8% for those in the poor quintile, 4.2% for those in the middle quintile, 6.2% for those in the rich quintile, while 7.5% for those in the richest quintile.

Conclusion: From the study findings, patent medicine vendor (chemist) was the most utilized in terms of choice of healthcare provider due to that the large cost of health care, in which this certain choice of healthcare provider (chemist) provides them with alternatives such as avoiding consultation fees and flexibility of payment, but most of this chemist lack training in the holistic approach towards healthcare and delivery, with their sole aim of maximizing profit rather than improving health outcomes, thereby endangering their clients by predisposing them to catastrophic health expenditure, because of frequent visit due to unrecovered health problems. To improve health outcomes and decrease the level of poverty due to catastrophic health expenditure, the nation health system should incorporate this certain group of health provider into the health system where they could be trained in topics such as; first aid care, referral system also strict policies on regulating their operation needs to be regulated and monitored adequately. Also, to attain universal health coverage with quality health services, introduction of cost sharing schemes is of dire need among the informal sector. These schemes create affordable healthcare at the time of sickness, thereby reducing the incidence of out-of-pocket payment which act as the main barrier in accessing healthcare.

1. INTRODUCTION

Health services delivery systems in developing countries face major challenges including a triple burden of communicable diseases, emerging diet-related chronic non-communicable disease and malnutrition. The coverage of healthcare services is not only inadequate but also constrained by inadequate funding [1]. Provision of free health care in poor countries is challenged by small tax base; large informal sector; donor dependency; weak income and asset taxes and high dependence on international trade.

In Nigeria, various sources of healthcare financing exist which ranges from but not limited to tax-based public sector health financing, household out-of-pocket health expenditure, the private sector (donor funding), community-based health expenditure, and social health insurances. External financing of health care includes grants and loans from donor agencies like the World Bank, the World Health Organization (WHO), Funds and Foundations among others, but out-of-pocket (OOP) which can be described as expenditures as any direct payment by households or individuals, including gratuities and in-kind payments, to the health care system of which is to contribute to the restoration or enhancement of their health status contributes 70% of healthcare payments in Nigeria [2].In 2007, OOPs increased from 92.7% to 95.9% of private expenditure [2]. This is regarded as one of the highest in the world. On an average, about 4% of households spend more than half of their total household expenditures on healthcare and 12% spend more than a quarter. For example, 15% of households studied in Southeast Nigeria experienced catastrophic payments which is been described as direct out-of-pocket payments exceeding 40 percent of household income net of subsistence needs which is likely to cause poverty among these households into poverty [2]. Out-of-pocket has remained the dominant mode of financing healthcare in developing countries [3] and a major limitation if an expensive healthcare service is to be accessed [4].

This pattern of healthcare financing can lead to poor health seeking behaviors [5] and inequity [6]. At the threshold level of 40% of non-food expenditure and the poorest quintiles often experienced catastrophe [7]. In situations where proportion of Total Health Expenditure (THE) contributed by OOP is below 15-20%, the incidence of financial catastrophe caused by out-of-pocket health expenses is negligible [8]. Out-of-pocket payment does not give value for money and used to purchase mostly inappropriate

services, thereby unnecessarily escalating healthcare costs [9].

The informal sector in Port-Harcourt harbors the small-scale and self-employed activities which are mainly for generating employment and incomes [10]. The informal sector trading activities are attractive because relatively need low capital which in most instances come from personal savings [10]. Due to the modernization and urbanization of Port-Harcourt self-employed activities in Port-Harcourt is huge and well spread, which contributes over 50% of the state Gross Domestic Product [10]. It has a verse untapped sources of government revenue if adequately regulated. Its activities encompass sales of cooked foods, fruit sellers, barbers, tailors, carpenters, electricians, welders, mechanic, taxi drivers, spare part dealers etc.

The typical characteristics of self-employed individuals in Port-Harcourt is that majority of the business owners have low education qualification, poor skills and lack of training in most cases, the owner of the business harbors the skill and knowledge of the trade [10] and activities are mostly cash driven. Even though the informal sector is an opportunity for generating reasonable incomes for many people, most informal workers are without secure income, employments benefits and social protection [11]. For this self-employed individuals often face health related shocks, such as unpredictable illnesses that weaken their health status. This results into massive loss of income but also meagre resources that has been in a hard way saved over a long period of time.

This paper, tends to ascertain the economic burden of illness, payment mechanisms, and payment coping strategies among the self-employed in Port-Harcourt. A good comprehension of economic burden of illness and payment methods and how they differ by socio-economic status is vital for policy makers in developing and implementation of interventions which will promote equity in universal coverage of interventions such as social insurance program. This information will ultimately help to reduce the economic burden of illness among the informal sector.

2. MATERIALS AND METHODS

2.1 Study Area

The study was carried out in Port-Harcourt which is the administrative and commercial capital of

Rivers State, Nigeria [11]. The main city of Port Harcourt is the Port Harcourt City in the Port-Harcourt Local Government Area. The urban area (Port Harcourt metropolis), on the other hand, is made up of the local government area itself and parts of Obio-Akpor Local Government Area accordingly [12]. From its small population of 235,098 in 1963, the total population in the area was last recorded at 1.5 million in 2014 [13]. A population projection for Port Harcourt was estimated from 2014-2017 with an annual growth rate of 3.46% using population geometric model an estimated population of about 1,551,900 was gotten. It has a total size of $390km^2$ square kilometres [14]. English is the official language, but Ikwerre language, is the major local language spoken in Port-Harcourt city.

With the discovery of oil in commercial quantity in the region, the young city provided more economic opportunities for persons from all over the country [11]. This was the beginning of rapid migration into the area and has recorded an astronomical growth since. Which has created some growing concerns which includes; leading to unplanned structures, housing famine, poor drainage structure causing heavy over-flooding which displaces residents from their homes during the raining [11].

The availability of efficient transport network, access to the city by air, road, and water, coupled with a good business environment (heavily industrialized) the city was quick to attract investment both in the formal and informal sector from all parts of the country [11].

Port Harcourt is the leading hub for medical services in Rivers State. Primary health care centres are evenly distributed in every community within Port-Harcourt city. It is also served by two tertiary healthcare centres. A vast number of private hospitals and clinics other complementary healthcare providers which includes; patent medicine dealers, traditional medicine practitioners, traditional birth attendants, traditional bone setters and Christian based organizations are in within the city providing various healthcare services within Port-Harcourt city.

The informal sector in Port-Harcourt harbors the small-scale and self-employed activities which are mainly for generating employment and incomes which accounts for or between 45% and 60% of the urban labor force [14]. The informal sector trading activities are attractive because

they relatively need low capital which in most instances come from personal savings.

2.2 Study Design

A cross-sectional study design was used, with the data collected using semi-structured interviewer-administered questionnaire. The questionnaire was developed and modified with reference to existing tools used in similar study [15].

2.3 Sample Size Estimation

The study was designed detect alpha error at 5% and assuming from a similar study proportion on willingness to pay in South-East Nigeria of 86% [15]. Using the formula sample size determination for studying proportions in populations of greater than ten thousand [16], the minimum required sample size was thus determined to be 188, but made up to 204 self-employed individuals in the study area, to take care of non-responses.

2.4 Sampling Method

A Stratified sampling using proportionate size allocation was to select respondents as follows; each self-employed individuals plying the same trade and belonged to their trade association were identified as a stratum, based on the name of the association seven strata were created which includes; Ikokwu Spare Parts Dealers Association, Taxi drivers Association, Fancy Clothes Dealers Association, Anozie Tyre Dealers Association, Vulcanizers Association, Fruit Market Dealers Association and Electrical Parts Dealers Association. Second procedure; the total population of each individual stratum was identified to obtain a population fraction for proportionate allocation of the sample size. Third procedure; A simple random sampling was employed by balloting to select eligible individuals identified from each stratum.

2.5 Data Collection/Procedure

Three research assistants were recruited to participate in the data collection. The research assistants were selected from those residing in the study area and having a minimum of secondary level education, fluent in both English and had an understanding of the local language. The research assistants were taken through a one day training which entailed: Explaining the objectives and methodology, training on interviewing and communication skills, reading through all the questions and agreeing on a standard way of asking them and strategies on establishing a good rapport and understanding neutrality essential for obtaining complete and accurate data. Face-to-face interviews were conducted with the aid of an interview schedule, this ensured consistency and reduced chances of extraneous variables. The duration of data collection lasted for a period of 2 weeks with a minimum of 20 mins per interview and 20 interviews per day.

Data were collected on the Socio-demographic/economic characteristics of self-employed individuals, also data was collected on self-reported illnesses that self-employed individual had 1 month to the date of the interview and health-seeking behavior. Questions also addressed the costs that households incurred in seeking treatment 1 month before the interview and payment methods used as well as coping mechanisms. Treatment cost includes; direct cost which includes; non-medical cost (cost of feeding, transport and accommodation), medical cost (cost of consultation/registration, lab test, x-ray, other surgical procedure, hospitalization and cost of side effect and indirect cost. Indirect cost of illness was measured using the monetary value of days lost due to illness and was calculated using an output-related approach by measuring the actual loss of income attributed to illness for each respondent.

2.6 Data Analysis

Data analysis was done using statistical Package for Social Sciences, (SPSS) version 23.0. Data was first cleaned, organized, coded then entered into the computer for processing. Descriptive statistics were conducted to describe the background characteristics of the respondents. Data was presented in this format; mean, frequency and percentage tables.

Household asset holdings such as ownership of land, radio, car, television, air condition, bicycle, motorcycle, electric fan etc., were used to an asset-based SES index using the first principal component gotten from principal component analysis.

Indirect cost of illness was measured using the monetary value of days lost due to illness was calculated using an output-related approach measured the actual loss of income attributed to illness for each respondents.

Table 1. Number of respondents selected from each identified stratum

SN	Name of trade association	Total members strength	Number of individuals selected
1	Ikokwu Motor Spare Parts Dealers Association	2620	73
2	Electrical Part Dealers Association	1480	41
3	Taxi Drivers Association	843	24
4	Fruit Market Association	841	24
5	Vulcanizer Dealers Association	612	17
6	Anozie Tyre Dealer Association	463	13
7	Fancy Market Dealers Association	419	12
	Total	**7278**	**204**

Testing of means was used to compute the average healthcare costs that were paid using different payment strategies, as well for each SES quintile. ANOVA test was used to test for significant differences in the mean cost of illness by SES quintiles.

N/B: 1USD (United State Dollar) = ₦364.41 [17].

3. RESULTS

Table 1a, shows the socio-demographics distribution of respondents in respect to age, sex, marital status and religion, about one-third 79(38.7%) of the respondents were between the ages of 21-30 years, 57(27.9%) of the respondents were between the ages of 41-50years, 52(25.5%) were between the ages of 31-40 years, while 16(7.8%) were >50 years of age. More than half 111(54.4%) were males. A greater percentage 121 (59.3%) were married. Almost all 202(99.0%) were Christians.

Table 1b, shows the distribution in respect to ethnicity and education. Most 157(77.0%) of the respondents were of Igbo ethnic group. Over two-third (73.8%) had completed only their senior secondary school education.

Table 1c shows the distribution in respect to the household characteristics of the respondents. A little more than half 71(53.8%) of the respondents have between 1-2 children. Over two-third 137(67.2%) of the respondents have a household size ranging from 1-4. The mean household size was 3.84±1.78. Half 104 (51.0%) of the respondents were male head of household. One hundred and forty-two (69.6%) were main income earner. Most 141(69.1%) of the respondents were the main decision maker.

Table 1d shows that over one-third 75(36.8%) earned between 40001-80000 per month. The mean income per month was 87724.51± 41287.93. Among the respondents,40(19.6%)

were within the poorest quintiles, 45(22.1%) were within poor quintiles, 37(18.1%) in the middle quintiles, 38(18.6%) were within the rich quintile, while 44(21.6%) were in the richest quintile.

Table 1a. Socio-demographic characteristics of respondents

Variable	Frequency	Percentage (%)
Age (years)		
21-30	79	38.7
31-40	52	25.5
41-50	57	27.9
>50	16	7.8
Total	**204**	**100.0**
Sex		
Male	111	54.4
Female	93	45.6
Total	**204**	**100.0**
Marital status		
Married	121	59.3
Single	72	35.3
Widowed	7	3.4
Separated/Divorced	4	2.0
Total	**204**	**100.0**
Religion		
Christianity	202	99.0
Islam	2	1.0
Total	**204**	**100.0**

Table 1e shows that those in the poorest quintile earned an average of ₦76440.00 ± 8143.444 ($210US) per month, those in the poor quintile earned 84500.00 ± 5816.88 ($233US) per month, those in the middle quintile earned 85511.11 ± 5816.88 ($236US) per month, those in the rich quintile earned 91843.24 ± 6636.42 ($253US), while those in the richest quintile earned 99568.18 ± 6182.26 ($275US). There was no statistically significant observed difference in mean income per across socio-economic status.

Table 1b. Socio-demographic characteristics of respondents

Variable	Frequency	Percentage (%)
Ethnicity		
Igbo	157	77.0
Ijaw	19	9.3
Ibibio	14	6.9
Yoruba	13	6.4
Hausa	1	0.5
Total	**204**	**100.0**
Level of education completed		
No formal education	2	1.0
Primary	10	4.9
Junior Secondary	8	3.9
Senior Secondary	149	73.0
Tertiary	35	17.2
Total	**204**	**100.0**

3.1 Health Seeking Behavior

Table 2a illustrates that, half 102(50.0%) had malaria as their most recent self-reported cause of illness, 44(21.6%) had migraine. Most 145(71.0%) sought treatment at the patent medicine vendor popularly known as chemist.

Table 2b shows that over two-third 135(66.8%) of the respondents walked to receive treatment, while more than half 110(56.1%) of the respondent reported it took them>15 mins to get to the location for treatment. Among respondents reported to be ill only few 11(5.5%) were admitted. Among those admitted, most 8(72.7%) were admitted for 4-7 days, while (27.3%) were admitted for 1-3 days. The mean no of days for admission was 3.91±1.921. Only 1(0.5%) reported to have side effect from treatment, which was itching of the body. Among the respondents reported to be ill, all 202(100%) recovered after treatment.

Table 3 shows that the average non-medical cost of treatment was ₦531.44 ± 2691.772 ($1.47US), which constitute of (average cost of transportation was ₦47.77±122.809 ($0.1US), average cost of accommodation ₦207.92± 2093.899 ($0.6US) and average cost of feeding ₦275.74±1217.638 ($0.8US).

The average medical cost was ₦2814.95± 5723.173 ($7.8US) which constitute of (the average cost of side effect (drugs) ₦2.97±

29.777 ($0.01US), average cost for X-rays ₦12.44±176.336 ($0.03US), average cost of surgical procedures ₦48.02±682.490 ($0.1US), average cost of registration/consultation ₦111.39 ±387.90 ($0.3US), average cost of lab test ₦334.16±765.208 ($0.92US), average cost of hospitalization ₦841.58±3693.770 ($2.3US) and average cost of drugs ₦1464.46± 1905.965 ($4.0US)).

The total direct cost of illness was ₦3346.39± 7911.315 ($9.2US), while the average total indirect cost of was ₦1256.54±5282.757 ($3.4US). The total cost of illness was ₦4602.93 ±13194.072 ($12.7US).

Table 1c. Socio-economic characteristics of respondents

Variable	Frequency	Percentage (%)
No of children (n=132)		
1-2	71	53.8
3 – 4	40	30.3
5 – 6	21	15.9
Total	**132**	**100.0**
House hold size		
1-4	137	67.2
5 – 7	65	31.9
8 – 10	2	1.0
Total	**204**	**100.0**
Mean house hold size		**3.84±1.78**
Household Status		
Male Head of Household	104	51.0
Wife	53	26.0
Female Head of Household	40	19.6
Husband	4	2.0
Household Representative	3	1.5
Total	**204**	**100.0**
Main income earner		
Yes	142	69.6
No	62	30.4
Total	**204**	**100.0**
Main decision maker		
Yes	141	69.1
No	63	30.9
Total	**204**	**100.0**

Fig. 1 illustrates that cost of drugs accounts for 43.8% of the total direct cost of illness, cost of hospitalization accounts for 25.2% of the total direct cost of illness, cost of lab test accounts for 10% of the total cost of illness, cost of feeding

accounts for 8.2% of the total cost of illness, cost of accommodation accounts for 6.2% of the total direct cost of illness, cost of registration accounts for 3.3% of the total direct cost of illness, cost of other surgical procedures and cost for travel cost accounts for 1.4% respectively of the total direct cost of illness, while cost of side effect which accounted for 0.1% of the total direct cost of illness.

Fig. 2 illustrates that the total direct cost of illness accounted for 72.7% of the total cost of illness and 3.8% of income per month while the total indirect cost of illness accounted for 27.30% of the total cost of illness and 1.40% of income per month.

Table 4 shows the cost of illness for respondents by socioeconomic status, for individuals in the poorest quintile the average cost of illness was ₦4506±9609.79 ($12.43US), in the poor quintile the average cost of illness is ₦1481±2005.81 ($4.1US), in the middle quintile the average cost of illness is ₦3576.11±7505.35 ($9.87US), in the rich quintile the average cost of illness is ₦5733.42±15282.41 ($15.82) while richest quintile the average cost of illness is ₦7500.70± 12064.77 ($20.70US). The was no statistically significant difference among the means of cost of treatment of the 5 quintiles of socio-economic status (p>0.05).

Fig. 3 shows that total cost of illness for respondents amounted to 8% of the poorest quintile monthly income, 0.8% for those in the poor quintile, 4.8% for those in the middle quintile, 1.9% for those in the rich quintile, while 3.6% for those in the richest quintile.

Table 1d. Income level by SES of respondents

Variable	Frequency	Percentage (%)
Income per day (₦)		
≤2000	57	27.9
2001 – 4000	94	46.1
4001 – 6000	45	22.1
6001 – 8000	7	3.4
8001 - 10000	1	0.5
Total	**204**	**100.0**
Mean	**3374.02 ± 1588.0**	
Income per month (₦)		
≤40000	30	14.7
40001 - 80000	75	36.8
80001 - 120000	56	27.5
120001 - 160000	35	17.2
160001 - 200000	5	2.5
>200000	3	1.5
Total	**204**	**100.0**
Mean	**87724.51 ± 41287.93**	
Socio-economic status (SES)		
Poorest	40	19.6
Poor	45	22.1
Middle	37	18.1
Rich	38	18.6
Richest	44	21.6
Total	**204**	**100.0**

Table 1e. SES differences in income per month

Variable	Mean Income per month (₦)	Standard deviation
Mean income per day (₦)		
Poorest (n=40)	76440.00	8143.44
Poor(n=45)	84500.00	5816.88
Middle (n=37)	85511.11	5102.05
Rich (n=38)	91843.24	6636.42
Richest (n=44)	99568.18	6182.26
F statistics = 1.866, df =4 p value= 0.118		

% of Non-medical and medical Cost of Illness to Total Direct Cost of Illness

Category	Percentage
COST OF DRUGS	43.80%
COST OF HOSPITILIZATION	25.20%
COST OF LAB TEST	10%
COST OF FEEDING	8.20%
COST OF ACCOMODATION	6.20%
COST OF REGISTRATION/CONSULTAION	3.30%
COST OF OTHER SURGICAL PROCEDURES	1.40%
TRAVEL COST	1.40%
COST_OF_XRAYS	0.40%
COST OF SIDE EFFECT (DRUGS)	0.10%
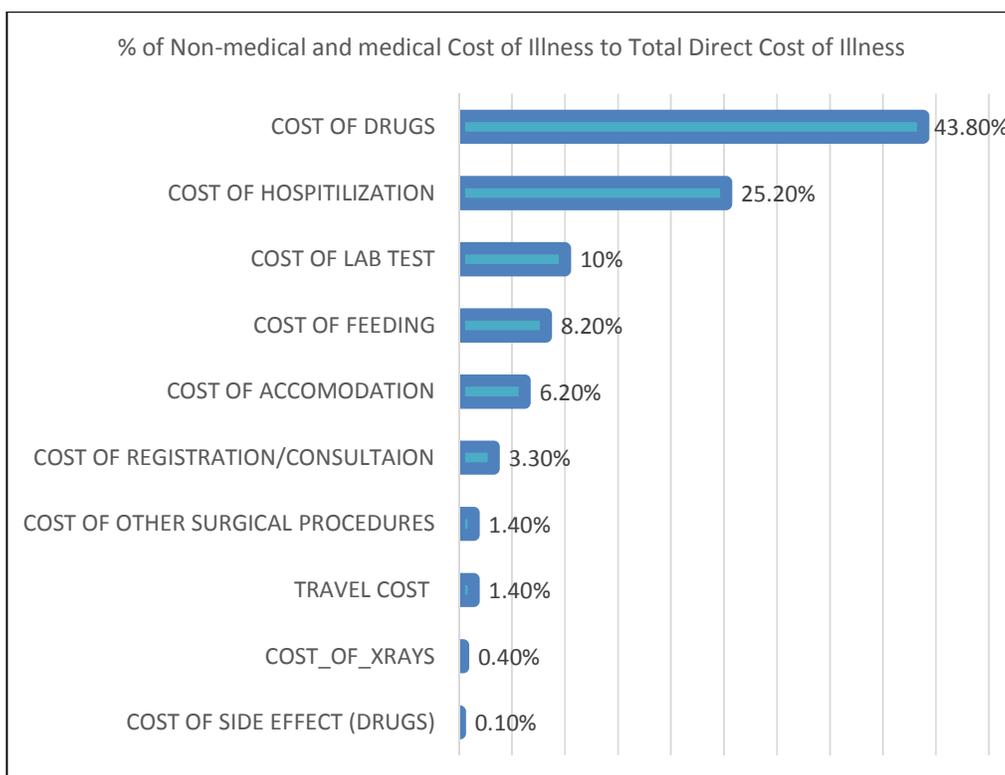
Fig. 1. Percentages of non-medical and medical cost of illness to total direct cost of illness

Table 2a. Self-reported cause of illness and health seeking behavior of respondents

Variable	Frequency	Percentage (%)
Type of illness		
Malaria	102	50.0
Migraine	44	21.6
Typhoid	13	6.4
Ulcer	10	4.9
Diarrhea	9	4.4
Cough	6	2.9
Tooth ache	5	2.5
Malaria &Typhoid	4	2.0
Sexually Transmitted Disease	3	1.4
Conjunctivitis	3	1.4
Rheumatism	2	1.0
Chicken Pox	2	1.0
Cholera	1	0.5
Total	**204**	**100.0**
Health seeking behavior		
Patent Medicine Vendor	145	71.0
Private Hospital	26	12.8
Traditional Medicine	21	10.3
Public General Hospital	7	3.4
Primary Health Centre	4	2.0
Community Health Worker	1	0.5
Total	**204**	**100.0**

Table 2b. Self-reported cause of illness and health seeking behavior of respondents

Variable	Frequency	Percentage (%)
Mode of Transport		
Walked	137	67.2
Bus	29	14.2
Taxi	18	8.8
Personal Vehicle	13	6.4
At Home	6	2.9
Okada	1	0.5
Total	**204**	**100.0**
Duration to location of treatment		
<15 mins	110	56.1
15-30 mins	62	31.6
30mins-1hour	17	8.7
>1hour	5	2.6
>2hour	2	1.0
Total	**204**	**100.0**
Admitted in the hospital		
No	193	94.6
Yes	11	5.4
Total	**204**	**100.0**
No of days admitted		
1-3	3	27.3
4-7	8	72.7
Total	**11**	**100.0**
Mean duration on admission		3.91±1.921
Side effect of treatment		
No	203	99.5
Yes	1	0.5
Total	**204**	**100.0**
Type of side effect (n=1)		
Itching	1	100.0
Total	**1**	**100.0**
Recovered after treatment		
Yes	204	100
No	0	0
Total	**204**	**100.0**

4. DISCUSSION

From the study findings, patent medicine vendor (chemist) was the most utilized in terms of choice of healthcare provider. This findings may be due to high burden of the cost of care, accessibility and to bypass various payment cost such a transport cost as it was reported that majority walked to receive treatment due to duration was <15mins, and avoiding consultation fees etc., respondents resolve to utilize patent medicine vendor as first choice in terms of healthcare provider due to the flexibility of payment such as in installment and subsidized payments. However, most of this chemist lack training in the holistic approach towards healthcare and delivery, with their sole aim of maximizing profit rather than improving health outcomes, thereby endangering their clients by predisposing them to catastrophic health expenditure, because of frequent visit due to unrecovered health problems. This finding is further corroborated by a study in Bangladesh were frequently reported reasons for seeking care from pharmacies were ease of access to pharmacies lower cost, availability of medicine, knowing the drug seller, and convenient hours of operation. The studies sheds more evidence that people preferred to seek care at pharmacies rather than clinics because these pharmacies were more accessible and provided prompt treatment and medicine with no service charge [18].

Cost of illness have adverse effects on health seeking behavior such as delaying seeking treatment until such time as they get the money
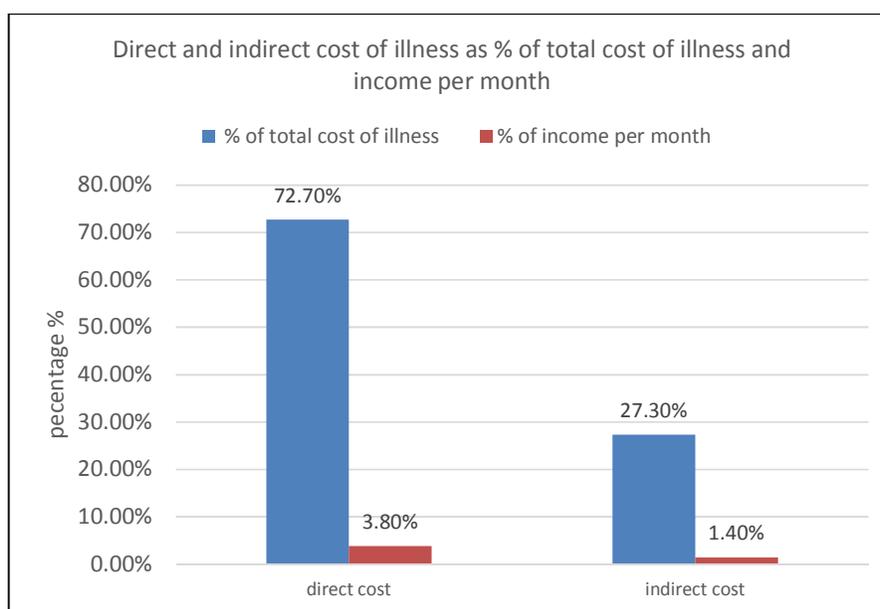
Fig. 2. Direct and indirect cost of illness as % of total cost of illness and income per month

Table 3. Cost of illness among respondents (per month)

Variable	Total cost (₦)	Average cost (₦)	Standard deviation(₦)
Non-medical cost			
Travel cost	9650	47.77	122.809
Cost of accommodation	42000	207.92	2093.899
Cost of feeding	55700	275.74	1217.638
Total non-medical cost	**107350**	**531.44**	**2691.772**
Medical cost			
Cost of registration/consultation	22500	111.39	387.900
Cost of lab test	67500	334.16	765.208
Cost of X-rays	2500	12.44	176.336
Cost of other surgical procedures	9700	48.02	682.490
Cost of hospitalization	170000	841.58	3693.770
Cost of drugs	295820	1464.46	1905.965
Cost of side effect (Drugs)	600	2.97	29.777
Total medical cost	**568620**	**2814.95**	**5723.173**
Total direct cost	**675970**	**3346.39**	**7911.315**
Indirect cost			
Loss of productivity	240000	1256.54	5282.757
Total indirect cost	**240000**	**1256.54**	**5282.757**
Total cost of illness	**915970**	**4602.93**	**13194.072**

Table 4. Cost of treatment across SES

Variable	Mean (₦)	Standard deviation
Socio-economic status		
Poorest (n=40)	4503.75	9609.79
Poor (n=45)	1481.00	2005.81
Middle (n=37)	3576.11	7505.35
Rich (n=38)	5733.42	15282.41
Richest (n=45)	7500.70	12064.77
F statistics = 7.780, df =4 p value= 1.537		
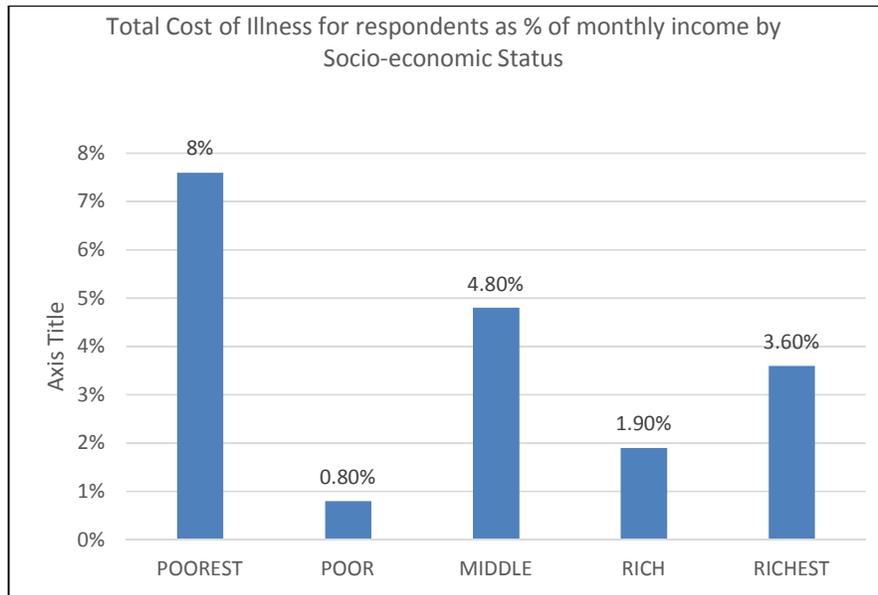
Fig. 3. Total cost of illness for self as % of monthly income by socioeconomic status

that is required for both consultation and drugs, by-passing health facilities and seeking medication from pharmacists directly, reducing the dosage of prescribed drugs, sharing drugs with other patients with similar conditions [19].

The cost of treatment for oneself in this study was found to be ₦4602.93±13194.072 ($12.7US), this accounts for 5% of the income per month, while for treating household was found to be ₦3314.17±7139.74 ($9.1US). Direct cost of illness was more when compared to the indirect cost of illness, with the cost of drugs accounting for 43.8% of direct cost, while cost of hospitalization accounted for 25.2% of direct cost. The total direct cost of illness for respondents amounted to 6% of the poorest quintile monthly income, 1.8% for those in the poor quintile, 4.2% for those in the middle quintile, 6.2% for those in the rich quintile, while 7.5% for those in the richest quintile. The cost of treatment was more higher compared to similar study in South-East, Nigeria where the cost of treatment was found to be 2819.9 Naira, with the cost of drugs accounting for 90% of the total cost of treatment [20].

The study shows that the individuals in the informal sector which includes; the self-employed is moving towards the direction of increasing user fees as mode of financing healthcare. OOP was the mode of payment for healthcare. The results suggest that individuals who are ill and are not covered by health insurance are more

vulnerable due to out-of-pocket expenditure and making this payment was not found to be easy among respondents. Most of respondents coped by borrowing money, this coping mechanisms reported can have multi-faceted effects on their welfare. For example, it can lead to the worsening of the health condition as it deprives the patient of appropriate care. This is in agreement with the findings from a study in Southeast Nigeria where OOP was the most predominant mode of payment which contributed 88% and that respondents coped with payment by borrowing [21]. This study is in resonate with findings from a study on willingness to join community based health insurance scheme in rural households of South-west Ethiopia who spotted the strategies in which individual cope with healthcare cost, (93.2%) of the households covered the medical expenses by themselves, 85.4% of these households reported that it was (very) difficult to cover payments for treatments. 36.4% of them were assisted by relatives to cover the medical costs; 20.3% drew from their savings, and 14.4% borrowed from someone. The remaining had to sell capital assets such as cows (17.6%), cut back on other household expenditure and consumption patterns such as food, drink, cloth etc., (9.1%), undertook extra works to cover the cost of healthcare [22].

Similar study in Zimbabwe also reported individuals had to take on piece jobs to meet costs or repay loans, sell key livelihood assets, ask their children for assistance or borrow

money. Some coping strategies that participants adopted led to impoverishment, declining standards of living, asset depletion, displacement of other household needs (e.g. school fees, food) [19]. Similar study, in Bangladesh which identified coping strategies for financial burdens in families with childhood pneumonia, highlighted that this downward trend of loss of productive assets and reduced income for food and children's education forces many families to slide into abject poverty and perpetuate the cycle of poverty to the next generation. Therefore this high cost deters family from seeking clinical care [23]. Also in similar study in Bangladesh were most respondents spent from "out-of–pocket" or from household wages. After household wages, respondents reported using savings, followed by donations or loans [24].

5. CONCLUSION

To improve health outcomes and decrease the level of poverty due to catastrophic health expenditure, the nation health system should incorporate this certain group of health provider into the health system where they could be trained in topics such as; first aid care, referral system also strict policies on regulating their operation needs to be regulated and monitored adequately. Also, to attain universal health coverage with quality health services, introduction of cost sharing schemes is of dire need among the informal sector. These schemes create affordable healthcare at the time of sickness, thereby reducing the incidence of OOP which act as the main barrier in accessing healthcare. These schemes also can bring an equitable and efficient health care service provision for those who are informally employed and mainly in the low income earning groups of the society. This comes by setting the premium price in consideration with the ability and willingness-to-pay so as to ensure successful implementation.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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