

**ECONOMIC BURDEN OF ILLNESS AMONG THE SELF-EMPLOYED IN THE
COMMERCIAL CITY OF PORT-HARCOURT**

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 was cross-sectional descriptive study of 204 self-employed individuals which were selected from seven different trade association in Port-Harcourt using semi-structured interviewer-administered pre-tested questionnaires. An 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

Result: The results show that malaria was the illness that most people had. The total cost of illness was ₦4602.93 ± 13194.072 (\$12.7US). 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: To enable universal health coverage with quality health services, introduction of cost sharing scheme are of dire need among the informal sector. This schemes creates affordable healthcare at the time of sickness, thereby reducing the incidence of OOP which act as the main barrier in accessing healthcare.

Keywords: Informal, self-employed, out-of-pocket, Port-Harcourt.

Introduction

Health services delivery systems in developing countries face major challenges including a triple burden of communicable diseases, emerging diet -related chronic non-communicable

44 disease and malnutrition. The coverage of healthcare services is not only inadequate but also
45 constrained by inadequate funding ⁽¹⁾. Provision of free health care in poor countries is
46 challenged by small tax base; large informal sector; donor dependency; weak income and
47 asset taxes; and high dependence on international trade.

48 In Nigeria, OOP contributes 70% of healthcare payments in Nigeria ⁽²⁾. In 2007, OOPs
49 increased from 92.7% to 95.9% of private expenditure ⁽²⁾. This is regarded as one of the
50 highest in the world. On an average, about 4% of households spend more than half of their
51 total household expenditures on healthcare and 12% spend more than a quarter. For example,
52 15% of households studied in Southeast Nigeria experienced catastrophic payments ⁽²⁾. OOP
53 has remained the dominant mode of financing healthcare in developing countries ⁽³⁾ and a
54 major limitation if an expensive healthcare service is to be accessed ⁽⁴⁾.

55 This pattern of healthcare financing can lead to poor health seeking behaviors ⁽⁵⁾ and inequity
56 ⁽⁶⁾. At the threshold level of 40% of non-food expenditure and the poorest quintiles often
57 experienced catastrophe ⁽⁷⁾. In situations where proportion of Total Health Expenditure (THE)
58 contributed by OOP is below 15-20%, the incidence of financial catastrophe caused by out-
59 of-pocket health expenses is negligible ⁽⁸⁾. OOPS does not give value for money and used to
60 purchase mostly inappropriate services, thereby unnecessarily escalating healthcare costs ⁽⁹⁾.

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

69 The typical characteristics of self-employed individuals in Port-Harcourt is that majority of
70 the business owners have low education qualification, poor skills and lack of training in most
71 cases, the owner of the business harbours the skill and knowledge of the trade ⁽¹⁰⁾ and
72 activities are mostly cash driven. Even though the informal sector is an opportunity for
73 generating reasonable incomes for many people, most informal workers are without secure
74 income, employments benefits and social protection ⁽¹¹⁾. For this self-employed individuals
75 often face health related shocks, such as unpredictable illnesses that weaken their health

76 status. This results into massive loss of income but also meagre resources that has been in a
77 hard way saved over a long period of time.

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

84

85 **MATERIALS AND METHODS**

86 **Study Area**

87 The study was carried out in Port-Harcourt which is the administrative and commercial
88 capital of Oil Rivers State also referred to as the Garden city of Nigeria because of its
89 richness in greenery and also stands tall among other cities as one of the fastest growing cities
90 in Nigeria ⁽¹¹⁾. The main city of Port Harcourt is the Port Harcourt City in the Port-Harcourt
91 Local Government Area. The urban area (Port Harcourt metropolis), on the other hand, is
92 made up of the local government area itself and parts of Obio-Akpor Local Government Area
93 accordingly ⁽¹²⁾. From its small population of 235,098 in 1963, the total population in the area
94 was last recorded at 1.5 million in 2014 ⁽¹³⁾. A population projection for Port Harcourt was
95 estimated from 2014-2017 with an annual growth rate of 3.46% using population geometric
96 model an estimated population of 1,551,900 was gotten. It has a total size of 390km² square
97 kilometres ⁽¹⁴⁾. English is the official language, but Ikwerre language, is the major local
98 language spoken in Port-Harcourt city.

99 With the discovery of oil in commercial quantity in the region, the young city provided more
100 economic opportunities for persons from all over the country ⁽¹¹⁾. This was the beginning of
101 rapid migration into the area and has recorded an astronomical growth since. Which has
102 created some growing concerns which includes; leading to unplanned structures, housing
103 famine, poor drainage structure causing heavy over-flooding which displaces residents from
104 their homes during the raining ⁽¹¹⁾. Water supply in the city has been completely left in the
105 hand of the private sector. The streets of Port Harcourt are infested with private boreholes
106 whose quality cannot be guaranteed with any degree of confidence. An average household of

107 seven persons spent an average of five hundred naira a week on water from private boreholes
108 ⁽¹¹⁾.

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

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

119 **Study Design**

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

123 **Sample Size estimation**

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

129 **Sampling method:**

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

140 **Data collection/procedure**

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

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

162 **Data Analysis**

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

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

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

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

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

177 **Result**

178 **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

179 Table 1a, shows the socio-demographics distribution of respondents in respect to age, sex,
 180 marital status and religion, about one-third 79(38.7%) of the respondents were between the
 181 ages of 21-30 years, 57(27.9%) of the respondents were between the ages of 41-50years,
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183 52(25.5%) were between the ages of 31-40years, while 16(7.8%) were >50 years of age.
 184 More than half 111(54.4%) were males. A greater percentage 121(59.3%) were married.
 185 Almost all 202(99.0%) were Christians.

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188 **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

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

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199 **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

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

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213 **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

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 215 Table 1d shows that over one-third 75(36.8%) earned between 40001 - 80000 per month. The
 216 mean income per month was 87724.51 ± 41287.93. Among the respondents, 40(19.6%) were
 217 within the poorest quintiles, 45(22.1%) were within poor quintiles, 37(18.1%) in the middle
 218 quintiles, 38(18.6%) were within the rich quintile, while 44(21.6%) were in the richest
 219 quintile.

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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

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224 Table 1e shows that those in the poorest quintile earned an average of ₦76440.00 ± 8143.444
225 (\$210US) per month, those in the poor quintile earned 84500.00 ± 5816.88 (\$233US) per
226 month, those in the middle quintile earned 85511.11 ± 5816.88 (\$236US) per month, those in
227 the rich quintile earned 91843.24 ± 6636.42 (\$253US), while those in the richest quintile
228 earned 99568.18 ± 6182.26 (\$275US). There was no statistically significant observed
229 difference in mean income per across socio-economic status.

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Health seeking behaviour:

Table 2a: Self-reported cause of illness and health seeking behaviour 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

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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,

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Table 2b: Self-reported cause of illness and health seeking behaviour 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		
<15mins	110	56.1
15-30mins	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

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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>15mins to get to the location for treatment. Among respondents reported to be ill only few 11(5.5%)

271 were admitted. Among those admitted, most 8(72.7%) were admitted for 4-7days, while
 272 (27.3%) were admitted for 1-3days. The mean no of days for admission was 3.91 ± 1.921 .
 273 Only 1(0.5%) reported to have side effect from treatment, which was itching of the body.
 274 Among the respondents reported to be ill, all 202(100%) recovered after treatment.

275 **Table 3: Cost of illness among respondents (per month)**

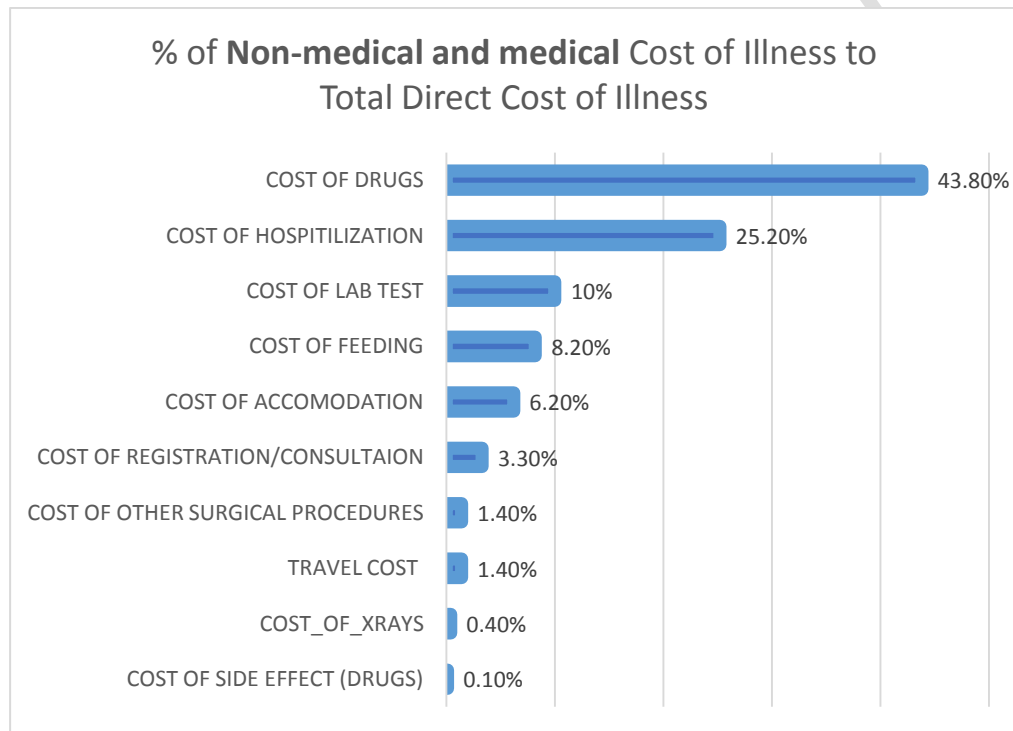
Variable	TOTAL COST (₦)	Average cost (₦)	Standard deviation(₦)
Non-medical cost			
Travel cost	9650	47.77	122.809
Cost Of Accommodation	42000	207.92	2093.899
Cost Of Feeding	55700	275.74	1217.638
Total Non-Medical Cost	107350	531.44	2691.772
Medical cost			
Cost Of Registration/Consultation	22500	111.39	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

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 277 Table 3 shows that the average non-medical cost of treatment was ₦531.44 ± 2691.772
 278 (\$1.47US), which constitute of (average cost of transportation was ₦47.77 ± 122.809
 279 (\$0.1US), average cost of accommodation ₦207.92 ± 2093.899 (\$0.6US) and average cost of
 280 feeding ₦275.74 ± 1217.638 (\$0.8US).

281 The average medical cost was ₦2814.95 ± 5723.173 (\$7.8US) which constitute of (the
 282 average cost of side effect (drugs) ₦2.97 ± 29.777 (\$0.01US), average cost for X-rays
 283 ₦12.44 ± 176.336 (\$0.03US), average cost of surgical procedures ₦48.02 ± 682.490
 284 (\$0.1US), average cost of registration/consultation ₦111.39 ± 387.90 (\$0.3US), average cost
 285 of lab test ₦334.16 ± 765.208 (\$0.92US), average cost of hospitalization ₦841.58 ±
 286 3693.770 (\$2.3US) and average cost of drugs ₦1464.46 ± 1905.965(\$4.0US)).

287 The total direct cost of illness was ₦3346.39 ± 7911.315 (\$9.2US), while the average total
288 indirect cost of was ₦1256.54 ± 5282.757 (\$3.4US). The total cost of illness was ₦4602.93 ±
289 13194.072 (\$12.7US).

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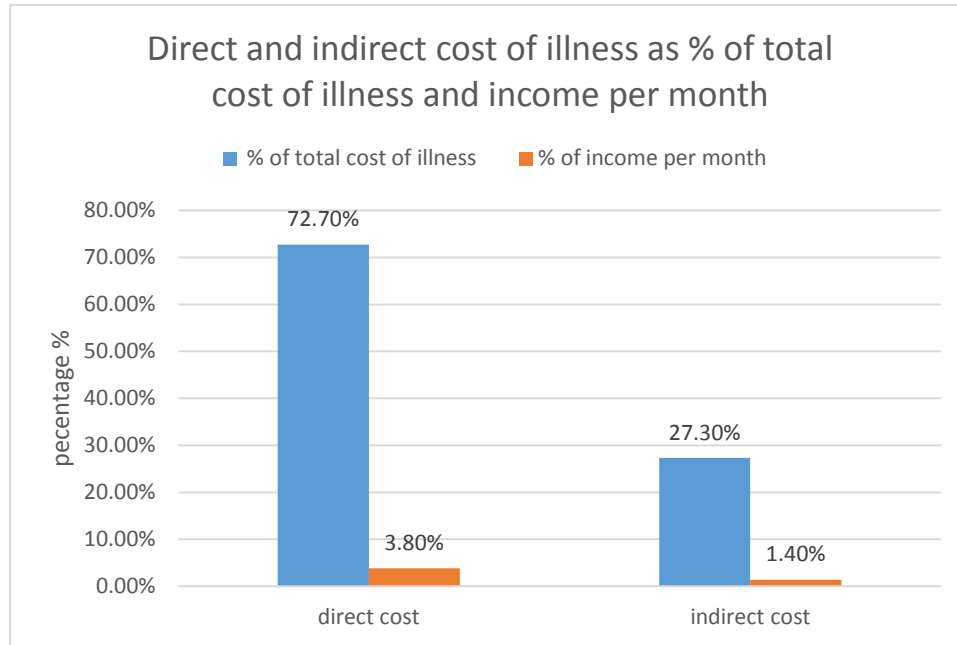


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Figure 1: Percentages of non-medical and medical cost of Illness to Total Direct Cost of Illness

300 Figure1 illustrates that cost of drugs accounts for 43.8% of the total direct cost of illness,
301 cost of hospitalization accounts for 25.2% of the total direct cost of illness, cost of lab test
302 accounts for 10% of the total cost of illness, cost of feeding accounts for 8.2% of the total
303 cost of illness, cost of accommodation accounts for 6.2% of the total direct cost of illness,
304 cost of registration accounts for 3.3% of the total direct cost of illness, cost of other surgical
305 procedures and cost for travel cost accounts for 1.4% respectively of the total direct cost of
306 illness, while cost of side effect which accounted for 0.1% of the total direct cost of illness.

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313 **Figure 2: Direct and indirect cost of illness as % of total cost of illness and income per**
 314 **month**

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316 Figure 2: illustrates that the total direct cost of illness accounted for 72.7% of the total cost of
 317 illness and 3.8% of income per month while the total indirect cost of illness accounted for
 318 27.30% of the total cost of illness and 1.40% of income per month.

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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

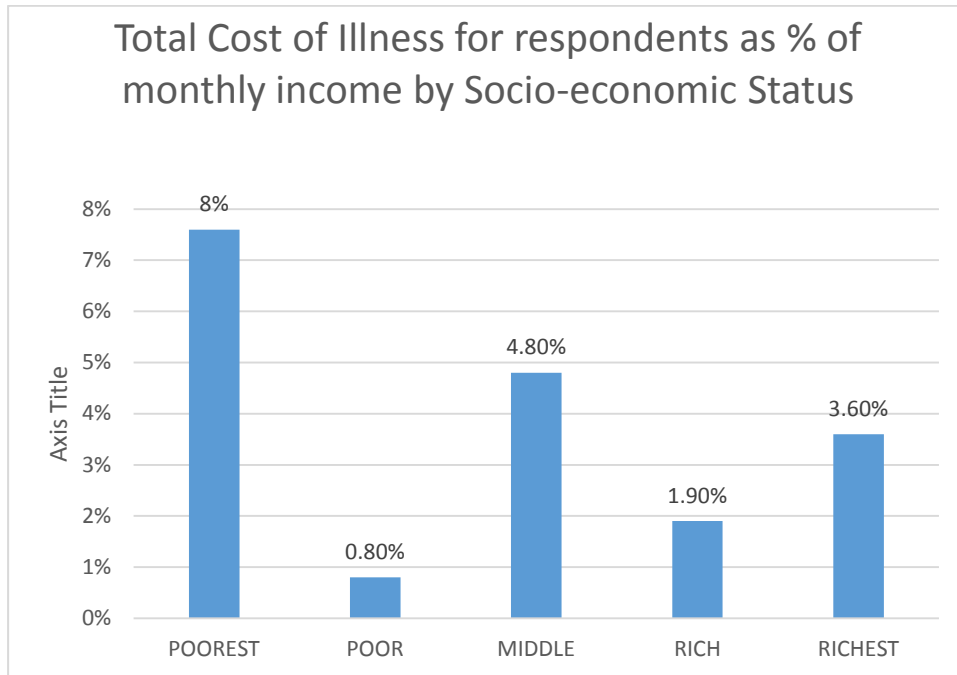
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321 Table 4 shows the cost of illness for respondents by socioeconomic status, for individuals in
 322 the poorest quintile the average cost of illness was ₦4506 ± 9609.79 (\$12.43US), in the poor
 323 quintile the average cost of illness is ₦1481 ± 2005.81 (\$4.1US), in the middle quintile the

324 average cost of illness is ₦3576.11 ± 7505.35 (\$9.87US), in the rich quintile the average cost
325 of illness is ₦5733.42 ± 15282.41 (\$15.82) while richest quintile the average cost of illness is
326 ₦7500.70 ± 12064.77 (\$20.70US). There was no statistically significant difference among the
327 means of cost of treatment of the 5 quintiles of socio economic status ($p > 0.05$)

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Figure 3: Total cost of illness for self as % of monthly income by socioeconomic status

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Figure 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

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 instalment and subsidized payments. This findings 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.

348 The studies sheds more evidence that people preferred to seek care at pharmacies rather than
349 clinics because these pharmacies were more accessible and provided prompt treatment and
350 medicine with no service charge ⁽¹⁸⁾.

351 Cost of illness have an adverse effect on health seeking behaviour such as delaying seeking
352 treatment until such time as they get the money that is required for both consultation and
353 drugs, by-passing health facilities and seeking medication from pharmacists directly,
354 reducing the dosage of prescribed drugs, sharing drugs with other patients with similar
355 conditions ⁽¹⁹⁾.

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357 The cost of treatment for oneself in this study was found to be ₦4602.93 ± 13194.072
358 (\$12.7US), this accounts for 5% of the income per month, while for treating household was
359 found to be ₦3314.17 ± 7139.74 (\$9.1US). Direct cost of illness was more when compared to
360 the indirect cost of illness, with the cost of drugs accounting for 43.8% of direct cost, while
361 cost of hospitalization accounted for 25.2% of direct cost. The total direct cost of illness for
362 respondents amounted to 6% of the poorest quintile monthly income, 1.8% for those in the
363 poor quintile, 4.2% for those in the middle quintile, 6.2% for those in the rich quintile, while
364 7.5% for those in the richest quintile. The cost of treatment was more higher compared to
365 similar study in South-East, Nigeria where the cost of treatment was found to be 2819.9
366 Naira, with the cost of drugs accounting for 90% of the total cost of treatment ⁽²⁰⁾.

367

368 The study shows that the individuals in the informal sector which includes; the self-employed
369 is moving towards the direction of increasing user fees as mode of financing healthcare. OOP
370 was the mode of payment for healthcare. The results suggest that individuals who are ill and
371 are not covered by health insurance are more vulnerable due to out-of-pocket expenditure and
372 making this payment was not found to be easy among respondents. Most of respondents
373 coped by borrowing money, this coping mechanisms reported can have multi-faceted effects
374 on their welfare. For example, it can lead to the worsening of the health condition as it
375 deprives the patient of appropriate care. This is in agreement with the findings from a study
376 in Southeast Nigeria where OOP was the most predominant mode of payment which
377 contributed 88% and that respondents coped with payment by borrowing ⁽²¹⁾. This study is in
378 resonate with findings from a study on willingness to join community based health insurance
379 scheme in rural households of South-west Ethiopia who spotted the strategies in which
380 individual cope with healthcare cost, (93.2%) of the households covered the medical
381 expenses by themselves, 85.4% of these households reported that it was (very) difficult to

382 cover payments for treatments. 36.4% of them were assisted by relatives to cover the medical
383 costs; 20.3% drew from their savings, and 14.4% borrowed from someone. The remaining
384 had to sell capital assets such as cows (17.6%), cut back on other household expenditure and
385 consumption patterns such as food, drink, cloth etc., (9.1%), undertook extra works to cover
386 the cost of healthcare ⁽²²⁾.

387

388 Similar study in Zimbabwe also reported individuals had to take on piece jobs to meet costs
389 or repay loans, sell key livelihood assets, ask their children for assistance or borrow money.
390 Some coping strategies that participants adopted led to impoverishment, declining standards
391 of living, asset depletion, displacement of other household needs (e.g. school fees, food) ⁽¹⁹⁾.
392 Similar study, in Bangladesh which identified coping strategies for financial burdens in
393 families with childhood pneumonia, highlighted that this downward trend of loss of
394 productive assets and reduced income for food and children's education forces many families
395 to slide into abject poverty and perpetuate the cycle of poverty to the next generation.
396 Therefore this high cost deters family from seeking clinical care ⁽²³⁾. Also in similar study in
397 Bangladesh were most respondents spent from “out-of-pocket” or from household wages.
398 After household wages, respondents reported using savings, followed by donations or loans
399 ⁽²⁴⁾.

400

401 **Conclusion:**

402 To enable universal health coverage with quality health services, introduction of cost sharing
403 scheme are of dire need among the informal sector. This schemes creates affordable
404 healthcare at the time of sickness, thereby reducing the incidence of OOP which act as the
405 main barrier in accessing healthcare. These schemes also can bring an equitable and efficient
406 health care service provision for those who are informally employed and mainly in the low
407 income earning groups of the society. This comes by setting the premium price in
408 consideration with the ability and willingness-to-pay so as to ensure successful
409 implementation.

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414 **References**

- 415 1. Carrin, G., Waelkens, M. P. & Criel, B. Community-based health insurance in
416 developing countries: a study of its contribution to the performance of health
417 financing systems. *Tropical Medicine and International Health*. 2005; 10(8): 799 –
418 811.
- 419 2. Uzochukwu B, Ughasoro M D, Etiaba E, Okwuosa C, Envuladu & Onwujekwe OE.
420 Healthcare Financing in Nigeria: Implication for achieving universal health coverage.
421 *Niger J Clin Pract*. 2015; 18:437-44
- 422 3. O'Donnell, O., Van Doorslaer, E., Rannan-Eliya, R., Somanathan, A., Adihkari, S. &
423 Akkazieva, B. Who pays for health care in Asia? *Journal of Health Economics*. 2008;
424 27: 460 – 475.
- 425 4. WHO. World Health Statistics, Geneva: World Health Organization. 2004
- 426 5. Goudge J, Russell S, Gilson L, Gumede T, Tollman S & Mills A. Illness-related
427 impoverishment in rural South Africa: Why does social protection work for some
428 households but not others? *J Int Dev* 2009; 21:231-51.
- 429 6. Wagstaff A, & Van Doorsaler E. Equity in healthcare financing and delivery. In:
430 Culyer AJ, Newhouse JP, editors. *Handbook of Health Economics*. 1st ed., Vol. B. Ch.
431 34. North Holland: Elsevier. 2000; p1803-62.
- 432 7. Onoka CA, Onwujekwe OE, Hanson K, &Uzochukwu BS. Examining catastrophic
433 health expenditures at variable thresholds using household consumption expenditure
434 diaries. *Trop Med Int Health*. 2011; 16:1334-41.
- 435 8. WHO. The World Health Report - Health Systems Financing: The Path to Universal
436 Coverage 2010. Geneva: The World Health Organization;
- 437 9. Soyibo A. National Health Accounts of Nigeria, 1998-2002. Ibadan: University of
438 Ibadan, Nigeria. 2004.
- 439 10. Rivers State Tax Report. A Research on Taxation in the Informal Sector in Rivers
440 State.2017
- 441 11. Kio-Lawson, D & Dekor J. B. Port Harcourt, the Garden City: A Garden of Residents
442 Nightmare World Environment. 2014; 4(3): 111-120.
- 443 12. Ogbonna, D. N., Amangabara, G. T., Ekere, T. O. "Urban solid waste generation in
444 Port Harcourt metropolis and its implications for waste management", *Management of*
445 *Environmental Quality: An International Journal*. 2007; Volume: 18 Issue: 1;

446

- 447 13. National Population Commission (NPC) [Nigeria] & ICF International. Nigeria
448 Demographic and Health Survey 2013. Abuja, Nigeria, and Rockville, Maryland,
449 USA: NPC and ICF International. 2014.
- 450 14. "Rivers Population Statistics". City Population.de. (Retrieved 16 August 2017)
- 451 15. Onwujekwe, O., Okereke, E., Onoka, C., Uzochukwu, B., Kirigia, J. & Petu, A.
452 "Willingness to pay for community-based health insurance in Nigeria: do economic
453 status and place of residence matter?" Health Policy and Planning, Oxford University
454 Press in association with The London School of Hygiene and Tropical Medicine.
455 2009
- 456 16. Araoye MO. *Research methodology with statistics for health and social sciences*.
457 Ilorin. Nathandex publishers. 2003. 119-120.
- 458 17. Central Bank of Nigeria Exchange Rate. (Accessed on 10/11/2017).
- 459 18. Fahmida Chowdhury. Factors driving customers to seek health care from pharmacies
460 for acute respiratory illness and treatment recommendations from drug sellers in
461 Dhaka city, Bangladesh. 2016.
- 462 19. Stephen B., Chandiwana, B., Munyati, S., Chirwa, Y., Mashange, W., Chandiwana,
463 P., Fustukian, S. & McPake, B. Impact of user fees on health care seeking behaviour
464 and financial protection during the crisis period in Zimbabwe: A life history approach.
465 ReBUILD RPC Working Paper, 2016.
- 466 20. Onwujekwe O, Onoka C, Uguru N & Tasié N. Socio-economic and geographic
467 differences in acceptability of community-based health insurance. *Public Health*.
468 2011; 125 (11): 806.
- 469 21. Onwujekwe O. Research for development willingness to pay for community-based
470 health insurance in Nigeria: do economic status and place of residence matter? *Health*
471 *Policy and Planning* 2012; 25 (2): 155-161.
- 472 22. Melaku H., Shimeles O. & Berhane M. Willingness to join community-based health
473 insurance among rural households of Debu Bench District, Bench Maji Zone,
474 Southwest Ethiopia, *BMC Public Health*. 2014; 14:591
- 475 23. Nadia I. A. & Stephen P. L. Coping strategies for financial burdens in families with
476 childhood pneumonia in Bangladesh. *BMC Public Health*. 2010; 10:622
477
- 478 24. Rubana I., Rocco P., Akib K., Syed Jafar R. R., Shakil A.T., Ahmed, & Alayne M.
A.. The influence of travel time on emergency obstetric care seeking behavior in the

479

urban poor of Bangladesh: a GIS study; BMC Pregnancy Childbirth. 2016; 16(1):
480 240.

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