



Willingness to Pay for Social Health Insurance by the Self-employed in Port Harcourt, Rivers State; A Contingent Valuation Approach

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Authors' contributions

The authors designed, analysed and interpreted and prepared the manuscript.

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ABSTRACT

Background/Aim: Urban Self-Employed Social Health Insurance (USSHIP), which is similar to Community-based health insurance schemes CBHI, USSHIP, is a package in the National Health Insurance Scheme NHIS specific but is not limited to self-employed individuals in Nigeria which has been rarely explored as instrument in financing healthcare in Nigeria. This study was aimed to assess the Willingness-to-Pay (WTP) for USSHIP and its determinants amongst the self-employed in Port Harcourt.

Methodology: This was a cross-sectional descriptive study of 204 self-employed individuals selected from various trade association in Port Harcourt using semi-structured interviewer-administered pre-tested questionnaires. An iterative bidding approach of the contingent valuation method was used to elicit maximum WTP for the schemes. A multivariate logistic regression analysis was done to determine predictors to WTP. Data collected were analysed using the Statistical Package for Social Science (SPSS), version 23 software.

Results: The results show that 89.7% were willing to enrol into the program; the median WTP for the scheme per person/per month is ₦300 (\$0.83). The predictors of WTP were marital status, level of education and mode of payment of healthcare.

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Conclusion: Sequel to the findings of this study, the WTP amount for social health insurance program by the self-employed is too small, the implications for these findings imply that with the amount stated, the program cannot be successfully implemented. Recognizing this low amount stated for WTP for USSHIP, which is insufficient to scale up the scheme, the government support for the program is highly recommended.

Keywords: Self-employed; out-of-pocket; willingness-to-pay; health; insurance.

1. INTRODUCTION

The pattern of financing a nations' healthcare system is a determinant in achieving universal health coverage. The pattern illustrates the proportion of healthcare services that exist and its affordability by the masses. Most healthcare expenditures in developing countries are borne through OOP spending payable by healthcare-seekers at the time and place of treatment.

In Nigeria, OOP contributes 70% of healthcare payments in Nigeria. In 2007, OOPs increased from 92.7% to 95.9% of private expenditure. 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 [1]. OOP has remained the dominant mode of financing healthcare in developing countries [2] and a major limitation if an expensive healthcare service is to be accessed [3].

The impoverishing effect of this health care financing mechanism for the poor and often rural population has been a source of concern in the countries of Africa. According to WHO, 150 million people globally suffer financial catastrophic shock each year, and 100 million are pushed into poverty because of direct payments for healthcare services [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, the poorest quintiles often experienced catastrophe [7]. OOPS does not give value for money and used to purchase mostly unessential services, thereby unnecessarily escalating healthcare costs [8].

Urban Self-Employed Social Health Insurance (USSHIP) which is similar to Community-based health insurance schemes CBHI, USSHIP is a package in the National Health Insurance Scheme NHIS specific but is not limited to self-employed individuals in Nigeria which has been

rarely explored as instrument in financing healthcare in Nigeria, with certain limitations which includes; low capital start up base, small size of risk pool which will result to lower level of revenue mobilization, limited management capacity, isolation of complete benefits [9].

This is insurance program covering groups of individual with common economic activities run by the members specifically the self-employed through contributing some amount of money that is owned, designed, and managed by their members [9]. This translates as being a member of an association in your field or line of business, can register the members into the Urban Self-Employed Social Health Insurance Program. For example, Association for Hair Saloon Owners, Food Vendors' or Restaurant Owners' Association or Taxi Drivers' Association, and Market Women Association etc. inclusively, individuals who are members of a socially cohesive group are free to join the program.

The schemes are not-for profit type of health insurance that has been used by poor people to protect themselves against the high costs of seeking medical care and treatment for illness. It is mainly financed by the contributions/premium regularly collected from its members [9]. USSHIP have the potential to provide financial protection for underserved segments within the population, minimizing the equity gap and reducing out-of-pocket spending, increase awareness regarding the value of insurance, building self-belief among participants through community control mechanisms, and enhancing utilization of the health care system [9].

USHIP can be elicited using the contingent valuation method (CVM). This method has been widely used to better understand the method to aid decision-making [1,10]. This method values respondents use of value which is described as respondents' willingness to pay for the good because he/she will directly consume it. It also values the non-use or option value which is described as respondent's willingness to pay for the good not that he/she will directly consume it at present, but wants to be reassured that it

exists in case s/he will need to consume it in the future.

Information about WTP for USSHIP can be used from a normative perspective and a behavioral perspective. The maximum WTP equals the compensating gain, i.e. the income reduction that would maintain a respondent's initial level of utility, if he or she were provided USSHIP coverage. From a normative perspective, it can thus be used as a direct measure of the monetary value of the USSHIP, for instance, in a cost-benefit analysis to inform policy makers about whether it will be socially desirable to provide the BHI to informal sector workers. From a behavioral perspective, demand curves constructed from the WTP results can inform policy makers about the trade-off between insurance coverage and cost recovery if the USSHIP were offered to informal sector workers in the market place. Findings from this result may further aid in deciding on insurance attributes and designing marketing strategies for the USSHIP self-employed.

This study aimed at assessing the willingness to pay for USSHIP and its determinants amongst self-employed in Port Harcourt. This will provide empirical information that can be used by stakeholders to devise a health insurance financing system that responds to the needs of informal sector (self-employed individuals) and increase equity in health services utilization.

2. MATERIALS AND METHODS

The study was carried out in Port Harcourt, which is the administrative and commercial capital of Rivers State, Nigeria [11,12,13].

The informal sector in Port Harcourt harbors the small-scale and self-employed activities, which are mainly for generating employment and incomes [14]. The informal sector trading activities are attractive because they relatively need low capital, which in most instances come from personal savings.

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. Although the informal sector is a chance for creating equitable proceeds for many individuals, most informal workers lack stable income, employments welfares and societal shelter [15].

2.1 Study Design

The study utilized a descriptive cross-sectional study design with quantitative data collection method. This study design was utilized due to the data gathered came from from a pool of participants with varied characteristics and demographics known as variables such as age, gender, income, education, geographical locations, and ethnicity. The study population consists of groups of individuals with common economic activities (same trade/line of business) who are self-employed and earns his/her income through conducting profitable operations from a trade or business that he or she operates directly in Port Harcourt. Respondents who were working partly or fully within the formal sector were excluded from the study, this was to capture only individuals within the informal sector with no ties to the formal sector. The questionnaires were prepared by reviewing relevant literatures. Pre-testing was done on 10% of the subjects at Obio-Akpor Local Government Area of River State. Data was collected by pretested, pre-coded and interviewer-administered questionnaires.

2.2 Sample Size Estimation

The sample size was calculated using single population proportion formula with the following assumptions, proportion 86%, which was obtained from a study done in the South East of Nigeria [1]. Using 5% margin of error at 95% confidence level, the sample size was 204 after considering 10% non-response rate.

2.3 Sampling Method

The sample was obtained using a stratified random sampling using proportionate size allocation technique. During the first stage, individuals that are self-employed plying the same trade and belonged to their line of business/trade association were identified as a stratum based on the name of the association. In the second stage, the total population of each individual stratum was identified via the list of members from each association identified to obtain a population fraction for proportionate allocation of the sample size. In the third stage the list of members from each association served as a sampling frame. A simple random sampling was employed via balloting to select eligible individuals from each stratum.

2.4 Study Variable

The dependant variable was willingness to enroll for USSHIP while the following factors were

included in the model as independent variables: socio-demographic variables: age, sex, marital status, family size, number of children, socioeconomic variable: income, wealth, occupation, level of education, health and health-related factors (mode of payment, household member recently ill).

2.5 Data Collection Procedure

An iterative bidding approach of the contingent valuation method was used to assess the maximum willingness to pay for the schemes. In these methods, first, the good which is the social insurance program and hypothetical market is described to the respondents and then, they are asked to state the maximum amount they are willing to pay that starts by querying individuals at some initial naira value that keeps raising (or lowering) until the value which the respondent declines (or accepts) to pay. This was braced with questions that would elicit more information for those who do not pick a 'yes' for either the first or second option. This will enable respondents to pick lower amounts (as low as zero) or higher amounts (higher than the stated options in the. This final naira amount is interpreted as the respondent's WTP. The starting bid was stated at ₦1000.

2.6 Scenario for Eliciting WTP for USSHIP

2.6.1 Bidding game iteration for eliciting WTP for USSHIP from self-employed individuals

1. The price of a monthly insurance premium (contribution) is 1000 Naira; are you willing to pay? [] 1= Yes (Q7) 0= No (Q2) Do not know (Q2). Answer Q7 if your response is yes and follow accordingly due to your response.
2. What is the maximum amount you are willing to pay? [] (Interviewer: if more or equal to 900 Naira go to Q5, but if less than 900 Naira, go to Q3). Q5 implies question 5 accordingly.
3. What if the premium is 800 Naira, will you be willing to pay? [] 1= yes 0= No. Indicate 1 or 0 accordingly in the provided box.
4. What if the premium is 700 Naira, will you be willing to pay? [] 1= yes 0= No
5. What really is the maximum amount you are willing to pay for the Urban Self-Employed Social Health Insurance Scheme premium? [] (Interviewer: If more

or equal to 1000 Naira go to Q7, but if less than 1000 Naira go to Q6)

6. The amount that you have quoted is too low, and cannot cover the cost of the premium, and so you will have to increase the amount if you really want to join the Urban Self-Employed Social Health Insurance Scheme. So what is the final maximum amount you are willing to pay per month to join the health insurance scheme? [] (Interviewer: No matter the answer, go to Q7)
7. If due to inflation or other uncertainties, the premium for the community-based insurance scheme increases, what is the maximum amount you are very certain to pay bearing in mind your average monthly household income and money you spend on various items? []

2.7 Data Analysis

The collected data were cleaned, coded, entered into Excel, transferred and analyzed using SPSS version 23-computer software package version 20. Principal Component Analysis (PCA) computed the wealth status of the self-employed individuals. This was done by using an asset based SES index which was developed from information on household ownership of assets such as; ownership of land, radio, car, television, air conditioner, bicycle, motorcycle, electric fan etc., were used to derive weights for the SES index. The SES index was used to differentiate the respondents into socio-economic groups.

ANOVA that is usually used to test differences among mean amongst more than two population tests was used to test for significant differences in the mean amount willing to pay across socio-economic groups. A Tukey post hoc test was used to determine statistically significant comparison in the mean difference of WTP for self across socio-economic groups.

A univariate analysis using Chi-square test was used to establish significant associations between willingness-to-pay and determinants of willingness-to-pay such as socio-demographics (age, sex, marital status, and religion), socio-economic characteristics (education, household size, number of children, head of household, main decision maker and main income earner) and mode of payment of healthcare (out-of-pocket). Results were considered significant with P-values of less than 0.05 at 95% Confidence Interval (C.I.). A multivariate analysis was done using binary logistic regression (forward

likelihood regression) yielding adjusted odds ratio was concurrently done to determine the relationship between various independent variables that were statistically significant in determining the probability of a self-employed individual willing to pay for an urban self-employed social health insurance program during the univariate test. Only variables with $p < 0.05$ during the univariate and multivariate regression were considered statistically significant for the regression equation.

Non-parametric test using Kruskal Wallis was used to compare median difference across socioeconomic groups.

3. RESULTS

Table 1 shows the socio-demographics distribution of respondents in respect to age, sex, marital status and ethnicity. 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 41-50 years, 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 of respondents 121 (59.3%) were married. Most 157 (77.0%) of the respondents were of Igbo ethnic group.

Table 2 shows that over two-thirds 149 (73.8%) had completed only their senior secondary school education. A little more than half 71 (53.8%) of the respondents have between 1-2 children. Over two-thirds 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. Over one-thirds 75 (36.8%) earned between ₦40,001 - ₦80,000 (\$110.4 US - \$220.7 US) per month. The mean income per month was ₦87,724.51 \pm 41,287.93 (\$242 US) while the median income per month was ₦78,000 (\$215.8 US). 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 3 shows that, half 102 (50.0%) had malaria as their most recent self-reported cause of illness, 44 (21.6%) had migraine. Most of them 145 (71.0%) sought treatment at the patent

medicine vendor popularly known as chemist. Out of pocket was the predominant mode of payment, but almost all 57 (95.0%) paid instantly using out-of-pocket, while 3 (5.0%) paid in installment using out-of-pocket. Majority 174 (86.1%) reported that making those payments were not easy for them.

Table 4 shows that out of the 204 respondents, a majority of respondents 181 (88.7%) are willing to enroll into the scheme. Lack of funds 15 (64.1%) was the major cause of not willing to enroll self or household members into the scheme.

Table 5 shows that the average amount a person is willing to pay for is ₦539.22 \pm 413.8 (\$1.5 US), while for per household member is ₦433.33 \pm 340.62 (\$1.2 US), when accounting for inflation of naira in the economy, the average amount a person is willing to pay for oneself is ₦676.96 \pm 491.6 (\$1.9 US) while for per household member is ₦517.89 \pm 407.73 (\$1.4 US).

Table 6 shows WTP amounts per month for self those in poorest quintile expressed the highest WTP amounts ₦767.50 \pm 330.02 (\$2.1 US), those in poor quintile were willing to pay ₦346.67 \pm 383.52 (\$1 US), those in the middle quintile were willing to pay ₦602.70 \pm 475.80 (\$1.7 US), while those in the rich quintile were willing to pay ₦405.26 \pm 355.61 (\$1.1 US), while those in the richest quintile were willing to pay ₦590.91 \pm 389.29 (\$1.6 US). Also there was a statistically significant difference between the mean WTP amounts of the 5 quintiles of socio economic status ($p < 0.05$).

When accounting for inflation of naira, poorest quintile expressed the highest WTP amounts for self per month 890.0 \pm 397.30 (\$2.5 US), those in the poor quintile were willing to pay ₦434.44 \pm 437.95 (\$1.2 US), those in the middle quintile were willing to pay ₦718.92 \pm 583.97 (\$2.0 US), those in the rich quintile were willing to pay ₦586.84 \pm 452.57 (\$1.6 US), while those in the richest quintile were willing to pay ₦773.86 \pm 466.37 (\$2.1 US). There was a statistically significant difference between the mean WTP amounts during inflation across the 5 quintiles of socio economic groups ($p < 0.05$).

Table 7 shows a pairwise comparisons of the means using Tukey's Honestly Significant Difference procedure which indicated only four statistically significant comparison in the mean difference of WTP for self across socio-economic status: Respondents in the poorest quintile had a

significant difference of (Mean difference = ₦420.83 (\$1.2 US) and ₦362.24 (\$0.9 US)) higher mean WTP amount when compared with those in poor and rich quintile respectively, while those in the poor quintile had a significant (Mean difference = ₦-256.04 (\$-0.7 US) and ₦-244.24 (\$-0.6 US)) lower WTP amount when compared with those in the middle and richest quintile respectively. Other comparisons were not significant ($p > 0.05$).

Also the Tukey post hoc test revealed three statistically significant comparisons in the mean difference of WTP for self across socio-economic status when accounting for inflation.

Respondents in the poorest quintile had a significant mean difference of (Mean difference = ₦455.56 (\$1.3 US) and ₦303.16 (\$0.8 US)) higher mean WTP amount for household when compared with those in poor and rich quintile respectively, while those in the richest quintile had significant mean difference of (Mean = ₦339.42 (\$0.9 US)) higher WTP amount for per household member when compared to those in the poor quintile. Other comparisons were not significant ($p > 0.05$).

In the Table 8a, no statistical significant association was observed between Age group, Sex, with Willingness-to-Pay (WTP).

Table 1. Socio-demographic characteristics of respondents

Variable	Frequency (n = 204)	Percentage (%)
Age (years)		
21-30	79	38.7
31-40	52	25.5
41-50	57	27.9
>50	16	7.8
Sex		
Male	111	54.4
Female	93	45.6
Marital status		
Married	121	59.3
Single	72	35.3
Widowed	7	3.4
Separated/Divorced	4	2.0
Ethnicity		
Igbo	157	77.0
Ijaw	19	9.3
Ibibio	14	6.9
Yoruba	13	6.4
Hausa	1	0.5
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
	Mean=₦87724.51 ± 41287.93	Median=₦78,000
Socio-economic status (SES)		
Poorest	40	19.6
Poor	45	22.1
Middle	37	18.1
Rich	38	18.6
Richest	44	21.6

Table 2. Socio-economic characteristics of respondents

Variable	Frequency (n = 204)	Percentage (%)
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
No of children (n=132)		
1-2	71	53.8
3 – 4	40	30.3
5 – 6	21	15.9
Household size		
1-4	137	67.2
5 – 7	65	31.9
8 – 10	2	1.0
Mean household size	Mean ± SD	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
Main income Earner		
Yes	142	69.6
No	62	30.4
Main decision maker		
Yes	141	69.1
No	63	30.9
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
Mean ± SD = ₦87724.51 ± 41287.93		Median = ₦78,000

A statistical significant association was observed between marital status and educational level with WTP. Those that were either single, separated, divorced or widowed had a significant higher proportion (55.1%) compared to those that were married (44.9%) towards WTP ($p=0.001$). Also the odds ratio shows there was a negative relationship between marital status and willingness-to-pay, those who were either single, separated, divorced or widowed were less likely to express higher WTP amounts (OR= 0.38, CI= 0.21-0.38).

Those that had completed secondary education and below had statistically significant higher proportion (70.5%) compared to those who had tertiary education (29.5%) towards WTP ($p=0.000$). Also the odds ratio shows there was a

positive relationship between educational level and WTP, those that had completed secondary education and below were more likely to express higher WTP amounts (OR= 3.97, CI= 1.84-8.57).

In the Table 8b, no statistically significant association was observed between number of children, size of household, income level (per month) and socio-economic status, with Willingness-to-Pay (WTP). A statistically significant association was observed between household status, main income earner and main decision maker with WTP. Those who were heads of the household had statistically significant higher proportion (79.5%) compared to those who were not heads of the household (20.5%) towards WTP ($p=0.028$). Also the odds

ratio shows there was a positive relationship between being head of the household and willingness-to-pay, those that were not head of household were more likely to express higher WTP amounts (OR= 2.08, CI= 1.07- 4.03).

Those who were the main income earner had statistically significant higher proportion (78.2%) compared to those who were not the main income earner (21.8%) towards WTP ($p=0.026$). Also the odds ratio shows there was a positive relationship between main income earners and willingness-to-pay, those that were not main

income earner were more likely to express higher WTP amounts (OR= 2.06, CI= 1.08- 3.95).

Those that were main decision maker had statistically significant higher proportion (78.2%) compared to those that were not main decision maker (21.8%) towards WTP ($p=0.020$). Also the odds ratio shows there was a positive relationship between the main income earners and willingness-to-pay, those that were not the main decision maker were more likely to express higher WTP amounts (OR= 2.14, CI= 1.12- 4.08).

Table 3. Mode of seeking for healthcare

Variable	Frequency (n = 204)	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
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
Mode of payment		
Out-of-pocket (Installment)	57	95.0
Out-of-pocket (cash and carry)	3	5.0
Ease to make payment		
Not Easy	176	86.3
Easy	28	13.7

Table 4. Proportion of respondents Willing-to-Join USSHIP

Variable	Frequency (n = 204)	Percentage (%)
Willing to enroll self		
No	23	11.3
Yes	181	88.7
Reasons For Not Enrolling Self (n=23)		
Lack of funds	15	64.1
Don't Believe In English Medicine	2	8.7
Don't Fall Sick	2	8.7
Lack Of Trust	2	8.7
Don't Understand How It Operates	1	4.3
Its Government Job	1	4.3

Table 5. WTP amounts

Variable	Mean (₦)	Standard deviation	Median	Inter-quartile range	95% C.I
Maximum amount willing to pay for self	539.22	413.8	300	875	(482.09-596.35)
Maximum amount willing to pay during inflation for self	676.96	491.6	500	800	(609.10-744.82)
Maximum amount willing to pay for household	433.33	340.62	500	600	(386.31-480.36)
Maximum amount willing to pay for household during inflation	517.89	407.73	500	600	(461.61-574.18)

*1USD (United State Dollar) = ₦364.41 (Central Bank of Nigeria Exchange rate, November 2019)

In the Table 8c, no statistical significant association was observed between health seeking and Willingness-to-Pay (WTP).

A statistically significant association was observed between the mode of payment and household member recently sick with WTP. Those who made payments using out-of-pocket (cash and carry) had a statistically significant higher proportion (84.6%) compared to those that made installment payments (15.4%) towards WTP ($p=0.002$). Also the odds ratio shows there was a positive relationship between mode of payment and willingness-to-pay, those that made payment using out-of-pocket (cash and carry) were more likely to express higher WTP amounts (OR= 5.55, CI= 1.72 – 17.88).

Also respondents who had no household member was recently sick had a statistically significant higher proportion (59.0%) compared to those had a household member recently sick (41.0%) towards WTP ($p=0.004$). Also the odds ratio shows there was a positive relationship between household member recently sick with and willingness-to-pay, those who had no household member was recently sick were more likely to express higher WTP amounts (OR= 2.44, CI= 1.32 – 4.51).

4. DISCUSSION

Findings from this study indicated that most of the respondents were willing to join the scheme. This implies a high resource mobilization of the program by increasing the size of risk pool, which is an important factor for successful implementation. This high level of WTJ is consistent with those found in which showed a high level (87%) of WTJ CBHI scheme [16]. A much higher level of WTJ were found in similar studies in Ethiopia, 77.8% of the respondents are

willing to join the proposed health insurance scheme, while 33% of the respondents did not want to join the scheme because they do not need health insurance [17]. In Iran were 98.6% of household heads are willing to join the proposed health insurance scheme.

A similar study on health insurance in Nepal showed that 71% were willing to pay for health insurance, while 21% were not disposed to join with reason ranging from lack of finances to pay for such scheme as the main barrier, it is the government's responsibility to finance the health insurance program and some of the respondents do not believe the government program because of past authenticity of not implementing the program and people thought the government only make policy but they don't implement it [18].

The mean WTP per person per month was found out to be ₦539.22 \pm 413.8 (\$1.5US), while accounting inflation on the naira, the mean WTP per person per month was found to be ₦676.96 \pm 491.6 (\$1.9US). The mean WTP per person per month was found to be significantly higher for those in the poorest quintiles; there was a statistically significant difference among the means of the 5 quintiles of socio economic status ($p<0.05$). Implication of this findings given recent acceleration in health care cost as a result of a recessive economy and a sharp decline in real earnings of household, prospects for attaining resource generation that are significant relative to the total health cost are declining due to the decrease in purchasing power among the self-employed witnessed in the study. Recognizing this low amount stated for WTP for USSHIP, which is insufficient to fund all the health cost for the scheme members, the government support for these schemes is highly recommended. This support can be in form of fiscal transfers or increased budget allocation to the health sector.

Table 6. Willingness-to-pay amount for self by Socio-Economic Status (SES)

Variable	Poorest (n=40)	Poor (n=45)	Middle (n=37)	Rich (n=38)	Richest (n=45)
Maximum amount willing to pay for self (per month)					
Mean WTP (₦)	767.50	346.67	602.70	405.26	590.91
Standard deviation	330.02	383.52	475.80	355.61	389.29
Confidence interval (95%)	(661.95-873.05)	(231.44-461.89)	(444.06-761.34)	(288.38-522.15)	(472.56- 709.26)
Median	1000	200	900	250	600
<i>F statistics = 7.780 df = 4 p value= 0.000</i>					
Maximum amount willing to pay during inflation for self (per month)					
mean (₦)	890.0	434.44	718.92	586.84	773.86
Standard deviation	397.30	437.95	583.97	452.57	466.37
Confidence interval (95%)	(762.94-1017.06)	(302.87-566.02)	(524.21-913.62)	(439.09-735.60)	(632.07-915.65)
Median	1000	200	800	500	750
<i>F statistics= 5.962, df =4 p value = 0.000</i>					

*1USD (United State Dollar) = ₦364.41 (Central Bank of Nigeria Exchange rate, November 2019)

Table 7. Post-Hoc test (Multiple Comparison) for mean WTP for self across SES

Variable			Mean difference	Standard error	Significant level	Confidence interval	
						Lower	Upper
Amount WTP for self	Poorest	Poor	420.83*	84.465	0.000	188.31	653.36
		Rich	362.24*	88.050	0.001	119.84	604.63
	Poor	Middle	-256.04*	86.259	0.027	-493.50	-18.57
		Richest	-244.24*	82.407	0.028	-471.11	-17.38
During inflation amount WTP for self	Poorest	Poor	455.56*	101.952	0.000	174.89	736.23
		Rich	303.16*	106.280	0.038	10.58	595.74
	Poor	Richest	-339.42*	99.469	0.007	-613.25	-65.59

*. The mean difference is significant at the 0.05 level

Table 8a. Univariate analysis showing Relationship between Socio-Demographic factors with WTP

Variable	Willing to pay 1000 naira for USSHIP			df	χ^2 (p-value)	OR (95% CI)
	No (%)	Yes (%)	Total (%)			
Age						
≤30years	44(34.9)	35(44.9)	79(38.7)	1	2.011 (0.156)	0.66 (0.37-1.17)
>30years	82(65.1)	43(55.1)	125(61.3)			
Sex						
Male	69(54.8)	42(53.8)	111(54.4)	1	0.016 (0.898)	1.04 (0.59-1.26)
Female	57(65.2)	36(46.2)	93(45.6)			
Marital status						
Single/separated/ divorced/widowed	40(31.7)	43(55.1)	83(40.7)	1	10.914 (0.001)*	0.38 (0.21-0.68)
Married	86(68.3)	35(44.9)	121(59.3)			
Highest level of education completed						
≤ Secondary	114(90.5)	55(70.5)	169(82.8)	1	13.509 (0.000)*	3.97 (1.84-8.57)
Tertiary	12(9.5)	23(29.5)	35(17.2)			

*Statistically significant ($p < 0.05$)

Table 8b. Univariate analysis on Relationship between Socio-Economic factors with WTP

Variable	Willing to pay 1000 naira for USSHIP			df	χ^2 (p-value)	OR (95% CI)
	No (%)	Yes (%)	Total (%)			
No of children						
≤4	114(90.5)	69(88.5)	183(89.7)	1	0.212 (0.645)	1.24 (0.50-3.09)
>4	12(9.5)	9(11.5)	21(10.3)			
Size of household						
≤4	82(65.1)	55(70.5)	137(67.2)	1	0.645 (0.422)	0.78 (0.42-1.43)
>4	44(34.9)	23(29.5)	67(32.8)			
Household status						
Non-head of household	44(34.9)	16(20.5)	60(29.4)	1	4.817 (0.028)*	2.08 (1.07- 4.03)
Head of household	82(65.1)	62(79.5)	144(70.6)			
Main income earner						
No	46(36.5)	17(21.8)	63(30.9)	1	4.886 (0.026)*	2.06 (1.08-3.95)
Yes	80(63.5)	61(78.2)	141(69.1)			

Variable	Willing to pay 1000 naira for USSHIP			df	χ^2 (p-value)	OR (95% CI)
	No (%)	Yes (%)	Total (%)			
Main decision maker						
No	47(37.3)	17(21.8)	64(31.4)	1	5.381 (0.020)*	2.14 (1.12- 4.08)
Yes	79(62.7)	61(78.2)	140(68.6)			
Income level (per month)						
≤N40000	20(15.9)	10(12.8)	30(14.7)	1	0.358 (0.550)	1.28 (0.57-2.90)
>N40000	106(84.1)	68(87.2)	174(85.3)			
Socio-economic status						
Poorest/poor/middle	71(56.3)	51(65.4)	122(59.8)	1	1.636 (0.201)	0.68 (0.38-1.23)
Rich/richest	55(43.7)	27(34.6)	82(40.2)			

*Statistically significant ($p < 0.05$)

Table 8c. Univariate analysis on relationship between health-related factors and Willingness-to-pay (WTP)

Variable	Willing to pay 1000 naira for USSHIP			df	χ^2 (p-value)	OR (95% CI)
	No (%)	Yes (%)	Total (%)			
Mode of payment						
Out-of-pocket(cash and carry)	122(96.8)	66(84.6)	188(92.2)	1	9.937 (0.002)*	5.55 (1.72-17.88)
Out-of-pocket (Installment)	4(3.2)	12(15.4)	16(7.8)			
Health seeking						
Traditional medicine/chemist/ Community health worker	107(84.9)	60(76.9)	167(81.9)	1	2.075 (0.150)	1.69 (0.82 – 3.46)
Public/private hospital	19(15.1)	18(23.1)	37(18.1)			
Any HH member ill in the past one month						
No	98(77.8)	46(59.0)	144(70.6)	1	8.205 (0.004)*	2.44 (1.32 – 4.51)
Yes	28(22.2)	32(41.0)	60(29.4)			

*Statistically significant ($p < 0.05$)

This information is very vital to the community and the government to set the amount of premiums for the scheme, which accounted for variation in the country's economy. Similar studies seen in WTP, for example in Eastern Nigeria, WTP 250 naira per month per person in rural and WTP 2.9 USD per person per month in the urban area in communities for CBHI [1]. This is an equivalent of 3,000 naira per person per year. In a WTP study in Northern Nigeria, the mean WTP per person per annum was ₦1,798.9 ± 134.7 (11.24±0.84US dollars) for urban households with the usage of cash while in the rural households it was found to be ₦721 ± 250.5 (4.51± 1.57USD) [19]. Another similar survey by in Ilorin, Kwara state reported mean WTP of 3.48 + 1.78 US dollars' person per annum for CBHI in a community with average household size of 6 members [18].

The multivariate logistic regression revealed that educational level, mode of payment, and marital statuses were statistically significant with WTP for USSHIP. A higher level of education is assumed to be positively correlated with the purchase of any type of life insurance product, as it may raise the ability to understand the benefits of risk management and savings, but as well increase individual's risk aversion [20]. This evidence is dissimilar with findings from this study as those who had their highest level of education as secondary school and below were more likely to express higher WTP compared to those who had higher educational qualification (tertiary education). This study finding is in contrast with most literatures, studies in Africa, reported that people with higher educational status expressed higher WTP than those with lower educational status [1,19,21,22]. This differential in evidence can be explained through an understanding on the pattern of schooling or characteristics of most self-employed individuals in the study area, where most of them couldn't complete their education to the tertiary level due to lack of finances, hence massive drop-out rates at secondary level which serves as coping strategies to enable them improve them and their household standard of living. This implies that even less educated individuals in the study area had sufficient purchasing power to consider prepayments for services that they thought they lacked at the time of the interview.

Findings from this study showed that those that were married expressed higher WTP. This implies that it is a socially accepted fact that irrespective of income level married people are

more likely to be protective regarding their own life along with their spouse and children's life. So they would like to pay for some health insurance scheme than the unmarried counterpart. This is in agreement with findings in South Africa, where marital status positively affects the decision to own health insurance [23]. Also in an Indian study there was a positive relation between marital status and WTP value [24]. OOP has been found to have a delirious effect on households exposing them to impoverishment, due to catastrophic payment on healthcare [4]. Findings from this study showed that those making payments through OOP expressed higher WTP. This explains that people that incurred higher expenditures and paid by OOPs possibly better appreciated the pains of such payments and the need to protect the poor from such payments. This is in resonates with study in Eastern Nigeria where there was a positive relationship of previous healthcare expenditures and payments by OOPs to WTP [1].

5. CONCLUSION

The premium price that prevailed in the time of the study was beyond the ability to pay for the majority of the self-employed individuals. In setting the premium price consideration with the ability and willingness-to-pay should be observed so as to ensure successful implementation of the scheme. If an effective introduction and implementation of such schemes is going to be achieved, the premium pricing system should consider the paying ability of these low income and informally employed groups of the society. Grant from government and donor agencies are also needed to support the implementation of the program to ensure affordability of the social health insurance program by the consumers (self-employed).

This study found that willingness to pay is not a consumer effective demand (individual ability to pay). Affordability of health insurance schemes is a crucial factor in enhancing willingness of self-employed individuals to enroll in these schemes. It is important to increase flexibility of the scheme design, particularly to introduce innovative approaches of collecting premiums. Amongst the possible approaches that will cater for this purpose include allowing the clients to pay by installments or collecting contributions on monthly, quarterly, biannually or annually basis. This will enable those informal sector workers who earn little income to enroll into health insurance scheme. The premium setting should

take in to account their income sources, while selective strategy to be included to support vulnerable groups in the within the association.

CONSENT AND ETHICAL APPROVAL

The study was reviewed and approved by the University of Port-Harcourt Research Ethics Committee. The purpose and the importance of the study were explained and verbal consent was obtained from each participant. Moreover, confidentiality of the information was assured by using anonymous questionnaires.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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