



## **Willingness to Participate and Pay into a Community- Based Health Insurance Scheme in Imesi-Ile, a Rural Community in Osun State, Nigeria**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Authors OTE, ROO, TWO, AOJ, IBO and SBB all contributed significantly to the design, tool development, data collection and analysis and the initial report of the study. Author IOA drafted the manuscript. Author OTE finalized it and all the authors approved the manuscript for submission. All authors read and approved the final manuscript.*

### **Article Information**

DOI: 10.9734/AJMAH/2020/v18i1030255

#### Editor(s):

(1) Dr. Ashish Anand, GV Montgomery Veteran Affairs Medical Center, USA.

#### Reviewers:

(1) Drg. H. Masriadi, MH Universitas Muslim Indonesia, Indonesia.

(2) Laishram Dabashini Devi, Rguhs University, India.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/60710>

**Original Research Article**

**Received 06 August 2020**

**Accepted 12 October 2020**

**Published 22 October 2020**

### **ABSTRACT**

**Aims:** Rural dwellers are forced into a vicious circle of lack of financial risk protection to accessing non-optimal care and more poverty from its complications because out-of-pocket payment is their mainstay health care financing option. A sustainable and effective Community-based health insurance scheme will offer some respite. The study aimed to determine household heads' willingness to participate and pay into a community-based health insurance scheme and the associated factors.

**Study Design:** Descriptive cross-sectional.

**Place and Duration of Study:** Imesi-Ile, a rural community in Obokun Local government area of Osun state, Nigeria between July and September, 2015.

**Methods:** Study population were 147 of the 155 household heads selected via a multi-stage sampling technique. Quantitative data collection was done using a structured questionnaire. The household health status, level of trust and reciprocity in the community, their awareness of a community-based health insurance scheme and their willingness to participate and pay into it using the double contingent valuation method were assessed. Data was analysed using the IBM SPSS version 20 software and statistical significance determined at  $p < 0.05$ .

**Results:** There was a low level of awareness (13.6%), but majority (87.1%) were willing to participate after being informed. Only 54(42.2%) were willing to pay ₦12,000 (\$33.3). The maximum amount they were willing to pay was ₦6000 (\$16.7). Younger household heads ( $p=0.009$ ), males ( $p=0.032$ ), earning  $\geq$  ₦6000 (\$16.7) monthly ( $p=0.006$ ), and involved in cooperative schemes ( $p=0.002$ ) were significantly more willing to participate in the scheme. While the sex of the household heads ( $p=0.006$ ) and mean score on reciprocity ( $p=0.002$ ) were significantly associated with paying ₦12,000 (\$33.3) as premium for a household of 6 persons. The preferred frequency of payment was monthly (53.8%).

**Conclusion:** The household heads in Imesi-Ile community were willing to participate and pay into the scheme. However, further studies on the feasibility and sustainability of implementation is advised.

**Keywords:** *Community-based health insurance scheme; health insurance; rural; willingness to pay; willingness to participate; out-of-pocket payment; sustainable schemes; Nigeria.*

## 1. INTRODUCTION

Nigerian rural dwellers account for about 48% of the total population [1]. According to the Nigeria Demographic Health Survey in 2018, about 32% compared to 4% of rural to urban dwellers are in the poorest wealth quintile in Nigeria. While there are 6% to 38% of rural and urban dwellers respectively in the wealthiest wealth quintile [2]. Only 1.4% of women resident in the rural areas had health insurance compared to a relatively low 4.2% of their female counterpart urban dwellers. The urban males performed slightly better as about 1.4% of male rural dwellers compared to 4.8% of male urban dwellers had health insurance [2]. The majority of these are enrolled in formal health insurance schemes. Less than 1% of men and women interviewed were in a community-based health insurance scheme [2]. These show that out-of-pocket payment is the main source of health care financing by these rural dwellers. Unfortunately, this out-of-pocket payment will only lead them to more catastrophic health care spending and may make the poor poorer, the sick sicker, and the sick poorer, in a vicious circle of poverty [3].

This vicious circle starts with a lack of financial risk protection for the rural poor with no form of health insurance as they pay out-of-pocket. This may prompt them to seek presumably cheaper health care which is not optimum, such as from quacks, or self-medicate [4]. Unfortunately, these presumably cheaper alternative sources of health

care lead to more illnesses and complications. These complications lead to increased risk of mortality among children as well as adults, impaired productivity of able men and women to mention a few. Thus, poor financial access to quality health care by the rural poor leads to more poverty, diseases, and death [3]. A plausible way out of these is a sustainable and effective Community-based health insurance scheme (CBHIS) by the rural poor [5].

Community-based health insurance schemes may be defined as voluntary contributions made by individuals, families, or community groups to support the cost of health care services, with particular emphasis on primary health care [6]. This support may cover partially or fully the cost of running such services. The contributions could be in cash, or kind such as labour [7]. Nigeria has included the CBHIS model within its National Health Insurance Scheme (NHIS) [8]. This will be regulated by the NHIS under an appropriate legislative framework. However, uptake has been disappointing [8].

Community-based health insurance schemes operate by risk pooling financed through regular premiums and are tailored to meet the needs of people who would otherwise not be able to take on large-scale health insurance programs [6]. Despite its problems relating to the extent of resource pooling, CBHIS has been shown to facilitate and improve access to healthcare services especially among children and pregnant

women.[9] It also addresses healthcare challenges faced specifically by the rural poor and informal sector workers [9,10].

Sustainability and ownership have been a major concern regarding CBHIS. Sustainability refers to the ability of the scheme to continue operation over time. One way to enhance the sustainability of any CBHIS is to ensure ownership of the scheme from the onset. The level of communal trust and willingness of households in a rural community to participate and pay into a CBHIS program may go a long way in ensuring their desire to own the program [11].

For Nigeria to meet the global targets of universal health coverage, her citizenry in the informal sector and the rural communities must not be left behind. One way to ensure this is the development of strong CBHIS with potential beneficiaries' willingness fully participate in it. This study is an indirect way of assessing the effectiveness of the demand for the CBHIS by household heads in the study area. The specific objectives for the study were to assess the level of awareness of CBHIS, the willingness to participate, and pay into it among household heads, and the factors associated with the willingness to participate and pay.

## 2. METHODS

The study was descriptive cross-sectional in design conducted between July to September 2015 at Imesi-Ile, a rural community in Obokun Local Government Area (LGA), Osun State. Imesi-Ile had an estimated projected population of 13, 743 in 2015 projected from the 1991 population census of 6,376 at a 3.2% growth rate. The main occupation is farming and majority of the dwellers are Christians. Imesi-Ile has a polytechnic and three major health facilities; the Obafemi Awolowo University Rural Health Centre, a government-owned Maternity Health Centre and the Familusi Health Foundation.

A sample size of 155 household heads (defined as someone who takes financial decision in a household) was determined using the Leslie Kish formula for determining single proportions with an 82.4% proportion of artisans willing to pay for a CBHIS, at 95% confidence limit and 6% error margin. These were selected via a multistage sampling technique. All the streets were visited. Systematic sampling of houses on the streets

and total sampling of all the households in all the selected houses were done. All the willing household heads, aged  $\geq 18$  yrs who had been resident in that community for  $\geq 6$  months were interviewed. Household heads already on a social health insurance scheme were excluded.

Data collection was quantitative using a pretested, interviewer-administered validated questionnaire that assessed respondents' socio-demographic profile, health status, socio-economic status, the level of trust, and reciprocity in the community. Reciprocity is doing good things for the good of others. The level of trust and reciprocity were assessed with 5 questions each and responses on a 5-point Likert scale of agreement. The minimum and maximum obtainable scores for each are 5 and 25.

A section described what was meant by a CBHIS. We presented to the respondents a hypothetical scheme that will cover medical consultation, treatment of common ailments, provision of prescribed essential drugs, immunization, family planning services, laboratory tests, short-stay admissions all at a designated government-owned primary health care facility. Urgent transport by ambulance from the village to the next referral facility will also be covered but it will exclude the costs at the referred secondary health facility. The premium was to cover the father, mother, and four children in the family. Their willingness to participate and pay into the scheme using the double contingent valuation method by the bidding game was assessed. The factors associated with their willingness to participate and pay into the scheme were assessed.

Data analysis was done using the IBM SPSS soft-ware version 20. Summarization of the data was done and their frequency distribution developed. The currency conversion rate of 360 Naira to 1 US dollar was used ( $\text{₦}360=\text{\$}1$ ). Associations between the possible predictors of willingness to participate in CBHIS were tested using the Chi-square statistical tests, and their level of statistical significance determined at  $p$ -values  $< 0.05$ .

## 3. RESULTS

A total of 147 (94.2%) completed the survey. There were more male household heads (68.7%) than females, with barely more than half of them in the working population, (59.2%) with a mean age of  $55.3 \pm 18.2$  standard deviation (SD).

Farming was the modal occupation (37.4%). More than half of them had formal education (63.3%) and had ever participated in some form of community contributory schemes (53.7%) called cooperatives. Of those who had ever participated in such, the mean number of schemes they had participated in was 1 per time, and the median amount paid into such schemes per month was ₦2000 (\$5.6). The average family size in the households was about 4.5 ±2.6 SD. There were slightly more females than males in the households. The majority of them, 141 (95.9%) had no intention of relocating from the community. See Table 1.

A high proportion of the household heads (72.1%) perceived their health status and that of the members of their households as good. However, almost two-thirds of the household heads had their household member(s) ill in the 3 months preceding the study, with 28(19%) who had a chronic illness. Most of the respondents (91.8%) had been on medical treatment and had sought this from a public health facility (65.2%). The majority (89.6%) of those on medical treatment obtained it via Out-Of-Pocket payment. See Table 2.

**Table 1. Socio-demographic characteristics of the respondents (n= 147)**

Variables	Frequency	Percentage
Age		
Independent (aged 18-65 years)	87	59.2
Dependent (<18 years or >65 years)	60	40.8
Mean age	55.3 ± 18.2 (SD)	
Sex		
Male	101	68.7
Female	46	31.3
Position		
Head	141	95.9
Spouse	6	4.1
Household Family size and gender distribution		
Mean Male members of household	2.19 ± 1.83 (SD)	
Mean Female members of households	2.27 ± 1.41 (SD)	
Total family size	4.46 ± 2.62 (SD)	
Religion of household head		
Christian	134	91.2
Muslim	13	8.8
Marital status		
Monogamous	79	53.7
Polygamous	38	25.9
Widowed / Separated	30	20.4
Occupation		
Farmer	55	37.4
Merchant / self- employed	45	30.7
Artisan	14	9.5
Government worker	6	4.1
Private coy	6	4.1
Retired	16	10.9
Clergy	5	3.4
Ethnicity		
Yoruba	143	97.3
Non-Yorubas	4	2.7
Education		
No formal education	54	36.7
Had formal education	93	63.3
Participation in Contributions		
Yes	79	53.7
No	68	46.3

Despite this, a high proportion of them (69.4%) did not find paying for health services difficult at any time, neither did they have to borrow to offset their medical bills in the previous year. The mean and modal amount paid to access health care was ₦4,244.90 (\$11.8) ± ₦25,092.20

(\$69.7) SD and ₦1000 (\$2.8) respectively in the preceding 3 months to the study. While the median and modal monthly income as reported by the respondents was ₦6000 (\$16.7) and ₦10,000 (\$27.8) respectively. See Table 2.

**Table 2. Assessment of health status and health expenditures (n=147)**

Variable	Frequency	Percentage
Perceived health status of respondent's family		
Poor	22	15.0
Fair	19	12.9
Good	106	72.1
Household members with chronic illnesses		
Yes	28	19.0
No	119	81.0
Mean last time household members took ill (in months)	3.61 ± 5.38 (SD)	
Average number of household members ill the last time	1.0 ± 0.33 (SD)	
Household members with at least 1 episode of an acute illness in the past 3 months		
Yes	92	62.6
No	55	37.4
Had been on medical treatment in the past 3 months		
Yes	135	91.8
No	12	8.2
Place/mode of treatment (n= 92)		
Self- treatment	10	7.4
Local drug vendor	10	7.4
Private health facility	27	20.0
Public health facility	88	65.2
Payer for health care cost (n= 135)		
Self	121	89.6
Free	11	8.1
Community	1	0.7
Government	2	1.6
Mean amount paid to access health care	₦4,245 (\$11.8) ± ₦25,092 (\$69.7) SD	
Difficulty in paying		
Difficult	45	30.6
Not difficult	102	69.4
Borrow to pay in last 1 yr		
Yes	25	17.0
No	122	83.0
Nearest health institution to access care		
Health centre (OAUTHC Rural Health Centre)	111	75.5
Clinic (private)	32	21.8
Hospital (Government)	4	2.7
Monthly income of respondents (in Naira)		
Below 6000 (<\$16.7) (the median income)	73	49.7
6000 and above (≥16.7)	74	50.3
Mean monthly income	₦15,986 (\$44.4) ± ₦33,200 (\$92.2)	
Have other sources of monthly income		
Yes	74	50.3
No	73	49.7

The level of trust and reciprocity in the village was assessed as perceived by the respondents. A higher proportion of the respondents believed the villagers in their village, their neighbours and the leaders of the village can be trusted. A much higher proportion believed that the villagers in their village would do things for the good of others and not just for themselves. The mean score on perceived trust was  $18 \pm 3.8$  SD,

while that for reciprocity was  $21 \pm 3.1$  SD. See Table 3.

Only 20(13.6%) of the respondents had ever heard of a CBHIS before the interview. After describing what a CBHIS was, 87.1% of them were willing to participate in it. Their reason was to have free access to health care, while the main reason for those not willing to participate in a CBHIS was their lack of funds. See Table 4.

**Table 3. Perceived trust and reciprocity in the community (n=147)**

<b>Variables</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>
<b>Level of trust in the village</b>	<b>Freq. (%)</b>	<b>Freq. (%)</b>	<b>Freq. (%)</b>
Most villagers of the village can be trusted?	33 (22.4)	34 (23.1)	80 (54.4)
Most villagers of the village would try to take advantage of one to achieve their own goals if they got a chance	60 (40.8)	42 (28.6)	45 (30.6)
Most villagers would return what they pick up to the original owner	19 (12.9)	34 (23.1)	94 (63.9)
Most of their neighbors can be trusted	28 (19.0)	33 (22.4)	86 (58.5)
The village leaders can be trusted	18 (12.2)	31 (21.1)	98 (66.7)
<b>Level of reciprocity (doing good to others) in the village</b>			
Villagers concern issues that not only relate to themselves, but also relate to others	17 (11.6)	26 (17.7)	104 (70.7)
Villagers will provide help if someone really needs it	18 (12.3)	26 (17.8)	102 (69.9)
Respondent agrees to lend money to neighbor(s) if he/she needs it to see a doctor	6 (4.1)	9 (6.1)	132 (89.8)
Agree that, if the village were a large family, respondent would be a member in this family	3 (2.0)	21 (14.3)	123 (83.7)
Respondent would like to support a project that might not benefit him/her most, but benefit others	8 (5.4)	8 (5.4)	131 (89.1)

**Table 4. Willingness to participate in a community-based health insurance scheme**

<b>Variable</b>	<b>Frequency</b>	<b>Percentage</b>
Ever heard of CHBIS		
Yes	20	13.6
No	127	86.4
Ever participated in a CBHIS (n=20)		
Yes	2	10.0
No	18	90.0
Willingness to join a CBHIS		
Yes	128	87.1
No	19	12.9
Reason for joining		
Free access to medical care	63	49.2
To help others	37	28.9
Security and peace of mind in times of ill-health	28	21.9
Reason for not joining		
Not enough money	10	52.6
Do not need health insurance	3	15.8
Lack of trust in insurance practitioners	1	5.3
Lack of functional HF in village	4	21.0
Scope of illness covered by CBHIS is limited	1	5.3

Less than half of the respondents 54(42.2%) were willing to pay ₦12,000 (\$33.3) yearly premiums for a CBHIS if introduced in their community. Of these people who could pay ₦12,000 (\$33.3), only 40.7% of them were willing to pay up to ₦24,000 (\$66.7) yearly premiums. While 48.6% of those not willing to pay ₦12,000 (\$33.3), were not also willing to pay ₦6000 (\$16.7) as their yearly premiums. The modal maximum yearly premium respondents were willing to pay was ₦6000 (\$16.7). A higher proportion of them would prefer to pay this as a monthly rate of ₦500 (\$1.4) per month. See Table 5.

A significantly higher proportion of those who were in the working population (aged 18-65 years) (p=0.009), male headed-households (p=0.032), who had ever participated in some form of contributory schemes, (p=0.002) and whose monthly income was ≥₦6000 (≥\$16.7), (p=0.006) were more willing to participate in the CBHIS. There was no statistically significant difference in the mean score of perceived trust and reciprocity between those who were willing and not willing to participate in the CBHIS scheme. See Table 6.

However, only the sex of the household heads was statistically significantly associated with their willingness to pay ₦12,000 (\$33.3) as yearly premium as shown in Table 7. There was no

statistically significant difference in the mean score of perceived trust between those who were willing or not willing to pay ₦12,000 (\$33.3). However, there was a statistically significant higher mean score on reciprocity for those willing to pay the amount compared to those who were not.

#### 4. DISCUSSION

Willingness to pay studies help determine the value people place on products and how much they are willing to give to obtain it. This may inform how much they are willing to own it. We studied household heads in a rural community's willingness to participate and pay into a CBHIS. Many of the household heads studied had some form of formal education. Hence, it may not be too difficult for them to interpret the technical issues involved when participating in a CBHIS. They had large family sizes with an average of 5 family members per household. This is common to rural areas [2]. This was expected to be beneficial and should have encouraged more household heads to participate in the proposed CBHIS [12]. Making regular financial contributions was also not strange to a high proportion of the household heads. All these favourable socio-demographic characteristics were believed could encourage more participation in a CBHIS.

**Table 5. Willingness to pay into a community-based health insurance scheme (n=128)**

Variable	Frequency	Percentage
Willingness to pay ₦12000 (\$33.3) per year		
Yes	54	42.2
No	74	57.8
Willingness to pay ₦24000 (\$66.7) per year		
Yes	22	40.7
No	32	59.3
Willingness to pay ₦6000 (\$16.7) per year		
Yes	38	51.4
No	36	48.6
Maximum amount willing to pay per year		
<₦6000 to ₦6000 (<\$16.7 to \$16.7)	88	59.8
>₦6000 to ≤₦12000 (>\$16.7 to ≤\$33.3)	34	23.1
>₦12000 to ≤₦24000 (>\$33.3 to ≤\$66.7)	16	10.9
>₦24000 (>\$66.7)	9	6.1
Mean amount willing to pay per year	₦11,032.65 (\$30.6) ± ₦16,137.90 (\$44.8)	
Frequency of payment		
Annual flat rate	16	13.4
Biannual flat rate	26	21.8
Quarterly	13	10.9
Monthly	64	53.8

**Table 6. Factors associated with willingness to participate in CBHIS (n=147)**

Variables	Willing to participate n (%)	Not willing to participate n (%)	Total n (%)	Statistical significance (df), p-value
	N=128	N=19	N=147	
Age of the respondents				
Independent	81 (93.1)	6 (6.9)	87 (100)	$\chi^2=6.883$ , df=1, p=0.009
Dependent	47 (78.3)	13 (21.7)	60 (100)	
Sex of the respondents				
Male	92 (91.1)	9 (8.9)	101 (100.0)	$\chi^2=4.621$ , df=1, p=0.032
Female	36 (78.3)	10 (21.7)	46 (100.0)	
Level of education				
No formal education	45 (83.3)	9 (16.7)	54 (100)	$\chi^2=1.062$ , df=1, p=0.303
Had formal education	83 (89.2)	10 (10.8)	93 (100.0)	
Participation in contributions				
Yes	75 (94.9)	4 (5.1)	79 (100.0)	$\chi^2=9.379$ , df=1, p=0.002
No	53 (77.9)	15 (22.1)	68 (100.0)	
Health status of family				
Poor	17 (77.3)	5 (22.7)	22 (100.0)	$\chi^2=2.218$ , df=1, p=0.330
Medium	17 (89.5)	2 (10.5)	19 (100.0)	
Good	94 (88.7)	12 (11.3)	106 (100.0)	
Difficulty in paying health care costs				
Difficult	40 (88.9)	5 (11.1)	45 (100.0)	$\chi^2=0.190$ , df=1, p=0.663
Not difficult	88 (86.3)	14 (13.7)	102 (100.0)	
Awareness about CBHIS				
Heard	18 (90.0)	2 (10.0)	20 (100.0)	$\chi^2=0.176$ , df=1, p=0.674
Never heard	110 (86.6)	17 (18.4)	127 (100.0)	
Monthly income				
< ₦6000 (<\$16.7)	58 (79.5)	15 (20.5)	73 (100.0)	$\chi^2=7.487$ , df=1, p=0.006
≥ ₦6000 (≥\$16.7)	70 (94.6)	4 (5.4)	74 (100.0)	
Satisfaction with health facilities in study area				
Satisfied	114 (88.5)	15 (11.5)	129 (100.0)	Fishers exact, p=0.254
Dissatisfied	14 (77.8)	4 (22.2)	18 (100.0)	
Mean level of Trust	17.78 ± 3.9	16.89 ± 3.3	t = 0.943, df= 145, p=0.347	
Mean of level of reciprocity	20.52 ± 3.2	19.26 ± 2.6	t = 1.639, df= 145, p=0.103	

Majority of the household heads and their household members have had reasons to seek health care services, either for acute or chronic infection few months before the conduct of the study, or for an ongoing ailment. Nonetheless, majority of them described their household health status as good. This good perception of their health status may be because many had reported they never experienced difficulties with paying for health services, nor did they borrow to access health care. The modal amount paid to access care was 10% of the modal income earned. This is similar to what was reported on the Trading Economics website that only 15.05% of Nigerians spend >10% of their income on health expenditures [13].

The level of trust and reciprocity were high in this community. This is a very positive finding. It is expected that there should be many people who would be willing to make contributions to a CBHIS even if it will benefit others more. This is important for a social health insurance that is based on risk pooling and the public good [12]. The level of awareness of a community-based health insurance scheme was very low among the household heads in this rural community, 20(13.6%). This is much lower than the proportion of artisans who were aware of a CBHIS in Osun State. This difference may be because their study site was not specifically rural as ours [14].



**Table 7. Factors associated with willingness to Pay (WTP) ₦12,000 (\$33.3) per annum (n=128)**

Variables	Willing to participate n (%)	Not willing to participate n (%)	Total n (%)	Statistical significance (df), p-value
Age of the respondents				
Independent	34 (42.0)	47 (58.0)	81 (100.0)	$\chi^2=0.029$ , df=1, p=0.864
Dependent	19 (40.4)	28 (59.6)	47 (100.0)	
Sex of the respondents				
Male	45 (48.9)	47 (51.1)	92 (100.0)	$\chi^2=7.598$ , df=1, p=0.006
Female	8 (22.2)	28 (77.8)	36 (100.0)	
Level of education				
No formal education	19 (42.2)	26 (57.8)	45 (100.0)	$\chi^2=0.079$ , df=1, p=0.890
Had formal education	34 (41.0)	49 (59.0)	83 (100.0)	
Participation in contributions				
Yes	35 (46.7)	40 (53.3)	75 (100.0)	$\chi^2=2.066$ , df=1, p=0.151
No	18 (34.0)	35 (66.0)	53 (100.0)	
Health status of family				
Poor	7 (41.2)	10 (58.8)	17 (100.0)	$\chi^2=0.313$ , df=2, p=0.855
Medium	8 (35.3)	11 (64.7)	17 (100.0)	
Good	40 (42.6)	54 (57.4)	94 (100.0)	
Difficulty in paying health care costs				
Difficult	18 (40.0)	24 (60.0)	40 (100.0)	$\chi^2=0.047$ , df=1, p=0.821
Not difficult	37 (42.0)	57 (58.0)	88 (100.0)	
Awareness about CBHIS				
Heard	11 (61.1)	7 (38.8)	18 (100.0)	$\chi^2=3.352$ df=1, p=0.067
Never heard	42 (38.2)	68 (61.8)	110 (100.0)	
Monthly income				
< ₦6000 (<\$16.7)	19 (32.8)	39 (67.2)	58 (100.0)	$\chi^2=3.269$ , df=1, p=0.071
≥ ₦6000 (≥\$16.7)	34 (48.6)	36 (51.4)	70 (100.0)	
Satisfaction with health facilities in study area				
Satisfied	48 (42.1)	66 (57.9)	114 (100.0)	$\chi^2=0.210$ df=1, p=0.647
Dissatisfied	5 (35.7)	9 (64.3)	14 (100.0)	
Mean level of Trust	18.26 ± 3.9	17.44 ± 3.8	t = 1.182, df= 126, p=0.239	
Mean of level of reciprocity	21.51 ± 2.6	19.81 ± 3.4	t = 3.223, df= 126, p=0.002	

It is not surprising that majority of the respondents were willing to participate in it after the concept of the CBHIS was introduced to them considering their high level of trust and reciprocity. This finding is similar to the evidence in literature where majority are often willing to participate in the CBHIS when introduced to them. However, willingness to participate may not translate to willingness to pay as suggested in the study conducted in a rural community in North Central Nigeria [15]. Affordability is the strong factor that would deter those who would have been willing to participate from doing so [16].

Majority of the household heads interviewed were only willing to pay their premiums monthly. This frequency of payment is in contrast to the annual option selected by the respondents

interviewed in a rural community in Abuja [17]. Also, their preferred amount of ₦6000 (\$16.7) as premium to access primary level of health care services for themselves, their spouses, and 4 of their children may not likely sustain a CBHIS even if everyone in the community enrolled for it. This finding is similar to the >50% of a farming population studied in Kwara State, Nigeria where they preferred to pay between ₦500-₦1000 (\$1.4-\$2.8) per person annually. In that study, they were willing to pay an average maximum amount of ₦2,139.43 (\$5.9) per person annually [18]. Their maximum amount of ₦2,139.43 (\$5.9) is similar to the initial proposed amount of ₦12,000 (\$33.3) for the bidding game in our study to cater for the primary health care needs of a household with a maximum of 6 persons. This amount, ₦12,000 (\$33.3), if supported with co-funding from donors and the

government is believed would sustain such a scheme in this rural community [11]. However, an actuarial study may be needed to determine this.

Less than half of our respondents were willing to pay ₦12,000 (\$33.3) for a household of 6 persons. This finding is similar to the 28% of the farming population studied in Kwara State, who were willing to pay >₦1,500 (\$4.2) annually per person [18]. However, almost half of those willing to pay ₦12,000 (\$33.3), were also willing to pay double if necessary. This suggests that even for a CBHIS scheme, there may be the need to provide graded levels of insurance benefit packages based on individual affordability.

Higher monthly income, a male-headed household, a younger age group, and previous experience with participating in contributory schemes were significantly associated with respondents' willingness to participate and pay into the CBHIS if introduced in the community studied. Their level of education and previous awareness about the scheme were immaterial. This suggests that the people in this category could be recruited first as enrollees when planning a CBHIS in rural communities. This finding was in contrast to those found among rural households in Southwest Ethiopia, where an older age group, and lower economic status were the determinants of willingness to pay into their CBHIS. However, persons already involved in risk-sharing schemes such as cooperative societies were also more willing to pay into such schemes as found in our study [12].

The challenging economic situation in Nigeria may be a major threat to the willingness of the household heads to pay for a CBHIS as well as its sustainability. The inflation rate in Nigeria has been on the increase of recent. In 2015, it was a single-digit of 9.0%. Since then, it had persisted as a double-digit inflation rate. The current inflation rate in Nigeria is 13.39% [19]. This implies that a predicted rise in inflation factors must be considered when determining premiums. And when conducting willingness to pay studies, it may be beneficial to ask if respondents will be willing to increase their premiums in the face of increasing inflation rates. This will also ensure a sustainable CBHIS program.

## 5. CONCLUSION

Majority of the household heads interviewed were willing to participate in the CBHIS and the modal amount they were willing to pay was

₦6000 (\$16.7). Male-headed household heads in the working-age population, earning a higher income and who had participated in contributory schemes were more willing to participate and pay into a CBHIS. The high level of reciprocity rather than trust in the community contributed more to their willingness to pay into the scheme. The growing inflation rates in the country may have deterred their willingness to pay ₦12,000 (\$33.3) to cater for 6 members of their household and should be considered when determining premiums.

## CONSENT

Written informed consents were obtained from the respondents and they were informed of their freedom to withdraw from the interview at any time.

## ETHICAL APPROVAL

Ethical approval to conduct the study was obtained from the Institute of Public Health, Obafemi Awolowo University, Ile-Ife, with confidentiality of the data assured in accordance with the Helsinki Principles.

## ACKNOWLEDGMENTS

Oluwaseun Esan is being supported by the Consortium for Advanced Research and Training in Africa (CARTA), funded by the Carnegie Corporation of New York (Grant No--B 8606.R02), SIDA (Grant No:54100029), the DELTAS Africa Initiative (Grant No: 107768/Z/15/Z)". This support is for her capacity building and her doctoral research, though funding for this research was by the authors.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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