Determinants of Willingness to Join Community- Based Health Insurance Scheme in a Rural Community of North-Western Nigeria

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Abstract

Nigeria, as in many developing countries, has most of her citizens (70%) living in rural areas with a majority (about 80%) living below poverty line. They finance their Health care through out-of-pocket expenditure, which is known to result in financial catastrophe, with poor households getting poorer. Community–Based Health Insurance Scheme (CBHIS) is a means of ensuring access to orthodox health care for such rural dwellers.

A cross-sectional study conducted in Madobi community, during Community Diagnosis field practical posting of final year medical students of Ahmadu Bello University, Nigeria, in January 2014. An interviewer-administered questionnaire was used to collect data from 251 heads of households in the community. Data was analyzed using SPSS (version 20).

A majority of the respondents (96%) were willing to join the scheme. There was a statistically significant association between having a large family size and willingness to join the scheme (p=0.033). Respondents whose main source of information on the scheme was a health worker were 1.73 times more likely to join the scheme compared to those whose source of information on the scheme was the interviewers (OR= 1.73, 95 % C.I : 1.16 – 1.94).

The result indicated that several sociodemographic factors like household size and source of information on the scheme were determinants of willingness to join the scheme. Health education on CBHIS through community health workers and solidarity funding for the poorer households were recommended to promote participation in the scheme.

Keywords: Determinants, willingness, join, rural, CBHIS, Nigeria.

Introduction

Nigeria, as in many developing countries, has most of her citizens (70%) living in rural areas where subsistence farming and livestock rearing is the main occupation. Most of the rural dwellers (about 80%) live below poverty line, earning less than $1.25 a day.[1] In most rural communities of Nigeria, health care financing is through out-of-pocket expenditure.

Several studies have shown that in low income countries and lower middle income countries like Nigeria, out of pocket expenditure results in financial catastrophe, with poor households getting poorer.[2] Catastrophic health expenditure refers to households spending above a fixed percentage of their income on healthcare. Several authors have defined a threshold of 10% of household income as catastrophic.[3-5]

Catastrophic health expenditure depletes household income and contributes to the vicious cycle of poverty and disease. It forces poor households to reduce other basic expenses like food, shelter, or their children's education.[6] In other words, it forces household members to cut their consumption of other minimum needs, triggers productive asset sales or high levels of debt, and leads to impoverishment. Also, it adversely affects the health seeking behavior of poor households, pushing them to access less than the required amount of treatment or cheap, inappropriate treatment like traditional medical care.

In order to avoid catastrophic health expenditure and address the lack of financial protection in such countries, the World Health Organization recommended Community–Based Health Insurance Scheme (CBHIS) to ensure Universal Health Coverage (UHC) for rural dwellers.[7] CBHIS is defined as any not-for-profit insurance scheme that is aimed primarily at the informal sector and formed on the basis of an ethic of mutual aid and the collective pooling of health risks, and in which the members participate in its management.[8] Across communities, a CBHIS could vary in terms of ownership, management, membership, benefit packages and financial coverage.[9]

The National Health Insurance Scheme (NHIS) plans to develop CBHIS for Nigerian rural dwellers, thus necessitating this feasibility study. Studies have shown that a health insurance schemes can face low enrolment and high drop-out rates if a feasibility study was not conducted before its commencement.[10-12] A feasibility study assesses the acceptance of the CBHIS within the community and its sustainability. It is done through community surveys that assess people's willingness to join (WTJ) and willingness to pay (WTP) for a health insurance scheme.[13] Most of the feasibility studies that were conducted in Nigeria focused on willingness to pay[14-18] while this study focuses on willingness to join (participate). This study was conducted to assess and understand which and how socio-economic factors determine the willingness of rural dwellers to join CBHIS.

Literature Review

Literature has shown that several sociodemographic factors determine willingness to join CBHIS. Such factors include age, education, income, Household size, marital status, use of conventional medicines and location. Regarding age, older household heads were more willing to join the scheme compared to younger ones(aged 30-49).[19] However, in Ethiopia, younger household heads were 6% more likely to join CBHIS than older individuals.[20] Studies have also shown that wealthier households were more willing to join and pay for the scheme compared to less wealthy households.[21-26] However, on the contrary, a Nigerian study showed that lower income households were more likely to join and pay for the scheme compared to wealthier households.[27]

Regarding household size, larger households(six and above) were more willing to join and pay for the scheme compared to smaller households.[20,24,25] On the contrary, other studies showed that larger households were less willing to join the scheme.[22, 23] A study found that marital status was also a determinant of WTJ the scheme. Married individuals were more willing to join the scheme than single individuals.[20] Use of modern medicine for healthcare has been documented as a determinant of willingness to pay for CBHIS.[21,27-28] However, to the best of our knowledge, no study has examined whether use of traditional medicine [which is a common practice in Nigeria] affects WTJ the scheme. Also, how the above sociodemographic factors affect WTJ the scheme in the study area remains unknown.

Presently, only few Nigerian communities have CBHIS. However, CBHIS is not practiced in Kaduna State, where the study area is located. Likewise, published data on demand for CBHIS in the state and study area are lacking. Hence, this study addressed the existing gap by assessing the willingness to join CBHIS and its determinants among heads of households in Madobi community, a rural agrarian settlement in Giwa Local Government area of Kaduna state, North-western Nigeria.

Methods

The study was conducted in Madobi community, a rural agrarian settlement in Giwa Local Government area of Kaduna state, North-western Nigeria. The village has a total population of 1,770 people in 124 houses and 280 households.[19] It covers a land area of about 20 by 30km^2. Farming is the major occupation. As in most rural areas, Traditional Medicine is also used for treating illnesses.

A cross-sectional descriptive study, conducted during community diagnosis posting of final year medical students of Ahmadu Bello University, Zaria, from 30th December 2013 to 24th January 2014.

A minimum sample size (n) of 138 (rounded to 251 after finite population correction) was obtained using the formula $n = z^2pq/d^2$ where $p = 90\%$; proportion of respondents willing to join health insurance scheme from a previous study.[2] $z =$ standard normal deviate, set at 1.96 which corresponds to the 95% confidence level. $d=$ degree of accuracy (precision) desired=0.05.

A structured, pretested interviewer administered questionnaire was used for data collection. The questionnaire assessed the socio-demographic profile of respondents and factors that determine willingness to join a community-based health insurance scheme. The questionnaire was pretested on 22 randomly selected Household heads in Dan Mahawayi Village, a community with similar characteristics with the study area.

A brief introductory explanation about CBHIS and its benefit package was provided to naïve respondents before determining their willingness to join. Respondents who have no idea of CBHIS were considered naïve. The benefit package of the scheme was explained to respondents: it is to cover prevailing morbidity in the community and includes family health services, preventive and curative care such as in-patient, out-patient services and antenatal care. The contribution will be in cash and is to be paid as a flat rate either on monthly or seasonal basis.

Systematic random sampling technique was used to select the required number of household heads. The household list served as the sampling frame. This list was obtained through a household listing exercise which preceded a census for the community.

Civil servants that were enrolled in NHIS were excluded from the study.

Data analysis was done using SPSS (Statistical Package for Social Sciences) software, version 20. For assessing determinants of WTJ, Statistical analysis was done in the following stages: A Univariable logistic regression analysis (unconditional association) was done using X^2 test statistic and its corresponding odds ratio-value and 95% confidence intervals to assess the significance and magnitude of the associations between WTJ and potential predictors. Finally, variables from the univariable analysis were selected for inclusion in a multivariable logistic regression model. Only variables with a p-value ≤ 0.05 in univariable logistic regression models were included in the multivariable model and were subsequently described as determinants of WTJ if their p-value was <0.05. To avoid having perfect or very high linear relationship between two or more explanatory variables, a correlation matrix (multi-collinearity test) was conducted. In situations where two variables had a correlation coefficient of 0.6 or higher, then only one of them was included in the multivariable model. The correlation matrix showed that some variables such as number of wives and number of children fathered were highly correlated, which allowed us to eliminate the variable Number of children fathered. The World Bank's international poverty line of $1.25/day was used to classify respondents into poor and rich.[31] Those earning less than this amount (which translates to $37.5 /month or N5,000.00/month in local currency) were considered poor.

Permission to conduct the survey was obtained from Giwa Local Government Area and the village leadership. Individual consent was also obtained from each respondent.

Results

Responses were received from all the 251 Household heads interviewed. As shown in table 1, majority of the respondents (79%) were farmers; had only Quranic education (57%); had only one wife (65%); earned less than N5,000 per month (77%) and had a household size of less than five (54%). Majority of the respondents (56%) fall between the ages of 30 and 49 years.

TABLE 1: Socio-demographic Characteristics of respondents

Variable	Frequency(n=251)	Percent (%)
Age (years)		
<20	5	2
20-29	35	14
30-39	55	22
40-49	85	34
>49	71	28
Level of Education		
Quranic /Informal	146	58
Primary	55	22
Secondary	40	16
Tertiary	10	4
Number of wives		
One	166	66
Two	70	28
>Two	13	5
None	3	1
Household Size		
<5	143	57
≥5	108	43
Occupation		
Farming	198	79
Trading/Business	20	8
Civil servant	28	11
Others	5	2
Estimated Monthly income		
< N5,000 (< $37.5)	192	77
>N5,000 (> $37.5)	59	23

Note: $1=N162.66

Table 2 below presents the univariable logistic regression analysis of the association between willingness to join CBHIS and explanatory socio-demographic variables of respondents. As shown in the table, a total of 241 respondents were willing to join CBHIS. Factors significantly associated with willingness to join CBHIS were: secondary education (OR = 1.76 , 95% C.I: 0.99–2.13) and tertiary level education (OR = 1.24, 95% C.I: 1.06–3.31) compared to Quranic/Informal education; Household size of 5 and above (OR = 2.94, 95% C.I: 2.88–3.26)

compared to household size of less than 5; having a monthly income of more than N5,000.00 (OR = 1.45, 95% C.I: 1.12–2.71) compare to having a monthly income of less than N5,000.00); Health worker being source of information on CBHIS (OR = 2.69, 95% C.I: 2.12–3.44) compared to when interviewer was source of information on CBHIS and use of Modern Medicine only for treating illnesses (OR= 0.17, C.I:0.09–0.42)compared to use of modern/traditional medicine.

TABLE 2 Univariable analysis of factors associated with willingness to join CBHIS

Independent Variables	Number WTJ CBHIS (%) N=241	Odds Ratio (95% CI) p -value
Age (years)		
<20	4(2)	0.23 (0.14-0.45)
20-29	32(13)	0.14 (0.11-0.32) 0.130
30-39	53(22)	0.66 (0.42-0.73) 0.215
40-49*	83(34)	
>49	69(29)	0.42 (0.31-0.71) 0.301
Level of Education		
Quranic /Informal*	137(57)	
Primary	54(22)	0.32 (0.22-0.52) 0.620
Secondary	40(17)	1.76 (0.99-2.13) 0.000
Tertiary	10(4)	1.24 (1.06-3.31) 0.001
Number of wives		
One*	157(65)	
Two	69(29)	0.84 (0.51-1.28) 0.180
>Two	12(5)	0.41 (0.21-0.61) 0.650
None	3(1)	0.34 (0.19-0.59) 0.810
Household Size		
< 5*	131(54)	
≥5	110(46)	2.94 (2.88-3.26) 0.033
Occupation		
Farming*	190(79)	
Trading/Business	19(8)	0.98 (0.63-1.22) 0.409
Civil servant	27(11)	3.2 (2.43-3.97) 0.180
Others	5(2)	0.72 (0.43-0.98) 0.332
Estimated Monthly income		
< N5,000*(<$37.5)	185(77)	
>N5,000(>$37.5)	56 (23)	1.45 (1.12- 2.71) 0.000
Source of information on CBHIS		
Radio	34(14)	
Friends	33(13)	1.46 (1.24 -1.83) 0.263
Health Worker	9(4)	0.56 (0.30- 0.99) 0.091
Interviewer*	165(69)	1.73 (1.16 – 1.94) 0.000
Type of Healthcare used		
Modern Medicine	109(45)	
Modern/Traditional Medicine	132(55)	0.17 (0.09-0.42) 0.040

Note: *Reference Category*

Table 3 below presents the Multivariable logistic regression analysis of the association between willingness to join CBHIS and explanatory socio-demographic variables of respondents. A majority of the respondents (96%) were willing to join the scheme. As shown in the table, the final multivariable model consisted of 5 variables that were significantly associated with willingness to join CBHIS. The most determinant factor associated with increasing odds of joining CBHIS was household size. Household heads whose household size was 5 and above had a 3 fold

increase in chances of joining CBHIS, compared to those whose household size was less than 5 (OR = 3.26, 95% C.I: 2.19 - 4.12). Estimated Monthly income of more than N5,000.00 was significantly associated with increased chances of joining CBHIS. Household heads whose estimated monthly income was more than N5,000.00 had a 2 fold increase in chances of joining CBHIS, compared to those whose estimated monthly income was less than N5,000.00 (OR = 2.11, 95 % C.I : 1.98–2.76) Source of information on CBHIS was significantly associated with willingness to join CBHIS. Household heads whose source of information on CBHIS was a health worker were 1.73 times more likely to join the scheme compared to those whose source of information on the scheme was the interviewers (OR = 1.73, 95% C.I: 1.16–1.94). Household heads who used only modern medicine for treating illnesses were 1.42 times more likely to join the scheme (OR = 1.42, 95% C.I: 1.1–2.03) compared to those who used both modern and traditional medicine. Household heads with secondary level education had 1.58 increase chances of joining the scheme (OR = 1.58, 95% C.I: 1.21–2.36) compared to those with Quranic or Informal education. However, having Tertiary level education was associated with reduced chances of joining the scheme (OR = 0.69, 95% C.I: 0.49–0.98).

TABLE 3 Multivariable analysis of factors associated with willingness to join CBHIS

Independent Variables	Odds Ratio	95% C.I	p -value
Level of Education			
Quranic /Informal			
Primary	0.28	0.19-0.41	0.001
Secondary	1.58	1.21- 2.36	0.000
Tertiary	0.69	0.49- 0.98	0.001
Source of information on CBHIS			
Radio			
Friends	1.06	0.741-1.49	0.180
Health Worker	0.83	0.42-1.51	0.653
Interviewer	1.73	1.16 – 1.94	0.000
Type of Healthcare used			
Modern Medicine only			
Modern/Traditional Medicine	1.42	1.10 -2.03	0.006
Estimated Monthly income			
< N5,000(< $37.5)			
>N5,000(> $37.5)	2.11	1.98 – 2.76	0.022
Household Size			
< 5			
≥5	3.26	2.19 -4.12	0.014

Discussions

The study was able to identify the determinants of willingness to join CBHIS in the study area. Understanding the determinants will aid in the planning and successful implementation of the scheme in the study area. It will also aid in exposing areas where efforts need to be channeled for a feasible and sustainable scheme in the study area.

Socio–demographic characteristics of the respondents

Table 1 shows that majority of the respondents fall between the ages of 30 and 49 years and this constituted 56 percent of the years of sampled respondents. The implication of the finding is that majority of the respondents are middle aged, economically active and productive. It implies most of them were relatively young.[19,32] Young individuals have stronger immunity and are less prone to sickness compared to older individuals. This may explain why age was not a determinant of WTJ CBHIS among the predominantly young respondents. It may also explain why majority of the respondents (57%) have small family size of less than 5. The high proportion of respondents with no formal education (58%) can be explained by the low primary school enrolment in the northern part of Nigeria. For example, as at 1975-1976 when most of the respondents were of primary school age, the proportion of primary school enrolments in the

Northern Nigeria was just 26.5%, while between 1985–1986, it was 34.3%.[33] This lack of formal education by most of the respondents could be responsible for the low proportion of civil servants (11%) and the high proportion of farmers (79%) among respondents. The fact that peasant farming is the predominant occupation could also explain why most of the respondents (77%) were poor, earning less than N203.33 ($1.25) per day. Rural farmers in other parts of the country also had similar low monthly income. For example, the mean monthly income among Rural Farming Households in Delta State, Nigeria was N6,000.0034 while in Ondo state, majority (60%) of the rural farmers were poor, earning less than N7,738.99 per month.[35]

Determinants of willingness to join CBHIS

From the results, large family size of more than 5 was the most determinant factor of willingness to join the scheme. This finding is similar to that of another study in Edo state, Nigeria, which reported that respondents with large household size were 1.7 times or 70% more likely to participate in CBHI scheme compared to those with smaller households.36 Other studies in Nigeria and India also reported similar findings.[37-39] A possible explanation for this is that the frequency of seeking health care for household illness and its cost is higher in larger households. Therefore, the respondents with large family size may see CBHIS as a possible avenue to reduce the medical bills. It has also been shown that poverty rate was higher among farmers with large households.[40]

Income was another determinant of willingness to join the scheme. Poor household heads were less willing to join the scheme due to their meager income. This finding is similar to that of other studies conducted in Nigeria, Cameroon, India, and Malaysia.[23,37,41-42] The implication of this finding is that poor households (who are in the majority) are not like to join the scheme. This anticipated problem can be resolved by introducing very low premium for the scheme. There is therefore need to conduct another study that will estimate the lowest possible amount of monthly premium the community will be willing to pay for the scheme. Another possible solution is to boost the financial base of the scheme through introduction of solidarity funding. The solidarity funds can be generated through contributions from philanthropists, governmental and Civil Society Organizations.

Source of information on the scheme was another determinant of willingness to join it. Household heads were more willing to join the scheme when the source of their information were community health workers. A possible explanation for this is that the health workers were a trusted source of information since they reside in the community. While receiving information from the health workers, the household heads also have opportunities to ask question and receive satisfactory responses. This opportunity may not be possible with other sources like radio and friends. To increase participation in the scheme, community health workers could be used to disseminate information about the scheme since evidence has shown that Health workers can be successfully used for information dissemination.[1]

Household heads that used both modern and traditional medicine were less likely to join the scheme. This is not surprising since about 41% of Nigerians use traditional medication as first choice medication for cure and do so mostly due to poverty and inability to afford the more expensive modern medicine.[44-45] Intense and sustained pre-inception educational campaigns on affordability of the scheme (through solidarity funding, low affordable premiums etc) can promote their participation in the scheme.

While secondary level education was associated with increased chances of joining the scheme, Tertiary level education was not. A possible explanation for this is that those with secondary level education probably had lower income compared to those with tertiary level education.

One limitation of the study is that there was gender bias. Women, who also utilize healthcare services, were not included in the study since men were the predominant household heads in the study area. Another limitation is the inability to independently verify the monthly income claimed by respondents.

Conclusions

The result indicated that majority of the respondents (96%) were willing to participate in the scheme. Sociodemographic determinants of willingness to join the scheme include household size and income among others. For those unwilling to join the scheme, several strategies (like solidarity funding and use of community health workers for disseminating information on the scheme) were recommended to promote participation.

Conflict of Interest

The authors declare that they have no competing interests.

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