

# Willingness to Join Community-Based Health Insurance and Factors Affect It Among Households of Selected Districts of West Shoa Zone, Ethiopia: A Community Based Cross Sectional Study

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## Abstract

**Back ground:** CBHI is a kind of insurance for informal sectors through which the members contribute some amount of money to protect themselves against the high costs of seeking medical care and treatment for illness. The catastrophic nature of health care financing mechanism for the poor and often rural population has been a source of concern in the low and middle income countries . The aim of this study was to assess the household's willingness to join CBHI and factors affecting households to join community based health insurance. **Methodology:** A community based cross sectional study was conducted in randomly selected districts of West Shoa Zone from January 25 to February 20, 2016. A sample of 292 head of the house holds were selected using simple random sampling technique from which data were collected by trained data collectors using a pre-tested structured questionnaire. The collected data were entered into SPSS version 20 for analysis .Descriptive statistics and bivariate and multiple logistic regression analyses were performed. **Result:** All of the 292 sampled head of the households participated in the study making the response rate of 100 %. About 71% of the respondents were willing to join the scheme. In multivariate logistic regression analyses, age of the head of the house holds , head of the household, the household's family size and having a person age 65 and above in the family, presence of chronic illness among the house holds , households concern for covering the health care cost and means of getting money for health care payment were found to be the predictors of the households' WTJ the CBHIs .**Conclusion:** In the study the households willingness to join community based health insurance was considered to be high. Therefore, scaling the scheme will be beneficial in the study areas.

**Keywords:** Community based health insurance, Willingness to join, West Shoa Zone, Ethiopia

**DOI:** 10.7176/JHMN/65-03

**Publication date:** August 31<sup>st</sup> 2019

## Back ground

Community based health insurance is the kind of insurance for informal sectors through which members contribute some amount of money to protect themselves against the high cost of seeking medical care and treatment for illness [1,2]. It is based on the premise of risk-pooling and reducing out-of-pocket expenses for health care services [3, 4]. Operating by risk-pooling, they are financed through regular premiums and tailored to meet the needs of poorer people such as informal sector workers who would otherwise not be able to take out health insurance [5, 6]. Even though, it is one of the recommended financing mechanisms in the African region [7], African governments focus on direct on out of payments [8].

Many low and middle-income countries (LMICs) are facing the challenge of raising sufficient funds to finance health services in an equitable way [9]. In fact, in these countries out-of-pocket payments remain the main method of paying for health care. This mode of payment limits access to quality healthcare [10, 11]and can lead to the entire household becoming impoverished [12].

Since the mid-90s, CBHI schemes have been growing in number in Sub-Saharan Africa and other regions of the world [13].,The number of Community based health insurance schemes grew from 76 in 1997 to more than 800 by 2004 [14], and it is now part of the national health financing strategy in Benin, Ghana, Rwanda, Senegal and Tanzania [15-17].

In many LMICs direct out-of-pocket payments dominate healthcare financing [18]. It is routine for more than 2% of the population of the low income countries to suffer from health care financial catastrophe defined as having to spend over 40% the income after food on care[19] . In sub- Saharan African out of pocket expenditure constitutes approximately 40% of the total health expenditure, imposing financial burdens and limiting access to health care [19, 20].

Since such direct out –of- pocket payments are inequitable and inefficient in financing healthcare services [21], in the late 1990s there was a move away from out- of- pocket expenditure on health care to community based health insurance in most developing countries[22] . This is because they are accounting for a higher proportion of poorer households' income compared to richer households [9]. Thus, many households in LMICs lack adequate financial protection; households face financial catastrophe and impoverishing effects of paying for health services out-of-pocket [23]. In fact, annual estimates show that about 44 million households face catastrophic expenditure globally while about 25 million households are impoverished because of direct healthcare

payments. Over 90 % of these occur in LMICs including Ethiopia [ 24]. In response to adverse effects of direct out-of-pocket payments, the World Health Organization (WHO) is encouraging countries to move towards universal health coverage (UHC). This means that everyone should have access to needed healthcare services that are effective and of acceptable quality, and no one should risk financial ruin as a result of this. This is corroborated by evidence from many LMICs showing that health sector reforms in the form of adequate insurance or prepayment schemes contribute to increasing financial protection [21, 25]

Although CBHI schemes are criticized for the limited extent of resource generation and pooling, they have been shown to facilitate and improve access to healthcare services, especially among children and pregnant women [26, 27] and addresses, to some extent, healthcare challenges faced specifically by the rural poor and informal workers. However, enrolment to CBHI schemes remains a challenge mainly because of their voluntary nature [28]. In Africa only 2 million people out of an estimated population of 900 million people are enrolled in a CBHI scheme. This amounts to just 0.2 % of the catchment population [29].

Ethiopia endorsed health care financing strategies 1990, that initiates a wide range of reforms and which recognizes multiple financing sources including community based health insurance. The CBHI strategy in Ethiopia can be said to have taken birth from an ancient Ethiopian traditional practice known as the Idir. Over the years, this traditional financial institution has translated into a healthcare insurance scheme that requires the contribution of funds amongst community members to help cater to health care needs whenever a member is sick[30].

While the Idir practice caters to unforeseen emergencies such as deaths, CBHI in Ethiopia attempts to prevent these expected emergencies by converting these same finances to a life saver rather than funeral fund. Accordingly, the initiative was launched as the first of its kind in 2011 across 13 districts with 1.45 million people within the four main regions of the country: Amhara , SNNPR, Tigray and Oromia as pilot implementation. Three pilot Districts were chosen from each of the first districts while four districts were chosen from Oromia. [30,31].

In Ethiopia 38.5% of the total health expenditure was covered through out of pocket charges which is higher than that of other African countries which was 30.6%in 2008[32]. Therefore moving away from out of pocket charge for health care at a time of use is important step towards averting the financial hardship associated with paying for health service. To this end Ethiopia planned to reduce out of pocket health expenditure to less than 15% and to increase proportion of people enrolled in health insurance from 1 percent to 50 percent at the end of 2014/15[33]. However the enrollment is low in many places where CBHI are established. The review of CBHI found that 50% them had less than 500 members while only 2% of the schemes had more than 100,000 members [34].

Currently, the Ethiopian federal ministry of health, have taken the initiative to reach at least 80% of the households in 80% of the districts should enrolled in community health insurance by 2020[33]. There fore this study aims to provide insight about the factors that influence the house holds willingness to join CBHI in the study area.

## Methods

### Study area and period

A community based cross-sectional study was conducted among the households in the randomly selected districts of West Shoa Zone, from January 25 to February 20, 2016. West Shoa Zone is one of the eighteen zones of Oromia regional state which is located in western direction from Addis Abeba . The zone has 22 rural districts and one urban administrative which are divided into 529 rural kebeles and 43 urban kebeles with the total population of 2,447,432 [34]. “Kebele” is the lowest administrative unit in Ethiopia which comprises at least 1000 households or population of 5000 people. Out of the total districts in the zone, four of them (Bako Tibe, Ada Barga, Gindeberet and Jibat) were selected as the pilot implementation area for the community-based health insurance at the time of data collection . In these districts there were 109,393 households, of which 10,549 heads of the households are governmental employees, and 99, 346 head are non employees. . A sample size of 292 was calculated by a single proportion formula, taking  $P = 77.8\%$  of willingness to join community based health insurance among rural households of in Debub Bench District, Southwest Ethiopia [38] , 95% confidence interval,  $\alpha = 0.05$  margin of error ,  $d = 5\%$  degree of precision and considering 10 % non- response rate

Among the four districts which were implementing community based health insurance two districts were selected by lottery methods. In these selected districts there are 54 rural kebles and 2 urban adminstratives. From 54 rural kebeles , 16 were selected randomly. The participating households were allocated to these 16 kebeles proportionate to the sizes of the kebeles. List of households in each kebele was obtained from health extension workers, and simple random sampling technique was used to selected the households .

### Data Collection and instrument

Face-to-face interview was conducted using structured and pre-tested questionnaires. The questionnaire were adopted from the relevant literature and includes socio- demographic characteristics, health and health related

variables and willingness to participate in community based health insurance schemes. Both data collectors and supervisors were given 3-days training on the objectives, method of data collection, and data collection instruments. The collected data were entered into SPSS version 21.0 for analysis. Descriptive statistics, bivariate and multiple logistic regression analyses were performed. P- values less than 0.05 and 95 % confidence intervals were used to determine associations between dependent and independent variables.

## Result and discussion

### Result

All of 292 sampled households participated in the study making the response rate of 100 %. The median age of the respondents was 36.4 ranging from 18 to 60 years with standard deviation of 13.1 years. One hundred eight seven (64.0%) of the respondents were males, 141(48.3%) were orthodox christian and 268 (91.8%) were married. The median number of household family size was 5.4 with range of 2–9 and 1.9 standard deviation. Just over half, 154 (52.7%) of the study participants had less than five family size and 53 (18.2%) of the respondents were reported that they had person 65 years and above in the family. One hundred sixty nine (57.9%) of the participants attended up to primary education level and 198(67.8%) of them were farmer in occupation (Table 1)

**Table 1: Socio-demographic characteristics of study participants in selected District of West Shoa Zone, Ethiopia, 2016**

Variable	Frequency (N)	Percentage (%)
<b>Sex</b>		
Male	187	64.0
Female	105	36.0
<b>Mean age</b>		
Less and equal to mean age	168	57.5
Above mean age	124	42.5
<b>Religion</b>		
Protestant	112	38.4
Orthodox	141	48.3
Muslim	12	4.1
Wakeffata	27	9.2
<b>Marital status</b>		
Married	268	91.8
Widowed	24	8.2
<b>Family size</b>		
≤ 5	154	52.7
>5	138	47.3
<b>A person age 65 years and above in the households</b>		
Yes	53	18.2
No	239	81.8
<b>Educational level</b>		
Cannot read and write	78	26.7
Can read and write	30	10.3
Grade 1-8	169	57.9
Secondary school and above	15	5.1
<b>Occupation of the respondents</b>		
Farmer	198	67.8
Merchant	94	32.2
<b>Total</b>	<b>292</b>	<b>100</b>

### Health and health related situation

With respect to health and health related situations, 70(24.0%) of the respondents had at least one member with chronic disease or disability; and 129 (44.2%) of the households had at least one member who had encountered illnesses 3 months prior to data collection. Among the ill, 98 (33.6%) of them had got treatment for the illnesses they experienced. The remaining 31 (10.6%) did not get treatment because of lack of enough money. Of 98(33.6%) individuals who got treatment, the majority 29(29.6%) preferred to go public hospitals. They preferred the specified institutions because of its physical accessibility, 48 (48.0%), not too crowded 23 (23.3%), not expensive services 15(15.3%),and effective service 13 (13.4%). Seventy six (77.6%) of the households covered the medical expenses by themselves. One hundred eight (55.7%) of these households reported that it was difficult to cover payments for treatments. As a result, 42 (26.6%) of them were assisted by relatives ; 23 (14.6%) drew from their savings, and 80 (50.6%) borrowed from someone to cover the medical costs. The remaining 13(8.2%) had to sell

capital assets such as cows, land, teff etc, to cover the payments for treatment. Of 292 respondents, 189 (64.7%) reported that they had borrowed money for covering health care expenses within one year before the data were collected. The median amount that these households borrowed was 505 ETB (21.5USD), ranging 50–3000 ETB (2.1 -127.7USD) (Table 2).

**Table 2:- Health and health related situations of the respondents in selected Districts of West Shoa Zone, Ethiopia, 2016**

Variable	Frequency (N)	Percentage (%)
<b>Chronic illness</b>		
Yes	70	24.0
No	222	76.0
<b>Illness encountered in the last 3 months</b>		
Yes	129	44.2
No	163	55.8
<b>Seek medical treatment</b>		
Yes	98	33.6
No	31	10.6
<b>Place of treatment</b>		
Private health facility	15	15.3
Public health facility	17	17.3
Public hospitals	29	29.6
Others	37	37.8
<b>Why you go there</b>		
Physical accessibility	47	48.0
Not expensive	15	15.3
Not crowded	23	23.5
Effective	13	13.3
<b>Reason for not getting treatment</b>		
No enough money	17	54.8
Other(self limiting, busy with work )	14	45.2
<b>Coverage of the health care cost</b>		
Self	76	77.4
Other	22	22.4
<b>Concern of the households for covering the health care cost</b>		
Very difficult	55	28.4
Difficult	108	55.7
Not difficult	31	28.9
<b>Means of getting money for health care payment</b>		
Borrowed from some one	80	50.6
Assisted by relatives	42	26.6
Sell capital assets (land, cow ,teff , etc )	13	8.2
With draw from the bank	23	14.6
<b>Borrowed money for medical cost within the last one year</b>		
Yes	189	64.7
No	103	35.3
<b>Total</b>	<b>292</b>	<b>100</b>

#### **Willingness to join community based health insurance**

Among the study participants, 207 (70.9%) were willing to join the proposed community based health insurance. The reason mentioned by the study participants to join community based health insurance were 97(46.9%) to get free access to health care , 45(21.7%) to help other family members , and 65(31.4%) face health problems frequently . Among 85( 29.1%) of the study participants who were not willing to join the scheme ,23(27.1%) of them were mention health insurance is confusing , 15(17.6%) were due to lack of government trust and 17(17.6%) do not need health insurance at all (Table 3).

**Table 3: House hold willingness to join community based health insurance, reasons for and not willing to join the scheme in selected District of West Shoa Zone, Ethiopia, 2016**

Variable	Frequency (N)	Percentage (%)
<b>Willingness to join CBHI scheme (n=292)</b>		
Yes	207	70.9
No	85	29.1
<b>Reason for willing to join CBHI scheme(n=207)</b>		
It provides free access to medical care	97	46.9
To help other	45	21.7
Facing health problems frequently	65	31.4
<b>Reason for not join CBHI scheme (n=85)</b>		
I do not have enough money to pay	15	17.6
The proposed money by government is high	10	11.8
I do not need health insurance	8	9.4
Out of pocket payment is better	5	5.9
Lack of Trust government in government program	15	17.6
Lack of functional Health facilities in my village	9	10.6
Health insurance is confusing scheme	23	27.1

**Factors associated with community based health insurance****Socio-demographic factors**

Bivariate analysis was done crudely in order to identify the socio-demographic variables that fit multiple logistic regression models. Accordingly, head of the households age (Crude OR = 1.023, 95 % of CI = 1.002-1.045), households relationship (Crude OR = 2.321, 95 % of CI = 1.246-4.323), being protestant religion followers (Crude OR = .483, 95 % of CI = .273- .853), and wakeffata (one of the religion type in Ethiopia) (Crude OR = 3.895, 95% of CI = 1.102-13.763) and widowed in marital status (Crude OR = 2.671, 95% CI = 1.148-6.213) were socio-demographic variables that showed statistically significant association with house holds willingness to join community based health insurance

In addition, households who had person age of 65 years and above in their family (Crude OR = 7.309, 95% CI = 3.167-8.1570) who cannot read and write (Crude OR = 35.75, 95% CI = 11.519-110.955), can only read and write (Crude OR = 2.912, 95% CI = 1.557-5.447) who attended secondary school and above in education level and who were merchant by occupation (Crude OR = 3.263, 95 % of CI = 1.203-11.174) were showed statistically significant association with willingness to join community based health insurance while sex of the study participants did not show significant association. Among the socio-demographic variables which showed association, except the protestant religion followers which showed negative association, the others variables showed positively associated with willingness to join CBHI (Table 4).

**Table 4: Binary logistic regression analysis of socio-demographic characteristics with willingness to join CBHI in selected Districts of West Shoa Zone, Ethiopia, 2016**

Variable	Frequency (N)	WTJ		P-value	Crude OR , 95% CI
		Yes (%)	No (%)		
<b>Age</b>		207(70.9)	85(29.1)	.031	1.023 (1.002- 1.045)
<b>Sex</b>		85			
<b>Male</b>	187(64.0)	130(44.5)	57(19.5)		1*
<b>Female</b>	105(36.0)	77(26.4)	28(9.6)	.514	1.190(.706-2.005)
<b>Relation ship</b>					
<b>Head</b>	253(86.6)	196(67.1)	57(19.5)		1*
<b>Spouse</b>	39(13.4)	11(3.8)	28(9.6)	.008	2.321 (1.246-4.323)
<b>Religion</b>					
<b>Orthodox</b>	141(48.3)	112(38.4)	29(9.90)		
<b>Protestant</b>	112(38.4)	69(23.6)	43(14.7)	.012	.483(.273-.853)
<b>Wakeffata</b>	27(9.2)	21(7.2)	6(2.1)	.035	3.895(1.102-13.763)
<b>Muslim</b>	12(4.1)	5(1.7)	7(2.4)	.507	1.339(.566-3.169)
<b>Marital status</b>					
<b>Married</b>	268(91.8)	195(66.8)	73(25.0)		1*
<b>Widowed</b>	24 (8.2)	12(4.1)	12(4.1)	.023	2.671(1.148-6.213)
<b>Family size</b>				.022	.847 (.735-.976)
<b>A person with age 65 years &amp; above</b>					
<b>No</b>	239(81.8)	195(66.8)	44(15.1)		1*
<b>Yes</b>	53(18.2)	12(4.1)	41(14.0)	.000	.309(.167-.570)
<b>Educational level</b>					
<b>Grade 1-8</b>	169(57.9)	126(43.2)	43(14.7)		1*
<b>Cannot read and write</b>	78(26.7)	72(24.7)	6(2.1)	.000	35.750(11.519-110.955)
<b>Can read and write</b>	30(10.3)	4(1.4)	26(8.9)	.001	2.912(1.557-5.447)
<b>Secondary school and above</b>	15(5.1)	5(1.7)	10(3.4)	.022	3.667(1.203-11.174)
<b>Occupation of the house hold</b>					
<b>Farmer</b>	198 (67.8)	188(64.4)	10(3.4)		
<b>Merchant</b>	94(32.2)	19(6.5)	75(25.7)	.000	3.628(2.129 -6.182)

**Health and health related factors**

Among health and health related variables; the presence of chronic illness in the households(Crude OR = 0.422, 95 % of CI=.0.214-0.835) , illness encountered in the last three months(Crude OR = 0.413, 95 % of CI=.0.240-0.708) , , the reason for choosing health facilities(not crowded) (Crude OR = 3.000, 95 % of CI=.1.039-8.666) , , borrowing money from someone for health care payment(Crude OR = 28.333, 95 % of CI=.10.243-78.372), and, borrowing money for medical cost within the last one year(Crude OR = 1.522, 95 % of CI=.1.285-1.958), showed statistically significant association with willingness to join community based health insurance on bivariate logistic regression analysis (Table 5).

<b>Merchant</b>	<b>94(32.2)</b>	<b>19(6.5)</b>	<b>75(25.7)</b>	<b>.000</b>	<b>3.628(2.129 -6.182)</b>
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**Table 5. Binary logistic regression analysis of health and health related characteristics with willingness to join CBHI in selected Districts of West Shoa zone, Ethiopia, 2016**

Variable	Frequency (%)	WTJ		P-value	Crud OR,95 CI
		Yes	No		
<b>Chronic illness</b>					
No	222(76.0)	149(51.0)	73(25.0)		1*
Yes	70(24.0)	58(19.9)	12(4.1)	.013	.422(.214-.835)
<b>Illness encountered in the last 3 months</b>					
Yes	163(55.8)	103(35.3)	60(20.5)		1*
No	129(44.2)	104(35.6)	25(8.6)	.001	.413(.240-.708)
<b>Seek medical treatment</b>					
Yes	98(33.6)	80(62.0)	18(14.0)		
No	31 (10.6)	24(18.6)	7(5.4)	.606	1.296 (.484-3.471)
<b>Place of treatment</b>					
Others	37(37.8)	34(34.7)	3(3.1)		1*
Public hospital	29(29.6)	25(25.5)	4(4.1)	.907	1.091(.252-4.714)
Public health center	17(17.3)	11(11.2)	6(6.1)	.138	.320(.071-1.442)
Private health facility	15(15.3)	10(10.2)	5(5.1)	.103	.176(.036-1.870)
<b>Who paid for you</b>					
Self	76 (76.6))	40(40.8)	36(36.7)		1*
Other	22 (22.4)	12 (12.2)	10(10.2)	.874	.926 (.357- 2.400)
<b>Why you go there</b>					
Physical accessibility	47(48.0)	36(36.7)	11(11.3)		1*
Not crowded	23(23.5)	12(12.2)	11(11.3)	.042	3.000(1.039-8.666)
Not expensive	15(15.3)	9(9.2)	6(6.1)	.215	2.182 (.635-7.495)
Effective	13(13.3)	7(7.1)	6(6.1)	.115	2.805 (.778-10.115)
<b>Reason for not treated</b>					
No enough money	17(54.8)	14(45.2)	3(9.7)		1*
Other (family, etc.)	14(45.2)	12(38.7)	2(6.5)	.874	.926 (.357-2.400)
<b>Concern of the households for covering the health care cost</b>					
Very difficult	55(28.4)	60(30.9)	48(24.7)		1*
Difficult	108(55.7)	21(10.8)	34(17.)	.037	2.024(1.043-3.929)
Not difficult	31(28.9)	28(14.4)	3(1.5)	.002	.134(.038-.467)
<b>Means of getting money for health care payment</b>					
Sell capital asset	80(50.6)	68(43.0)	12(7.6)		
Borrowed from some one	42(26.6)	7(4.4)	35(22.2)	.000	28.333(10.243-78.372)
With draw from the bank account	23(14.6)	1(0.6)	22(13.9)	.971	1.030 (.203-5.242)
Assisted by relatives	13(8.2)	11(7.0)	2(1.3)	.000	12.667 (13.85-15.329)
<b>Borrowed money for medical cost within the last one year</b>					
Yes	208(71.2)	140(47.9)	68(23.3)		1*
No	84(28.8)	67(22.9)	17(5.8)	.003	1.522 (1.285-1.958)

### Predictors of willingness to join community based health insurance

All socio demographic and health related variables that showed significant association with willingness to join community based health insurance in bivariate logistic regression were entered into multiple logistic regression models to control potential confounders. Accordingly, , most of the socio-demographic variables which includes head of the households age (Adjusted OR: 1.020, 95% CI of 1.001, 1.034), female as head of the households (Adjusted OR = 3.739, 95% CI = 1.666-8.391) , the households family size(Adjusted OR: 2.817 ,95% CI= 1.707, 2.946) , households who had person age of 65years and above in their family(Adjusted OR: 6.562 ,95% CI= 2.899, 14.856), were significantly associated with willingness to join CBHIs.

From the health and health related variables households who had a person with chronic illness or disability [Adjusted OR =1 .290 95 % CI =1 .092-1.719), borrowing money from someone for health care payment(Adjusted OR = 1.656, 95 % of CI=.1.760-3.606), and households who did not get difficult for covering the health care cost(Adjusted OR = 0.061, 95 % of CI=0.017-0.222) were found to be significant predictors for the households' WTJ the community based health insurance.

**Table -6. Factors associated with willingness to join community based health insurances in selected Districts of West Shoa Zone, Ethiopia, 2016**

Variable	Frequency (N)	WTJ		Crude OR , 95% CI	Adjusted OR , 95% CI	
		Yes (%)	No(%)			
Age	207(70.9)		85(29.1)	1.023(1.002- 1.045)	1.020(1.001-1 .034)	0.045
Relation ship						
Head	253(86.6)	196(67.1)	57(19.5)	1*		
Spouse	39(13.4)	11(3.8)	28(9.6)	2.321 (1.246-4.323)	3.739 (1.666-8.391)	.001
Religion						
Orthodox	141(48.3)	112(38.4)	29(9.90)			
Protestant	112(38.4)	69(23.6)	43(14.7)	.483(.273-.853)	.695 (.313-1.543)	.372
Wakeffata	27(9.2)	21(7.2)	6(2.1)	3.895(1.102-13.763)	2.502(.845-. 7.410)	.098
Muslim	12(4.1)	5(1.7)	7(2.4)	1.339(.566-3.169)	2.196 (.598-8.071)	.236
Marital status						
Married	268(91.8)	195(66.8)	73(25.0)	1*	1*	
Widowed	24 (8.2)	12(4.1)	12(4.1)	2.671(1.148-6.213)	1.871(0.848-3.313)	0.089
Family size				.847 (.735-.976)	.817 (.705-.946)	.007
Age 65 years & above						
No	239(81.8)	195(66.8)	44(15.1)	1*		
Yes	53(18.2)	12(4.1)	41(14.0)	.309(.167-.570)	6.562(2.899-14.856)	.000
Education level						
Grade 1-8	169(57.9)	126(43.2)	43(14.7)	1*	1*	
Cannot read and write	78(26.7)	72(24.7)	69(2.1)	35.750(11.519-110.955)	3.50(1.119-11.095)	.047
Can read and write	30(10.3)	4(1.4)	26(8.9)	2.912(1.557-5.447)	2.912(1.557-5.447)	.032
Secondary school and above	15(5.1)	5(1.7)	10(3.4)	3.667(1.203-11.174)	3.667(1.203-11.174)	0.012
Occupation of the house hold						
Farmer	198 (67.8)	188(64.4)	10(3.4)	1	1*	
Merchant	94(32.2)	19(6.5)	75(25.7)	3.628(2.129 -6.182)	.423 (.273-1.276)	.735
Chronic illness						
No	222(76.0)	149(51.0)	73(25.0)	1*		
Yes	70(24.0)	58(19.9)	12(4.1)	.422(.214-.835)	.290(.092-.917)	.035
Illness encountered in the last three months						
Yes	163(55.8)	103(35.3)	60(20.5)	1*		
No	129(44.2)	104(35.6)	25(8.6)	.413(.240-.708)	.294 (.216-1.159)	.162
Why you go there						
Physical accessibility	47(48.0)	36(36.7)	11(11.3)	1*		
Not crowded	23(23.5)	12(12.2)	11(11.3)	3.000(1.039-8.666)	1.605 (.496-5.189)	.430
Not expensive	15(15.3)	9(9.2)	6(6.1)	2.182 (.635-7.495)	.701 (.161-3.053)	.636
Effective	13(13.3)	7(7.1)	6(6.1)	2.805 (.778-10.115)	.878(.158-4.873)	.882
Means of getting money for health care payment						
Sell capital asset	80(50.6)	68(43.0)	12(7.6)			
Borrowed from some one	42(26.6)	7(4.4)	35(22.2)	28.333(10.243-78.372)	1.656 ( 1.760 -3.606)	.04
With draw from the bank account	23(14.6)	1(0.6)	22(13.9)	1.030 (.203-5.242)	.529 (.133-2.110)	.367
assisted by relatives	13(8.2)	11(7.0)	2(1.3)	12.667 (13.85-15.329)	1.045 (.311-3.518)	.943
Concern of households for covering the health care cost						
Very difficult	55(28.4)	60(30.9)	48(24.7)			
Difficult	108(55.7)	21(10.8)	34(17.)	2.024(1.043-3.929)	1.799 (.829- 3.902 )	.137
Not difficult	31(28.9)	28(14.4)	3(1.5)	.134(.038-.467)	.061(.017-.222)	.000
Borrowed money for medical cost within the last one year						
Yes	208(71.2)	140(47.9)	68(23.3)	1*	1*	
No	84(28.8)	67(22.9)	17(5.8)	1.522 (1.285-2.9580)	.551 (.246-1.234)	.147

## Discussion

The finding of this study indicated that majority, 70.9 % of the households were willing to join the community based health insurance which is almost similar to the study done in Ecuador which was 69% [35]. However this figure is greater than the finding obtained from the study done in Edo state of Nigeria which was (60%) [36].

However this figure was less than the finding obtained from the study done in the rural community of Fogera districts of Ethiopia, Debub Bench district of south west Ethiopia and Jima town in which the households willingness to the join the proposed community based health insurance scheme was 80%, 77.8 and 76.5% respectively [37,38]. This disparity may be due to the commitment employed to give awareness about the community based health insurance for households in these study areas. Obviously, local administrators commitment to implement the government policies in most aspects differ in different geographic regions and time. In addition the difference may due to the approach employed during data collection time. Particularly the Debub Bench district of South West Ethiopia and Jima town studies [37,38], data were collected after presenting the scenario of community based health insurance scheme for the respondents and after that the respondents were asked whether they were willing to join the scheme. This may simplifies understanding of the respondents on community based health insurance schemes which probably increases their willingness level to join the CMHI scheme.

This study also showed that as the head of household's age was increases the households willing to join the



CBHI was increased by 1.020 when compared to the younger the head of household (table 6). This finding is consistent with the finding obtained from the systematic review and meta-analysis on what factors affect voluntary uptake of community based health insurance schemes in Low- and Middle-Income Countries[39].

Female as head of the household is another significant determinant of willingness to join CBHI. Unlike the findings from other similar studies (37,39) this study revealed that female as being head of the household increases their willing to join community based health insurance schemes 3.739 more likely when compared to male as head of the households(Table-6).

This is a paradoxical result in which some of the African countries context men are presumed to be responsible for financial decisions within the households. Still this finding can be more justified as women are more proactive in engaging in the social security packages to protecting their families in most parts of the world. Another key factor that affected uptake of the CBHI scheme was the family size. The number of total family size had positive associations with the probability of WTJ the CBHIS. As the number of the household members increase, the likelihood of the household's willingness to join the community based health insurance increased by 2.817 times when compared to the households relatively smaller family sizes. This finding was supported with the study founding in Edo state of Nigeria, Ecuador and rural areas of Debu Bench Districts of south Ethiopia (35, 36, 38). This positive association of large family size with willing to join community based health insurance could be as a result of the huge financial burden faced by households when they seek health care services. However, this finding was not consistent with other studies [40, 41].

The study also revealed that households who had person age of 65 years and above in their family showed 6.562 times more likely to join community based health insurance. This is probably the presence of elderly people in household triggers the households to decide to join the schemes as most of the time these old people consumption of health is very common. However studies in the Asian and Sub-Saharan[42,43]countries indicated a negative association between the two.

In addition, in this study the presence of chronic illnesses in households was 1.290 times more likely to join the CBHI than those who reported no chronic illnesses in the households. This is because households with more persons stand to gain more from joining the scheme than households with fewer sick person [48]. This is consistent with other studies [46,47] which reported that the effect of chronic illnesses in the household on enrolment was a positive association between chronic illnesses in the household and enrolment in CBHI.

Households who get money for health care payment by means of borrowing money from someone for covering treatments were about 2.333 times more likely to join the scheme than those who soled capital asset for covering treatments (Table 6)

This is in line with a study done in Nigeria (35) and Debu Bench District of Southern Ethiopia (38). This is probable because anywhere in the world it is natural for people to aspire to solve the problem they encountered not happen again to them and to their relatives.

Concern of households for covering health care cost is also another factor for willingness to join joining CBHI. The study also showed that, households who have not difficult concern for covering healthcare cost at the time of illness were 0.061 less likely to join CBHI when compared to those who have difficult concern. This is might be due to households perception in which they think that the same situation will happen in their future life, if previously not get difficult to cover the health care cost at the time of illness.

### Limitation of the Study

Since the study was conducted in similar population where already the community based health insurance was declared some households have information about the scheme. This may lead them to the information bias. In addition the study did not focus on factors like awareness, attitude towards risk/insurance etc which are the key areas where the implementers can directly play an important role and enable the individuals for an informed choices.

### Conclusion

In this study the willingness of the households to join community based health insurance was 70.9% which indicated that the acceptance of the scheme was relatively high.. Thus implementation of the scheme was promising for the policy makers and local implementers of the schemes. Therefore scaling up of this scheme will be beneficial in the study areas in realization of the intended the health care financing initiation of government. as a means to providing access to health services.

### List of abbreviations

**CBHI:** Community based health insurance

**WTJ:** Willingness to join

**COR:** Crude odd Ration

**AOR:** Adjusted odd Ratio

**SPSS:** Statistical package for social science

### **Ethics approval and consent to participate**

This study was approved by the ethical review board of College of Medicine and Health Sciences, Ambo University. Informed consent to participate in the study was obtained from all participants.

### **Consent to publication: Not applicable**

#### **Availability of data and material**

The datasets during and/or analyzed during the current study are available from the corresponding author on reasonable request.

### **Funding**

Funding for the research was provided by Ambo university research consultancy and community service director office. Besides financial support, the funding body had no role in the design of the study and collection, analysis, and interpretation of data and in writing the manuscript.

### **Acknowledgements**

The Authors would like to thank AU for allocating fund to conduct the study. We would also like to express our deepest appreciation to all individuals who supported us during this research work for their indispensable contributions. Last but absolutely not the least, the contribution of the study participants is greatly appreciated.

### **Authors' contributions**

**MM** contributed to the conception, design and conduct of the study, analyzed and interpreted the data, and prepared the manuscript.

**TB** contributed to the design and conduct of the study, analyzed and interpreted the data, and prepared the manuscript. All authors read and approved the final manuscript.

**Eshetu E. Chak** contributed to the design and conduct of the study, analyzed and interpreted the data, and prepared the manuscript. All authors read and approved the final manuscript

### **Competing interests**

The authors declare that they have no competing interests.

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