

# Willingness to Join Community Based Health Insurance and Its Predictors Among Informal Sectors in Buno Bedele Zone, South West Ethiopia

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**Abstract:** Background: Financial risk protection is one of the pillars of universal health coverage. Community based health insurance (CBHI) scheme is the risk sharing mechanism to reduce large out-of-pocket payments for health care and to overcome financial barriers to access health care. However, evidence on the level of willingness to join community based health insurance in the study area was scanty. Objective: This study aimed to assess willingness to join community based health insurance scheme and its predictors among informal Sectors in Buno Bedele zone, Southwest Ethiopia, 2021. Methods: A community-based cross-sectional study design was conducted on willingness to join community based health insurance and its predictors among informal sectors in Buno Bedele Zone, South west Ethiopia from January 01 to 30, 2021. Multistage simple random sampling was used to select 555 households. Data were collected using a semi-structured interviewer-administered pretested questionnaire. Data were entered into Epi-Data version 3.1 and analyzed with SPSS Version 25. A binary logistic regression model was fitted to determine the presence of statistically significant associations between the dependent and independent variables at p-value <0.05 and AOR values with 95% CI. Finally, fitness of the model was checked by using Hosmer and Lemeshow goodness-of-fit test. Results: Of the sampled respondents, 543 participated in this study with response rate of 98.3%. Of these, 426 (78.5%) were willing to join the scheme. The study found that, educational status of who can read and write [AOR=3.96; 95% CI, 2.02, 7.75], family size > 5 [AOR=2.61; 95% CI, 1.45, 4.17], poor households [AOR=4.89; 95% CI, 2.79, 8.57], experience of an illnesses in the last three months [AOR=2.28; 95% CI, 1.21, 4.30], had information about CBHI [AOR=2.24; 95% CI, 1.18, 4.25] and participating in any indigenous community insurance [AOR=7.86; 95% CI, 4.47, 3.83] were significant predictors of willingness to join the scheme. Conclusion: The study revealed that more than three fourth of respondents were willing to join CBHI. Educational status of who can read and write, family size > 5, poor households, experience of an illnesses, had information about CBHI and participating in any indigenous community insurance were more likely to join the scheme. So, the government should strengthen efforts to scale up this scheme in the informal sectors specifically to areas not yet implemented, to reduce direct out-of-pocket payment at service delivery points. This will contribute to guarantee informal sectors access to quality health services without facing financial hardship, to achieve universal health coverage for all.

**Keywords:** Community Based Health Insurance, Willingness to Join, Ethiopia

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## 1. Introduction

Globally, about 12% of the world's population spent more than 10% of their household's income to pay for their health care. Also, about millions suffer from morbidity and mortality due to difficulty to pay for medical bills for health care. But, others suffer due to they do pay directly for their health care from their Out of Pocket (OOP) and annually 150 million and 100 million people incur catastrophic health spending and are pushed below the poverty line respectively [1].

In Ethiopia, almost 34% of medical expense is originated from households Total Health Expenditure (THE) next to the rest of the world which accounts about 50% of THE [2]. However, World Health Organization (WHO) recommends direct payments should be less than 15 to 20% of total health expenditure, as this is needed to reduce the incidence of financial catastrophe to negligible levels. As a result of this, WHO encourages moving away from direct out-of-pocket payments to use prepaid mechanisms and pool risks through health care financing strategies to raise funds for health [3].

World Health Organization, called for all health systems to move toward universal coverage, which was defined as "access to adequate health care for all at an affordable price". An important aspect of achieving this coverage is to develop a financial risk pooling system among the three pillars of universal Health Coverage (UHC). In order to expand risk pooling to move toward universal coverage, level of willingness to join prepayment mechanisms and the level of prepayment must be increased, user fees and other out-of-pocket (OOP) payments must be reduced [3, 4].

The Council of Ministers of Ethiopia approved a comprehensive health care financing strategic initiatives in 1998 to identify different financial options to raise resources for the health sector, enhance efficiency in the utilization of available resources, promote sustainability, improve qualities and coverage of different health services, and ensure equity in the distribution of resources [5]. As health care financing components, Ethiopia has been implementing CBHI schemes since 2011 and recently expanded to so many districts in the country [5, 6].

Like other low-income countries, the health sector in Ethiopia lacks financial resources which were needed to purchase health care for its population. Its per ca-pita health spending of US\$16.10 in 2007/08, national health account, indicated the extent to which health care is under financed, as this amount is beneath the \$34 per ca-pita that the WHO Commission on Macroeconomics and Health recommended should be spent in low-income countries to deliver essential health care services in 2001 and an amount that has been revised upward to US\$60 by 2015 [2]. Community Based Health Insurance (CBHI) scheme was considered formidable alternatives to fill the void in the health care financing system of many low and middle income countries. The overarching goals of these programs are increasing access to health care services, protecting households from health related financial risks, and ultimately improving health status of the poor [7].

In Africa, different studies has been carried out, in the

northwestern and capital city of Nigeria and in Ecuador revealed that Willingness to Join (WTJ) CBHI was 96%, 90%, and 69.3%, respectively [8]. Few similar studies has been done in the country, Ethiopia, reported that higher rate of willingness to join CBHI (78% in Bench Maji, 80% Fogera district, 78% in jimma zone) and lower rate of willingness to pay for voluntary health insurance (39.7%, Adama woreda) [8, 9]. Membership to a health insurance scheme is crucial to improve the health status as well as foster productivity by the provision of health care services and reducing out-of-pocket payment at the time of illness and reduce tensions from unpredictable occurrences of illnesses [10].

To the level of the author's knowledge, there was no any study done in the area and also willingness to join for the proposed scheme was not well known, which poses difficulty to make decision for health planners and policy makers. So, this indicates that there is a necessity for detail information on willingness to join, for decision makers to get concrete evidences on these issues among informal sectors, which are mainly victims of catastrophic health care expenditures and also this is prominent in the study setting among the poor HHs. Thus, this study aimed to assess willingness to join community based health insurance scheme and its predictors among informal Sectors in Buno Bedele zone, Southwest Ethiopia.

## 2. Methods and Materials

### 2.1. Study Setting and Period

The study was conducted in Buno Bedele zone, Oromia Region, South west Ethiopia from January 01 to 30, 2021. Buno Bedele zone is one of the 20 zones of Oromia Region and the zonal town, Bedele, is located 271 km south west of Addis Ababa, which is the capital city of Ethiopia. Buno Bedele zone is bordered on the south by Southern Nations, Nationalities, and Peoples Region, on the west by the Ilu Aba Bora Zone, on the north by the East Wollega Zone and West Wollega Zone and on the east by the Jimma Zone. The total population of the zone in 2020 as projected from 2007 (Central Statistical Agency) was 815437 of which 84.69% are rural inhabitants. The zone has 10 districts with 320 Kebeles (the smallest administrative unit), of which 4 (four) of the districts had not yet implemented community-based health insurance.

### 2.2. Study Design and Population

#### 2.2.1. Study Design

Community based cross-sectional study design was conducted among informal Sectors of Buno Bedele zone, Southwest Ethiopia 2021.

#### 2.2.2. Population and Eligibility Criteria

All rural households in Buno Bedele zone were considered as source population and all those sampled households in the randomly selected districts were study populations. All Households who have stayed for more than six months in the

Keble and who were aged greater than or equals to 18 year's old and working in the informal sectors were included in the study. Respondents who were unable to participate in an interview due to their health condition at the time of data collection were excluded from the study.

### 2.3. Sample Size and Sampling Procedure

A sample size of 555 was calculated by a single population proportion formula, taking  $P=78\%$  [22], considering a design effect of 2 and an anticipated non-response rate of 10%. A two-stage sampling technique was used to select participating households. Sample was allocated proportionally to each district and respective kebles. Finally, simple random sampling method was used to access the participants.

### 2.4. Measurement and Variables

Willingness to join CBHI among informal sectors was the dependent variable, whereas various factors described in three main sections such as; socio-demographic and economic related factors (age, sex, religion, ethnicity, marital status, livelihood, educational status, family size and wealth status), health and health care utilization related factors (perceived health status, illness experience in the last three months, history of chronic illness, seeking and getting medical care, health care expenditure coverage, difficulty of cost of treatment, distance from health facility and the nearest health facility) and Exposure and perception related factors (information about CBHI, sources of information's, perception about premium coverage, perception about receiving advantage from CBHI and participation in indigenous insurance scheme) were the independent variables.

### 2.5. Operational Definitions

Willingness to Join CBHI: is defined as the motive of rural household's head to enroll in the voluntary health insurance scheme to gain benefits from the scheme regardless of the amount of payment and assessed by close-ended binary question after explaining the actual scenario of the scheme.

Household (HH): A family with one or more member (s) led by a household's head, those who could live together and constitute one unit with a combined income stream for basic family. This was considered as basic and an additional family member/s;

Basic Family: Were members such as; the heads of the household, spouse, children less than 18years old, children greater than 18years who were disabled and elderly who live with them and dependent on them for whom head of the household can decide.

Additional family: Were members such as; who's their age were greater than 18 years in the family and if the heads of the HH had greater than two or more wife.

Illness experience or injury: Episode of illnesses or injuries in the last three months.

Level of health facilities: Were facilities at primary level health care, according to Ethiopian current health tier system (three tier system), where health services were provided

(health centers, health posts and private clinics) [6].

Distance from health facilities: was the distance of the households from the nearest public health facilities (health centers and hospitals) in kilometers.

### 2.6. Data Collection and Procedures

A semi-structured, interviewer administered pretested questionnaire by face to face interviewing of the respondents was employed from January 01 to 30, 2021. The questionnaire was adapted by reviewing of different literature's. It was first prepared in English and translated to local language by an experienced translator and back translated to English by independent translator for consistency.

Prior to the actual data collection, the questionnaire was pretested on 5% of the total samples, then after the results was discussed and some modification and correction has been made accordingly. Data was collected by ten experienced health professionals who had a qualification of at least college diploma in any health fields and were proficient in local language and the overall data collection processes were monitored and supervised by two health professionals who had a qualification of Bachelor of Science degree in any health fields and who were proficient in local language. Both data collectors and supervisors were trained for two days on the data collection questionnaires, the study procedures, and research ethics. The data collection processes were undertaken in such a way that data collectors approached every respondent after obtaining consent.

### 2.7. Data Processing and Analysis

Collected data were checked for completeness and consistency. Data were entered in to Epi-Data version 3.1 and exported to SPSS version 25. Data cleaning was also conducted after data entry by running frequencies. Duplicated records were removed from SPSS. Coding and re-coding of variables were performed in the preparation for the analysis.

Descriptive statistics such as frequencies and percentages were utilized. Then, data were presented using tables and graph.

Multivariate logistic regression analysis was performed to identify the potential predictors of willingness to join CBHI. All variables with P-value less than or equals to 0.25 in the bi-variable logistic regression analysis were entered into multi-variable model and run by the backward stepwise variable selection method with probability of removal of 0.10 and a p-value of less than or equals to 0.05 and an Adjusted Odds Ratio (AOR) with 95% CI were used to declare the predictors of the outcome variable. Finally, fitness of the model was checked by using Hosmer and Lemeshow goodness-of-fit test.

### 2.8. Data Quality Management

In order to maintain quality of data, data collectors and supervisors were trained and translation and re-translation of

the questionnaire was made. Pre-test was done on 5% of the total sample out of the study area before the actual data collection period. Every day after data collection, questionnaires were reviewed and checked for completeness by the supervisors.

### 3. Results

Out of the total study participants (n=555), 543 participated in the study with a response rate of 98.3%.

#### 3.1. Socio-demographic and Economic Characteristics of the Participants

Out of the study participants, 385 (71.9%) of them were males. The mean age of the respondents was 41.48 years (SD+11.6) and ranged from 18-70 years old. Majority of the respondents were Muslim religion followers 220 (40.5%), Oromo by ethnicity 443 (81.6%), married 509 (93.7%), farmer 446 (85.8%) and can read and write 227 (41.8%). The mean family size was 5.6 with a range of 1-12 members (Table 1).

**Table 1.** Socio-demographic and economic characteristics of the study participants among informal Sectors in Buno Bedele zone, Southwest Ethiopia, January 01 to 30, 2021 (N=543).

Characteristics	Categories	Frequency	Percentage
Age	18-29	100	18.4
	30-39	135	24.8
	40-49	112	20.6
	≥50	196	36.1
Sex	Male	385	71.9
	Female	158	29.1
Religion	Orthodox	112	20.6
	Protestant	192	35.4
	Muslim	220	40.5
	Others <sup>a</sup>	19	3.5
Ethnicity	Oromo	443	81.6
	Amhara	65	12.0
	Others <sup>b</sup>	25	6.5
Marital Status	Married	509	93.7
	Others <sup>c</sup>	34	6.3
Livelihoods	Farmer	466	85.8
	Merchant	56	10.3
	Laborer	21	3.9
Educational Status	Can't read and write	184	33.9
	Read and write	227	41.8
	Primary and above	132	24.3
Family size	< 5	258	47.5
	>5	285	52.5
Wealth status	Poor	323	59.5
	Rich	220	40.5

<sup>a</sup> Catholic and Wakefata, <sup>b</sup> Tigre and Gurage and <sup>c</sup> Single, Divorced, Widowed

#### 3.2. Health and Health Care Utilization Related Factors

Almost greater than half, 286 (52.7%) of the study participants rated their perceived own health status as good. One-fifth, 111 (20.4%) of them indicated as they have experienced chronic illness and/or disability in their families. Two hundred sixty two (48.3%) of them reported that they encountered illness in the last 3 months. Of 262 study subjects who were ill, 214 (81.7%) sought and got medical care. Of those who sought and got medical care about 176 (82.2%) of the respondents considered out of pocket expenses was reported as difficult and of them 106 (60.2%) sale of capital asset was majorly taken as an alternative means for health care expenses.

For almost one-fifth of the study participants, 114 (21%) home distance from health facilities (Health center, hospital) was greater than 10 kilo meters and health center is the nearest health facility for majority, 510 (93.9) of them (Table 2).

#### 3.3. Exposure and Perception Related Factors

Regarding information about CBHI, nearly half, 301 (55.4%) of the respondents have never heard about CBHI and radio was the major source of information for about 228 (94.2%) of the respondents. Of those who had the information, about 149 (57.4%) of them perceived that as premium is covered by both individual and government in the insurance scheme and almost one fifth, 55 (22.7%) of them perceived it as only poor and sick individual receive advantages from CBHI scheme. About, 354 (65.2%) of the participants were involved in at least one of the indigenous community insurances or social networks (Table 3).

#### 3.4. Willingness to Join Community Based Health Insurance

Of the participants, 426 (78.5%) them were willing to join community based health insurance scheme (Figure 1). From those, to get free access of medical care at a time of illness,

188 (44.1%) and to get peace mind at uncertain occurrences of illness, 148 (34.7%) were the major reasons to join the scheme.

Whereas, about 57 (48.7%) of the respondents reported inappropriateness of the time when membership payment made as the major reason for not willing to join the scheme (Table 4).

### 3.5. Predictors of Willingness to Join Community Based Health Insurance

In the binary logistic regression analysis some of the variables such as; age, educational status, livelihoods, family size, wealth status, experiences of an illness in the last three

months, history of chronic illnesses or disability, information about CBHI and participation in any indigenous community insurance or social networking were statistically associated with willingness to join CBHI scheme (Table 5).

After adjusting for other variables such as; educational status, family size, wealth status, experiences of an illness in the last three months, information about CBHI and participation in any indigenous community insurance or social networking showed statistically significant association with willingness to join CBHI scheme in multiple logistic regression analysis (Table 5).

**Table 2.** Health and Health care Utilization related factors for the study among informal Sectors in Buno Bedele zone, Southwest Ethiopia, January 01 to 30, 2021 (N=543).

Characteristics	Categories	Frequency	Percentage
Perceived own health status	Poor	92	16.9
	Medium	165	30.4
	Good	286	52.7
Chronic illness or disability in the households	Yes	111	20.4
	No	432	79.6
Experience of illness in the last three months	Yes	262	48.3
	No	281	51.7
Sought and got medical care (n=262)	Yes	214	81.7
	No	48	18.3
Covering of health care expense (n=214)	Very difficult	13	6.1
	Difficult	176	82.2
	Not difficult	25	11.7
Alternative means of health care expense as coverage of expense was difficult (n=176)	Borrow money	55	31.2
	Sale capital assets	106	60.22
	Others <sup>d</sup>	15	8.5
	<10 Kilo Meters	429	79
Home distance from health facilities (Health center, hospital)	>10 Kilo Meters	114	21
	Health Center	510	93.9
Nearest health facility	Clinic (private)	33	6.1

<sup>d</sup>: Home remedies and traditional medicine

**Table 3.** Exposure and perception related factors for the study among informal Sectors in Buno Bedele zone, Southwest Ethiopia, January 01 to 30, 2021 (N=543).

Characteristics	Categories	Frequency	Percentage
Information about CBHI	Yes	242	44.6
	No	301	55.4
Source of Information (n=242)	Radio	228	94.2
	Other <sup>e</sup>	14	5.7
Perception of premium coverage (n=242)	Individual	93	38.4
	Both individual and government	149	57.4
Advantageous from CBHI (n=242)	Only Poor and sick individual	55	22.7
	All poor, sick and rich	187	77.3
Participation in any endogenous community insurances or social networks	Yes	354	65.2
	No	189	34.8

<sup>e</sup>: health professionals, friends

**Table 4.** Reasons for joining and not willing to join CBHI scheme of the participants for the study among informal Sectors in Buno Bedele zone, Southwest Ethiopia, January 01 to 30, 2021 (N=543).

Description/Categories	Frequency	Percentage
Reason for willing to join CBHI (n=426)		
To get free access of medical care at a time of illness	188	44.1
To get peace mind at uncertain occurrences of illness	148	34.7

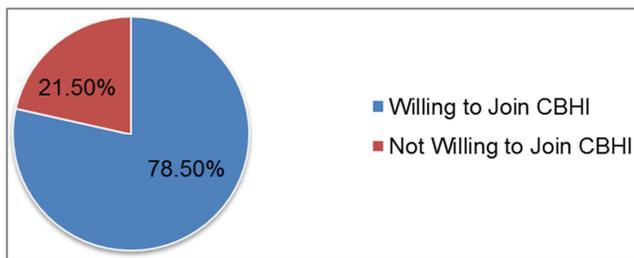
Description/Categories	Frequency	Percentage
To help other	69	16.1
Others <sup>f</sup>	21	4.9
Reason for not willing to join CBHI (n=117)		
I don't have enough money to pay at the same time	17	14.5
I prefer out of pocket expense	11	9.4
I do not trust the sustainability of the scheme	32	27.4
Time when membership payment made was not appropriate	57	48.7

<sup>f</sup>: Me and/or my family frequently facing health problems, have a lots of family

**Table 5.** Predictors of willingness to join community based health insurance scheme among informal Sectors in Buno Bedele zone, Southwest Ethiopia, January 01 to 30, 2021 (N=543).

Variables	WTJ CBHI		OR [95% CI]	
	Yes 426 (78.5%)	No 117 (21.5%)	COR	AOR
Age				
18-29	79	21	1	1
30-39	113	22	1.50 (0.85, 2.66)	2.36 (1.05, 5.29)
40-49	94	18	2.05 (1.18, 3.56)	2.40 (1.05, 5.47)
≥50	140	56	2.09 (1.16, 3.77)	2.28 (1.08, 4.81)
Educational status				
Can't read and write	124	60	1	1
Can read and write	197	30	0.53 (0.31, 0.89)	3.96 (2.02, 7.75)*
Primary and above	105	27	1.69 (0.95, 2.99)	1.80 (0.77, 4.23)
Livelihood				
Farmer	367	99	1.4 (0.67, 2.97)	1.24 (0.370, 4.15)
Merchant	47	9	0.36 (0.15, 0.87)	1.58 (0.36, 6.96)
Laborer	12	9	1	1
Family size				
< 5	173	85	1	1
>5	253	32	3.88 (2.47, 6.09)	2.61 (1.45, 4.17)*
Wealth status				
Rich	201	73	1	1
Poor	225	44	1.86 (1.22, 2.82)	4.89 (2.79, 8.57)*
Experience of illness in the last three months				
Yes	222	40	2.00 (1.37, 3.21)	2.28 (1.21, 4.30)*
No	204	57	1	1
Chronic illness or disability in the HH				
Yes	76	35	0.50 (0.32, 0.81)	0.54 (0.25, 1.13)
No	350	82	1	1
Information about CBHI				
Yes	222	20	5.27 (3.14, 8.85)	2.24 (1.18, 4.25)*
No	204	97	1	1
Participation in any indigenous community insurance or social network				
Yes	326	28	10.3 (6.41, 16.47)	7.86 (4.47, 3.83)*
No	100	89	1	1

\* P-value<0.05, AOR=Adjusted Odd Ratio, COR=Crude Odd ratio, CI=Confidence interval



**Figure 1.** Participants willingness to join community based health insurance scheme among informal sectors in Buno Bedele zone, Southwest Ethiopia, January 01 to 30, 2021 (N=543).

This study indicated that, those respondents who can read and write were almost 4 times more likely to be willing to join CBHI scheme than those who can't read and write

[AOR=3.96; 95% CI, 2.02, 7.75]. Households whose their family size greater than 5 members were 2.6 times more likely to join CBHI scheme than their counter parts [AOR=2.61; 95% CI, 1.45, 4.17]. Respondents' household who were considered as poor were almost 5 times more likely to join the scheme than those of the rich [AOR=4.89; 95% CI, 2.79, 8.57].

The probability of willingness to join CBHI scheme was 2.28 times higher among those who had experience an illnesses in the last three months than their counter parts [AOR=2.28; 95% CI, 1.21, 4.30].

The study indicated that, participants who had information about CBHI were 2.24 times more likely to join CBHI scheme than those who had never heard about CBHI [AOR=2.24; 95% CI, 1.18, 4.25]. The finding also showed that, study participants who were participating in any

indigenous community insurance or social networks were 7.86 times more likely to join CBHI scheme than their counterparts [AOR=7.86; 95% CI, 4.47, 3.83].

#### 4. Discussion

The study assessed willingness of informal sectors to join community based health insurance scheme and its predictors. After presenting the scenario of community based health insurance scheme, respondents were asked whether they were willing to join the scheme or not. The scenario simplifies understanding of the respondents about community-based health insurance scheme's basic principles and practices including the benefit packages which is new system in the study area. Based on this the study found that, 78.5% of the households were willing to join the proposed community based health insurance scheme. This finding is almost comparable with the study conducted in Dehub Bench district, 78.4% [11], selected districts of Jimma Zone, 78% [8], East Gojjam, 81.5% [12] and Fogera district, 80% [13]. The reasons might be due to awareness creations concerning CBHI scheme implementation and its benefit packages become a wide range especially through different social media. The finding of this study is less than study done in the capital city of Nigeria, 97% [14] and in Ethiopia's different regions, like study conducted in North Mecha district of West Gojjam zone, 90.9% [15] and Sidama district of North west Ethiopia, 89% [16]. This variation might be due to differences in sociocultural and economic characteristics and study settings; this is zonal level study, whereas these studies were district level study. However, the finding of this study is higher as compared to a study conducted in urban households of Cameroon, 46% [17] and also studies conducted in Ethiopia, Siraro district, 73.6% [18] and West Gojjam, 58% [19]. The discrepancy might be due to time and study setting variation and level of awareness creation regarding the scheme benefit package is being improved from time to time through different social Medias since the scheme was implemented as a pilot in the country.

After adjusting for other variables; educational status, family size, wealth status, experiences of an illness in the last three months, information about CBHI and participation in any indigenous community insurance or social networkings were predictors of willingness to join CBHI scheme. This study revealed that, those respondents who can read and write were almost more likely to join CBHI scheme than their counterparts. This indicates educational status of household's head was positively associated with willingness to join the scheme. The finding is in line with study conducted in Dehub Bench district [20], which showed that participants who can read and write were more likely to join CBHI scheme than those who were categorized as has no education. It is also in line with a finding from Jimma zone [8], which indicated that individuals who can read and write and primary and above were more likely to be willing to join community based health insurance scheme as compared to those who cannot read and write. Additionally, the study was

supported with the finding from East Gojjam Zone [12]. This positive relationship might be due to the fact that, as educational status increased health seeking behavior of an individual also raised. The possible explanations for this result could be, people that are more educated are more likely to learn about healthy behaviors and more confident in adjusting him/herself to a new system and could have better understanding of the basic concepts and principles of community based health insurance benefit packages, which can ease their decision to join the scheme. Therefore, individuals may retrieve to secure his/her families health status by joining the newly proposed CBHI scheme to be implemented.

Study participants with large family size were more likely to join CBHI scheme than those with few family size. This finding is similar with those of other studies conducted in Selected Districts of Jimma Zone [8], North West Ethiopia [21], Dehub Bench district [20] and west Gojjam zone [19]. This similarity might be attributed to the excessive out of pocket expenses from medical bills that large households faced at a time of occurrences of unpredictable illnesses might lead to catastrophic health expenditure and move them to below poverty line. Additionally, the higher the size of different family members live together in a single unit, the higher the chance of discussing different ideas for making important decisions.

Those households who were considered as poor were more likely to join the scheme than those who were categorized as rich. This finding is similar with studies done in Jimma Zone [8], and Bench Maji zone [20]. This could be due to poor households might not have adequate money to pay for any medical illness that might occur unpredictably in the future in their household and also due to the government might consider them in a fee waiver system based on the guideline that the state have endorsed as an indigent once they have been enrolled to get the benefit packages that might be beyond their capacity if they were not be involved in the scheme.

The probability of willingness to join CBHI scheme was higher among those who had experienced an illnesses in the last three months than their counter parts. This finding was supported by study conducted in Simada district [16], North West Ethiopia [21] and Cameroon [17]. This could be due to risk averse individuals are more likely to join CBHI scheme.

The result of this study found that, participants who had information about CBHI were more likely to join the scheme than those who had never heard about CBHI. This showed similar result with study conducted in Western Ethiopia [22]. This could be due to the fact that, having information is crucial in making a certain decision.

Moreover, the study also identifies respondents who were participating in any indigenous community insurance or social networks were more likely to join the scheme than their counterparts. This result was consistent with the study done in selected districts of Jimma Zone [8] and Dehub Bench district [20], where household's head who were members of Iddir were more willing to join the scheme. This

consistency might be due to, CBHI in Ethiopia is assumed to be formulated from an ancient traditional practice known as Iddir, which is a set up by community members by raising funds that help them during emergencies such as death, illness, marriage and the like, so communities would have already known the benefit of health insurance in one or the other ways.

Although, we have tried to overcome it the study has some limitations which could affect our results. Of these, the study claimed to generalize for relatively large area at zonal level collecting data only from two districts. Also, there might be recall bias regarding the illness history of households in the past three months.

## 5. Conclusion

According to this study, more than three fourth of respondents were willing to join CBHI and this high proportion of households were meeting government expectations. The study also revealed that educational status of those who can read and write, family size greater than five, poor households, experience of an illnesses in the last three months, had information about CBHI and participating in any indigenous community insurance were more likely to join the scheme. So, the government should strengthen efforts to scale up this scheme in the informal sectors specifically to areas not yet implemented, to reduce direct out-of-pocket payment at service delivery points. This will contribute to guarantee informal sectors access to quality health services without facing financial hardship, to achieve universal health coverage for all goals at 2030. Furthermore, researchers should work to address the issues of adverse selection and moral hazards that brought challenges on the scheme using a strong study design.

## List of Abbreviations

AOR:	Adjusted Odd Ratio
COR:	Crude Odd Ratio
CBHI:	Community Based Health Insurance
CHIS:	Community Based Health Information System
CI:	Confident Interval
HHs:	Households
MFI:	Master Family Index
OOP:	Out of Pocket
SPSS:	Statistical Software for Social Sciences
THE:	Total Health Expenditure
UHC:	Universal Health Coverage
WHO:	World Health Organization
WTJ:	Willingness to Join

## Declarations

### *Ethical Approval and Consent to Participate*

An appropriate research ethical approval was obtained from Oromia Regional Health Bureau. Study permission or

support letters were also obtained from Buno Bedele zonal Health Department and respective districts and written to each Kebeles. This study was conducted in accordance with the Declaration of Helsinki. All study participants were well informed about the aim of the study, benefits and risks. Following this, informed verbal consent was secured from study participants. Study participants' confidentiality was maintained.

### *Consent to Publish*

Not applicable.

### *Availability of Data and Materials*

All the data supporting the study findings are within the manuscript. Additional detailed information and raw data will be shared upon request addressed to the corresponding author.

### *Competing Interests*

The authors declare that they have no competing interests.

### *Author's Contribution*

All authors made substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; took part in drafting the article or revising it critically for important intellectual content; gave final approval of the version to be published; and agree to be accountable for all aspects of the work.

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