ORIGINAL ARTICLE

WILLINGNESS TO JOIN COMMUNITY-BASED HEALTH INSURANCE AMONG RURAL HOUSEHOLDS OF BUGNA DISTRICT, NORTHEAST ETHIOPIA

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ABSTRACT

Background: *Developing countries contribute only 20 % of gross domestic product and 12 % of health spending for the world economy. Little studies done in Ethiopia indicated that the level of willingness to join the community-based health insurance among households was not more than 80% in most parts of the country. Since the program was not yet started in the study area, knowing the level of willingness had a paramount importance for smooth initiation of the scheme in the district. Therefore, this study aimed to assess the willingness to join community-based health insurance and associated factors among rural households of Bugina district, Northeast Ethiopia.*

Methods: *A community based cross-sectional study was conducted among households of Bugna district from February to March, 2016. The total sample size for the study was 541. Households were selected using multistage systematic sampling technique. Binary logistic regression model was used for analysis. Adjusted Odds Ratio (AOR) with 95% CI and p-value <0.05 were used to identify significantly associated variables.*

Result: *A total of 532 households participated in the study with a response rate of 98.3%. The finding indicates that 77.8% of the households were willing to join the scheme. The odds of participants willing to join the scheme among respondents who had attended formal education (AOR=4.35; 95% CI:1.88, 10.01), history of illness in the past three months (AOR=3.46; 95% CI:2.02, 5.94), more than five family members in the household (AOR=2.2; 95% CI:1.33, 3.70), good awareness (AOR=2.71; 95% CI1.21, 6.05) and high wealth class (AOR=4.5; 95% CI:2.26, 8.92) were higher than the odds of willing to join the scheme compared to their counterparts.*

Conclusion: *Willingness to join the scheme was low compared to that of other studies in the country in order to achieve the targets for universal health coverage. Therefore, the government should subside some amount of premium to the poor members, and enhancing community awareness about the scheme can enhance its uptake. It is better if the premium load may consider the family size, wealth status and health status of the households.*

Key words: *Community based health insurance, willingness to join, Ethiopia.*

INTRODUCTION

Nearly 90% of the global disease burden was in developing countries, but they only contributed 20 and 12% of their Gross Domestic Product (GDP) and health expenditure in the world, respectively[1]. In most developing countries the payment mechanism for healthcare services is Out-Of-Pocket (OOP) and it is the most inequitable and inefficient way of financing [2]. Community Based Health Insurance (CBHI) is currently implementing in a number of less developed countries to tackle budget deficient and provide quality, efficient and socially protected healthcare services [3]. Accordingly, social protection is a significant strategy for poverty reduction though difficult to minimize susceptibility to socioeconomic, natural and other catastrophic shocks [1]. CBHI has received crucial attention as a mechanism of health financing and a potential alternative to the OOP payments in low

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and middle income countries [4-6]. It protects against catastrophic health expenditure to the poor and the workers in unorganized sectors [7]. More than 50% of the healthcare expenditures in Sub-Saharan African (SSA) countries was OOP payments[8].

The Ethiopian health care financing system relies on foreign donations and OOP expenditures [9]. In Ethiopia, OOP accounts 33.7% of the total health care expenditures [10]. As a result, the country was introduced the CBHI program to overcome the financial hardship in the informal sectors [11]. A pilot study conducted in 13 rural districts of the 4 main regions of the country (Amhara, Oromia, Southern Nations and Nationalities (SNNPR) and Tigray) indicated that only 48 % of the households were willing to enroll in the scheme [3]. Similarly, little studies done in various districts of the country revealed that in Jimma (76.5%) [3] and Fogera (80%) [12] households were WTJ the scheme.

The review report of different literatures showed that significant number of households were not willing to join the CBHI. As a result, knowing the level of willingness of the households to join the scheme had a paramount importance for smooth introduction of the scheme since the program was not yet started in the study area. Therefore, this study was designed to assess WTJ the CBHI and associated factors among rural households of Bugina district, Northeast Ethiopia.

METHODS

Study Setting and design: This community-based cross-sectional study was conducted among households of Bugina district from February to March, 2016. The district is found in North Wollo zone which is 354 km far from Bahir Dar (capital city of Amhara region) and 850 km far from Addis Ababa (capital city of Ethiopia). The district has thirteen rural and one urban kebeles. According to 2016 population estimation, the district has a total population of 91,750 and 21,337 households [13]. There are 4 health centers and 13 health posts in the district that give healthcare services for the dwellers. Furthermore, there are 8 health officers, 7 laboratories, 6 pharmacies, 32 nurses and 30 health extension workers in the district during the study period.

Population and sampling procedure: All rural households in the district were the source population, whereas all eligible rural households who were living in the selected kebeles of the district were the study population. Households who were not permanent residents in the selected rural kebeles were excluded from the study.

The sample size was calculated by using both single and double population proportion formula. Sample size for first objective was calculated using single population proportion formula with an assumption of proportion of willingness to join the CBHI in Fogera district (80%) [12], 95% Confidence Level(CL), 5% margin of error design effect of 2 and 10% non - response rate. The sample size for the first objective was 541. Additionally, the sample for second objective was also determined by double population proportion formula using factors such as wealth status, education and health status [12, 14, 15], 80% power, 2 design effect and 10% non-response rate. The sample sizes for second objective based on selected factors were 264, 352 and 355, respectively, which are lower

than the sample for first objective. Therefore, the final sample size was 541. Following sample size determination, proportional allocation of the sample among the selected kebeles was done based on their size of population. Finally, multistage systematic random sampling technique was applied to select the participants.

Data collection tools and quality control: A structured interviewer administered questionnaire was used to collect the data, and the questionnaire was developed through reviewing of varieties of literatures [12, 14, 15]. Eight nurses and two supervisors were recruited for data collections. Two days training was given for data collectors and supervisors about the basic techniques of data collection.

The questionnaire was first prepared in English then translated to Amharic and back translated to English in order to keep its consistency. Pre-test was conducted among 54 respondents before the actual data collection period in Lasta district. Following pre-test findings some ambiguity and unclear words were modified.

Measurements: Willingness to join CBHI, the dependent variable, was measured by asking the willingness of household head to join after describing the benefit packages of the scheme. Accordingly, awareness of the participants was also measured by using 7 questions and each contain "0=no" and "1=yes" alternatives with a total score of 0 to 7. As a result, participants who scored more than 3.5 were considered as having good awareness. Similarly, participants who walk 2 hours and more on foot to reach at the nearest health facility were considered as the dwellers are resided far away from the health facility. Additionally, the trust level of the participants was simply measured by asking their level of perception as "poor" or "good".

Data management and analysis: Epi Info version 7 and STATA version 13 software were used for data entry and analysis, respectively. Binary logistic regression model was used for analysis. Accordingly, variables with p-value of less than 0.2 during bivariable analysis were fitted into multiple regression analysis. Finally, AOR with 95% CI and p-value < 0.05 were used to identify significantly associated predictor variables with CBHI.

Ethical Considerations: Ethical clearance was obtained from the ethical review committee of Institute of Public Health, College of Medicine and Health Sciences, University of Gondar. Official permission letter was also obtained from Amhara regional health bureau, Bugina health office and the respective kebeles. Verbal informed consent was obtained from each study participant. The right of the participants to withdraw from the study if they face any inconvenience during the interview processes should be maintained. Name of the respondents was not asked and the confidentiality of the participant was kept at all level of the study.

RESULTS

Socio-demographic and economic characteristics : A total of 532 participants participated in the study with a response rate of 98.3%. The median age of the respondents was 35±14SD years ranging 18 -75 years. Sixty-six percent of respondents were male, Orthodox Christian (98.4%), farmer (70.3%), unable to read and write (55.3%), married (71.6%) and the mean family size of the households were 4.8 ± 1.8SD. participants who were classified as high class by their wealth status was 33.5% and nearly half (47%) of participants reported that they had only one under 5 children. About one-third (34%) of the head of the households were females (Table 1).

Table 1: Socio-demographic and economic characteristics among rural households of Bugna district, 2016(n=532)

Variables	Category	Frequency	Percent (%)
Sex	Male	351	66.0
	Female	181	34.0
Age in years	≤29	153	28.8
	30-39	184	34.6
	40-49	133	25.0
	50-59	40	7.5
	≥60	22	4.1
Religion	Orthodox	524	98.4
	Muslim	8	1.6
Marital status	Single	38	7.1
	Married	433	81.4
	Windowed	8	1.6
	Divorced	53	10.0
Occupation	Farmer	374	70.3
	Housewife	82	15.4
	Merchant	46	8.6
	Daily labourer	8	1.6
	Students	22	4.1
Educational status	Unable to read and write	294	55.3
	Read and write	122	29.9
	Primary education	93	17.5
	Secondary education	23	4.3
Family size	≤ 5	308	57.9
	> 5	224	42.1
Under 5 children	No child	136	25.6
	One child	250	47.0
	2 and above	146	27.4
Wealth status	Poor	172	32.3
	Medium	182	34.2
	Rich	178	33.5

WTJ and source of information for CBHI: Overall, 77.8% of participants were willing to join the scheme. The reasons for the households unwilling to join the scheme were unable to afford the payment (40.7%), choosing out-of-pocket payment (31.4%), lack of trust (6.8%) and poor quality of healthcare services (16.9%). More than one-fifth (20.5%) of the participants had information about the scheme and above eighty percent (84.6%) of the participants had good social trust about CBHI (Table 2).

Table 2: WTJ and source of information about CBHI among rural households of Bugina district, 2016

Variables	Category	Frequency	Percent (%)
WTJ for CBHI	Yes	414	77.8
	No	118	22.2
Information about CBHI (n=532)	No	423	79.5
	Yes	109	20.5
Source of information (n=109)	Neighbours	9	8.3
	Radio/TV	17	15.7
	Health care workers	83	76.1
Awareness (n=532)	Poor	443	83.2
	Good	89	16.8
Social trust (n=532)	Poor	82	15.4
	Good	450	84.6
Reasons to join the scheme (n = 414)	Free access to medical care	254	61.4
	For helping others	16	3.8
	Facing health problem	25	6.1
Reasons for not joining the schemes (n = 118)	Can't afford to pay	48	40.7
	Not need health insurance	5	4.2
	Out-of-pocket is better	37	31.4
	Lack of trust in gov't	8	6.8
	Poor quality of health services	20	16.9

Healthcare services related issues: Nearly 48 % of respondents had good perceived family health status and 16.4% of participants had known chronic illness in their households. Forty-one percent of the respondents had history of illness in the past three months within their family members. Twenty percent of participants had got high perceived quality of healthcare services and 17.7% of respondents reach to the nearest health facility after walking two or more hours.

Factors associated with WTJ the CBHI: This finding revealed that participants who had formal education were 4.35 times (AOR=4.35; 95% CI: 1.88, 10.01) more likely willing to join the scheme compared with respondents who had no formal education. Rich households were 4.5 times (AOR= 4.5; 95% CI :2.26, 8.92) more likely willing to join the scheme compared with the poor. The finding also indicted that participants who had more than five family members were 2.22 times (AOR=2.22;95%CI:1.33,3.70) more likely WTJ the scheme than that of the respondents who had five or less family members. Respondents who had good awareness about CBHI were 2.71 times (AOR=2.71; 95% CI: 1.21,6.05) more likely WTJ the scheme compared with participants who had poor awareness. Lastly, respondents who had history of illness during the past 3 months were 3.46 times (AOR=3.46; 95% CI:2.02, 5.94) more likely WTJ the scheme compared with their counterparts (Table 3).

Table 3: Factors associated with WTJ the CBHI among rural households of Bugina district, 2016

Variables	Frequency	WTJ		COR (95%CI)	AOR (95%CI)
		Yes	No		
Educational status					
No formal education	416	305	111	1	1
Formal education	116	109	7	5.66(2.56,12.54)	4.35(1.88,10.01)*
Family size					
≤ 5	302	212	90	1	1
> 5	230	202	28	3.06(1.92,4.08)	2.22(1.33,3.70)*
Perceived health status					
Poor	83	75	8	1	1
Medium	196	158	38	0.44(0.19,0.99)	0.45(0.19,1.09)
Good	253	181	72	0.26(0.12,0.58)	0.49(0.20,1.16)
Social trust					
Poor	82	58	24	1	1
Good	450	356	94	1.56(0.92,2.65)	1.57(0.85,2.90)
Awareness of CBHI					
Poor	423	313	110	1	1
Good	109	101	8	4.43(2.09,9.41)	2.71(1.21,6.05)*
Chronic illness					
No	445	339	106	1	1
Yes	87	75	12	1.95(1.02,3.73)	1.32(0.72,4.68)
Hx of illness in the past 3 months					
No	314	217	97	1	1
Yes	218	197	21	4.19(2.51,6.98)	3.46(2.02,5.94)*
Wealth status					
Poor	172	110	62	1	1
Medium	182	139	43	1.82(1.14,2.89)	1.47(0.88,2.44)
Rich	178	165	13	7.15(3.75,13.63)	4.50(2.26,8.92)*

DISCUSSION

This study aimed to assess willingness to join CBHI and associated factors among households of Bugina district, Northeast Ethiopia. The study revealed that 77.8% of respondents were WTJ CBHI. This study was consistent with studies conducted in Benchi Maji (78.85%)[15], Fogera (80%)[12], national CBHI evaluation report (80%)[14] and Jimma (76.5%) [16], Ethiopia. However , this finding was higher than studies conducted Ecuador (69%)[17], Malaysia (63%)[18], Vietnam (70%)[19] and Namibia (42%)[20]. On the contrary, the current finding was less than studies conducted at national level in Ethiopia (94.7%) [21] and Nigeria 93.6%[22]. The possible explanation for the variation might be due to the differences in study areas, period, participants and the health insurance practices of the countries (voluntary versus mandatory).

This study indicated that respondents who attended formal education were 4.35 times more likely to join the CBHI compared with participants who had no formal education. This study was supported by a study conducted in Jimma, Ethiopia[16]. It might be due to educated household head have better awareness about insurance payments to avoid the risk of catastrophic medical expenditures at the time of ill health. However, this finding was contradicted with other studies in Benchi Maji, Ethiopia[15] and India [23]. The possible justification might be due to the addition of some amount of premium load among members who had known chronic diseases in some study areas and again the scheme did not also cover treatments given abroad. As a result, educated participants who had well aware about the criteria to be membership might have discomfort about the services provided.

Our study finding also showed that households who are categorized in higher class wealth status were 4.5 times more likely WTJ the scheme compared to lower classes. This finding was in line with studies done in Ethiopia [15], Nigeria [24], Bangladesh[25], china [26], St. Vincent[27] and India[23]. The possible explanation may be having more wealth is associated with high asset losses if an unexpected event occurs. On the other hand, the poor may not have the ability to pay the required amount of premium to the scheme.

Head of households who had good awareness on CBHI were 2.71 times more likely to join of the scheme as compared to households having poor awareness. This study is in line with studies conducted in Nigeria [22],Cameron [28], and Myanmar [29]. The possible explanation might be due to those households having good awareness about CBHI have better information and analysed the benefit of CBHI membership.

Participants having more than 5 family members were 2.22 times more likely to join the scheme than that of respondents having < 5 family sizes. This study was in line with the findings in Ethiopia [15], Nigeria [24] and India [23]. This might be due to the households could face high financial cost in large family sizes when they seek healthcare services.

Furthermore, respondents who had history of illness in the household during the past 3 months were 3.46 times more likely to join CBHI compared with those who had no history of illness in the household. This finding was in line with studies done in Benchi Maji [15], Malaysia [18] and national CBHI pilot evaluation report [14]. The possible reason for discrepancy was the previous history of illness had knowledge of the medical cost request to much money to gain a medical treatment, and they know about the services at all, i.e. an issue of adverse selection problem. Adverse selection occurs when illness is associated with the high loss in health and income, and people may overestimate the true risk of the illness, people tend

to buy more insurance. This is in line with the theory of State-dependent utility theory that suggests consumers' utility level and tastes are influenced by their state, such as health [30].

CONCLUSION

Willingness to join CBHI was low compared with other studies done in the country in order to achieve the targets for the universal health coverage. Factors such as educational status, history of illness, household size, awareness about the scheme and wealth status of the household were affecting WTJ the scheme. Therefore, the government had better to subside the poorest households some amount of premium in order to sustain the program. The premium load should also consider the family size, wealth status and health status of the households. Finally, further study should be conducted to assess the households willing to pay for the scheme.

Strengths and limitations: Data were collected at community level through face to face interview of the respondents. As a result, this helps us to get primary sources of data that reduces incomplete data resulted from poor recording and using self-administration as methods of data collection techniques. The study also gave as a baseline data for that specific area to design a strategy during the initiation phase of the scheme in the district. However, the limitation of study could be over or under estimation of the wealth status, awareness, social trust and health status of the households as a result of self-reporting and the study did not measure household's willingness to pay.

Abbreviations:
AOR: Adjusted Odds Ratio, CBHI: Community Based Health Insurance, COR: Crude Odds Ratio, **OOP:** Out-Of-Pocket

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Authors' contribution:
AM was involved in the conception, design, analysis, interpretation, report and manuscript writing. MG, **YA, AD** and **GA** were also involved in the design, analysis, interpretation of the data, and manuscript writing. All authors read and approved the final manuscript.

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