Factors affecting community-based health insurance enrolment among households in Degadamot District, Ethiopia: Community-based cross sectional study.

Melesse Belayneh^{1*}, Mastewal Tamiru²

¹Department of Health System and Health Economics, College of Medicine and Health Science, Bahir Dar University, Bahir Dar, Ethiopia

²Department of Inpatient Service, Tibebe Ghion Specialized Hospital, College of Medicine and Health Science, Bahir Dar University, Bahir Dar, Ethiopia

Abstract

Background: Community-based health insurance is provided in several countries as part of the overall health funding approach, Including Ethiopia. Ethiopia has been utilizing the basic healthcare model and has endured a number of fundamental issues, such as insufficient service coverage, unequal access, and high out-of-pocket expenses. However, there are few studies showed that low CBHI enrolment. However, enrolment is a progressive activity, and there is updated evidence about factors of enrolment.

Objective: This study was focused on the factors affecting community-based health insurance enrolment among households in Degadamot district, Ethiopia in 2022.

Methods: A community-based cross-sectional study was employed among 736 households from August 15 to October 15,2022. Participants were screened by using a two-stage sampling technique. Data were collected using interviewer-administered pre-tested questionnaire and entered into EPI-Info 7 and transported to SPSS version 26. Multi-variable logistic regression was performed to further analysis. A p-value less than 0.05 with a 95% confidence interval accounted significantly factors for dependent variables.

Result: The multivariate logistic regression analysis was showed that participants who were aged in years of 35-54 years (AOR=2.89; 95% CI: 1.78, 4.69), 55-74 years (AOR=3.84; 95% CI: 2.18, 6.75), >=75 years (AOR=2.25; 95% CI: 1.04, 4.89), family size of households who had 5 and above members (AOR=2.06; 95% CI: 1.43-2.95), primary education (AOR=2.10; 1.43, 2.95), secondary and above education(AOR=2.50; 95% CI: 1.88, 4.99), had own land (AOR: 1.62; 95% CI: 1.26, 3.54), had own domestic animals (AOR=2.11; 95% CI: 1.26, 3.54), enrolled in Safety net program (AOR=2.80; 95% CI: 1.52-5.15) and had good knowledge about CBHI (AOR=3.16; 95% CI: 2.08, 4.45) factors were significantly associated with CBHI enrollment.

Conclusion: community-based health insurance enrolment was affected by factors with age, family size, residence, educational status, owning land and domestic animals, and being enrolled in the safety net program and had good knowledge about CBHI were associated with CBHI enrolment. Hence, a strong monitoring and evaluation system, strategies to design to increase awareness levels about the CBHI scheme's benefits, special considerations for young age people, community based education and collaboration with social security sectors.

Keywords: Community-based, Health insurance, Associated factors, Degadamot, Ethiopia.

Abbreviations: AOR: Adjusted Odds Ratio; CBHI: Community-Based Health Insurance; COR: Crude Odds Ratio; SPSS: Statistical Package for the Social Sciences

Introduction

The Community-Based Health Insurance (CBHI) program is renowned as a successful method for achieving universal

access to health services and enough financial protection from medical costs. Few low-income countries have been able to put in place the required payment structures for it, despite the

*Correspondence to: Melesse Belayneh, Department of Health System and Health Economics, College of Medicine and Health Science, Bahir Dar University, Bahir Dar, Ethiopia; E-mail: meleseyayeh@gmail.com

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World Health Organization suggesting it as one of its ideas for achieve universal health care. According to the data, many low-income countries had a difficult time keeping up their healthcare budgets during the past three decades and spent, on average, less than \$23 per person [1, 2].

In addition, numerous studies have recently made recommendations on how community health insurance may improve access to care and give financial protection in addition to covering the expenses of illness for these disadvantaged individuals [3]. Ethiopia has been utilizing the primary healthcare model since 1978, yet the country has faced a number of fundamental issues, such as insufficient service coverage, unequal access, and high out-of-pocket expenses.

CBHI schemes have been implemented in Ethiopia to reduce the financial shock caused by unforeseen and irregular out-of-pocket expenses and to encourage resource pooling for healthcare, which would improve access to and usage of health services. In order to provide health care for its citizens, Ethiopia's government heavily relies on outside donations (50%) and personal contributions (34%). Ethiopia, one of the developing countries, has developed a health policy and health insurance strategy to meet the needs of people through a payment system based on ability, with specific assistance mechanisms for those who cannot afford to pay for their healthcare need.

Beginning in thirteen districts chosen from four regional states (Oromia, SNNPR, Amhara, and Tigray) in the middle of 2011, the CBHI pilot was implemented. According to a survey, after CBHI was implemented in these areas, healthcare spending per person increased by a factor of two. Nevertheless, there is little information available regarding the extent of its use. For program administrators and decision-makers, data on Community-Based Health Insurance (CBHI) enrolment and its contributing factors at the district and national levels is crucial. Nonetheless, it is uncommon [4,5].

Researchers reported that there are a number of factors that influence on the enrolment of community based health insurance in Ethiopia. Some of these factors are: Age, sex, educational status, family size, income, good awareness about CBHI scheme, perception towards community based health insurance affordability of premium payment wealth index, perceived health status, perceived quality of care, timing of collecting premium, chronic disease, community solidarity, treatment choice, trust on program, poor healthcare worker attitudes and long waiting times [6-11].

Despite their increased of performance and unique vulnerability, there is no evidence in the study area. Therefore, this study focused on factors affecting community-based health insurance enrolment among households in Degadamot district, Ethiopia, in 2022.

Materials and Methods

Study design, period and setting

A community-based cross-sectional study was conducted among households from August 1 to August 30, 2022, in the Degadamot district. Degadamot district is located 239 kilometers from Bahir Dar, the capital city of the Amhara region, and 465 kilometres from Addis Ababa, the capital city of Ethiopia. According to data from the district health office, the district has a population of 152,345 people and 33,336 households. There are 29 rural kebeles, six health centres, 29 health posts, seven private primary clinics, and one primary public hospital in the district.

Sample size determination

The sample size was calculated using a single proportion formula by considering the following: 66.3% proportion of community-based community-based insurance, 95% Confidence Interval (CI), 5% margin of error and 95% CI, $Z\alpha/2$ =critical value=1.96, applied as:

n=
$$(Z\alpha/2)^2 \times P (1-P)/d^2$$

= $((1.96)^2 \times 0.66 (1-0.66))/(0.05)^2=446$

Design effect (1.5) was used a two-stage sampling technique, and a 10% non-response rate was considered. The final sample size for the study was 736 households.

Sampling techniques

A two-stage random sampling was employed to select eligible participants. First, using simple random selection, representative kebeles were chosen from a total of 29 kebeles that were available. Next, the number of households in the sampling frame of the chosen kebeles was divided proportionately to the total number of homes included in the study. The Community Health Information System (CHIS) is used by all health posts, therefore the family folders that are available in each kebele were where the sampling frame with a list of every household was gathered. Finally, respondents (household heads) were chosen from framed lists of households using systematic random sampling, which was a number between one and the sampling interval (12th). The first respondent was the seventh from the register which was selected by lottery method. Every 12th interval taken to study participants. Households aged 18 and above who had lived in the kebele for at least six months were included. Participants who had less than one year CBHI enrolment and seriously ill were excluded.

Data collection tools and procedures

A standardized and structured questionnaire was developed based on previously available information and published studies. The questionnaire was first prepared in English and then translated into the local language (Amharic) to easily understand it for data collection and translated back to English for data analysis. The questionnaires contain socio-

demographic and socio-economic characteristics, CBHI enrolment, sources of information and knowledge of community-based health insurance enrolment. Face-to-face interviews were conducted by seven trained BSc public health professionals. Households were not present during data collection date, two times visit was conducted to their home. They were closely monitored under the supervision of one supervisors and a principal investigator. The questionnaire was pretested among 5% of the sample (n=37) household heads in non-selected kebeles. Minor modifications, like ambiguity words and incorrect statements were edited. The principal investigator and supervisor were responsible for monitoring the data collection process.

Operational definition

Community based health insurance enrolment: Households that were CBHI members as evidenced by their renewed membership cards and new CBHI members were classified as "Yes," whereas those that were not members and households that have dropped out were classified as "No" [12].

Good knowledge: Study subjects who scored the mean and above CBHI knowledge related questions [13].

Poor knowledge: Study participants who scored below the mean on CBHI knowledge questions.

Household wealth index: Households were given scores based on the number and kinds of consumer goods they own. Each typical household member was given a score, which was then used to rank each member of the household population according to that score to create wealth quantiles.

Data analysis

Data were transferred into Epi Info 7 version 2.5 and then exported to SPSS version 26 for cleaning and analysis. Finally, descriptive and summary statistics were presented using texts and tables. The bivariate analysis was carried out to determine the association between CBHI enrolment and associated factors, and the variables were chosen for multivariate analysis by p-value 0.25. To mitigate any potential confounding effects,

a multivariable logistic regression analysis was used. Hosmer and Lemeshow's test for the model's goodness of fit revealed appropriate($X^2=8.46$, p-value=0.19). The Adjusted Odds Ratios (AOR) with a 95% confidence interval and p-value 0.05 were used to identify the variables that had significant association.

Ethical approval and consent to participate

Ethical clearance and supportive letters were obtained from College of Medicine and Health Sciences Bahir Dar university Institutional Review Board (IRB). Before proceeding with actual data collection, a formal letter was written to the Degadamot district health office. To maintain confidentiality, individual identifier were excluded. Written informed consent was obtained from participants. Consent was documented on a paper consent. In addition, respondents were informed of the purpose, possible advantages and disadvantages, the right to continue or stop to the interview.

Results

Socio-demographic characteristics of study participant

A total of 736 participants completed the interview, giving it a response rate of 100%. Of these, 80.2% (593) were male respondents. 43.3% (319) of the respondents were in the age range of 35 to 54 years, while the mean age (SD) of the study participants was 44.9 (± 16.5) years. Around 71.7% (528) of the respondents had no formal education. In terms of household members, more than half of the 53.9% (397) had 5 or more members. According to the wealth index, one-third (32.7%) were middle-class. Regarding respondents' awareness of CBHI, 53.9% (397) of them heard about CBHI, and they were classified as an aware group. Respondents who had ever heard about the CBHI scheme were nearly three-fifth (59.6%) heard from CBHI officials and political cadres (Table 1).

Table 1. Socio-demographic	characteristics of s	stud	ly participant in	. Degaa	lamot District, E	lthiopia ((n=736).

Variable	Category	Frequency	Percent
Sex	Male	593	80.6
	Female	143	19.4
Age	20-29 years	93	12.6
	30-39 years	277	37.6
	40-49 years	148	20.1
	50-60 years	139	18.9
	60-70 years	79	10.7
Educational status	No formal education	528	71.7
	Primary education	166	22.6
	Secondary and above	42	5.7

Family size	Less than 5 members	339	46.1
	5 and above members	397	53.9
Under five children in household	Less than 3 children	402	54.6
	3 and above children	334	45.4
Wealth index	Poorest	103	14
	Poorer	193	26.2
	Middle	241	32.7
	Richer	161	21.9
	Richest	38	5.2
Knowledge about CBHI	Good	397	53.9
	Poor	339	46.1
Sources of information first time about CBHI	Neighbours or friends	132	17.9
	CBHI officials and political cadres	439	59.6
	Mass media (Radio, Tv, Social media)	168	22.5

Reasons for not enrolling in community-based health insurance

The finding showed that more than two third (68%) household heads were responded that the premium is not affordable, still more than half (56%) of the participants have not clear about insurance affordability and two in five participants said that time of premium collection is not suitable for enrolling to CBHI (Figure 1).

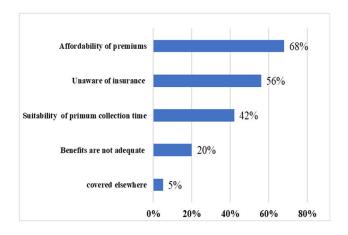


Figure 1. Reasons for not enrolling in community based health insurance in Degadamot daistrict 2023.

Magnitude of community based health insurance enrolment

Among the total of 736 respondents, 33% (245) (29.2%–38.1%) of them reported that they were not enrolling to CBHI scheme (Figure 2).

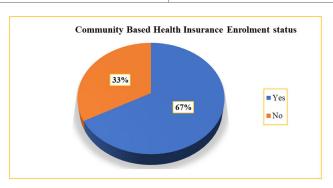


Figure 2. Community based health insurance enrolment status in Degadamot district 2022 (n=736).

Factors affecting community based health insurance enrolment

Both bi-variable and multi variable logistic regression analyses were employed. In the bi-variable analysis variables such as age, sex, family size of household, educational status, marital status, own domestic animals, wealth status, enrolled in Safety net program, knowledge about CBHI were significantly associated with community-based health insurance enrolment. Variables with a p-value of <0.25 in the bi-variable logistic regression analysis were entered into multi variable logistic regression analysis.

The multivariate logistic regression analysis revealed that participants who were aged in years of 35-54 years (AOR: 2.89; 95% CI: 1.78, 4.69), 55-74 years (AOR: 3.84; 95% CI: 2.18, 6.75), >=75 years (AOR: 2.25; 95% CI: 1.04, 4.89), family size of households who had 5 and above members (AOR:2.06; 95% CI: 1.43-2.95), primary education (AOR: 2.10; 1.43, 2.95), secondary and above education (AOR: 2.50; 95% CI: 1.88, 4.99), had own domestic animals (AOR: 2.11; 95% CI: 1.26, 3.54), enrolled in Safety net program (AOR: 2.80; 95% CI: 1.52-5.15) and who had good knowledge about

CBHI (AOR: 3.16; 95% CI: 2.08,4.45) were more likely significant factors of CBHI enrolment (Table 2).

Table 2. Factors affecting community based health insurance enrolment in Degadamot district, Ethiopia (n=736).

Variable	Categories	Enrolment of CBHI		COR (95% CI)	AOR (95% CI)
		Yes	No		
Age in years	20-29 years	42	51	0.81 (0.44-0.92)	0.63 (0.32-0.89)*
	30-39 years	204	73	2.73 (1.63-4.56)	1.78 (1.13-3.21)**
	40-49 years	104	44	2.31 (1.31-4.05)	1.64 (1.11-3.18)**
	50-60 years	101	38	2.59 (1.45-4.62)	181 (1.04-3.52)*
	60-70 years	40	39	1	1
Sex	Male	404	189	1.38 (0.94-2.01)	
	Female	87	56	1	
Family size of household	Less than 5 members	194	145	1	1
	5 and above members	297	100	2.22 (1.62-3.03)	2.06 (1.43-2.95)***
Educational status	No formal education	16	26	1	1
	Primary education	113	53	3.46 (1.85-6.78)	2.10 (1.43-295)**
	Secondary and above education	362	166	3.54 (1.72-6.70)	2.50 (1.88-4.99)*
	No	69	80		
Own domestic animals	Yes	450	59	3.48 (2.26-5.37)	2.11 (1.26-3.54)***
	No	41	186	1	
Wealth status	Poorest	55	48	0.83 (0.39-1.77)	
	Poorer	22	16	1.03 (0.52-2.08)	
	Middle	113	80	2.40 (1.18-4.89)	
	Richer	116	45	1.88 (0.90-3.89)	
	Richest	185	56	1	
Enrolled in safety net	Yes	73	17	2.34 (1.35-4.7)	2.80 (1.52-5.15)***
program	No	418	228	1	1
Knowledge about CBHI	Good	286	111	3.94 (2.23-5.02)	3.16 (2.08-4.45)***
	Poor	134	205	1	1

Discussion

The purpose of the study identified factors associated with CBHI enrolment in Degademot district west Gojjam zone. In parallel to this, the magnitude of CBHI in the study area was also assessed. This study showed that the magnitude of CBHI enrolment among participants was 66.7% (63.2%–70.1%) in Degadamot District, West Gojjam Zone, Ethiopia. This finding was comparable with studies done in Akaki district, Oromia (66.3%), and Debub Benchi district (67%). This study was lower than national plan (80%) of Ethiopia. On the other hand, the proportion of CBHI enrolment in this study was higher when compared with other similar studies done in Bassona Worena District in the North Shewa Zone, Gida Ayanan

District, Oromia Region, West Ethiopia, and Uganda. This might reflect different methodologies, access to information, sample size, and study population. Furthermore, there is a lack of managerial commitment at the lowest levels [14,15].

In this study, household heads aged 20-29 years were 37% less likely to use CBHI than those aged 60-70 years, while those aged 30-39 years (1.78 times), 40-50 years (1.64 times), and 50-60 years (1.04 times) were more likely to enrol CBHI than those aged 60-70 years. This finding was consistent with Jimma zone, 60-year-old and older households were more likely to use CBHI than younger households, and Ethiopian MEDHS, 2019 [16-18]. However, this finding was not consistent with studies in the Gidda Ayana district. This

disparity could be attributed to a time difference in studies and socio-demographic factors, as well as a misunderstanding of the CBHI benefit package.

In this study, households with five or more members (2.06) were more likely to enrol CBHI than households with fewer than five members. This study was in agreement with studies conducted in Fogera district, Southern Ethiopia, Bugna district, and Sabata district of Ethiopia [19,20]. The inconsistent study in Akaki district, Oromia, found that families with less than five members had a 3 times higher CBHI enrolment rate when compared to those with more than five members. This difference might be due to time study differences, understanding the benefits of the CBHI, or sociodemographic factors.

This study demonstrated that participants who had primary education (2.10 times) and secondary or higher education (2.5 times) were four times more likely to be CBHI members than those who did not have formal education. This study was in agreement with a study conducted in Ethiopia, Kenya, and Sri Lanka. The possible explanation is education improves the understanding of health services.

In this study, those enrolled in the safety net program had 2.80 times more likely CBHI enrolment when compared to those who had not enrolled. The finding is consistent with a study in Ethiopia and Nigeria. It demonstrates that taking part in the safety net program increases the likelihood of taking CBHI. The rationale may be that low-income households prefer to sign up for CBHI because they cannot afford high out-of-pocket costs or because their CBHI premium is waived as a result of their low income.

This study found that respondents who had good knowledge of CBHI were 3.16 times more likely to enrol community-based health insurance than those who had not. This study was in agreement with the findings of another studies. This could be due to being knowing of the benefits of enrolling in CBHI and its impact on health-seeking behaviour. This study is also inconsistent with studies done in Ethiopia and Nigeria. The difference might be in the efforts of concerned bodies to create awareness, the timing of the scheme's launch in the study area, and the study period.

Limitation of the study

The study was used cross sectional study design, which could not show the cause and effect relationships among CBHI enrolment and associated factors. In addition, study might be prone to social desirability and information bias.

Conclusion

Factors affecting community based health insurance enrolment, such as, age, family size, residence, educational status, domestic animals, being enrolled in the safety net program, and had knowledge about CBHI were associated with CBHI enrolment. As a result, this study recommends that the district health office serve as a strong monitoring and evaluation system for local-level information dissemination about the

CBHI scheme's benefits, strategies to deliver c health education to increase their knowledge, about CBHI special considerations for young age people, community based education and collaboration with social security sectors. This study will serve as a baseline for future studies on this topic to investigate the low CBHI enrolment. These findings suggest that policy makers, providers, and CBHI schemes need to prepare strategies to improve CBHI knowledge.

Consent for Publication

Not applicable.

Availability of Data and Materials

The datasets generated during the current study are available from the author on reasonable request.

Competing Interests

The author declares no competing interests.

Funding

Not applicable.

Author Contribution

MB came up with the concept for the study and wrote the framework. MB contributed to the study design and statistical analysis, critically revised the research, edited the manuscript, and delivered the final edition. The final manuscript was read and approved by the author.

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