Community-based Health Insurance Coverage, Drop-out Rates and Associated Factors Among Households in Selected Districts of West Shewa Zone, Ethiopia

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Acronyms

CBHI	Community-based health insurance
LMIC	Low-and middle-income countries
COR	Crude odds ratio
AOR	Adjusted odds ratio

Abstract

Background: In countries where governments are unable to subsidize health care coverage and large segments of the population cannot afford to purchase formal health insurance, community-based health insurance (CBHI) has been advanced as an alternative means of financial protection and a way to increase health care access for the poor.

Objective: To examine community-based health insurance coverage, drop-out rates and associated factors among households in West Shewa zone, Ethiopia.

Methods: We conducted a community-based, cross-sectional study. A multi-stage sampling technique was used to select 610 households. Data were collected using a structured questionnaire and bivariate and multivariate logistic regression analyses were employed to determine the associations between demand-side characteristics of study participants and outcome indicators of interest.

Results: Thirty-three percent of the study participants had ever joined a community-based health insurance scheme, 22.1% were currently enrolled and 38% had dropped out. Sixty-nine percent of participants were willing to join a community-based health insurance scheme in the future. The main reason for dropping out was the limited benefits offered by the program. Coverage was positively associated with older age (AOR = 1.931, 95% CI = 1.225-3.044) and larger household size (AOR = 1.910, 95% CI = 1.212-3.011) and negatively associated with the absence of chronic illness in the household (AOR = 0.159, 95% CI = 0.100-0.252) and poor perceived health status of a household member with a chronic illness (AOR = 0.534, 95% CI = 0.312-0.914). Dropping out was negatively associated with the absence of chronic illness in the household (AOR = 0.266, 95% CI = 0.106-0.478).

Conclusion: Our study showed that household coverage for community-based health insurance in West Shewa zone was low, with over a third of participants dropping out. We recommend that the Ethiopian Health Insurance Agency, the Federal Ministry of Health and regional and local health insurance agencies improve the benefits package to encourage greater participation.

Background

Introduction

Out-of-pocket expenditure on health care drives 100 million people into extreme poverty each year (1). Thus, universal health coverage - the idea that everyone should have access to quality health services without risking impoverishment or financial ruin - has gained momentum in the international health and development community over the past two decades. In countries where governments are not able to subsidize health care coverage and large segments of the population cannot afford to purchase formal health insurance, community-based health insurance (CBHI) has been advanced as an alternative means of financial protection and a way to increase health care access for the poor (2).

CBHI is premised on the ideals of mutual aid and community self-determination. It is a voluntary, non-profit insurance scheme where community members pool and allocate resources, share risks, negotiate with providers and manage the operation of the scheme (3-4). Waelkens et al. argue (3) that membership is an indicator of the success of CBHI schemes because participation is voluntary. Membership, in turn, is measured as the proportion of the target population that is insured and up-to-date with payments (3). The renewal rate (the proportion of those enrolled who renew subscriptions) indicates satisfaction with the scheme (3), whereas the drop-out rate suggests the opposite.

CBHI schemes have been operating in sub-Saharan African since the 1990s (3). However, enrollment and retention have been a problem (5-6). In 2006, only 2 million out of an estimated 900 million people were enrolled in a CBHI scheme in Africa (7). A recent systematic review of the literature on CBHI coverage in low-and middle-income countries shows that supply and demand side factors impact enrollment (2). Dror et al. (2) found positive associations between enrollment and the socio-economic status and size of households, as well as the educational level and age of household heads in sub-Saharan Africa. On the supply side, trust in the management of a scheme, quality health services and proximity to a health care facility were positively associated with enrollment and renewal (2). Mebratie et al., in their study of drop-out rates in Ethiopia, highlighted three additional factors that contributed to CBHI renewal: the cost of premiums, health status and understanding of health insurance (6).

Significance and objective of study

In June 2011, the Ethiopian government launched a pilot CBHI scheme intended to increase access to health care and reduce vulnerability to out-of-pocket expenditure on health services. The pilot started in 13 districts of Tigray, Amhara, Oromia, and Southern Nations, Nationalities and Peoples' Region and was scaled up to 161 districts three years later (8). By 2015/16, 7.4% of the country's total population had health insurance (9). CBHI schemes made up 96% of all health insurance coverage (9).

Despite the growth of community-based health insurance in Ethiopia, few studies have examined household participation and the reasons that households either choose to renew or drop their coverage. Understanding these issues is imperative for the development of the health insurance sector in Ethiopia. This study aims to examine community-based health insurance

coverage, drop-out rates and associated factors among households in West Shewa zone, Ethiopia.

Methods

Study design and setting

A community-based, cross-sectional study was conducted in February 2018 in four districts of West Shewa zone that were implementing a community-based health insurance scheme. West Shewa is one of 18 zones in Oromia regional state. The zone consists of 22 rural districts and one urban administrative area. In 2013, four districts were selected as pilot areas for a community-based health insurance project. Two years later, an additional seven districts were added to the pilot. A total of 267,111 households were located in the 11 pilot districts (10).

Sample size

A single population proportion formula was used to determine the sample size. Assuming a 95% confidence interval, a 5% margin of error and 18% of households drop out of the insurance scheme, we calculated a sample size of 227 households. Additionally, considering a design effect of 2 and a non-response rate of 10%, the final sample size was determined to be 610 households.

Sampling

A multi-stage sampling technique was used to select the study participants. Among the 11 districts that were implementing a community-based health insurance scheme, four (Jibat, Bako, Gindabarat and Ada'a Berga) were randomly selected using the lottery method. A list of all the kebeles (communities) in the selected districts, including, when possible, the total number of households in each kebele, was obtained from the district health offices. Thirty-percent of kebeles were then randomly selected from each of the four districts using the lottery method and the total number of households to be selected from each kebele was calculated using proportional probability to size. Finally, the sample households were selected from each kebele through systematic random sampling. The study population was all households in the selected kebeles in which neither the husband nor wife were government employees.

Data collection

Data were collected using a structured questionnaire divided into three parts: socio-demographic characteristics, insurance status and reasons for not renewing insurance membership. The questionnaire was tested in a comparable setting, outside of the study area, and feedback was incorporated into the final tool. Data collectors and supervisors received training on the questionnaire as well as proper data collection procedures to enhance the quality of data collection.

Study variables

Outcome variables:

- Community-based health insurance coverage
- Community-based health insurance dropout

Predictor variables:

- Demand-side characteristics, including age, sex, marital status, educational level, household size, occupation, presence of chronic illness in household and perception of health status.

Operational definitions

- CBHI coverage: study participants who reported that their households had ever been members of a community-based health insurance scheme.
- CBHI dropout: study participants who reported that their households were ex-members of a community-based health insurance scheme.

Data analysis

Data were checked for completeness and consistency, coded and entered into EpiData and exported into SPSS (version 21.0) for final analysis. Frequencies and percentages were used to summarize the variables. We used bivariate logistic regression analysis to determine the associations between predictor and outcome variables. All variables in the bivariate analyses that were significantly associated at a p-value of 0.05 or less were entered into a multivariate logistic regression model to control for potential confounders. An adjusted odds ratio with a 95% confidence interval (CI) and a p-value of 0.05 or less was considered statistically significant in multivariate logistic regression analyses.

Ethical considerations

Ethical clearance was obtained from Ambo University's Ethical Review Committee. We also received an official letter of co-operation from the health department in West Shewa zone and letters of support from participating district health offices. Study subjects were notified that participation was voluntary and that their responses would be kept confidential. Written consent was sought from participants.

Results

Characteristics of study participants

Five hundred eighty-seven households participated in the questionnaire out of a sample of 610, resulting in a 96.2 % response rate. The mean age of the respondents was 36 years. The majority were male, married and farmers by occupation. Nearly two-fifths could not read and write. More than half lived in a household with five or less people (mean household size = 5.41), and a fifth of households included a person aged 65 years or older. Seventy-four percent of the respondents said that it was difficult or very difficult for their households to pay the cost of health care services (Table 1).

Table 1. Characteristics of study participants

Variable	Frequency (n = 587)	Percentage (%)
Sex		
Male	362	61.7
Female	225	38.3
Mean age		
<=36	336	57.2
>36	251	42.8
Marital status		
Married	501	85.3
Separated/Divorced	64	10.9
Widowed	22	3.7
Household size		
<=5	380	64.7
>5	207	35.3
Household includes member(s) 65 years or older		
Yes	117	19.9
No	470	80.1
If yes, how many?		
One	97	82.9
Two or more	20	17.1
Educational level		
Cannot read and write	221	37.6
Informal schooling (i.e., church school)	206	35.1
Grade 1-8	85	14.5
Secondary school or above	75	12.8
Occupation		
Farmer	380	64.7
Housewife	158	26.9
Merchant	49	8.3
Household's ability to cover health care costs		
Very difficult	212	36.1
Difficult	223	38
Not difficult	152	25.9

Coverage of community-based health insurance

Table 2 presents coverage data. Among study participants, 33.2% of households had ever joined a CBHI scheme and 22.1% were currently enrolled. The majority wanted to renew their membership and 88.4% had already renewed their membership once or twice. Sixty-five percent paid for the premium without support from the government and nearly three-quarters had to sell capital assets or borrow money to pay the premium.

Among those who had never joined, 69.4% were interested in enrolling in a CBHI scheme and the slightly more than half (51.7%) were willing to do so to help family members (Table 3). Nearly half those who were not willing to join said that out-of-pocket payment was better and 40.7% thought that the proposed CHBI premium was high (Table 3).

Table 2. CBHI participation in selected districts of West Shewa zone

Variable	Frequency (n)	Percentage (%)
Ever joined CBHI		
Yes	195	33.2
No	392	66.8
Current member of CBHI		
Yes	130	22.1
No	457	77.9
Want to renew (n = 130)		
Yes	80	61.5
No	50	38.5
Number of times membership has been renewed (n = 121)		
Once	57	47.1
Twice	50	41.3
Three times	14	11.6
Party responsible for payment of insurance premium (n = 175)		
Household	113	64.6
Government	62	35.4
Means of covering cost of premium (n = 133)		
Sell capital assets	65	48.9
Borrow money	30	22.6
Withdraw money from bank account	20	15
Receive assistance from relatives	18	13.5

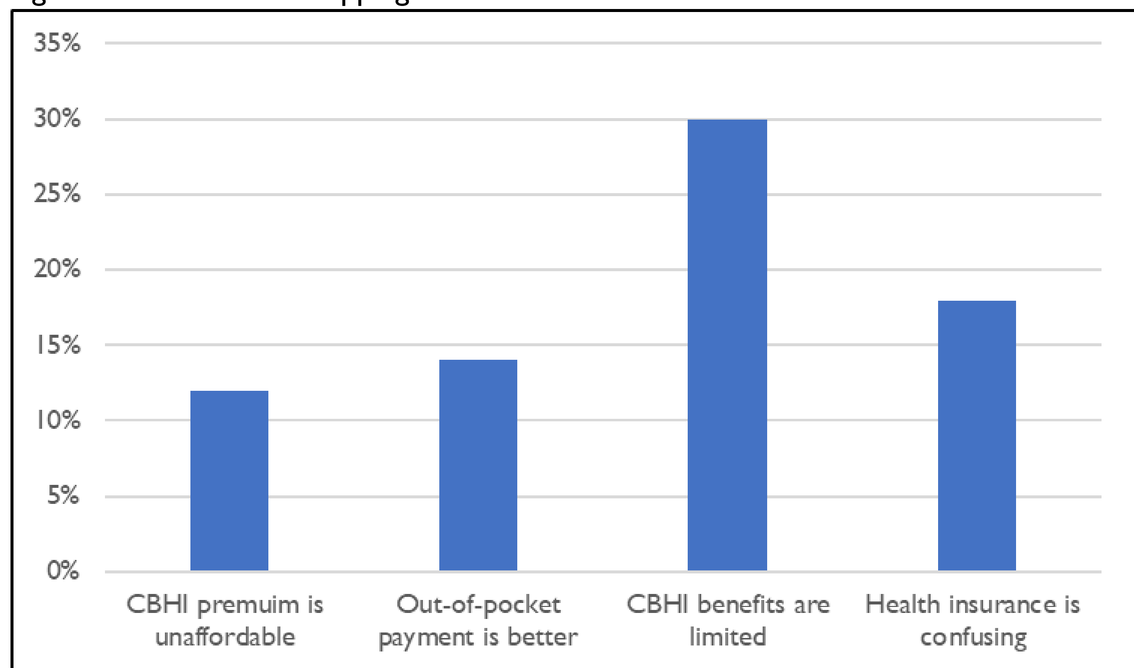
Table 3. Perception of CBHI among study participants who had never joined

Variable	Frequency (n)	Percentage (%)
Willing to join CBHI (n = 457)		
Yes	317	69.4
No	140	30.6
If yes, why?		
Help family members	164	51.7
Experience frequent health problems	87	27.4
Gain free access to medical care	66	20.8
If no, why not?		
Out-of-pocket payment is better	69	49.3
CBHI premium is high	57	40.7
Health insurance is confusing	14	10

Dropout from community-based health insurance

Among the 195 study participants who had ever joined a community-based health insurance scheme, 38% (n = 74) had dropped out. Thirty percent of those who dropped out cited the limited benefits of the program as the main reason (Figure 1).

Figure 1. Reasons for dropping out of CBHI in selected districts of West Shewa zone



Factors associated with community-based health insurance coverage

Bivariate logistic regression analysis showed statistically significant and positive associations between age, marital status, household size and CBHI coverage (Table 4). The presence of chronic illness in the household and the perception of poor health status with chronic illness were negatively associated with coverage (Table 4). Sex and occupation did not result in significant associations.

Multivariate logistic regression analysis revealed that older age and a larger household were positively associated with CBHI enrollment. Study participants who were above the average age of 36 were nearly twice as likely to join a health insurance scheme compared to younger participants (AOR = 1.931, 95% CI = 1.225-3.044). Households with more than five people were also twice as likely to join (AOR = 1.910, 95% CI = 1.212-3.011). Households without a member with chronic illness were .159 times (95% CI = 0.100-0.252) less likely to enroll than households with chronic illness. Households that had a family member with chronic illness whose health status was perceived to be poor were .534 less likely to enroll (95% CI = 0.312-0.914) (Table 4).

Table 4. Association between CBHI coverage and demand-side variables

Variable	CBHI coverage		COR, 95% CI	AOR, 95% CI	p-value
	Yes (%)	No (%)			
Age					
<=36	55 (42.3)	281 (61.5)	1*	1*	
>36	75 (57.7)	176 (38.5)	2.177, 1.466-3.234	1.931, 1.225-3.044	0.005
Marital status					
Widowed/divorced	7 (5.4)	59 (12.9)	1*	1*	
Married	123 (94.6)	398 (87.1)	2.605, 1.160-5.851	1.619, 0.666-3.937	0.228
Household size					
<=5	65 (50.0)	315 (68.9)	1*	1*	
>5	65 (50.0)	142 (31.1)	2.218 1.492-3.299	1.910 1.212-3.011	0.005
Presence of chronic illness in household					
Yes	89 (68.5)	122 (26.7)	1*	1*	
No	41 (31.5)	335 (73.3)	0.168, 0.110-0.256	0.159, 0.100-0.252	0.000
Perception of health with chronic illness					
Good	104 (80.0)	317 (69.4)	1*	1*	
Poor	26 (20.0)	140 (30.6)	0.566, 0.353-0.909	0.534, 0.312-0.914	0.022

Factors associated with dropout from community-based health insurance

Sex, age, marital status, household size, occupational status and educational level were not significantly associated with dropout in the bivariate logistic regression analysis. Controlling for potential confounders, we found that the presence of an elderly person (65 years or older) in the household was not significantly associated with dropping out of a CBHI scheme, and households that did not experience chronic illness were .226 times less likely to drop out (95% CI 0.106-0.478) (Table 5).

Table 5. Association between CBHI dropout and demand-side variables

Variable	CBHI drop out		COR, 95% CI	AOR, 95% CI	p-value
	Yes (%)	No (%)			
Household includes member(s) 65 years or older					
No	54 (73.0)	103 (85.1)	1*	1*	
Yes	20 (27.0)	18 (14.9)	2.119, 1.035-4.341	1.859, 0.759-4.553	0.175
Presence of chronic illness in household					
Yes	30 (40.5)	89 (73.6)	1*	1*	
No	44 (59.5)	32 (26.4)	4.079, 2.205-7.547	0.226, 0.106-0.478	0.000

Discussion

Our study assessed community-based health insurance coverage, drop-out rates and associated factors among households in selected districts of West Shewa zone, Ethiopia. We found that 33.2% of study participants had ever joined a CBHI scheme and 22.1% were currently enrolled. Sixty-five percent paid for the premium without support from the government and nearly three-quarters had to sell capital assets or borrow money to cover the cost of the premium. Thirty-eight percent of respondents had dropped out of the scheme, citing limited benefits from the program as the main reason. Among those who had never joined, 69.4% expressed interest in enrolling.

Our finding for enrollment was lower than a study conducted in West Gojjam zone, northwest Ethiopia, (58%), but higher than the overall enrollment rate in Oromia region (36.1%) in 2013 (11, 8). Studies in other parts of Ethiopia showed a stronger willingness to join CBHI schemes: 78% in Jimma zone and Debub Bench (both in southwest Ethiopia) and 80% in the Fogera district of northwest Ethiopia (12-14). These disparities may be due to differences in efforts to raise awareness about insurance schemes and better socio-economic circumstances in areas outside West Shewa zone. The researchers' approach to data collection may also explain differences in respondents' willingness to join: providing information about the workings of a community-based health insurance scheme prior to data collection may heighten study participants' desire to join.

Enrollment was positively associated with age and household size and negatively associated with the absence of chronic illness in the household and poor health status of a household member with chronic illness. In our study, household heads who were older than the average age of study participants were almost twice as likely to enroll compared to younger participants. Our finding was consistent with two systematic reviews that found that older household heads were more likely to enroll in sub-Saharan Africa than younger ones (2,5). Larger family size was also associated with enrollment in our study. This finding was supported by one of the systematic reviews (2) and the study conducted in West Gojjam zone (11). A positive association between larger family size and CBHI enrollment could be a result of the financial burden that large households face when attempting to pay for health care out of pocket.

We also found that households that did not experience chronic illness were less likely to join an insurance scheme than those that did. This is consistent with the study from Gojjam that, conversely, found a positive association between the presence of chronic illness in a household and CBHI enrollment. It seems reasonable to assume that households without chronic illness have less need to access health care services, and thus, are less likely to enroll in an insurance plan. However, our study also found that households that had a family member with a chronic illness whose health status was perceived to be poor were also less likely to enroll than those who perceived the health status of their ill family member to be good. This may be explained by our finding that participants who dropped out of the local CBHI were not satisfied with the benefits of the scheme. Since poor health status typically requires greater health care utilization, it is possible that households with sicker members were less likely to enroll because they could not obtain desired health services through the scheme.

Dropout from the CBHI was negatively associated with not having a chronically ill household member: households that did not experience chronic illness were .226 times less likely to drop out. Again, this may be explained by the quality and type of benefits available through the CBHI scheme in West Shewa zone. In contrast, a study examining CBHI dropout in four regions of Ethiopia found that the presence of chronic illness in a household was associated with a decreased likelihood of dropping out (6).

Conclusion and recommendation

The study showed that household coverage for community-based health insurance was low in West Shewa zone. Over a third of participants dropped out, citing the limited benefits of the scheme as the main reason. We recommend that the Ethiopian Health Insurance Agency, the Federal Ministry of Health and regional and local health insurance agencies improve the benefits package of the scheme.

References

1. World Health Organization. *Universal health coverage (UCH)*. Available from: https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc).
2. Dror DM, Hossain SAS, Majumdar A, Perez Koehlmoos TL, John D, Panda PK. What Factors Affect Voluntary Uptake of Community-Based Health Insurance Schemes in Low- and Middle-Income Countries? A Systematic Review and Meta-Analysis. *PLoS ONE*. 2016;11(8): 1-36. Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0160479.
3. Waelkens M-P, Coppieters Y, Laokri S, Criel B. An in-depth investigation of the causes of persistent low membership of community-based health insurance: a case study of the mutual health organization of Dar Naïm, Mauritania. *BMC Health Services Research*. 2017;17(535): 1-18. Available from: https://doi.org/10.1186/s12913-017-2419-5.
4. De Allegri M, Sauerborn R, Kouyaté B, Flessa S. Community health insurance in sub-Saharan Africa: what operational difficulties hamper its successful development? *Tropical Medicine and International Health*. 2009;14(5): 586–596. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-3156.2009.02262.x.
5. Adebayo EF, Uthman OA, Wiysonge CS, Stern EA, Lamont KT, Ataguba JE. A systematic review of factors that affect uptake of community-based health insurance in low-income and middle-income countries. *BMC Health Services Research*. 2015;15(543): 1-13. Available from: https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-015-1179-3.
6. Mebratie AD, Sparrow R, Yilma Z, Alemu G, Bedi A. Dropping out of Ethiopia's community-based health insurance scheme. *Health Policy and Planning*. 2015;30(10): 1296-1306. Available from: https://doi.org/10.1093/heapol/czu142.
7. Joint NGO Briefing Paper. *Health insurance in low-income countries: Where is the evidence that it works?* Oxfam International, Médecins du Monde, Save the Children UK, Plan, Global Health Advocates, Act Up Paris. Report number:112, 2008. Available from: https://www-cdn.oxfam.org/s3fs-public/file_attachments/bp112_health_insurance_0805_4.pdf.
8. Ethiopian Health Insurance Agency. *Evaluation of Community-Based Health Insurance Pilot Schemes in Ethiopia: Final Report.* Ethiopian Health Insurance Agency. 2015. Available from: https://www.hfgproject.org/wp-content/uploads/2015/05/CBHI-Evaluation-5-2015.pdf.
9. Federal Democratic Republic of Ethiopia Ministry of Health. *Ethiopian Health Accounts Household Health Service Utilization and Expenditure Survey Brief 2015/2016*. Federal Democratic Republic of Ethiopia Ministry of Health. 2017. Available from: https://cdn1.sph.harvard.edu/wp-content/uploads/sites/2031/2017/01/Ethiopian-Household-Survey-Report-Brief-FINAL.pdf.
10. West Shewa Zone. *Annual Zonal Report*. 2017.
11. Mirach TH, Demissie GD, Biks GA. Determinants of community-based health insurance implementation in west Gojjam zone, Northwest Ethiopia: a community based cross sectional study design. *BMC Health Services Research*. 2019;19(544): 1-8. Available from: https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-019-4363-z.
12. Garedew MG, Sinkie SO, Handalo DM, Salgedo WB, Kehali KY, Kebene FG, Waldemarium TD, Mengesha MA. Willingness to Join and Pay for Community-Based Health Insurance Among Rural Households of Selected Districts of Jimma Zone, Southwest Ethiopia. *ClinicoEconomics and Outcomes Research*. 2020;12: 45-55. Available from:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6980847/pdf/ceor-12-45.pdf.

13. Haile M, Ololo S, Megersa B. Willingness to join community-based health insurance among rural households of Debub Bench District, Bench Maji Zone, Southwest Ethiopia. *BMC Public Health*. 2014;14(591): 1-10. Available from: https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-14-591.
14. Kebede A, Gebreslassie M, Yitayal M. Willingness to pay for community-based health insurance among households in the rural community of Fogera District, North West Ethiopia. *International Journal of Economics, Finance and Management Sciences*. 2014;2(4): 263-269. Available from: 10.11648/j.ijefm.20140204.15.