EJED 2024 6(2):59–71
Ethiopian Journal of Environment and Development
http://www.du.edu.et/duj

Determinants and Challenges of Enrollment in Community-Based Health Insurance in Southern Ethiopia

Getasew Berhanu Melese[1], Mary Abera Debisa[2]*, Tekuamwork Demisse[2], and Yodit Abebe Mamo[2]

[1]*College of Natural and Computational Sciences, Dilla University, Dilla, Ethiopia,*
[2]*Department of Public Administration and Development Management, College of Business and Economics, Dilla University, Dilla, Ethiopia*
Corresponding author; Email: signoritamarya@gmail.com

Received: 10th October 2024 *Accepted: 15th December 2024*

Article DOI: **10.20372/ejed.v06i2.05**

Abstract

Since 2011, Ethiopia has been implementing the Community-Based Health Insurance (CBHI) scheme in various regions to enhance universal health coverage by reducing out-of-pocket expenses for low-income families and to promote healthcare access for poorer households. The purpose of this study is to examine household enrollment and non-enrollment decisions, as well as the main challenges in implementing the program. A multi-stage sampling process was employed to select the participating households. Study subjects were chosen through simple random selection based on population proportions (PPS). Primary data was gathered using a pretested questionnaire. To support the quantitative findings, interviews with CBHI specialists and focus group discussions (FGDs) with both members and non-members of CBHI were conducted. Data analysis was performed using STATA version 15 and SPSS version 20, employing both descriptive and inferential statistics. Of the total respondents, 42.7% were enrolled in the CBHI program, while 57.3% were not. To understand the primary determinants of CBHI enrollment, 15 variables were identified. Factors such as residence, illness, family size, occupation, attitude, awareness, information, payment fairness, service quality, and drug availability were found to be significant in relation to CBHI enrollment in the multivariable analysis ($P < 0.05$). The main challenges identified in the program include poor service delivery and long waiting times, among others. The study revealed the factors influencing enrollment and non-enrollment in the CBHI scheme, as well as its key implementation challenges. It is essential for the government to collaborate with relevant organizations to address the barriers faced by low-income households in enrolling in the program and to find solutions to the challenges of its implementation.

Keywords/Phrases: Challenges, Community-based Health Insurance, Enrollment, Implementation, Low Income Family, Non-enrollment, Southern Ethiopia, Universal Health Coverage

1 Introduction

Community-Based Health Insurance (CBHI) provides healthcare services for individuals living and working in rural areas or the urban informal sector who cannot access public, private, or employer-sponsored health insurance. It is an alternative financing method that is controlled, established, and managed by members through their contributions (Abdilwohab *et al.*, 2021; Dagnaw *et al.*, 2022; Tabor, 2005).

Designing adequate health financing systems in developing countries, particularly low-income ones, remains a challenge and is the subject of ongoing discussion (Adeniyi-Jones, 1976). This is largely due to limited economic resources, slow economic growth, restrictions within the public sector, and low

organizational capacity.

The Ethiopian healthcare system is characterized by high out-of-pocket costs, increasing healthcare demands, difficulties in mobilizing health resources among rural populations, and an inability to fully recover the costs of care incurred by beneficiaries (Mariam, 2001). These payments cover expenses for goods and services from pharmacies, traditional providers, private providers, public facilities, and services abroad.

Like many countries, Ethiopia's heavy reliance on out-of-pocket spending forces individuals and households to either forgo necessary medical care-potentially worsening health conditions-or incur expenses that heighten the risk of poverty (Bank, 1993; Organization, 2000). In response, the country launched a pilot program for CBHI in 2011, which saw impressive adoption rates, reaching 41% in its first year. However, 18% of households who enrolled in the initial year ceased their payments the following year (Mebratie *et al*., 2015).

Ethiopia is committed to achieving Universal Health Coverage (UHC), which involves providing high-quality healthcare services that are equitable and accessible to everyone. The country is working to develop a comprehensive and sustainable risk protection system with health financing mechanisms tailored to its needs, particularly in the informal sector, which comprises over 85% of the population (Agency, 2015a).

Primary healthcare funding is a structural component of health systems essential for establishing UHC (Abdilwohab *et al*., 2021). This funding involves three interconnected functions: resource allocation (including purchasing and paying for services), mobilization and collection of funds, and pooling of prepaid resources (Evans & Etienne, 2010). UHC aims to eliminate financial barriers that prevent individuals from accessing necessary medical care, which is vital for maintaining a healthy and productive society. Mechanisms like CBHI are potential instruments for achieving UHC by providing health security through risk-sharing (Abdilwohab *et al*., 2021).

CBHI is part of the Ethiopian government's broader healthcare financing reform strategy, aimed at promoting financial protection, cost-sharing between government and citizens, equitable access to healthcare, and social inclusion in health and domestic resource mobilization (Solomon, Hailu, & Tesfaye, 2011). Based on the principles of mutual aid and social solidarity, CBHI targets individuals in rural and urban informal sectors who lack access to traditional insurance options. It is a member-controlled funding method designed to reduce unpredictable or high healthcare costs to regular premium payments (Chankova, Sulzbach, & Diop, 2008; Tabor, 2005; Uzochukwu *et al*., 2010).

In line with the Ethiopian Health Policy ratified in 1993, the Ministry of Health developed a healthcare funding plan that emphasizes health insurance. The government aimed to reduce out-of-pocket spending from 37% to less than 15% and catastrophic health expenditures from 3.5% to 2.5% by implementing the CBHI program in 80% of districts. However, according to the 2016 Ethiopian Demographic and Health Survey (EDHS), only 5% of villages were registered in the program, reflecting regional disparities. Performance statistics also indicated that only two million, or 0.2%, of the 900 million eligible individuals participated in community insurance (De Allegri *et al*., 2008; Ekman, 2004; Wang & Pielemeier, 2012).

2 Problem statement

Community-Based Health Insurance (CBHI) can help fulfill the World Health Assembly's call for universal health coverage, particularly in low-income countries (LICs) where significant inequities exist in healthcare delivery (De Allegri *et al*., 2006; Tien *et al*., 2005). As financial risk protection is a critical component of UHC, Ethiopia began implementing a comprehensive and sustainable CBHI scheme in 2011. While the CBHI system protects members from catastrophic health expenditures, improving the quality of health services is essential for increasing member satisfaction and meaningfully advancing UHC (Ridde *et al*., 2018).

Approximately 84% of the world's population resides in developing countries, where at least 50% live in poverty. The 1.3 billion rural poor workers in the informal sector contribute to 20% of the world's GDP (Taddesse *et al*., 2020). Thus, the significance

of health insurance for impoverished and marginalized communities is undeniable.

Low levels of health insurance coverage are prevalent in Sub-Saharan Africa (Zhao *et al*., 2014). The formal sector, which constitutes about 10% of the population, is largely the only group with access to existing health insurance systems (Wiesmann & Jütting, 2000). Most low-wage workers in Africa's informal sector and self-employed rural residents have never accessed social protection linked to health insurance programs (Basaza *et al*., 2009). Community-based health insurance (CBHI) is emerging as a viable option to enhance access to primary healthcare.

Out-of-pocket medical expenses severely impact the financial stability of lower socioeconomic groups, leading to poor living conditions. Globally, over 150 million households face financial hardship due to healthcare costs, with approximately 25 million falling into extreme poverty each year. In Sub-Saharan Africa, where resources are limited, over 90% of healthcare-related financial issues arise (Maeda *et al*., 2014; Xu *et al*., 2007). In six Middle Eastern and North African countries, 7–13% of households experience catastrophic medical expenses (Elgazzar *et al*., 2010). These regions account for 90% of the world's disease burden (Noubiap *et al*., 2014; Pablo & Schieber, 2006; Wang & Pielemeier, 2012).

Despite countries agreeing at the World Health Organization (WHO) General Assembly in 2005 to achieve UHC through risk-pooling mechanisms and reduced out-of-pocket payments, actual healthcare spending remains low, at less than 12% (Gottret & Schieber, 2006; Pablo & Schieber, 2006; Wang & Pielemeier, 2012). Direct healthcare spending varies, with 42% in Kenya, 27% in Ghana, and 37% in Ethiopia. Implementing health insurance programs could help nations reduce direct healthcare costs (Nimpagaritse & Bertone, 2011). Ethiopia has one of the lowest rates of health service consumption in Sub-Saharan Africa, with inpatient healthcare utilization at just 6% (Leive & Xu, 2008).

In recent years, the Ethiopian population has expressed significant concerns about inadequate healthcare facilities and the financial pressures associated with healthcare (Agency, 2015a; Atnafu *et al*., 2018). Only 1.2% of the population had health insurance through a combination of government and commercial organizations (Atnafu *et al*., 2018).

There is growing interest in how CBHI programs can assist the poor, especially those in the informal sector, in accessing basic healthcare (Agency, 2015a; Mwaura & Pongpanich, 2012). Since 2011, Ethiopia has implemented the CBHI program to improve health outcomes for underprivileged rural residents. However, not all rural households are covered by CBHI, primarily due to low government initiative, lack of awareness, and accessibility issues (Agency, 2015a; Atnafu *et al*., 2018).

Therefore, this study aims to investigate the factors influencing enrollment and non-enrollment in CBHI programs, as well as the challenges faced in their implementation. It seeks to provide potential solutions for the government, policymakers, and other stakeholders by identifying determinant factors, implementation challenges, and proposing actionable recommendations.

3 Materials and Methods

3.1 Study population

The source population comprised all households that had lived in the area for more than six months, while the study population included all household heads in the randomly selected kebeles. Household heads and/or spouses who were employed by the government were excluded from the study.

3.2 Sample size determination and sampling techniques

Using a single population percentage formula and the following assumptions, the sample size was determined to be 847. This was based on an assumed maximum household enrollment rate in the CBHI of 50%, a maximum tolerable error of 5%, a Z-statistic of 1.96, an anticipated non-response rate of 10%, and a design effect of 2.

A multi-stage sampling process was employed to select the participating households. In the first stage, four zones were randomly chosen as the primary sampling units. In the second stage, eight woredas (two from each zone) were randomly selected as sec-

ondary sampling units. Finally, in the third stage, 16 kebeles were randomly chosen from the eight selected woredas. Within each chosen kebele, study subjects (households) were selected through simple random sampling based on population proportions relative to the sample size (PPS).

3.3 Data collection tools and procedures

Data was collected using a pretested, interviewer-administered questionnaire. The survey was developed based on data from the National Health Insurance Agency's CBHI evaluation study in Ethiopia (Agency, 2015b). The English version of the questionnaire was translated into the regional language for data collection. The instrument underwent pretesting on 5% of the actual sample size in two kebeles outside the target area, ensuring that the socio-demographic and other relevant parameters were like those of the study population. Based on the pretest findings, certain items were modified or added, while others that were unclear were clarified. Data collectors and supervisors reviewed the pretest information to enhance their understanding of the data collection process.

Five graduate nurses fluent in the local language and two professional nurses with bachelor's degrees in healthcare participated in the data collection. Face-to-face interviews were conducted after participants were informed about the study's objectives and the importance of their participation. Supervisors, along with the lead investigator, conducted daily checks to ensure that the questionnaires completed by the data collectors were accurate, consistent, and relevant. Any pertinent feedback was communicated to the data collectors the following morning before the regular data collection commenced.

3.4 Method of data analysis

Data review, cleaning, and entry were performed using STATA version 15 and SPSS version 20 prior to analysis. Both descriptive and inferential statistics were employed to evaluate the data. The enrollment status of households in CBHI was presented using frequency distributions, percentages, and graphs in the descriptive statistics.

The correlation between each explanatory factor and the outcome variable (CBHI enrollment status) was assessed using the chi-square test. Factors with a p-value of less than 0.15 in the bivariate analysis were included in the final multivariable logistic regression analysis. The model fit was evaluated using the Hosmer-Lemeshow statistic and the coefficient of deviation, indicating a good fit (P = 0.863).

Potential variables were examined for multicollinearity using the variance inflation factor (VIF) test, with a threshold of 10. No multicollinearity was found, as all candidate variables had a VIF value of 3. To determine the enrollment status of households in CBHI, binary logistic regression was applied. A variable was considered to have a statistically significant association with CBHI enrollment status if its p-value was less than 0.05 in the final model. The strength of the association was evaluated using a 95% confidence interval odds ratio.

3.5 Ethical Considerations

This study received ethical approval from the Institutional Review Board (IRB) of Dilla University, College of Medicine and Health Sciences, in accordance with the Helsinki Declaration. Permission letters were also obtained from the SNNP Regional Health Office, the Zone Health Department, and the Woredas Health Departments. All identifiers of respondents were kept confidential, and the data were anonymized. Following IRB approval, verbally informed consent was obtained from each respondent. Given that most of the study population was from a rural area, literacy levels were assumed based on oral informed consent. Participants retained the right to choose whether to participate in the study, either in whole or in part.

4 Results and Discussion

4.1 Socio-Demographic Characteristics of the respondents

The distribution of CBHI participants according to their demographic and socioeconomic factors is presented in Table 1 above. This study included a total of 847 households, achieving a response rate of 100%. Among the respondents, 306 (36.1%) were households headed by women, while 485 (63.9%) were headed by men. In fact, men typically lead or manage the majority of households in both urban and rural Ethiopia.

Table 1. Socio-demographic characteristics of the respondents

Variables	Category	Frequency	Percent
Gender	Male	541	63.9%
	Female	306	36.1%
Age	less than 34	174	20.5%
	35-39	277	32.7%
	40-50	254	30.0%
	greater than 50	142	16.8%
Residence	Urban	197	23.3%
	semi-urban	232	27.4%
	Rural	418	49.4%
Occupation	farmer	335	39.6%
	Informal sector	157	18.5%
	day laborer	189	22.3%
	unemployed	166	19.6%
Education	no formal education	248	29.3%
	Primary	279	32.9%
	secondary & above	320	37.8%
Family size	1-4	382	61.6%
	5 or more	465	38.4%
Marital status	Single	102	12.0%
	Married	657	77.6%
	Other	88	10.4%
Enrollment Status	Enrolled	362	42.7
	Non-enrolled	485	57.26

Among the respondents, 277 (32.7%) were aged between 35 and 39, making this the most common age group. Additionally, 254 (30%) were under 34, 174 (20.5%) were between 40 and 50, and 142 (16.8%) were over 50. A total of 418 participants (48.4%) primarily resided in rural areas, followed by 232 participants (27.3%) from semi-urban areas and 197 (23.3%) from urban areas.

In terms of occupation, 189 respondents (22.3%) were day laborers, while 335 (39.6%) were farmers. The remaining group included 166 individuals (19.6%) who were unemployed and 157 (18.5%) working in the informal economy. Educationally, 320 households (37.8%) had at least a secondary education, while 248 households (29.5%) had no formal education, and 279 households (32.9%) had only primary education.

Furthermore, 382 participants (61.6%) came from households with fewer than five members, and 657 households surveyed (77.3%) were married. A total of 355 participants (41.9%) reported having been unwell in the past year. Notably, 485 study participants (57.3%) did not have community-based health insurance (CBHI) at the time of the study, while 362 (42.7%) did (see Table 1). These demographic characteristics provide valuable insights into the overall profile of the respondents.

4.2 Determinants of enrollment status of household in community-based health insurance program

Table 2. Determinants of respondents' enrolment in CBHI among bivariate and multivariate logistic regression analysis, Southern Ethiopia

Variables		Enrollment status		COR (95% CI)	AOR(95% CI)
		No	Yes		
Gender	Male	298	243	0.78(0.587, 1.038)	1.213(0.812, 1.81)
	Female	187	119	1	1
Age	Less than	34 114	60	1.697(1.078, 2.673)	0.977(0.505, 1.892)
	35-39	167	110	1.356(0.902, 2.04)	0.956(0.550, 1.663)
	40-50	129	125	0.922(0.611, 1.391)	1.103(0.647, 1.881)
	Greater than	50 75	67	1	1
Residence	Urban	138	59	2.753(1.92, 3.948)	2.185(1.25, 3.817)*
	Semi-urban	155	77	2.369(1.696, 3.31)	1.452(0.887, 2.379)
	Rural	192	226	1	1
Sickness	No	162	193	0.439(0.332, 0.581)	0.401(0.279, 0.575)*
	Yes	323	169	1	1
Education	No formal education	131	117	0.547(0.389, 0.769)	0.961(0.572, 1.615)
	Primary	139	140	0.485(0.348, 0.675)	0.833(0.538, 1.289)
	Secondary and above	215	105	1	1
Family size	1-4	255	127	2.052(1.551, 2.714)	2.024(1.412, 2.903)*
	Five or more	230	235	1	1
Marital status	Single	82	20	2.708(1.415, 5.181)	1.615(0.680, 3.837)
	Married	350	307	0.753(0.478, 1.185)	0.652(0.350, 1.215)
	Other	53	35	1	1
Occupation	Farmer	145	190	0.211(0.138, 0.324)	0.310(0.168, 0.572)*
	Informal sector operator	104	53	0.543(0.331, 0.892)	0.634(0.349, 1.152)
	Day laborer	106	83	0.354(0.222, 0.565)	0.280(0.156, 0.503)*
	Unemployed	130	36	1	1
CBHI attitude	Negative	234	286	0.248(0.182, 0.338)	0.226(0.155, 0.329)*
	Positive	251	76	1	1
CBHI awareness	No	404	350	0.171(0.092, 0.319)	0.170(0.080, 0.360)*
	Yes	81	12	1	1
Information	No information	166	94	0.804(0.523, 1.237)	0.739(0.434, 1.259)
	Health professionals	112	138	0.37(0.241, 0.567)	0.312(0.180, 0.540)*
	Community/religious leaders	106	84	0.575(0.366, 0.902)	0.442(0.249, 0.785)*
	radio/television/magazines	101	46	1	1
Payment fairness	Not fair	331	319	0.292(0.201, 0.423)	0.343(0.219, 0.536)*
	Fair	153	43	1	1
Service availability	Not enough	304	198	1.391(1.055, 1.835)	0.993(0.686, 1.436)
	Enough	181	164	1	1
Service quality	Not good	296	178	1.619(1.229, 2.132)	0.874(1.315, 2.671)*
	Good	189	184	1	1
Drug availability	Insufficient	289	272	0.488(0.362, 0.658)	0.396(0.270, 0.581)*
	Sufficient	196	90	1	

We can identify who is enrolling in CBHI and how insured households differ from uninsured ones by comparing background characteristics between the two groups. Table 2 summarizes the comparison of several household-level factors between CBHI participants and non-participants.

To understand the primary determinant factors of CBHI enrollment, a total of 15 variables were identified. The following variables were significantly associated with CBHI enrollment in the multivariable analysis ($P < 0.05$): place of residence, illness, family size, occupation, attitude, awareness, and information (see Table 2).

The results of the multivariable logistic regression indicate that households in urban areas were 2.185 times more likely to participate in the CBHI program compared to those in rural areas (AOR = 2.185; 95% CI: 1.25, 3.817). Additionally, the likelihood of study participants enrolling in CBHI was significantly lower in families without a member suffering from a chronic illness, compared to those with such a member (AOR = 0.401; 95% CI: 0.279, 0.575).

Families with five or more members were approximately twice as likely to enroll in the CBHI program compared to families with fewer members (AOR = 2.2; 95% CI: 1.503, 3.223).

Farmers and day laborers had a 0.31 (AOR = 0.31; 95% CI: 0.168, 0.572) and 0.28 (AOR = 0.28; 95% CI: 0.156, 0.503) times lower likelihood of enrolling in CBHI, respectively, compared to unemployed individuals.

Participants who received information from health care professionals were 0.312 times less likely (AOR = 0.312; 95% CI: 0.180, 0.540) to enroll in the CBHI scheme compared to those who received information from radio, television, or magazines. Similarly, participants who received information from community, religious, or other leaders were 0.442 times less likely (AOR = 0.442; 95% CI: 0.249, 0.785) to enroll.

The odds ratio for participants with a negative attitude toward CBHI was estimated to be 0.226 (95% CI: 0.155, 0.329). For those unaware of CBHI, the odds ratio was 0.17 (95% CI: 0.080, 0.360), while those who believed that payment was unfair had an odds ratio of 0.343 (95% CI: 0.219, 0.536). Participants who perceived the quality of services as poor had an odds ratio of 0.87 (95% CI: 0.874).

4.2 Discussion

The purpose of this study was to evaluate the factors influencing the implementation of community-based health insurance (CBHI) in southern Ethiopia. According to our data, 42.7% of the 847 households surveyed are covered by a CBHI program. Other studies report different percentages, which may be attributed to variations in study populations, regions, time frames, and methodologies. Some studies focused on healthcare facilities or urban residents, who may be more familiar with the CBHI scheme, while others were conducted in rural areas. Various factors, such as cultural influences, distance from healthcare facilities, geographic obstacles, and lower levels of awareness, may contribute to households lacking knowledge about the CBHI plan.

While comparing the two groups helps to understand the sample, it is essential to control for variations in other characteristics to determine whether a variable is related to enrollment.

Residence: Table 2 lists the factors strongly associated with enrollment based on respondents' neighborhoods. Households in urban areas have a significantly higher likelihood of enrolling in CBHI compared to those in rural regions. Interviews with CBHI specialists indicate that those living in or near cities are more aware of the program and its benefits. Urban residents generally have better access to healthcare services and prefer public hospitals or private care. In contrast, rural households often exhibit poorer attitudes and lower awareness levels, as awareness-raising efforts are less prevalent in rural areas.

Health Status or Illness: As more households experience health issues, the cost of healthcare services increases, prompting them to seek risk-pooling options like insurance. Our findings suggest that households with higher illness rates are more inclined to enroll. Specifically, respondents without a family member with a chronic illness were significantly less likely to join CBHI compared to those with such

a member. This aligns with previous research indicating that households with at least one member having a health issue in the past year are more likely to participate in insurance systems, illustrating the effect of adverse selection on enrollment decisions. This is encouraging from a health perspective, as it indicates that those who need healthcare the most are obtaining insurance.

Family Size: Data indicates that households with five or more members have a much higher likelihood of signing up for CBHI. This is reasonable, as the probability of illness increases with the number of family members, along with the desire to reduce healthcare costs. Larger families also face a greater risk of health issues, increasing the likelihood that at least one member will seek to join risk-pooling institutions. This finding is consistent with earlier studies showing that larger households are more likely to purchase insurance due to the financial burden during health crises.

Occupation: Our findings reveal that farmers and day laborers have a lower likelihood of enrolling in the CBHI program compared to unemployed individuals. Although these groups require health insurance due to their inability to afford healthcare costs, they are less likely to enroll than those without jobs.

Attitude: Participants with a favorable attitude toward the CBHI program were more likely to enroll than those who did not share that perspective. Positive word-of-mouth from enrolled members who receive quality care can influence the perceptions of their neighbors, encouraging them to join CBHI.

Awareness: Low literacy rates and a lack of knowledge about CBHI within the community contribute to low enrollment. Awareness of the program is identified as a key factor influencing CBHI enrollment. Participants with greater knowledge and understanding of the program are more likely to enroll. This finding aligns with other studies indicating that familiarity with insurance concepts simplifies enrollment decisions.

Information: The source of information is a crucial determinant for CBHI enrollment. Individuals who received information from radio or television were more likely to be CBHI members compared to those who received information from healthcare providers or community leaders. This suggests that participants find the information provided by healthcare professionals and community leaders insufficient.

Payment: Participants who believe that payment for the CBHI program is fair are more likely to enroll compared to those who perceive it as unfair.

Service Quality: The quality of services provided by health institutions significantly influences enrollment decisions. Participants who believe that the quality of care offered by healthcare providers is good are more likely to engage with CBHI than those who perceive service quality as poor. This aligns with findings from other studies, as individuals seek high-quality healthcare at reasonable prices when joining the program. Factors such as availability of healthcare professionals, waiting times, and respect from caregivers play important roles in determining membership in the program.

Drug Availability: Individuals who believe there is insufficient access to medications are less likely to enroll in CBHI compared to those who feel that access is adequate. As noted in focus group discussions with members of the enrolled CBHI community, even if the service provider is excellent, the inability to obtain medications from healthcare facilities poses a significant barrier. Participants expressed that they often have to spend additional money to purchase medications that are not readily available.

4.3 Implementation Challenges

CBHI Enrollment Plan

Respondents were asked about their interest in enrolling in the CBHI scheme. Of the 485 households that comprised the non-enrolled participants, 371 (76.5%) expressed a willingness to participate, while the remaining 114 (23.5%) indicated no interest in joining the CBHI program.

Some factors that prevented households from signing up for CBHI included the program's limited coverage (which is primarily concentrated in urban areas), insufficient funds for the annual contribution or the ability to pay out-of-pocket, a lack of desire for frequent healthcare visits, inadequate understanding of the CBHI program, a lack of confidence in its effectiveness, shortages of medications, and general unawareness of the scheme, among others.

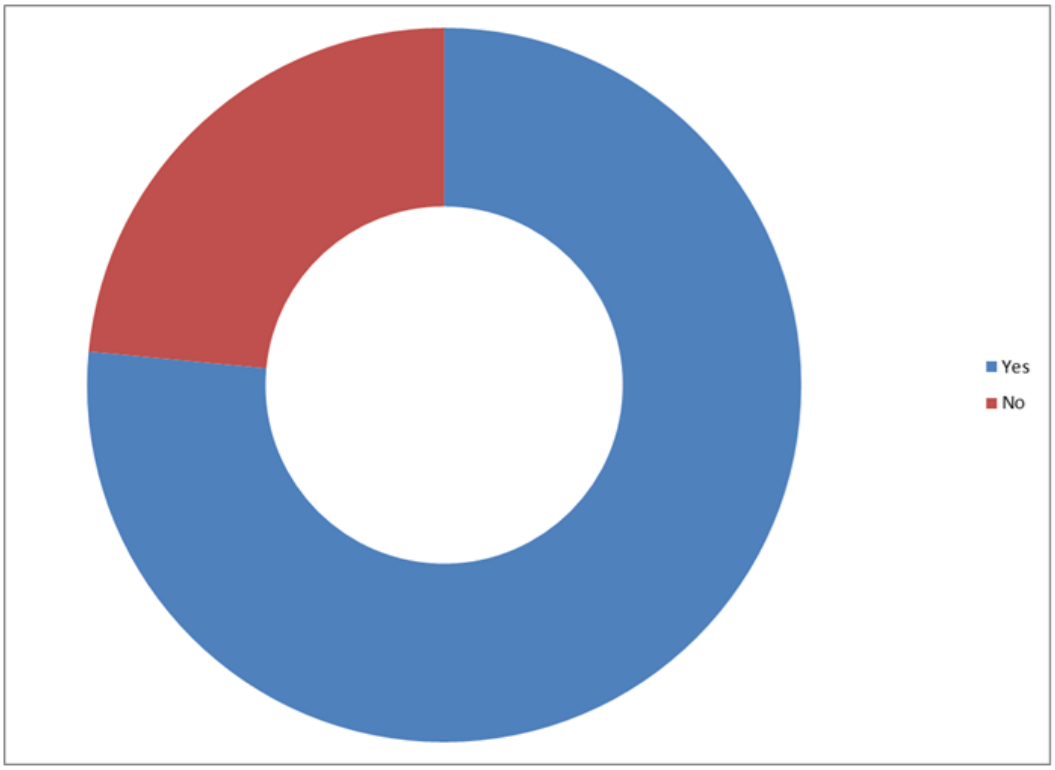

Figure 1. CBHI enrollment plan of the households

Stay in CBHI

According to the statistics below, a significant portion of respondents among the enrolled households expressed a desire to continue using the service. This suggests that the program positively impacts the health status of these households in relation to their needs.

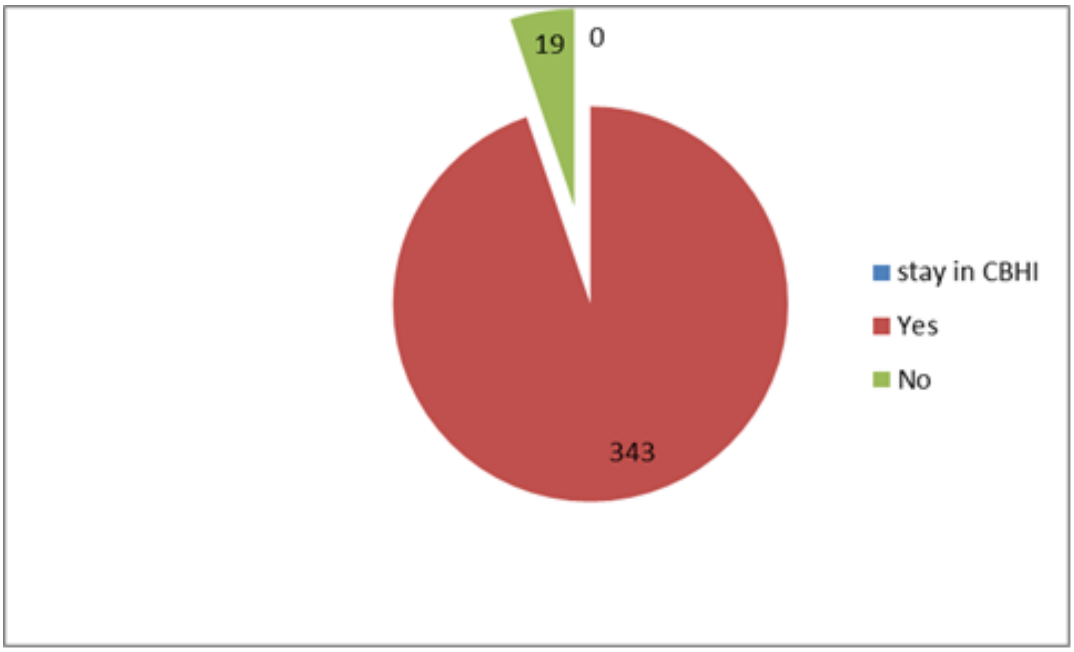

Figure 2. Willingness of CBHI enrolled households to stay in the program

Those who expressed a lack of interest in remaining CBHI members provided several justifications for their withdrawal. These include poor service experiences, rumors, reduced income, a belief that they won't fall ill, a perception that they can afford medical costs, and relocation.

Discussions with CBHI experts revealed that most program participants receive higher-quality healthcare at lower costs, leading to improved health conditions for their family members. Many users, particularly those with chronic illnesses, are the biggest beneficiaries of this program, even among those who are generally in good health. Focus group discussions with beneficiaries indicated that they wish to remain in the program due to its provision of low-cost annual health insurance, coverage for common family illnesses, and overall high-quality services despite some health centers offering subpar care and pharmacies with limited drug supplies.

Major Challenges of the Scheme

The recipients of CBHI were asked to identify any issues they encountered while using the program. As shown in the chart above, some key concerns expressed by beneficiaries included the low quality of healthcare services, lengthy wait times for care, a shortage of healthcare professionals, and bureaucratic hurdles in accessing services.

Table 3. Implementation challenges of the scheme

Implementation challenge	Frequency	Percent
Poor quality service	120	33.1
Partiality	14	3.9
Bureaucracy	52	14.4
Shortage of professional	53	14.6
Longer waiting time	89	24.6
Longer registration	34	9.4
Total	362	100

Additionally, several issues were noted, including a shortage of medications, remote locations of medical facilities, limited access to comprehensive medical services, unethical behavior by some medical professionals, and discrimination favoring out-of-pocket patients. Other concerns include inadequate awareness of the program, drug-related corruption, insufficient follow-up and support, and conflicts between healthcare beneficiaries and providers. The process of identifying those in need within kebeles also faces challenges, such as nepotism.

The organization is currently in debt due to a mismatch between income and expenses, primarily because most beneficiaries have chronic illnesses and extensively use the services. As a result, the organization has fallen behind on its loan payments. Another significant challenge facing the CBHI system is the financial strain of providing services and medications to plan participants.

5 Conclusion

- Decisions regarding CBHI membership and non-enrollment are influenced by respondents' socio-demographic, economic, and knowledge levels.
- Factors such as location, illness, family size, occupation, attitude, awareness, and availability of medications were identified as key determinants of CBHI enrollment. Additional reasons for non-enrollment include negative perceptions of CBHI, low awareness of the program, unfair payment practices, poor service quality, and inadequate medication supply.
- The main implementation challenges of the CBHI scheme include poor service quality and medication availability from the beneficiary perspective, as well as financial issues, insufficient funding, and delayed payments from beneficiaries.

- To enhance satisfaction with service delivery, it is essential to provide comprehensive healthcare and improve overall service quality. Furthermore, health facility management, policymakers, and other responsible officials should focus on increasing members' understanding of CBHI benefits through education and information campaigns. Additionally, a nationwide longitudinal study should be conducted to identify the challenges affecting household satisfaction with the CBHI program.

Acknowledgments

We extend our gratitude to the communities of both CBHI members and non-members, as well as the CBHI specialists in each subject area, for their openness and cooperation in answering all of the research questions. We also thank Dilla University's Research and Dissemination Directorate for providing the funding necessary to conduct the study that forms the basis of this publication. Any remaining inaccuracies in this article are our sole responsibility.

Funding

The Dilla University Research and Dissemination Directorate provided funding for this project.

Ethical Approval Number

This study received ethical approval from the Institutional Review Board (IRB) of Dilla University, reference number DUIRB/00322,02, College of Medicine and Health Sciences, in accordance with the Helsinki Declarations. All identifiers of respondents were kept confidential, and data were anonymized. Following IRB approval, verbally informed consent was obtained from each participant. Given that most of the study population was from rural areas, literacy levels were assessed through oral consent. Participants were fully informed of their right to participate or to withdraw from the study, either wholly or in part.

References

Abdilwohab, M. G., Abebo, Z. H., Godana, W., Ajema, D., Yihune, M., & Hassen, H. (2021). Factors affecting enrollment status of households for community based health insurance in a resource-limited peripheral area in Southern Ethiopia. Mixed method. *PloS one*, 16(1), e0245952.

Adeniyi-Jones, O. (1976). Community involvement: new approaches. *WHO chronicle*, 30(1), 8-10.

Agency, E. H. I. (2015a). Evaluation of community-based health insurance pilot schemes in Ethiopia. In: Ethiopian health insurance agency Addis Ababa.

Agency, E. H. I. (2015b). Evaluation of community-based health insurance pilot schemes in Ethiopia. Final Report. 2015 May.

Atnafu, D. D., Tilahun, H., & Alemu, Y. M. (2018). Community-based health insurance and healthcare service utilisation, North-West, Ethiopia: a comparative, cross-sectional study. *BMJ open*, 8(8), e019613.

Bank, W. (1993). World Development Report 1993: *Investing in Health*, Volume1: The World Bank.

Basaza, R., Criel, B., & Van der Stuyft, P. (2008). Community health insurance in Uganda: why does enrolment remain low? A view from beneath. *Health policy*, 87(2), 172-184.

Basaza, R., Pariyo, G., & Criel, B. (2009). What are the emerging features of community health insurance schemes in East Africa? *Risk Management and Healthcare Policy*, 2, 47.

Chankova, S., Sulzbach, S., & Diop, F. (2008). Impact of mutual health organizations: evidence from West Africa. *Health policy and planning*, 23(4), 264-276.

Csa, I. (2016). Central Statistical Agency (CSA) Ethiopia and ICF. Ethiopia Demographic and Health Survey, Addis Ababa. Central Statistical Agency.

Dagnaw, F. t., azanaw, M. M., adamu, a., ashagrie, t.,Mohammed, a. a., Dawid, H. Y., tiruneh, M., Demissie, B.,Yemata, G. a., Yitbarek, G. Y., abebaw, Y., & Hailemeskel,H. S. (2022). community-based health insurance, health-care service utilization and associated factors in South Gondar Zone Northwest, ethiopia, 2021: a comparative cross-sectional study. *PLoS One*, 17(7),

e0270758. https://doi.org/10.1371/journal.pone.0270758

De allegri, M., Sanon, M., Bridges, J., & Sauerborn, r. (2006). Understanding consumers' preferences and decision to enrol in community-based health insurance in rural west africa. Health Policy (Amsterdam, Netherlands), 76(1), 58– 71. https://doi.org/10.1016/j.healthpol.2005.04.010

De Allegri, M., Pokhrel, S., Becher, H., Dong, H., Mansmann, U., Kouyaté, B., . . . Bridges, J. (2008). Step-wedge cluster-randomised community-based trials: an application to the study of the impact of community health insurance. *Health Research Policy and Systems*, 6(1), 1-8.

Dror, D. M., Hossain, S. S., Majumdar, A., Pérez Koehlmoos, T. L., John, D., & Panda, P. K. (2016). 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*, 11(8), e0160479.

Ekman, B. (2004). Community-based health insurance in low-income countries: a systematic review of the evidence. *Health policy and planning*, 19(5), 249-270.

Elgazzar, H., Raad, F., Arfa, C., Mataria, A., Salti, N., Chaaban, J., . . . Majbouri, M. (2010). Who pays? Out-of-pocket health spending and equity implications in the Middle East and North Africa.

Ethiopia, F. (2015). Health sector transformation plan I. Adis Ababa.

Evans, D. B., & Etienne, C. (2010). Health systems financing and the path to universal coverage. In (Vol. 88, pp. 402-403): SciELO Public Health.

Fonta, W. M., Ichoku, H. E., & Ataguba, J. E. (2010). Paying for community-based health insurance schemes in rural Nigeria: the use of in-kind payments. *African review of money finance and banking*, 109-128.

Gottret, P. E., & Schieber, G. (2006). *Health financing revisited: a practitioner's guide*: World Bank Publications.

Leive, A., & Xu, K. (2008). Coping with out-of-pocket health payments: empirical evidence from 15 African countries. *Bulletin of the World Health Organization*, 86(11), 849-856C.

Maeda, A., Araujo, E., Cashin, C., Harris, J., Ikegami, N., & Reich, M. R. (2014). *Universal health coverage for inclusive and sustainable development: a synthesis of 11 country case studies*: World Bank Publications.

Mariam, D. H. (2001). Exploring alternatives for financing health care in Ethiopia: an introductory review article. *Ethiopian Journal of Health Development*, 15(3), 153-163.

Mebratie, A. D., Sparrow, R., Yilma, Z., Alemu, G., & Bedi, A. S. (2015). Dropping out of Ethiopia's community-based health insurance scheme. *Health policy and planning*, 30(10), 1296-1306.

Mirach, T. H., Demissie, G. D., & Biks, G. A. (2019). Determinants of community-based health insurance implementation in west Gojjam zone, Northwest Ethiopia: a community based cross sectional study design. *BMC health services research*, 19, 1-8.

Mwaura, J. W., & Pongpanich, S. (2012). Access to health care: the role of a community based health insurance in Kenya. *Pan African Medical Journal*, 12(1).

Nair, D. (2016). Determinants of enrollment in comprehensive health insurance scheme and implementation challenges: a study in Kerala, South India. *Health Science Journal*, 10(1), 1.

Nimpagaritse, M., & Bertone, M. P. (2011). The sudden removal of user fees: the perspective of a frontline manager in Burundi. *Health policy and planning*, 26 (suppl 2), ii63-ii71.

Noubiap, J. J. N., Joko, W. Y. A., Obama, J. M. N., & Bigna, J. J. R. (2014). Community-based health insurance knowledge, concern, preferences, and financial planning for health care among informal sector workers in a health district of Douala, Cameroon. *Pan African Medical Journal*, 16(1).

Organization, W. H. (2000). *The world health report 2000: health systems: improving performance:* World Health Organization.

Pablo, P., & Schieber, G. (2006). Health financing revisited: A practitioner's guide. *The International Bank for Reconstruction and Development/The World Bank.*

Ridde, v., asomaning antwi, a., Boidin, B., chemouni, B.,Hane, F., & touré, l. (2018). time to abandon amateurism and volunteerism: addressing tensions between the Alma-Ata principle of community participation and the effectiveness of community-based health insurance in Africa. *BMJ Global Health*, 3(Suppl 3), e001056. https://doi.org/10.1136/bmjgh-2018-001056

Solomon, F., Hailu, Z., & Tesfaye, D. (2011). Ethiopia's community-based health insurance: a step on the road to universal health coverage. Health Financ Gov.

Tabor, S. R. (2005). Community-based health insurance and social protection policy. World Bank, Washington: Social Protection Discussion Paper Series.

Taddesse, G., Atnafu, D. D., Ketemaw, A., & Alemu, Y. (2020). Determinants of enrollment decision in the community-based health insurance, North West Ethiopia: a case-control study. *Globalization and health*, 16(1), 1-9.

Tien, t. v., Holst, J., & Brandrup-lukanow, a. (2005). the inclusion of the poor in a social health insurance frame work: the strategies applied in vietnam. Extending Soc Prot Health GTZ Version Frankf Am Main, 63–70.

Uzochukwu, B., Onwujekwe, O., Eze, S., Ezuma, N., Obikeze, E., & Onoka, C. (2010). Implementing community based health insurance in Anambra State, Nigeria. CREHS policy brief February.

Wang, H., & Pielemeier, N. (2012). Community-based health insurance: An evolutionary approach to achieving universal coverage in low-income countries. *Journal of life sciences*, 6(3), 321-330.

Wiesmann, D., & Jütting, J. (2000). The emerging movement of community based health insurance in Sub-Saharan Africa: experiences and lessons learned. *Africa spectrum*, 193-210.

Xu, K., Evans, D. B., Carrin, G., Aguilar-Rivera, A. M., Musgrove, P., & Evans, T. (2007). Protecting households from catastrophic health spending. *Health affairs*, 26(4), 972-983.

Zhao, Y., Kang, B., Liu, Y., Li, Y., Shi, G., Shen, T., . . . Wang, L. (2014). Health insurance coverage and its impact on medical cost: observations from the floating population in China. *PloS one*, 9(11), e111555.