EJED 2024 6(2):59–72
Ethiopian Journal of Environment and Development
http://journal.du.edu.et/index.php/ejed

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

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Received: 10 October 2024 *Accepted: 15 December 2024* *Published: 25 December 2024*

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

Abstract

Since 2011, Ethiopia has been executing the Community-Based Health Insurance (CBHI) initiative across different regions to improve universal health coverage by minimizing out-of-pocket costs for low-income families and to facilitate healthcare access for economically disadvantaged households. The objective of this study is to analyze the factors influencing household enrollment and non-enrollment decisions, along with identifying the primary challenges faced in the implementation of 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) offers healthcare services to individuals residing and working in rural regions or the urban informal sector who lack access to public, private, or employer-sponsored health insurance. This model serves as an alternative financing approach that is governed, created, and overseen by its members through their contributions (Abdilwohab *et al.*, 2021; Dagnaw *et al.*, 2022; Tabor, 2005). The establishment of effective health financing systems in developing nations, especially those with low income, continues to pose significant challenges and remains a topic of active debate (Adeniyi-Jones, 1976). This situation is primarily attributed to scarce economic resources, sluggish

economic development, limitations within the public sector, and inadequate organizational capacity.

The healthcare system in Ethiopia is marked by substantial out-of-pocket expenses, rising healthcare needs, challenges in mobilizing health resources among rural communities, and a failure to fully recuperate the costs of care borne by beneficiaries (Mariam, 2001). These out-of-pocket payments encompass costs for goods and services obtained from pharmacies, traditional healers, private practitioners, public healthcare facilities, and services provided 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 dedicated to realizing Universal Health Coverage (UHC), which entails offering high-quality healthcare services that are fair and accessible to all individuals. The nation is striving to establish a thorough and sustainable risk protection system, incorporating health financing mechanisms that are specifically designed to meet its requirements, especially in the informal sector, which accounts for more than 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 an integral component of the Ethiopian government's comprehensive strategy for healthcare financing reform, which seeks to enhance financial protection, establish cost-sharing mechanisms between the government and citizens, ensure equitable access to healthcare, and promote social inclusion in health as well as domestic resource mobilization (Solomon, Hailu, & Tesfaye, 2011). Grounded in the principles of mutual aid and social solidarity, CBHI specifically targets individuals working in rural and urban informal sectors who do not have access to conventional insurance options. This funding approach is member-controlled and is designed to mitigate unpredictable or high healthcare expenses by converting them into regular premium payments (Chankova, Sulzbach, & Diop, 2008; Tabor, 2005; Uzochukwu *et al*., 2010).

In accordance with the Ethiopian Health Policy that was ratified in 1993, the Ministry of Health formulated a healthcare funding strategy that prioritizes health insurance. The objective of the government was to decrease out-of-pocket expenses from 37% to below 15% and to lower catastrophic health expenditures from 3.5% to 2.5% through the implementation of the Community-Based Health Insurance (CBHI) program in 80% of districts. Nevertheless, the 2016 Ethiopian Demographic and Health Survey (EDHS) revealed that merely 5% of villages were enrolled in the program, highlighting regional inequalities. Performance data further showed that only two million individuals, representing 0.2% of the 900 million eligible population, engaged in community insurance (De Allegri *et al*., 2008; Ekman, 2004; Wang & Pielemeier, 2012).

2 Problem statement

Community-Based Health Insurance (CBHI) serves as a means to address the World Health Assembly's appeal for universal health coverage, especially in low-income countries (LICs) where there are considerable disparities in healthcare access (De Allegri *et al*., 2006; Tien *et al*., 2005). Given that financial risk protection is a vital aspect of UHC, Ethiopia initiated a comprehensive and sustainable CBHI program in 2011. Although the CBHI framework shields members from catastrophic health costs, enhancing the quality of health services is crucial for boosting mem-

ber satisfaction and effectively progressing towards UHC (Ridde *et al*., 2018).

Around 84% of the global population lives in developing nations, with at least 50% of these individuals existing in poverty. The 1.3 billion rural poor workers engaged in the informal sector account for 20% of the world's GDP (Taddesse *et al*., 2020). Therefore, the importance of health insurance for disadvantaged and marginalized communities is indisputable.

Low levels of health insurance coverage are widespread in Sub-Saharan Africa (Zhao *et al*., 2014). The formal sector, which represents approximately 10% of the population, is predominantly the only demographic with access to the available health insurance systems (Wiesmann & Jütting, 2000). A significant number of low-wage workers in Africa's informal sector, along with self-employed rural inhabitants, have never benefited from social protection associated with health insurance programs (Basaza *et al*., 2009). Community-based health insurance (CBHI) is emerging as a promising solution to improve access to primary healthcare.

Out-of-pocket medical expenses have a profound effect on the financial stability of lower socioeconomic groups, resulting in deteriorating living conditions. Worldwide, more than 150 million households encounter financial difficulties due to healthcare expenses, with around 25 million descending into extreme poverty annually. In Sub-Saharan Africa, where resources are scarce, over 90% of financial challenges related to healthcare arise (Maeda *et al*., 2014; Xu *et al*., 2007). In six countries across the Middle East and North Africa, 7–13% of households face catastrophic medical expenses (Elgazzar *et al*., 2010). These regions are responsible for 90% of the global disease burden (Noubiap *et al*., 2014; Pablo & Schieber, 2006; Wang & Pielemeier, 2012).

Despite nations reaching an agreement at the World Health Organization (WHO) General Assembly in 2005 to attain Universal Health Coverage (UHC) through risk-pooling strategies and diminished out-of-pocket expenses, the actual expenditure on healthcare remains low, at under 12% (Gottret & Schieber, 2006; Pablo & Schieber, 2006; Wang & Pielemeier, 2012). Direct healthcare expenditures differ significantly, with 42% in Kenya, 27% in Ghana, and 37% in Ethiopia. The establishment of health insurance programs could assist countries in lowering direct healthcare expenses (Nimpagaritse & Bertone, 2011). Ethiopia exhibits one of the lowest levels of health service usage in Sub-Saharan Africa, with inpatient healthcare utilization at merely 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 consisted of all households that had resided in the area for over six months, whereas the study population encompassed all heads of households in the randomly chosen kebeles. Heads of households and/or their spouses who were employed by the government were excluded from the study.

3.2 Sample size determination and sampling techniques

Utilizing a singular population percentage formula along with the following assumptions, the calculated sample size was established at 847. This determination was made based on an assumed maximum household enrollment rate in the Community-Based Health Insurance (CBHI) of 50%, a maximum acceptable error of 5%, a Z-statistic value of 1.96, an expected non-response rate of 10%, and a design effect of 2.

A multi-stage sampling methodology was implemented to select the households that participated in the study. In the initial stage, four zones were randomly selected to serve as the primary sampling units. In the subsequent stage, eight woredas—two from each zone—were randomly chosen as secondary sampling units. Lastly, in the final stage, 16 kebeles were randomly picked from the eight selected woredas. Within each of the chosen kebeles, study subjects (households) were identified through simple random sampling based on population proportions in relation to the sample size (PPS).

3.3 Data collection tools and procedures

Data was gathered utilizing a pretested, interviewer-administered questionnaire. The survey was formulated based on information 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 the purpose of data collection. The instrument was subjected to pre-testing on 5% of the actual sample size in two kebeles outside the designated area, ensuring that the socio-demographic and other pertinent parameters were comparable to those of the study population. In light of the pretest results, certain items were adjusted or added, while others that were ambiguous were clarified. Data collectors and supervisors reviewed the pretest data to improve their comprehension of the data collection process.

Five graduate nurses proficient in the local language and two professional nurses holding bachelor's degrees in healthcare were involved in the data collection. Face-to-face interviews were carried out after participants were briefed on the study's objectives and the significance of their involvement. Supervisors, along with the lead investigator, performed daily checks to verify that the questionnaires completed by the data collectors were accurate, consistent, and relevant. Any relevant feedback was relayed to the data collectors the following morning prior to the commencement of regular data collection.

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 analyzed for multicollinearity through the variance inflation factor (VIF) test, utilizing a threshold of 10. No evidence of multicollinearity was detected, as all candidate variables exhibited a VIF value of 3. To assess the enrollment status of households in CBHI, binary logistic regression was employed. A variable was deemed to have a statistically significant relationship with CBHI enrollment status if its p-value was below 0.05 in the final model. The strength of this relationship was assessed using a 95% confidence interval odds ratio.

3.5 Ethical Considerations

This research obtained ethical clearance from the Institutional Review Board (IRB) at Dilla University, College of Medicine and Health Sciences, in alignment with the Helsinki Declaration. Additionally, authorization letters were secured 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. 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.

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.

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

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

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).

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	

4.3 Discussion

The aim of this research was to assess the elements affecting the execution 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.

4.4 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.

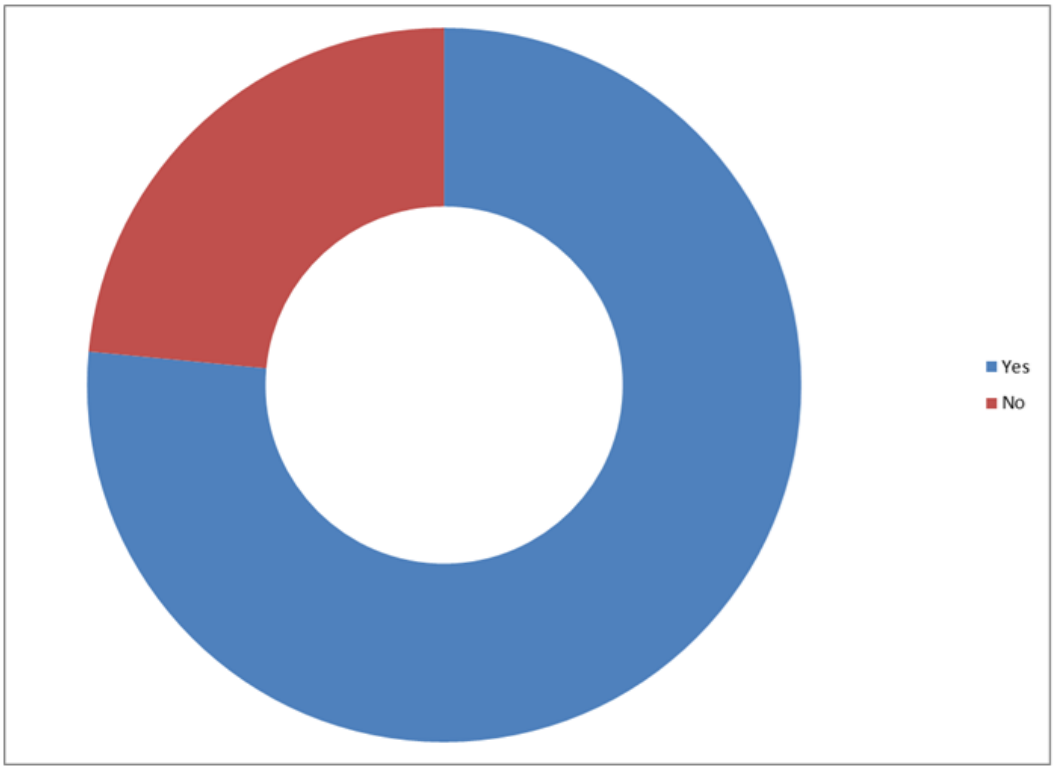

Figure 1. CBHI enrollment plan of the households

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.

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.

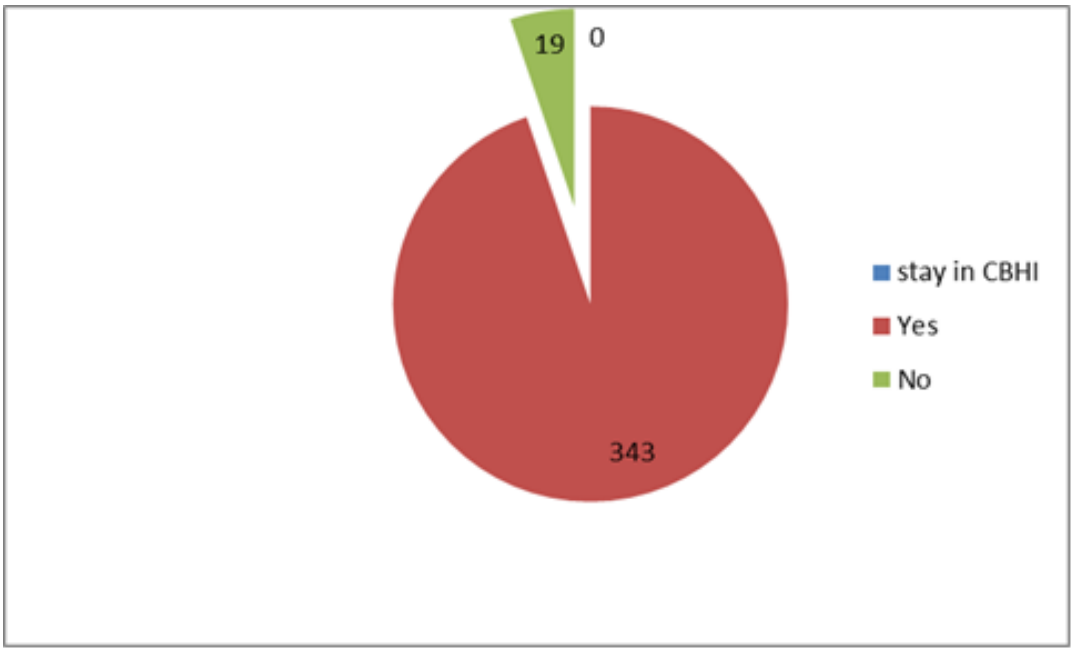

Figure 2. Willingness of CBHI enrolled households to stay in the program

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.

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.

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

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. Moreover, the management of health facilities, policymakers, and other relevant authorities ought to prioritize enhancing the understanding of Community-Based Health Insurance (CBHI) benefits among members through educational initiatives and information dissemination campaigns. Furthermore, it is essential to carry out a comprehensive nationwide longitudinal study to pinpoint the challenges that impact 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 research obtained ethical clearance from the Institutional Review Board (IRB) at Dilla University, reference number DUIRB/00322,02, College of Medicine and Health Sciences, in compliance 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.