Original research

BMJ Open What role does community-based health insurance play in the utilisation of health services among households in Ethiopia? A community-based comparative cross-sectional study

Dufera Rikitu Terefa <a>b, Edosa Tesfaye Geta, Adisu Tafari Shama , Adisu Ewunetu Desisa

ABSTRACT

Objective In Ethiopia, despite increased health service coverage, health service utilisation remains very low. However, evidence on the level of health service utilisation between insured and non-insured households in the study area was scanty. Therefore, this study aimed to assess health service utilisation and its predictors among insured and non-insured households of community-based health insurance in the East Wallaga Zone, Oromia region, Ethiopia, in 2022.

Methods A community-based comparative crosssectional study was employed. Data were collected using semi-structured interviewer-administered pretested questionnaire by face-to-face interviewing of heads of the households or spouse from 1 January 2022 to 30 January 2022, on 900 (450 insured and 450 non-insured). Epi-Data V.3.1 and Statistical Package for Social Science V.26 were used for data entry and analysis, respectively. The association between dependent (health service utilisation) and independent variables was analysed first using binary logistic regression. Multivariable logistic regression was used to identify potential predictor variables at a p < 0.05. Results About 60.5% (95% CI 55.7% to 64.8%) of insured households had used health services compared with 45.9% (95% CI 41.4% to 50.9%) of non-insured households in the last 6 months. Family health status (Adjusted Odd Ratio (AOR) and 95% CI=2.74 (1.37 to 5.45), AOR and 95% CI=1.62 (1.01 to 3.14)); family with chronic disease (AOR and 95% CI=8.33 (5.11 to 13.57), AOR and 95% CI=4.90 (2.48 to 9.67)); perceived availability of drugs (AOR and 95% CI=0.34 (0.15 to 0.79), AOR and 95% CI=3.97 (1.69 to 9.34)); perceived transportation cost (AOR and 95% CI=0.44 (0.21 to 0.90), AOR and 95% Cl=1.71 (1.00 to 2.93)); participated in indigenous community insurance (AOR and 95% CI=3.82 (1.96 to 7.45). AOR and 95% CI=0.13 (0.06 to 0.29)) and >10 km travel distance from nearby health facilities (AOR and 95% CI=1.52 (1.02 to 2.60), AOR and 95% CI=8.37 (4.54 to 15.45)) among insured and non-insured households, respectively, were predictors of health service utilisation. Conclusion Insured households were more likely to utilise health services compared with non-insured households. Family health status, family with chronic disease, perceived availability of drugs, perceived transportation cost, participation

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ In this study, inference of causation was not possible due to the cross-sectional nature of the study.
- ⇒ There might be a probability of recall bias in the utilisation of health services.
- ⇒ Also, the study did not consider matching criteria for insured and uninsured households.

in indigenous community insurance and >10km travel were predictors of health service utilisation among insured and noninsured households. Hence, the greatest emphasis should be given to enhancing enrolment in the community-based health insurance scheme to achieve universal health coverage.

BACKGROUND

Health service utilisation (HSU) is the use **ning**. A training of services by individuals for the purpose of preventing and curing health problems and **Promoting** the maintenance of health and mell-being. It can be described by the number of visits to modern health facilities per total population.^{1 2} Globally, access to essential health services has improved more in recent years than at any other time, and universal equitable access to health services is a health policy goal for many countries across the globe.³

Despite this, millions of people suffer **Dogg** and die because they do not have money **g** to pay for medical bills. In contrast, others suffer because they do pay directly for their healthcare out of pocket (OOP), and about 150 million people globally incur catastrophic spending annually, whereas 100 million people are pushed below the poverty line.⁴ To reduce these burdens, African health ministers agreed to strengthen health systems through adopting a range of interventions that will eventually lead countries to achieve

Protected by copyright, including for uses related to text and data mining, ≥ <u>0</u>

To cite: Terefa DR, Geta ET, Shama AT, *et al.* What role does community-based health insurance play in the utilisation of health services among households in Ethiopia? A community-based comparative cross-sectional study. *BMJ Open* 2024;**14**:e078733. doi:10.1136/ bmjopen-2023-078733

Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (https://doi.org/10.1136/ bmjopen-2023-078733).

Received 13 August 2023 Accepted 13 February 2024

Check for updates

© Author(s) (or their employer(s)) 2024. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

Department of Public Health, Institute of Health Sciences, Wallaga University, Nekemte, Ethiopia

Correspondence to Dufera Rikitu Terefa; duferarikitu24@gmail.com



1

universal health coverage (UHC).⁵ A crucial aspect of achieving this coverage is to develop a financial risk pooling system that provides cross-subsidies in health systems where ability to pay determines financing contributions and the use of services is based on the need for care. This is an important aspect of the three pillars of UHC (population coverage, service coverage and financial risk protection).⁶

In Ethiopia, great efforts have been made to increase health service coverage, but little attention has been given to the quality and utilisation of services, especially in primary health facilities where a significant proportion of patients receive primary healthcare.⁷ To address challenges, Ethiopia approved a comprehensive healthcare financing (HCF) strategy to identify financial options to increase resources for the health sector, enhance efficiency in the use of available resources, promote sustainability, improve the quality and coverage of health services, and ensure equitable distribution.⁸ This healthcare financing reform (HCFR), including community-based health insurance (CBHI), has contributed to breaking down financial barriers that hamper HSU quality and eventually contributed to the achievement of the goal of UHC.⁷

Globally, health systems are proving to be inadequate at meeting population needs and maximising utilisation of health services for the community, and millions of people all over the world suffer and die from conditions for which effective interventions exist. These interventions are underused, especially in developing countries, and income-related disparities in the use of health services are large.^{2 9 10} Multiple demand-side and supply-side factors are responsible for the missed opportunities to realise major gains in the utilisation of health services for the population.¹¹ Almost 12% of the world's population spent at least 10% of their household (HH) income to pay for healthcare. As a result of this, many families suffer excessive financial hardship due to direct payment for medical bills to receive the healthcare they need, incur catastrophic spending and are pushed below the poverty line.¹²

In low-income and middle-income countries, greater than 35% of health spending per country comes from OOP expenses. Especially in Africa, it is the poorest people who pay the most for healthcare. In the 20 countries of the African region, the OOP expenditure of HHs makes up over 40% of the total.¹¹ In VietNam, HH direct OOP health expenditure as a share of the THE has always been high, ranging from 50% to 70%.¹² Also, almost 34% of health expenditure is generated from HHs in Ethiopia, next to the rest of the world, which accounts for 30% of HHs in Ethiopia.¹³ However, the WHO recommends direct payments be less than 15%–20% of THE.⁶

In Ethiopia, primary health service coverage was high, but HSU per capita attendance remained low.¹⁴ Concerning the trend over time, there were fluctuations in utilisation of health services from 0.34 in 2006/2007 to 0.25 in 2008/2009, 0.30 in 2009/2010 and 0.67 in 2018. The level of performance was low when compared with the health service coverage

and target set.¹⁵ This low utilisation of health services calls for better and more efficient utilisation of resources at the health facility level. For this reason, there were different factors affecting utilisation of health services both from a health facility and community perspective in Ethiopia.¹⁶ To address these problems and as a way to increase the country's low level of HSU, the government has implemented the CBHI scheme for the informal sector.¹⁷

However, different studies that have been carried out have shown that there are discrepancies between insured and noninsured (NI) HHs on HSU in various corners of the world, including Ethiopia. According to a study done in India, util-isation of healthcare services was 6%–7% higher for scheme members than non-members.¹⁸ Also, in Sub-Saharan Africa (SSA), different studies have been conducted; a study in 8 Cambodia found that visits to public health service providers were increased by 18% and by 11% from private providers by CBHI members.¹⁹ Another study from Burkina Faso also reported rates of healthcare visits as 30% for insured compared with 12% for NI HH members.²⁰ In Rwanda, utilisation of health services by CBHI members increased by 15% more than that of non-members.²¹

According to a study done on the utilisation of outpa-According to a study done on the utilisation of outpa-tient healthcare services in Southern Ethiopia, 88.5% of individuals with illnesses from CBHI membered HHs had used outpatient health services, compared with tient healthcare services in Southern Ethiopia, 88.5% **bises related to the services of the service of the services of the services from public providers was 35% and 22% for CBHI and the services from public providers was 35% and 22% for CBHI scheme on HSU and cost of care found that utilisation of outpatient dating**. At training, and similar technologies is the services from public providers was 35% and 22% for CBHI scheme in the services from public providers was 35% and 22% for CBHI scheme in the services from public providers was 35% and 22% for CBHI scheme in the services and non-members, respectively.²³ In addition to this, the evaluation report of the pilot CBHI scheme in the service at dia.⁷ Despite the increase in service utilisation of training area did.⁷ Despite the increase in service utilisation between members and non-members were not well described. Generally, different studies from different corners of the world, including Ethiopia, were different from place to public acant research done on utilisation of health services and its predictors among insured and NI HHs of CBHI in the study area at the community level. Thus, the service was scant research done on utilisation of health services and NI HHs in the East Wallaga Zone, Oromia region, Ethiopia, in 2022. **METHODS AND MATERIALS Study area and period**The study was carried out in the East Wallaga zone, Oromia region, Ethiopia, from 1 January 2022 to 30 January 2022.

to text

an

d data

traini

Study design

A community-based comparative cross-sectional study design was conducted among insured and NI HHs of CBHI in East Wallaga Zone, Ethiopia, in 2022. East Wallaga zone is located in the Western part of Oromia Regional State. The capital town of the zone, Nekemte, is located 333 km west of Addis Ababa, which is the capital city of Ethiopia. Over 82% of the districts found in this zone had implemented CBHI strategy.

Population

All insured and NI HHs among selected districts (6) of the East Wallaga zone that had established the CBHI scheme were the source population, while all those sampled HHs (insured and NI) among selected districts (900) and involved in the study were the study population. HHs (insured and NI) were the study unit, and the heads of the HHs were the respondents of the HHs for the study.

Eligibility criteria

All insured and NI HHs who have stayed for more than 6 months in the kebele, HHs heads or spouses who were \geq 18 years of age and who engaged in the informal sector as a source of living and were not covered by other insurance schemes for health (ie, social health insurance and private health insurance) were included in the study. Respondents who were working in the formal sector as a source of income or who were unable to participate in the interview due to their health condition at the time of data collection were excluded from the study.

Sample size and sampling techniques

Sample size determination

The sample size was determined using a two-population proportion formula using Epi-Info V.7 by considering the proportion of HSU among insured HHs (35%), and NI HHs (22%) were taken from the study.²⁴ Considering a 10% non-response rate and a design effect of 2 for multistage sampling, the final sample size was 900 (450 insured and 450 NI).

Sampling technique

A multiple-stage sampling procedure was used. In the first and second stages, $\sin(40\%)^{25}$ CBHI districts were selected at random using a lottery method. Following district selection, a total number of CBHI-membered (from the CBHI scheme's master list) and non-membered HHs were identified for each district, and CBHI-membered and non-membered HHs were proportionally allocated to each district.

Then, all kebles from the six districts were listed with their total number of HHs, and kebles were randomly selected for the study using a lottery method, with 40%taken into account once more. Following the selection of kebles, the total number of CBHI-membered and nonmembered HHs were identified and listed, along with the total number of HHs for each keble in each district. Then, CBHI-member and non-member HHs were allocated proportionally to each keble in each district. Then,

HHs that met the inclusion criteria were identified in the Master Family Index folders of the Community Health Information System registration books at the health post, and HHs numbers (both insured and uninsured) were obtained and used. Finally, to obtain the final sample size, a simple random sampling technique was used to select HHs based on the allocated sample size of each Keble, and data were collected from HH heads or spouses (figure 1).

Data collection tool and procedures

Data were collected using a semistructured intervieweradministered questionnaire by face-to-face interviewing the heads of the HHs or spouses. The questionnaire was adapted after a review of different literature^{3 22 24 26 27} and copyri modified to fit the local context. The questionnaire was first prepared in English and translated to Afan Oromo, igh and then back-translated to English by Afan Oromo and English language bachelor degree holders to check for its consistency. Also, to ensure consistency and validity, ັດ the tool was pretested and revised prior to data collection (Chronbach's alpha value of 0.7). The tool consists **\overline{a}** of sociodemographic and socioeconomic factors; health ਰੋ status, perception and healthcare need-related factors; r uses healthcare access-related factors and CBHI scheme (programme)-related factors. related

Study variables

HSU was the dependent variable, whereas various factors described under sociodemographic variables; health status, perception and healthcare need-related variables; healthcare access-related variables and CBHI scheme (programme)-related variables were the independent variables.

Operational definitions

Utilisation of health services was measured as the number **>** of visits made by at least one HH member at least once in the last 6 months for health services (diagnostic or treatment).

, and An HH is a family with one or more members led by an HH head who live together and constitute one unit with a combined income stream for a basic family.

Insured HHs: Members of the CBHI who were indexed in the muster book of the CBHI schemes and had paid the yearly premium for a 1-year period, whereas

NI HHs: Members of the population who were not indexed in the muster book of the CBHI schemes and **g** had not paid the yearly premium for a 1-year period $\overline{\mathbf{g}}$ (2013 Ethiopian Fiscal Year).

Health insurance: It is payment to risk pooling agency (CBHI scheme) for guarantee of financial reimbursement at a time of illness to use health service.

CBHI refers to non-profit organisation, which is aimed primarily on the informal sectors and formed on the basis of voluntary pooling of health risks. It is designed to enhance financial access or protect members against financial risks to healthcare service for the members by



Figure 1 Schematic representation of sampling procedure for selected districts of East Wallaga zone, western Ethiopia 2022. NM, non-member. CBHI, community-based health insurance.

depositing the resources collected to protect them from unpredicted illnesses which may occur at the future.

Muster book is a registration book that indicates whether an HH is a member of a CBHI or not.

Chronic illness is a disease condition that lasts more than 3 months in the HH.

Time when membership payments were made: This is the time period in the Ethiopian Fiscal year when membership payments were made to the scheme, which is from 1 December 2013 to 30 February 2013.

Data quality management

Various measures were taken to maintain data quality. Prior to data collection, the questionnaire prepared in English was translated into Afan Oromo and then translated back into English, and the contents of the questionnaires were checked to ensure that both versions had the same content.

Twelve data collectors with at least a diploma in health fields and the ability to speak read, and write Afan Oromo, as well as six supervisors with at least a first degree in health fields, were recruited. All data collectors and supervisors were also trained for 2 days on the study's objective, questionnaire contents and issues such

as maintaining confidentiality, informed verbal consent and interview techniques.

Before collecting data, the questionnaire was pretested in one of the districts of the East Wollega zone (Diga District), which is outside of the study area, on 5% of the total samples (45 HHs), after which the results were discussed and some changes and corrections were made to the questionnaire. During the data collection period, <u>s</u> the supervisors maintained strict supervision. Furthermore, any problems encountered during data collection were immediately reported and appropriate actions were taken.

and clarity on a daily basis, and questionnaires with a significant excluded. Furthermore the data using Epi-Data V.3.1 statistical software, which was then exported to SPSS Windows V.26 statistical software for analysis.

Data analysis procedures

The collected data were checked, cleaned and coded, and errors were corrected for completeness and consistency.

Protected by copyright, including for uses related to text and data mining

ē

Then, Epi-Data V.3.1 and SPSS V.26 were used for data entry and analysis, respectively. Associations between dependent and independent variables were analysed first using binary logistic regression analysis. A variable that has p<0.25 on bivariable logistic regression analysis was considered a candidate for multivariable logistic regression analysis. Multivariable logistic regression was used to identify potential predictor variables. Finally, variables with a p<0.05 were used to declare significance at the 95% confidence level.

Patient and public involvement

No patient is involved.

RESULT

Sociodemographic and economic characteristics

About 440 participants, both insured (I) and NI HHs, participated, yielding a 97.7% response rate. The mean age of the participants was 41.42 ± 13.37 in I and 35.79 ± 8.74 in NI HHs. The majority of the participants were males (389 (88.4%) and 392 (89.1%)); protestants (314 (71.4%) and 325 (73.9%)); Oromo (416 (94.5%) and 417 (94.8%)); married (377 (85.7%) and 381 (86.6%)); and farmers (363 (82.5%) and 355 (80.7%)) among I and NI HHs, respectively. Education-wise, about 129 (29.9%) of I and 59 (13.4%) of NI HHS were illiterate. Also, about 234 (53.2%) of them had more than 5 people per HH among I, while 262 (59.5%) of them had less than or equal to 5 people per HH among NI (table 1).

Health status, perception and healthcare need-related factors

Regarding the respondent's family's perceived health status, about 313 (71.1%) and 339 (77.0%) perceived their current family health status as healthy among insured and NI HHs, respectively. The study identified that 110 (25.0%) of insured and 88 (20.0%) of NI respondents families had chronic disease in the last 6 months, and illness or injury encountered in the HHs in the last 6 months was accounted for at 208 (47.3%) and 185 (42.0%) among insured and NI HHs, respectively. Regarding the severity of the disease, 122 (27.7%) of insured HHs perceived the severity of the illness as severe, while 88 (20.0%) of the NI HHs perceived the severity of the illness as severe. Acute febrile illness was the major type of disease reported among insured 67 (32.2%) and NI 62 (33.5%) HHs. Also, fever was the major sign and symptom of illness reported among insured 52 (25.0%)and NI 46 (24.9%) HHs. About 55 (61.1%) of insured HHs stopped working as a result of the severity of the disease, while 77 (78.6%) of NI HHs stopped working.

About 266 (60.5%) HHs were insured, while 202 (45.9%) of NI HHs had used health services in the last 6 months. Of those who had used it, 230 (86.5%) and 184 (91.1%) of insured and NI HHs had gotten treatment, respectively. In this regard, 96 (41.7%) of insured HHs got treatment by visiting public health facilities, while 79 (42.9%) of NI HHs got treatment by visiting any

BMJ Open: first published as 10.1136/bmjopen-2023-078733 on 29 February 2024. Downloaded from http://bmjopen.bmj.com/ on June 14, 2025 at Agence Bibliographique de l Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, Al training, and similar technologies.

Table 1Sociodemographic and economic characteristicsof the participants among insured and non-insured HHs inEast Wallaga zone, Oromia region, Ethiopia, 2022

		Frequency (%)		
Variables	Categories	Insured	Non- insured	
Age	20–29	75 (17.0)	114 (25.9)	
	30–39	154 (35.0)	183 (41.6)	
	40–49	124 (28.2)	123 (28.0)	
	≥50	87 (19.8)	20 (4.5)	
Sex	Male	389 (88.4)	392 (89.1)	
	Female	51 (11.6)	48 (10.9)	
Religion	Orthodox	83 (18.9)	74 (16.8)	
-	Protestant	314 (71.4)	325 (73.9)	
	Muslim	30 (6.8)	25 (5.7)	
	Others	13 (3.0)	16 (3.6)	
Ethnicity	Oromo	416 (94.5)	417 (94.8)	
	Amhara	14 (3.2)	17 (3.9)	
	Others*	10 (2.3)	6 (1.4)	
Marital status	Single/divorced/ widowed	63 (14.3)	59 (13.4)	
	Married	377 (85.7)	381 (86.6)	
Occupation	Farmer	363 (82.5)	355 (80.7)	
	Housewife	24 (5.5)	29 (6.6)	
	Merchant	30 (6.8)	28 (6.4)	
	Labourer	18 (4.1)	24 (5.5)	
	Student	5 (1.1)	4 (0.9)	
Educational status	Illiterate	129 (29.9)	59 (13.4)	
	Read and write	127 (28.9)	201 (45.7)	
	Primary education (1–8)	104 (23.6)	132 (30)	
	Grade 9–12	49 (11.1)	14 (3.2)	
	Diploma	20 (4.5)	14 (3.2)	
	Degree and above	11 (2.5)	20 (4.5)	
HHs size	<u>≤</u> 5	206 (46.8)	262 (59.5)	
	>5	234 (53.2)	178 (40.5)	
Wealth status	Poor	218 (49.5)	97 (22.0)	
	Medium	118 (26.8)	128 (29.1)	
	Rich	104 (23.6)	215 (48.9)	
*Tigre, Gurage.				

healthcare facilities. The major type of service received was outpatient services, both among insured (65.2%) and NI (73.9%) HHs.

Non-severity of illness (32, 18.4%) was the most important reason reported for not visiting a health facility among insured HHs, while shortage of money (51, 21.4%) was the reason reported for NI HHs. About 41 (15.4%) of insured HHs and only 5 (2.5%) of NI HHs visited health facilities for three and above episodes, and health centres were the type of health facility visited during a recent episode among insured 131 (49.3%) and NI 87 (43%) (online supplemental figure 1). Of those who had used health services, insured HHs were more likely to be admitted to hospitals than NI ones (table 2).

Healthcare access-related factors

Annual contribution of premium was the most preferable time to be a member, reported by 228 (51.8%) of insured HHs and 239 (54.3%) of NI ones. About 237 (53.9%) of insured HHs perceived that the premium cost of CBHI was expensive, compared with 263 (59.8%) of NI HHs.

The respondents were asked how they think about the availability of drugs in the health facility during a facility visit, and about 188 (42.7%) think that it is rarely available among insured, while 152 (34.5%) of NI HHs report that it is usually available.

Among insured HHs, about 78 (29.3%) healthcare costs were covered by themselves and they perceived that the Rx cost of services was expensive (125, 47.0%), while among NI HHs, about 192 (95.0%) healthcare costs were covered by themselves and they perceived that the Rx cost of services was expensive (94, 46.5%). The study also showed that perceived transportation costs were expensive: 78 (17.7%) with travel distances >10 km, 247 (56.1%) among insured HHs and 181 (41.1%) with travel distances \geq 10 km, 278 (63.2%) among NI HHs (online supplemental table 2).

Exposure and perception on CBHI scheme-related factors

The study indicated that about 440 (100%) of insured HHs have heard about CBHI before, and their main source of information for it was a health facility, 211 (48.0%), while 430 (97.7%) of NI HHs have heard about CBHI before, and their main source of information for it was health extension workers, 175 (39.8%). About 263 (59.8%) insured HHs ever participated in indigenous community insurance, but 365 (83.0%) of the NI did not.

Concerning CBHI scheme-related factors, they think that the time when CBHI membership payment was made was appropriate (373, 84.8%) among insured HHs, while it was only 262 (59.5%) among NI ones. The perceived quality of service given in HF after the scheme was implemented was reported as 373 (84.8%) among insured, but only 165 (37.5%) among NI HHs. Finally, the study showed that about 250 (56.8%) insured HHs had trust in the CBHI scheme, while 315 (71.6%) of them had no trust in the scheme among NI HHs (online supplemental table 2).

Health service utilisation

This study showed that about 266 (60.5%) (95% CI 55.7% to 64.8%) of insured HHs had used health services compared with 202 (45.9%) (95% CI 41.4% to 50.9%) NI HHs in the last 6 months (figure 2).

Predictors of health service utilisation

Age of the respondent, family health status, family with chronic disease, perceived availability of drugs, perceived transportation cost, participation in indigenous community insurance, time when CBHI membership payment was made, perceived affordability of membership contribution, trust in the CBHI scheme and distance from a health facility were factors associated with HSU both among insured and NI HHs on bivariable binary logistic regression analysis. After adjusting for the confounder's family health status, family with chronic disease, perceived availability of drugs, perceived transportation cost, participation in indigenous community insurance and distance from a health facility were factors significantly associated with HSU both among insured and NI HHs in a multivariable logistic regression analysis (online supplemental table 3).

The study indicated that those whose family health status was perceived as not healthy were 2.74 (AOR and 95% CI=2.74 (1.37 to 5.45)) and 1.6 (AOR and 95% CI=1.62 (1.01 to 3.14)) times more likely to utilise health services than those who were healthy, both for insured and NI HHs, respectively. Family with chronic disease was statistically strongly associated with HSU both samong insured (AOR and 95% CI=8 33 (5 11 to 13 57)) among insured (AOR and 95% CI=8.33 (5.11 to 13.57)) and NI (AOR and 95% CI=4.90 (2.48 to 9.67)) HHs. This revealed that the probability of utilising health services to the services among family with chronic disease among to the services was 8 times among family with chronic disease among the services were reduced by 66% (AOR and 95% CI=0.34 (0.15 to 0.79)) among respondents who perceived that drug was rarely available during facility visits than among those who and NI (AOR and 95% CI=4.90 (2.48 to 9.67)) HHs. This available during facility visits than among those who \vec{a} perceived it as not available among insured HHs, while the odds were 3.9 (AOR and 95% CI=3.97 (1.69 to 9.34)) times more likely among respondents who perceived that ≥ drug was rarely available during facility visits than their counterparts among NI HHs.

The odds of using health services were reduced by 56% (AOR and 95% CI=0.44 (0.21 to 0.90)) among respondents who perceived transportation cost as medium compared with those who perceived it as expensive for S insured HHs, while those who perceived transportation cost as medium were 1.7 times (AOR and 95% CI=1.71 (1.00 to 2.93)) more likely to utilise health services than those who perceived it as expensive for NI HHs. Also, the probability of using health services was 3.8 times higher **o** (AOR and 95% CI=3.82 (1.96 to 7.45)) among those **G** who participated in indigenous community insurance 8 than their counterparts among insured HHs, while the probability of utilisation was reduced by 87% (AOR and 95% CI=0.13 (0.06 to 0.29)) among those who participated in indigenous community insurance than their counterparts among NI HHs. Moreover, those who travelled greater than or equal to 10km from the nearby health facility were 1.5 times (AOR and 95% CI=1.52 (1.02 to 2.60)) more likely to use health services than those who travelled less than 10km among insured HHs,

 Table 2
 Health status, perception and healthcare need-related factors on health service utilisation among insured and noninsured HHs in East Wallaga zone. Oromia region, Ethiopia, 2022

	-1 - 7	Frequency (%)	
Variables	Categories	Insured	Non- insured
Perceived current family health status	Healthy	313 (71.1)	339 (77.0)
	Not healthy	127 (28.9)	101 (23.0)
Family with chronic disease in the last 6 months	Yes	110 (25.0)	88 (20.0)
	No	330 (75.0)	352 (80.0)
Illness or injury encountered in the HH in the last 6	Yes	208 (47.3)	185 (42.0)
months	No	232 (52.7)	255 (58.0)
Perceived severity of illness (n=208/185)	Mild	77 (17.5)	82 (18.6)
	Moderate	122 (27.7)	88 (20.0)
	Sever	9 (2.0)	15 (3.4)
Major sign and symptoms of illness (n=208/185)	Diarrhoea	27 (13.0)	40 (21.6)
	Fever	52 (25.0)	46 (24.9)
	Cough	32 (15.4)	37 (20.0)
	Nausea/vomiting	19 (9.1)	14 (7.6)
	Headache	26 (12.5)	9 (4.9)
	Stomachache	13 (6.3)	18 (9.7)
	Toothache	10 (4.8)	6 (3.2)
	Joint/muscle pain	19 (9.1)	10 (5.4)
	Other*	10 (4.8)	5 (2.7)
Types of illness (n=208/185)	Diarrheal disease	55 (26.4)	53 (28.6)
	AFI	67 (32.2)	62 (33.5)
	Trauma/injury	16 (7.7)	20 (10.8)
	Respiratory diseases	18 (8.7)	14 (7.6)
	ANC/PNC	21 (10.1)	17 (9.2)
	Childbirth/delivery	13 (6.3)	8 (4.3)
	Chronic NCD diseases	12 (5.8)	7 (3.8)
	Others†	6 (2.9)	4 (2.2)
Illness episodes in the last 6 months (n=208/185)	Once	68 (32.7)	108 (58.4)
	Two times	81 (38.9)	57 (30.8)
	Three times	39 (18.8)	14 (7.6)
	More than three times	20 (9.6)	6 (3.2)
Did severity result in stopping work?	Yes	55 (61.1)	77 (78.6)
	No	35 (38.9)	21 (21.4)
Utilisation of health services in the last 6 months	Yes	266 (60.5)	202 (45.9)
	No	174 (39.5)	238 (54.1)
Did you get treatment? (n=266/202)	Yes	230 (86.5)	184 (91.1)
	No	36 (14.7)	18 (8.9)
Types of service received?	Outpatient	150 (65.2)	136 (73.9)
(n=230/184)	Inpatient	33 (14.3)	14 (7.6)
	both out and inpatient	32 (13.9)	14 (7.6)
	Other services	15 (6.5)	20 (10.9)

Continued

7

Table 2 Continued

		Frequency (%)	
Variables	Categories	Insured	Non- insured
Reason for not health facility visit? (n=174/238)	Did not feel it was necessary	22 (12.6)	25 (10.5)
	Facility too far	9 (5.2)	8 (3.4)
	The illness was not severe	32 (18.4)	37 (15.5)
	Shortage of money	22 (12.6)	51 (21.4)
	Bought medicine from a shop	9 (5.2)	14 (5.9)
	Long service time	17 (9.8)	18 (7.6)
	Providers are not welcoming	12 (6.9)	20 (8.4)
	Visited a traditional healer	5 (2.9)	10 (4.2)
	Lack of laboratory facilities	19 (10.9)	14 (5.9)
	I couldn't get quality care	27 (15.5)	41 (17.2)
Did your HH member been admitted in hospital in	Yes	83 (31.2)	45 (22.3)
the last 6 months? (n=266/202)	No	183 (68.8)	157 (77.7)
Were you got prescribed drugs in the recent	Fully (all prescribed)	128 (48.1)	144 (71.3)
episode?(n=266/202)	Partially (only some of them)	119 (44.7)	43 (21.3)
	None of the prescribed drugs	19 (7.1)	15 (7.4)
*Chille corrected injung			

Chills, earache, injury.

†Musculoskeletal disease, NTDs.

.AFI, acute febrile illness; ANC, Antenatal Care; HH, household; NCD, Non-Communicable Disease; PNC, Postnatal Care.

whereas the probability of utilising health services was 8.37 times (AOR and 95% CI=8.37 (4.54 to 15.45)) more than their counterparts among NI HHs (online supplemental table 3).



Figure 2 Health service utilization among insured and noninsured households in East Wallaga zone Oromia region, Ethiopia, 2022. CBHI Member Health Service Used . CBHI Member Health Service Non-Used Member Health Service non-Used _____. CBHI Non-Member Health Service Used

DISCUSSION

Protected by copyright, including for uses related to text and data m The purpose of this study was to assess HSU and predictors among insured and uninsured HHs with CBHI in the East Wallaga Zone, Oromia region, Western Ethiopia, in d 2022. As a result, the role of CBHI in the use of health \triangleright services by insured and uninsured HHs has been identified. According to the study, 60.5% of insured HHs used health services in the previous 6 months, compared with G , and 45.9% of NI HHs. This suggested that HHs enrolled in CBHI were more likely to use healthcare than NI individuals. This can be interpreted as insured HHs using health services 14.6% more than uninsured HHs. This could be attributed adverse selection and moral hazards associated with health insurance from the consumer's perspective.

This finding was almost supported by a number of studies conducted in various parts of the world, which **g** revealed significant disparities in HSU between insured and NI HHs. As a result, this study's findings were higher than those of a study conducted in India. where scheme members utilised health services 6%-7% more than nonmembers¹⁸; in the Philippines, insured HHs were 46.1%, compared with 38.8% for NI HHs.²⁸ It was also higher than studies conducted in other SSA countries, such as one in Cambodia, which discovered that CBHI members and non-members increased visits to public healthcare providers by 18% and private providers by 11%,

respectively.¹⁹ Furthermore, a Burkina Faso study found that insured HH had 30% more healthcare visits than NI HH.²⁰ This disparity could be attributed to differences in sociodemographic and socioeconomic characteristics, as well as differences in the health systems of these countries, which could have a significant impact on the utilisation of health services among insured and NI people in a variety of ways, including who is covered by the provision, how the provision was funded, and how healthcare services were organised. This could also be due to Ethiopia's focus on achieving universal health coverage, particularly the financial risk protection pillars of universal health coverage through various HCFR initiatives in the health system. This finding was almost identical to a study conducted in Rwanda, which found that insured HHs used health services 15% more than NI ones.²¹ Furthermore, in these studies and in our findings, there was a significant difference in HSU between insured and NI HHs. However, a study in Senegal found that there was no difference in the utilisation of health services among insured and NI individuals.²⁹

One study conducted in southern Ethiopia found that 88.5% of individuals with illnesses from CBHI-membered HHs used outpatient health services, compared with 72.3% of individuals from non-membered HHs.³ The finding was greater than in this study. The discrepancy could be attributed to the fact that, when this study was conducted in this specific area, political insecurity was one major factor that could prevent ill people from seeking healthcare, as opposed to the previous study. Although studies in some parts of Ethiopia revealed a significant difference in utilisation of health services between insured and NI HHs, this study's findings were higher than those of studies done in different areas for both insured and NI HHs. For instance, a study done in North-West Ethiopia showed utilisation of health services was 50.5% for members and 29.3% for non-members.²² A study on healthcare utilisation and cost of care found that utilisation of outpatient services from public providers was 35% and 22% for CBHI members and non-members, respectively.²³ Furthermore, the evaluation report for Ethiopia's pilot CBHI scheme revealed that 72.3% of members visited health facilities, compared with 69.3% of non-members from the pilot area.⁷

In addition, a study conducted in the South Gondar Zone found that health insurance enrolment significantly increased HSU, with 67.8% and 33.7% of family members visiting health institutions within 3 months among CBHI users and non-users, respectively.³⁰ The disparity could be attributed to a difference in the time period considered, as this study only looked at 6 months of healthcare utilisation. Also, there may be differences in the perspectives measured, indicating that this study focused on HSU in general, whereas others focused on outpatient services and relied on pilot studies. In contrast to healthcare coverage in Ethiopia, the per capita HSU was low, and overutilisation of health services was reported for CBHI members rather than non-members.¹⁵ This evidence may support the study's findings.

<page-header><page-header><text><text><text><text>

among those who participated in indigenous community insurance than their counterparts among NI HHs. This was consistent with a study conducted in South Achefer.³² Moreover, among insured HHs, those who travelled more than or equal to 10 km from the nearest health facility were 1.5 times more likely to use health services than those who travelled less than 10 km, whereas the probability was 8.37 times higher among NI HHs. This dissimilarity might be due to the fact that, as the health service was far away from home by a kilometre, the probability of HHs being insured decreased. This could not be supported by studies done in the South Gondar Zone³⁴ and East Gojjam Zone.³⁷ This could be because, in this study, consumer moral hazard may be less of an issue due to political instability in the area. In such circumstances, particularly during times of instability, digital health technology such as telehealth may be the best solution to reduce such disparities and minimise healthcare expenditure from the perspectives of patients, HHs and health systems in order to improve a nation's economic growth and development, which may have an impact on the improvement of life expectancy and satisfaction of healthcare consumers.^{38–40}

This study has some limitations. First, because this was a cross-sectional study, no causal inference could be drawn. Second, it was prone to recall bias in the use of health services. Furthermore, the study did not consider matching criteria for insured and uninsured HHs.

CONCLUSION

According to this study, insured HHs were more likely to use health services in the last 6 months than NI HHs. Family health status as not healthy, family with chronic disease, perceived availability of drugs as rare, perceived transportation cost as medium, participation in indigenous community insurance and >10 km travel distance from a nearby health facility were all statistically significant predictors of HSU for both insured and uninsured HHs.

Twitter Adisu Tafari Shama @adisu Tafari Shama

Acknowledgements The authors would like to acknowledge all the study participants, East Wallaga zonal health department and respective districts and Wallaga University for their due cooperation and involvement during the survey.

Contributors DRT was contributed to conceptualisation and design, data acquisition, analysis, interpretation, writing original draft, review and editing and is responsible for the overall content as guarantor. ETG was contributed to conceptualisation and design, data acquisition, critical review and editing. ATS was contributed to conceptualisation and design, data acquisition, critical review and editing. AED was contributed to conceptualisation and design, data acquisition, and design, data acquisition, critical review and editing.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

BMJ Open: first published as 10.1136/bmjopen-2023-078733 on 29 February 2024. Downloaded from http://bmjopen.bmj.com/ on June 14, 2025 at Agence Bibliographique de l Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, Al training, and similar technologies.

Ethics approval This study involves human participants and an appropriate research ethical clearance was obtained from the Institutional Review Board of Wallaga University (reference number: WU, 456/2022), and a permission letter was also obtained from the East Wallaga zonal health department and respective districts. Also, the Declaration of Helsinki was used. The tool was prepared anonymously, and the data were presented in aggregated statistics. Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available on reasonable request. Data are available on reasonable request. All the data supporting the study's findings are within the manuscript. Additional detailed information and raw data will be shared on request addressed to the corresponding author.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: http://creativecommons.org/licenses/by-nc/4.0/.

ORCID iDs

Dufera Rikitu Terefa http://orcid.org/0000-0002-7064-7163 Adisu Tafari Shama http://orcid.org/0000-0002-8963-9390 Adisu Ewunetu Desisa http://orcid.org/0000-0003-4465-6629

REFERENCES

- World Health Organization. Measuring health systems Strengethening and trends: A Toolkit for countries [Internet]. 2008. Available: http:// www.healthmetricsnetwork.org
- 2 O'Donnell O. Access to health care in developing countries: breaking down demand side barriers. Cad Saúde Pública 2007;23:2820–34.
- 3 Demissie B, Gutema Negeri K. Effect of community-based health insurance on utilization of outpatient health care services in Southern Ethiopia: a comparative cross-sectional study. *Risk Manag Healthc Policy* 2020;13:141–53.
- 4 World Health Organization. WHO global health expenditure atlas. Geneva, 2014.
- 5 WHO AR. Progress report on the implementation of the resolution on neglected tropical diseases. 2017: 10–2.
- 6 World Health Organization. *The World Health Report. Health system financing: the path to universal coverage.* 2010.
- 7 Federal Democratic Republic of Ethiopia Ethiopian Health Insurance Agency. Evaluation of community based health insurance pilot scheme in Ethiopia. 2015.
- 8 USAID R. Ethiopia's community-based health insurance: a step on the road to universal health coverage. 2015.
- 9 Evans DB, Etienne C. Health systems financing and the path to universal coverage. *Bull World Health Organ* 2010;88:402.
- 10 World Health Organization. The African Regional health report. The Health of the people. 2014.
- 11 World Health Organization. State of health financing in the african region. 2013.
- 12 Van Minh H, Kim Phuong NT, Saksena P, *et al.* Financial burden of household out-of pocket health expenditure in Viet Nam: findings from the National living standard survey. *Soc Sci Med* 2013;96:258–63.
- 13 FDRE Ministry of Health. Ethiopia national health accounts report 2019/20. 2022.
- 14 WHOTA health. *Health financing in the African region*. 2013.
- 15 USAID R. Ethiopian health sector financing reform/health finance and governance(HSFR/HFG) project. 2018.
- 16 Mariam DH. Bridging the availability-utilization gap: The issue of quality in the provision of health care. 2011.
- 17 USAID. Ethiopia's community-based health insurance: a step on the road to universal health coverage. 2011.

18 Mebratie AD, Sparrow R, Alemu G, et al. Community-based health insurance schemes. A systematic review. 2013;568:1–47.

- 19 Levine D, Polimeni R, Ramage I. Insuring health or insuring wealth? an experimental evaluation of health insurance in rural Cambodia. *Journal of Development Economics* 2016;119:1–15.
- 20 Gnawali DP, Pokhrel S, Sié A, *et al.* The effect of community-based health insurance on the utilization of modern health care services: evidence from Burkina Faso. *Health Policy* 2009;90:214–22.
- 21 Abdul B,A, John C, *et al.* Community based health insurance schemes in Africa: the case of Rwanda. 2010.
- 22 Atnafu DD, Tilahun H, Alemu YM. Community-based health insurance and Healthcare service utilisation, North- West, Ethiopia: a comparative, Cross- sectional study. *BMJ Open* 2018;8:e019613.
- 23 Sparrow R,AD, Yilma Z. The impact of Ethiopia 'S pilot community based health insurance scheme on Healthcare utilization and cost of care Degnet Abebaw, Getnet Alemu, Arjun S. Bedi. 2014.
- 24 Mebratie AD. Essay on on evaluating a community based health insurance scheme in rural Ethiopia [Internet]. 2015. Available: http:// www.ipskampdrukkers.nl/
- 25 Sambo LG, Chatora RR. World Health Organization Regional Office for Africa. Tools for assessing the operationality of district health systems. 2003.
- 26 Évaluation of community based health insurance pilot schemes in Ethiopia. 2015.
- 27 Andersen's behavioral model of health services use: a systematic review of studies from. 2012;9:1–15.
- 28 Dror DM, Soriano ES, Lorenzo ME, et al. Field based evidence of enhanced Healthcare utilization among persons insured by micro health insurance units in Philippines. *Health Policy* 2005;73:263–71.
- 29 Umeh CA, Feeley FG. Inequitable access to health care by the poor in community-based health insurance programs: a review of studies from Low- and middle-income countries. *Glob Health Sci Pract* 2017;5:299–314.
- 30 Dagnaw FT, Azanaw MM, Adamu A, et al. Community-based health insurance, Healthcare service utilization and associated factors in

South Gondar zone Northwest, Ethiopia, 2021: A comparative crosssectional study. *PLoS One* 2022;17:e0270758.

- 31 Getahun T, Teklesilassie L, Habtemichael M, et al. Magnitude of community-based health insurance utilization and associated factors in Bassona Worena district, North Shoa zone, Ethiopia: a communitybased cross-sectional study. BMC Health Serv Res 2022;22:1405.
- 32 Debalkie D, Mulugeta Y. Factors for Healthcare utilization and effect of mutual health insurance on Healthcare utilization in rural communities of South Achefer Woreda. 2018:0–7.
- 33 Access to health care: the role of a community based health insurance in Kenya. 2012;8688:1–9.
- 34 Mulugeta SM. n.d. Factors associated with community based health insurance Healthcare service utilization of households in South Gondar zone.
- 35 Asfaw DM, Shifaw SM, Belete AA, et al. The impact of communitybased health insurance on household's welfare in Chilga district, Amhara regional state, Ethiopia. Front Public Health 2022;10:868274.
- 36 Haile M, Hunduma F, Haile K. Clients' knowledge and satisfaction with utilizing Healthcare services in community-based health insurance program and its associated factors among public health centers in Addis Ababa, Ethiopia.
- 37 Zone EG, Region A. Effect of community-based health insurance on Healthcare-seeking behavior for childhood illnesses among rural mothers in Aneded district, effect of community-based health insurance on Healthcare-seeking behavior for childhood illnesses among rural mother. 2021.
- 38 Alhassan GN, Adedoyin FF, Bekun FV, et al. Does life expectancy, death rate and public health expenditure matter in sustaining economic growth under COVID-19: empirical evidence from Nigeria. J Public Aff 2021;21:e2302.
- 39 Alhassan GN, Öztürk İ, Adedoyin FF, et al. Telehealth as a panacea amidst global pandemic (COVID-19) in Africa. Düzce Tıp Fakültesi Dergisi 2021;23(Special Issue):43–7.
- 40 Alhassan GN, Bosnak AS, Hamurtekin E. Perceived satisfaction and outcomes from drug information center services provided with a Telehealth approach. *Niger J Clin Pract* 2022;25:2053–61.