

Determinants of satisfaction with community-based health insurance schemes among beneficiaries with chronic diseases in selected public hospitals in Eastern Ethiopia: A multicenter study

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Abstract

Background: Community-based health insurance is a voluntary scheme where community members pool resources to cover healthcare costs. Assessing beneficiary satisfaction with chronic disease management is crucial for the program's long-term viability. Therefore, this study aimed to assess determinants of satisfaction with community-based health insurance among beneficiaries with chronic diseases in selected public hospitals in the Hararghe Zones of Eastern Ethiopia.

Methods: An institution-based cross-sectional study was conducted among randomly selected 416 chronic disease beneficiaries of community-based health insurance from 30 July to 30 August 2023. Data were collected through a pre-tested and structured face-to-face interview questionnaire. The data were entered into Epi-Data 3.1 and then exported to STATA 17.0 for analysis. Bivariate and multivariate logistic regression analyses were performed to identify determinants of satisfaction with community-based health insurance. Significance was set at a p -value < 0.05 .

Results: The mean age of the study participants was 48.10 ± 15.8 years. The study revealed that 55.1% (95% CI: 50.2%–59.8%) of beneficiaries with chronic diseases were satisfied with community-based health insurance. Beneficiaries aged over 55 years (AOR = 0.27; 95% CI: 0.08–0.91), experiencing delayed community-based health insurance opening times (AOR = 0.35; 95% CI: 0.17–0.73), preferring hospitals for future services (AOR = 4.13; 95% CI: 1.14–14.85), shorter waiting times (< 60 min) (AOR = 8.8; 95% CI: 4.39–17.72), availability of drugs (AOR = 2.67; 95% CI: 1.30–5.45), availability of laboratory services (AOR = 5.5; 95% CI: 2.83–10.84), and knowledge of community-based health insurance benefit packages (AOR = 2.8; 95% CI: 1.47–5.43) were significant determinants associated with satisfaction to the community-based health insurance service.

Conclusion: About half of the community-based health insurance beneficiaries with chronic diseases were satisfied, indicating that a considerable number of them were dissatisfied with the services. The age of the participants, office opening time, waiting times, laboratory services, pharmacy services, and knowledge of community-based health insurance benefit packages were significant determinants of satisfaction with community-based health insurance schemes. Therefore, the government and other stakeholders need to enhance service quality, increase awareness, and address both supply and demand-side factors. These key strategies can lead to higher satisfaction with and ensure the sustainability of community-based health insurance schemes.

Keywords

Beneficiary, CBHI, chronic diseases, satisfaction, Hararghe, Eastern Ethiopia.

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Introduction

The Community-Based Health Insurance (CBHI) scheme is a type of health insurance program that provides financial protection against illness and improves access to high-quality health care for communities.¹ CBHI or mutual health organizations are non-profit health financing mechanisms for low-income individuals based on solidarity and risk-sharing principles.² They aim to improve healthcare access, reduce out-of-pocket expenses, mobilize resources, enhance healthcare quality, and expand financial protection in rural and urban informal sectors.³

Globally, 4.5 billion people lack full access to essential health services, and around 2 billion are struggling financially, while 1 billion facing severe financial hardship from out-of-pocket healthcare expenses. Moreover, 344 million people, mostly from developing countries, are being pushed further into extreme poverty due to healthcare costs.⁴ Out-of-pocket spending accounts for a range as low as 6% to over 60% of the total out-of-pocket (OOP) expenditure in sub-Saharan Africa, while OOP spending in Ethiopia accounts for 34% of the total healthcare expenditure. This figure is high compared to South Africa (5.5%) and Sweden (13.08%).⁵

The financial strain of OOP payments is often due to insufficient financial protection, such as health insurance coverage in low- and middle-income countries (LMICs), where 10% of the population lacks access to universal health coverage.^{4,6} To address the burden of OOP spending for healthcare, several LMICs, including Ethiopia, have adopted CBHI as a strategy for healthcare financial reforms to improve the quality of healthcare and reduce OOP expenses.⁷

The global level of satisfaction with CBHI was 56.3%.⁸ In Africa, the level was 73.7%⁹, while in Ethiopia, it was 46.3%.¹⁰ Research indicates that beneficiaries' satisfaction with CBHI is influenced by their experience with the scheme and understanding of the benefits it offers for health services.^{10–14} Moreover, drug stockouts, poor laboratory services, payment delays, and long wait times are key factors leading to patient dissatisfaction.^{10,15–18} These challenges lead to extra costs and cause CBHI members to become dissatisfied.^{12,19–21} In some cases, beneficiaries with chronic diseases voluntarily postpone their treatment due to the high cost of medication.²² Research shows a strong relationship between improved service quality, client satisfaction, and the sustainability of services.¹⁷ In fact, the CBHI has a positive impact on beneficiaries' satisfaction by reducing high costs, particularly for those with chronic diseases.^{23,24} This subgroup's experience of cost reduction and increased satisfaction is a valuable area for research and policy development. Understanding the specific factors that contribute to their satisfaction can inform strategies to enhance CBHI programs and improve overall healthcare access and affordability.

In general, there is a lack of evidence in Ethiopia, especially in the study area, regarding the level of satisfaction with the CBHI and associated factors among beneficiaries

with chronic diseases. Therefore, this study aimed to assess the level of satisfaction with the CBHI and associated factors among beneficiaries with chronic diseases in selected public hospitals in the Hararghe Zones of Eastern Ethiopia.

Materials and methods

Study setting and period

The study was conducted in East and West Hararghe Zones, Oromia Regional State, Eastern Ethiopia from 30 July to 30 August 2023. Deder General Hospital, established in 1934 by Non-Governmental Organization (NGO) and later shifted to a government hospital, is located 446 km from Addis Ababa and 70 km from Harar. The hospital is in Deder town, Oromia Regional State, Eastern Hararghe Zone. It enrolled 20,928 CBHI users, with 5824 having chronic diseases. Chiro General Hospital, established in 1969, is located 326 km from Addis Ababa and 198 km from Harar. The hospital is in Chiro town, Oromia Regional State, Western Hararghe Zone. It enrolled 17,219 CBHI users, with 5016 having chronic diseases.

Study design

A facility-based cross-sectional study was conducted.

Population

All beneficiaries of CBHI with chronic disease attending public hospitals in Hararghe Zones, Eastern Ethiopia, during the data collection period, were the study population. This included people living with diabetes, heart problems, chronic obstructive pulmonary diseases (COPD), hypertension (HTN), mental illness, stroke, kidney disease, chronic liver diseases, and epilepsy who visited public health hospitals at least three times for follow-up. Beneficiaries who were not willing to give consent, seriously ill, or unable to respond to questions were excluded from the study.

Sample size determination and sampling techniques

To determine the sample size, a single population proportion formula was employed considering the following assumptions:

$$n = \frac{(Z_{\alpha/2})^2 * P(1 - P)}{d^2}$$

where n = the minimum required sample size, 95% confidence level, 5% margin of error, and 56.2% estimated proportion of satisfaction with the CBHI scheme (p) taken from a previous study conducted in the Oromia region.¹⁰ The sample size for the determinants of satisfaction with the CBHI study was calculated by the double population proportion:

$$n = \frac{(Z_{\alpha/2})^2 \times P_1(1-P_1) + P_2(1-P_2)}{(P_1 - P_2)^2}$$

Epi-Info version 7.2.4.0 Stat Calc. computer software was used, considering the following assumptions: power = 80%, 95% CI: 1:1 ratio, AOR = 1.93, % exposed group (47.1%), and % unexposed group (31.6%).¹⁴ Accordingly, the calculated sample size was 367, which was smaller than the sample size for the first objective. Thus, the largest sample size included a 10% nonresponse rate, which was 416.

Two of the 16 hospitals found in the Hararghe Zones catchments were selected using purposive sampling techniques. These two hospitals were chosen because Deder General Hospital was piloted on CBHI woreda in 2011, while Chiro General Hospital was not. The public hospitals in the East and West Hararghe zones are Deder General Hospital and Chiro General Hospital. The average number of patients with chronic diseases in selected public hospitals was estimated from the last 6 months' reports of the health management information system of selected hospitals. The study participants were drawn from CBHI beneficiaries with chronic diseases attending these two public hospitals. The sample size was allocated proportionally to each hospital based on the estimated number of patients. A simple random sampling technique was then used to select the total study participants who were present during the data collection period.

Data collection procedure

Data were collected through face-to-face interviews with eligible participants using a structured questionnaire that was adopted from existing literature.^{10,12,15-18} The questionnaire included sections on sociodemographic characteristics, experience, knowledge of CBHI, healthcare provision factors, types of chronic diseases, and satisfaction with CBHI. The questionnaire was initially prepared in English and then translated into Afaan Oromo. Data collectors included eight BSc nurses and two MPH holders from outside the study area who served as supervisors.

Variables of the study

The study examined the level of satisfaction with the CBHI as the dependent variable. Independent variables included sociodemographic characteristics (age, sex, education, marital status, family size, residency, income), experience with the CBHI scheme (knowledge of benefits, office hours, membership renewal plans, and hospital preference), health facility factors (distance, waiting time, lab services, drug availability, facility cleanliness, provider respect, and staff availability).

Measurements

The level of satisfaction with the CBHI was measured using standard tools consisting of 10 items on a five-point Likert scale with responses ranging from strongly disagree (1) to strongly agree (5).^{14,16,17,25} The points obtained from the 10 items by each participant were computed to obtain the total score of each participant, with participants scoring a minimum of 10 points, a maximum of 41 points, and a median score of 27.00. Participants with a score ≥ 27.00 were considered satisfied, while those with a score < 27.00 were considered unsatisfied. The internal consistency of the 10 items was 0.789, indicating an acceptable level.

Waiting time refers to the period patients spend waiting for a service, from registration to being seen by healthcare providers and receiving medication.¹⁹ Waiting time is divided into two categories: short waiting times (< 60 min) and long waiting times (≥ 60 min).

Knowledge of the CBHI benefit package refers to the awareness that participants have of CBHI benefits packages and was measured using the eight items related to the CBHI benefit packages. Clients were considered to have good knowledge if they answered five or more yes questions out of eight questions. Otherwise, they were considered to have inadequate (poor) knowledge.²⁰

Distance to nearby health facilities was measured by using the client's report on the walking distances to reach the nearest public hospitals. They are categorized by 5 km, equivalent to a 1-h walking distance, which is a standard cut-off in rural areas.^{21,22}

Chronic noncommunicable diseases include diabetes mellitus (DM), cardiovascular disease (CVD), COPD, HTN, mental illness, stroke, kidney disease, chronic liver diseases, and epilepsy.¹⁷

Data quality control

The questionnaire was translated into Afaan Oromo and back-translated into English. A pretest was conducted on 5% of the sample (21 participants) to identify and address any ambiguities or difficulties in understanding. Each questionnaire was assigned a unique identification number. Data collectors and supervisors received training on study objectives, data collection methods, ethical considerations, and data confidentiality. Regular meetings were held to address any issues that arose during interviews. Data were securely stored without personal identifiers. Data completeness was checked before entry into Epi-Data, which includes error detection controls. Two data clerks performed double data entry to ensure accuracy.

Data processing and analysis

Data were manually cross-checked, coded, and entered to Epi-Data version 3.1 and analyzed using STATA version

17.0. Descriptive analysis was used to summarize findings, and binary logistic regression was conducted to assess associations. Multicollinearity was checked with variance inflation factor (VIF) and standard error, showing no issues. The model fit was confirmed with the Hosmer–Lemeshow test ($p=0.6486$). Statistical significance was set at $p < 0.05$ with a 95% CI.

Results

Sociodemographic characteristics of the participants

All 416 planned participants took part in the study, resulting in a 100% response rate. Among them, 237 (57%) were male. The age of the participants ranged from 18 to 87 years, with a mean age of 48.10 ± 15.8 years. Most of the participants (294, 70.60%) had no formal education, and 330 (79.33%) were married. The family size of the participants varied from 1 to 10, with a mean of 5.36 ± 2.23 . Additionally, 274 (65.9%) of the participants were from rural areas (Table 1).

Experiences of beneficiaries in the CBHI scheme

Approximately 59.38% of participants had 3 years of enrollment or less, with a mean distance of 5.35 (SD ± 6.10) hours from the hospital. A total of 60.10% had visited both health centers and hospitals, while only 3.37% visited health centers exclusively. Most participants (58.41%) were not satisfied with the CBHI office hours. However, the majority reported that the hospital had adequate medical equipment (67.07%) and qualified health professionals (71.88%). A total of 91.35% preferred to use hospitals for future visits, and 88.22% planned to renew their membership insurance cards (Table 2).

Beneficiaries' knowledge and health services provision-related characteristics

Approximately half (51.68%) of the study beneficiaries participants experienced waiting times of over 60 min from registration to receiving care. Most beneficiaries (77.8%) received the prescribed drugs either in full or partially, but a significant portion did not receive laboratory services (60.82%) did not receive laboratory services and immediate care (58.65%) during their hospital visits. On the other hand, approximately 284 (68.27%) of the beneficiaries reported being respectful and friendly toward healthcare providers. Additionally, 6 out of 10 beneficiaries demonstrated good knowledge of the CBHI scheme (Tables 3 and 4).

Patterns of chronic diseases among CBHI beneficiaries

About 27.6% of participants had DM, 22.8% had CVD, 18.1% had respiratory illness, and 11.3% had other

Table 1. Sociodemographic characteristics of CBHI beneficiaries with chronic diseases in selected public hospitals in the Hararghe Zone, Eastern Ethiopia, 2023 ($n=416$).

Characteristics	Category	Frequency (n)	Percent (%)
Sex	Male	237	57
	Female	179	43
Age	18–34	83	19.95
	35–44	103	24.76
	45–54	89	21.39
	≥ 55	141	33.89
Marital status	Single	32	7.69
	Married	330	79.33
	Divorced	36	8.65
	Widowed	18	4.33
Educational level	Unable to read and write	238	57.21
	Able to read and write	56	13.46
	Primary (1–8)	81	19.47
	Secondary (9–12) and above	41	9.86
Family size	≤ 5	225	54.1
	> 5	191	45.9
Place of residence	Urban	142	34.1
	Rural	274	65.9
Average monthly income (ETB)	≤ 2200	248	59.62
	2201–5000	162	38.94
	≥ 5001	6	1.44

ETB: Ethiopian birr.

Table 2. Experience of p beneficiaries in CBHI among beneficiaries with chronic diseases in selected public hospitals in the Hararghe Zone, Eastern Ethiopia, 2023 ($n=416$).

Characteristics	Category	Frequency (n)	Percent (%)
Length of enrolment	≤ 3 years	247	59.38
	> 3 years	169	40.62
Travel time to arrive the hospital	≤ 1 h	153	36.78
	> 1 h	263	63.22
Types of health institution	Health center only	14	3.37
	Hospital only	152	36.54
	Both	250	60.10
Adequate ME in the hospital	Yes	279	67.07
	No	137	32.93
Adequate qualified HP in the hospital	Yes	299	71.88
	No	117	28.13
Opening CBHI offices	Yes	173	41.59
	No	243	58.41
Preference to use the hospital	Yes	380	91.35
	No	36	8.65
Plan to renew insurance cards	Yes	367	88.22
	No	49	11.78

CBHI: community based health insurance; HP: health professionals; ME: medical Equipment.

Table 3. Health service provision-related characteristics of CBHI beneficiaries with chronic diseases in selected public hospitals in the Hararghe Zone, Eastern Ethiopia, 2023 (n=416).

Characteristics	Category	Frequency (n)	Percent (%)
Waiting times during services	≤60 min	201	48.32
	>60 min	215	51.68
Availability of the prescribed drugs	Full	192	46.15
	Partial	132	31.73
	Not at all	92	22.12
Received laboratory services	Yes	163	39.18
	No	253	60.82
Cleanliness of hospital environment	Yes	233	56.01
	No	183	43.99
Got immediate care	Yes	172	41.35
	No	244	58.65
Health care provider respect the customers (friendliness)	Yes	284	68.27
	No	132	31.73

Table 4. Knowledge status of the beneficiaries of CBHI beneficiaries with chronic diseases in selected public hospitals in the Hararghe Zone, Eastern Ethiopia, 2023 (n=416).

Variable	Categories	Frequency	(%)
Does CBHI is a good way to relieve health expenditure	Yes	296	80.65
	No	71	19.35
Does CBHI covers only care with in the country (Ethiopia)	Yes	302	82.29
	No	65	17.71
Does CBHI covers only care from public health institutions	Yes	203	55.31
	No	164	44.69
Does CBHI not cover transportation fee	Yes	299	81.47
	No	68	18.53
Does CBHI covers inpatient care	Yes	304	82.83
	No	63	17.17
Does CBHI covers outpatient care	Yes	313	85.29
	No	54	14.71
Does CBHI not cover medical care for cosmetic surgery values	Yes	284	77.38
	No	83	22.62
Does CBHI not cover for kidney dialysis	Yes	305	83.11
	No	62	16.89
Overall knowledge status of the participants	Good knowledge	250	60.1
	Poor knowledge	166	39.9

CBHI: community based health insurance.

illness. The average duration of illness was 4.5 years (SD ± 2.18) (Figure 1).

Levels and factors associated with satisfaction with the CBHI

According to the binary logistic regression analysis, factors such as age, educational status, family size, and experience with the CBHI scheme (including length of enrollment, preference for using hospital in the future, early CBHI office opening times, planning to renew membership cards) and health care service-related factors (such as wait times, availability of laboratory services, availability of prescribed drugs, cleanliness of facilities, respect and friendliness of staff, and knowledge about CBHI benefit packages) were found to be significantly associated with CBHI beneficiary satisfaction, all at $p < 0.25$, 95% CI. Finally, after controlling for potential confounders, age, early CBHI office opening time, preference for using the hospital, waiting time, availability of prescribed drugs, availability of laboratory services, and knowledge of CBHI benefit packages were found to be statistically significant independent predictors of satisfaction with CBHI at a p -value < 0.05 in the multivariate analysis.

The likelihood of CBHI satisfaction decreased by 73% (AOR=0.27; 95% CI: 0.08–0.91) among beneficiaries aged ≥ 55 years compared to those in the 18–34 years age group. Similarly, satisfaction with CBHI decreased by 65% (AOR=0.35; 95% CI: 0.17–0.73) for the timely opening of CBHI offices. Beneficiaries who preferred using hospitals in the future were 4.13 times more likely to be satisfied than those who did not plan to use hospitals (AOR=4.13; 95% CI: 1.14–14.85). Those fully prescribed drugs were 2.67 times more likely to be satisfied than those not-prescribed drugs (AOR=2.67; 95% CI: 1.30–5.45). The odds of satisfaction with CBHI were 5.5 times greater among those who accessed laboratory services compared to those who did not (AOR=5.5; 95% CI: 2.83–10.84). Beneficiaries serviced within 60 min were 8.8 times more likely to be satisfied than those delayed over 60 min (AOR=8.8; 95% CI: 4.39–17.72). Additionally, beneficiaries with good knowledge of CBHI benefit packages were 2.8 times more likely to be satisfied with the scheme than those with poor knowledge (AOR=2.8; 95% CI: 1.47–5.43) (Table 5).

Discussion

In this study, the satisfaction with the CBHI scheme among beneficiaries with chronic diseases was found to be 55.1% (95% CI: 50.2%–59.8%). This study finding was comparable with a previous study conducted in Ethiopia^{23,24,25} and Istanbul, Turkey.⁸ On the other hand, it is higher than the finding reported in Ethiopia 46.3%²⁶, and Indonesia 34.76%.²⁷ This might be due to significant reductions in medication and treatment costs, which are crucial for chronic disease patients. However, our finding is lower than the report from Rwanda 92.3%,²⁸ Nigeria 73.7%,⁹ and Ethiopia 63.4%.²⁹ This disparity might stem from different measurement tools used to assess satisfaction. Additionally,

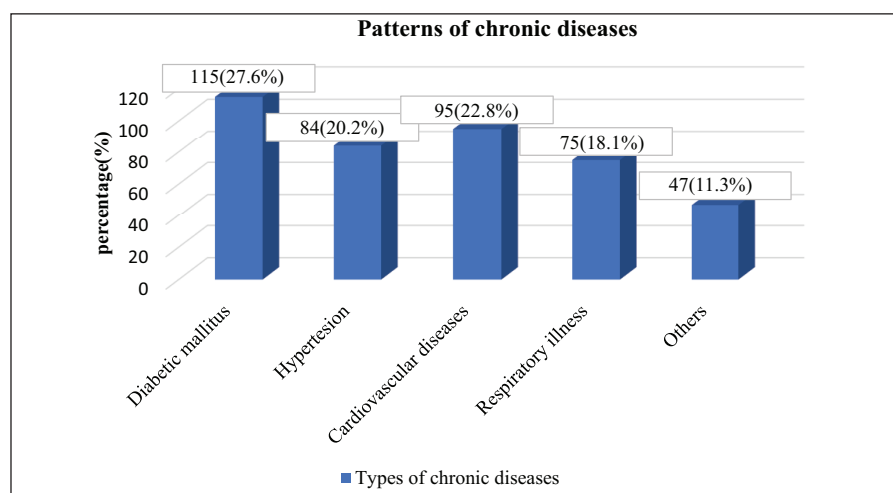


Figure 1. Patterns of chronic disease beneficiaries among CBHIs in selected public hospitals in the Hararghe Zone, Eastern Ethiopia, 2023 ($n = 416$).

(Others: epilepsy, chronic liver diseases, mental illness, kidney diseases, and stroke).

Table 5. Factors associated with an overall satisfaction with CBHI scheme among beneficiaries with chronic diseases in selected public hospitals of Hararge Zones, Eastern Ethiopia, 2023 ($n = 416$).

Variable	Satisfaction level with CBHI		COR (95% CI)	AOR (95% CI)
	Yes (%)	No (%)		
Age				
18–34	53 (63.85%)	30 (36.15%)	I	I
35–44	57 (55.34%)	46 (44.66%)	0.70 (0.38–1.26)	0.577 (0.2327–1.46)
45–54	54 (60.67%)	35 (39.33%)	0.87 (0.47–1.62)	0.68 (0.229–2.02)
≥55	65 (46.1%)	76 (53.9%)	0.48 (0.27–0.84)	0.27 (0.08–0.91)*
CBHI offices opening times				
Timely	104 (60.12%)	69 (39.88%)	1.4 (0.95–2.11)	0.35 (0.17–0.73)*
Lately	125 (51.44%)	118 (48.56%)	I	I
Prefer to hospital for future use				
Yes	217 (57.11%)	163 (42.89%)	2.66 (1.29–5.48)	4.13 (1.14–14.85)*
No	12 (33.33%)	24 (66.67%)	I	I
Availability of prescribed drugs				
Full	137 (71.35%)	55 (28.65%)	2.3 (1.47–3.72)	2.67 (1.30–5.45)*
Partial	68 (51.51%)	64 (48.49%)	I	I
Not at all	24 (24.08%)	68 (75.92%)	0.33 (0.18–0.59)	0.76 (0.32–1.79)
Availability of laboratory services				
Yes	148 (90.8%)	15 (9.2%)	7.07 (4.15–12.032)	5.5 (2.83–10.84)**
No	81 (32.01%)	172 (67.99%)	I	I
Waiting times				
≤60 min	152 (75.24%)	50 (24.76%)	5.4 (3.54–8.26)	8.8 (4.39–17.72)**
>60 min	77 (35.98%)	137 (64.02%)	I	I
Care providers respect and friendliness				
Yes	171 (60.2%)	113 (39.8%)	1.9 (1.27–2.93)	0.97 (0.48–1.96)
No	58 (43.9%)	74 (56.1%)	I	I
Cleanliness of hospital environment				
Yes	142 (60.9%)	91 (39.1%)	1.7 (1.16–2.54)	1.13 (0.54–2.34)
No	87 (47.5%)	96 (52.5%)	I	I
Knowledge of the respondent on CBHI benefit packages				
Have good knowledge	160 (64%)	90 (36%)	2.5 (1.67–3.73)	2.8 (1.47–5.43)*
Have poor knowledge	69 (41.6%)	97 (58.4%)	I	I

I: reference group; COR: crude odds ratio; AOR: adjusted odds ratio; CBHI: community based health insurance.

**Significant at p -value < 0.001, *significant at p -value < 0.05.

variations in CBHI scheme implementation, healthcare infrastructure, service delivery, and diverse cultural and socioeconomic factors could influence beneficiaries' perceptions and experiences. Targeted improvements and continuous monitoring of the CBHI scheme are crucial to identify areas for enhancement and effectively meet the needs of beneficiaries with chronic diseases.

In our study, sociodemographic, delayed CBHI opening times, preferring hospitals for future services, shorter waiting times (<60 min), knowledge of CBHI benefit packages, availability of drugs, and laboratory services were identified as significant determinants of satisfaction with CBHI schemes. Beneficiaries over the age of 55 were dissatisfied with the CBHI scheme. This study's results align with previous research conducted in Ethiopia,^{30,31} Nigeria,¹⁶ and Istanbul, Turkey.¹⁷ This might be due to older people having more frequent illnesses compared to younger people and as their age increases, the probability of getting sick increases; thus, they use health services more frequently and pay from their pocket for every service they receive.

A delay in opening CBHI offices was identified as a predictor of dissatisfaction with CBHI schemes. This finding aligns with previous research conducted in Ethiopia,²¹ which also noted similar concerns. Ensuring that offices open on time is crucial for maintaining a positive patient experience, particularly for chronic disease patients who are mostly older. Consistent delays can erode trust in the CBHI scheme, leading beneficiaries to perceive it as unreliable. To address this, health system leaders should implement strict operational guidelines, allocate adequate resources, and establish robust feedback mechanisms.

Beneficiaries who preferred to use hospitals in the future were satisfied with the CBHI scheme. This is supported by previous studies performed in Ethiopia.¹² Beneficiaries' preference for hospitals likely reflects their perception of higher quality care and better facilities available at hospitals compared to other healthcare providers. Hospitals typically offer a wider range of services, including specialized care and advanced diagnostic facilities, which are crucial for managing chronic diseases. Additionally, the preference for hospitals indicates a higher level of trust and confidence in the healthcare services provided under the CBHI scheme.

Availability of prescribed drugs was found to be a determinant of satisfaction with CBHI schemes. This finding is supported by previous studies conducted in Ethiopia.^{10,26,27,32–34} and Bangladesh.²⁹ The perceived financial value of the scheme, including reduced OOP expenses, significantly impacts satisfaction because of unnecessary price increases by private pharmacies.¹⁰ It could lead to higher dropout rates from the scheme and deter nonmembers from enrolling in the future.

Among health services, receiving laboratory service was a determinant of satisfaction with CBHI schemes in the study area. This finding is consistent with previous studies in Ethiopia^{11,17,21} and Bangladesh.³³ The consistency of these

findings across different regions suggests that improving laboratory services could be a universal strategy to enhance satisfaction with CBHI schemes. Ensuring that beneficiaries have timely access to necessary diagnostic tests can lead to better health outcomes and increased trust in the healthcare system.

This study showed that beneficiaries who received services within sixty minutes were satisfied with the CBHI. This finding is supported by former studies conducted in Ethiopia^{9,10} and Burkina Faso.¹⁴ In contrast to this study, the worst situation is that insured patients have longer waiting times at health facilities than uninsured patients and are being discriminated against by healthcare providers.¹¹ The correlation between quick service delivery and higher satisfaction levels underscores the need for healthcare facilities to prioritize reducing wait times. Ensuring that beneficiaries receive prompt attention not only improves their overall experience but also fosters trust and confidence in the healthcare system.

Beneficiaries having a good knowledge had association with satisfaction to CBHI schemes. These findings were supported by the former studies conducted in Ethiopia^{12,13,17,21} and Nigeria.³⁰ The possible justification may be because people with better information and understanding of CBHI's existence, principles, and importance are more likely to join the scheme. This may be linked to known rules and regulations including benefits offered by the scheme. Moreover, beneficiaries who know more about CBHI benefit packages may benefit more from it and be more satisfied.

This study uses a harmonized purposive and random sampling technique for selecting hospitals and study participants, respectively. These can present certain inherent limitations and generalizability. Consequently, further research is recommended to validate the findings in different settings and by stratifying patients based on the stage of their chronic disease. Additionally, the reliance on self-reported data may introduce social desirability bias. Due to the cross-sectional design of the study, establishing temporality and causal relationships is not possible.

Conclusion

About half of the community-based health insurance beneficiaries with chronic diseases were satisfied. The study identified age, office opening time, waiting times, laboratory services, pharmacy services, and knowledge of CBHI benefit packages as significant determinants of satisfaction. To maintain and enhance satisfaction, it is important to continue strengthening hospital services, promoting awareness about the benefits and services covered under the CBHI scheme, and improving the accessibility of hospital services, especially for beneficiaries in remote or underserved areas. Implementing robust feedback mechanisms to regularly gather beneficiary input on hospital services can help identify areas for improvement. By focusing on these

areas, health system leaders can ensure that the CBHI scheme continues to meet the expectations and needs of beneficiaries, thereby enhancing overall satisfaction and trust in the healthcare system.

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Authors' contributions/Autorship

YMW made a substantial contribution to the conception and design of the research idea, proposal development, acquisition, data collection, analysis, and interpretation of the data, and writing of the draft of the manuscript under the supervision of SB and SL. SB, SL, NA, and KA participated in the interpretation and critically revised the manuscript for its intellectual content. All authors have read and approved the final manuscript.

Declaration of conflicting interests

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Ethical considerations

This study (Ref. No: IHRERC/144/2023) was approved by the Institutional Health Research Ethics Review Committee at Haramaya University, College of Health, and Medical Sciences. Letters of support were provided to each public hospital, and permission was obtained from hospital administrators. The study adhered to the Declaration of Helsinki. Participants were assured that they could end the interviews at any time. Confidentiality was maintained by using codes instead of personal identifiers. Standard safety measures for COVID-19 prevention were strictly followed during data collection.

Informed voluntary consent

Written and signed informed voluntary consent was obtained from the patients for their anonymized information to be published in this article.

Informed consent

Before data collection, participants were informed about the study's purpose and objectives, and both verbal and written informed consent were obtained. For participants who were unable to read and write, written informed consent was obtained through a detailed process. The study objectives, procedures, risks, and benefits were verbally explained to the participants in a language they understood. An impartial, literate witness, who was not part of the research team, was present during the consent process to confirm that the participant understood the information provided. Participants who were unable to sign their names provided consent by placing their thumbprint on the consent form, and the witness

then signed the form to attest that the participant had given informed consent. This process was documented in the participant's file, including the name and signature of the witness, the date, and a note confirming that the participant had given informed consent verbally and via thumbprint. This ensures transparency and adherence to ethical standards in the research documentation.

Trial registration

Not applicable.

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Supplemental material

Supplemental material for this article is available online.

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