

Review Article

Household's Head Satisfaction and Associated Factors Towards Community-Based Health Insurance (CBHI) Schemes Among Enrollees in Northwest Ethiopia

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Background: Community-based health insurance (CBHI) is an emerging form of microhealth insurance that relies on the principle of solidarity, with community members pooling money to help with medical expenses. The level of household heads' satisfaction with CBHI schemes is more likely to affect their decision to remain enrolled and the entrance of new members. However, studies regarding household heads' satisfaction with the CBHI schemes are scarce in Ethiopia. Therefore, this study aimed to determine the level of satisfaction with CBHI schemes and associated factors among heads of households in Northwest Ethiopia.

Methods: A community-based cross-sectional study was conducted from March 1–30, 2022. A stratified random sampling technique with multistage sampling was used to select 604 study participants. A face-to-face interview was conducted using a pretested structured questionnaire. Both bivariable and multivariable logistic regression analyses were conducted. An adjusted odds ratio (AOR) with 95% confidence intervals (CIs) was computed to evaluate the strength of the association, and variables with a p value < 0.05 at a 95% CI were considered statistically significant.

Results: This study found that about 56.1% of household heads were satisfied with the CBHI schemes. Being older age (AOR = 1.85; 95% CI: 1.17, 2.94), rural residence (AOR = 4.13; 95% CI: 2.24, 7.62), visited only health center (AOR = 0.34; 95% CI: 0.20, 0.55), distance from a health facility (AOR = 3.18; 95% CI: 1.82, 5.55), agreement with prescribed drugs (AOR = 2.31; 95% CI: 1.36, 3.92), friendliness with healthcare provider (AOR = 3.65; 95% CI: 2.18, 6.10), and had a good knowledge of benefit packages (AOR = 3.00; 95% CI: 1.93, 4.67) were significantly associated with household head satisfaction.

Conclusion: The overall satisfaction of household heads with the CBHI schemes was good. The type of health facility visited, residence, age, distance from health facilities, relationship with healthcare providers, agreement with prescribed medications, and knowledge of community based health insurance were significantly associated with participants' satisfaction. Thus, these findings suggest that improving access to healthcare services, fostering better relationships between healthcare providers and beneficiaries, and enhancing awareness of CBHI benefits could further increase satisfaction levels among households.

Keywords: community-based health insurance (CBHI); Ethiopia; household; satisfaction

1. Introduction

According to the World Health Organization (WHO), 12% of the population in the world spend at least 10% of their household income on healthcare, and half of the people do not have access to the health services [1]. In low- and middle-income countries (LMICs), healthcare services are unaffordable and inaccessible to the majority of underprivileged people [2].

Community-based health insurance (CBHI) is a new form of microhealth insurance that relies on the principle of solidarity, with community members pooling money to help with medical expenses [3]. Furthermore, CBHI has its foundation on the reduction of adverse selection possibility, connections with healthcare providers, and an underlying ethic of enrollment, solidarity, and mutual aid [4, 5].

The Ethiopian government has launched CBHI, which aspires to cover 85% of the population who are engaged in the informal sector [6]. However, the CBHI enrollment coverage in Ethiopia was 55% [7], but the renewal rate shows an increment from 54% to 82%, and a significant number of dropouts were observed in each year [8].

Entrance of new enrollees and renewal of enrollment are more likely to be affected by enrollees' satisfaction with the insurance schemes [9–11]. To identify the gaps on the quality of healthcare service delivery and providing insight on the accessibility and responsiveness of healthcare services, evaluating the enrollees' satisfaction play a crucial role [12]. It can also be used as a guidance tool for nongovernmental organizations (NGOs), healthcare facilities, and the Ethiopian Health Insurance Agency (EHIA). Only a few institutional-level studies are conducted in Ethiopia, which reported that the satisfaction of household heads was ranged from 56.2% to 61.1% [13–15]. Nonetheless, to the best of researchers' knowledge, no study has been conducted on the satisfaction of CBHI users at the community level in the study area. Furthermore, evidence showed that there is a significant differences in community enrollment with the CBHI scheme across different areas of the country due to the variations in administrative and healthcare service provider facilities [16, 17]. Thus, this study aimed to assess the household heads' level of satisfaction and associated factors towards CBHI schemes in Northwest Ethiopia.

2. Methods

2.1. Study Design. A community-based cross-sectional study was conducted to assess the level of satisfaction and associated factors with the CBHI schemes.

2.2. Study Area and Period. This study was carried out in the Bibugn district in Northwest Ethiopia between March 1 and March 30, 2022. The district has 4 urban and 15 rural kebeles, with an estimated total population of 97,626. One primary hospital, four health centers, and 18 health posts were found in the district [18]. Since March 2017 G.C., the district has been implementing the CBHI scheme program. In the district, 81% of households are currently enrolled in CBHI schemes [19].

2.3. Population. All households' heads who enrolled to the CBHI scheme in Bibugn district were the source population, whereas the study population were households' heads who enrolled to CBHI scheme in selected kebeles of Bibugn district.

2.4. Eligibility Criteria. Households that were members of the CBHI schemes and had at least one family member who visited public health facilities at least once starting from their enrolment were included. However, those who were seriously sick and unable to give a response were excluded from this study.

2.5. Sample Size Determination. The sample was calculated using a single population proportion formula by assuming that 54.7% of households are satisfied with the CBHI, which is taken from the previous study conducted in Ethiopia [17], a confidence level of 95%, a 5% margin of error, and a design effect of 1.5.

$$n = \frac{Za/2^2 * p(1-p)}{d^2},$$

$$n = \frac{(1.96)^2 * (0.547) * (1 - 0.547)}{(0.05)^2},$$

$$n = 380.8 \sim 381,$$

$$n * \text{design effect } (1.5) = 571.5 \sim 572,$$

where n is the minimum sample size, z is the standardized normal distribution curve/value for the 95% confidence interval (1.96); p is the satisfaction of CBHI users in previous study (54.7%), d is the margin of error (5%), and Nr is the nonresponse rate (10%).

Additionally, sample size adequacy was checked by using factors associated with households' heads satisfaction with CBHI schemes (Table 1).

Therefore, after adding the 10% nonresponse rate, the maximum sample size was 630.

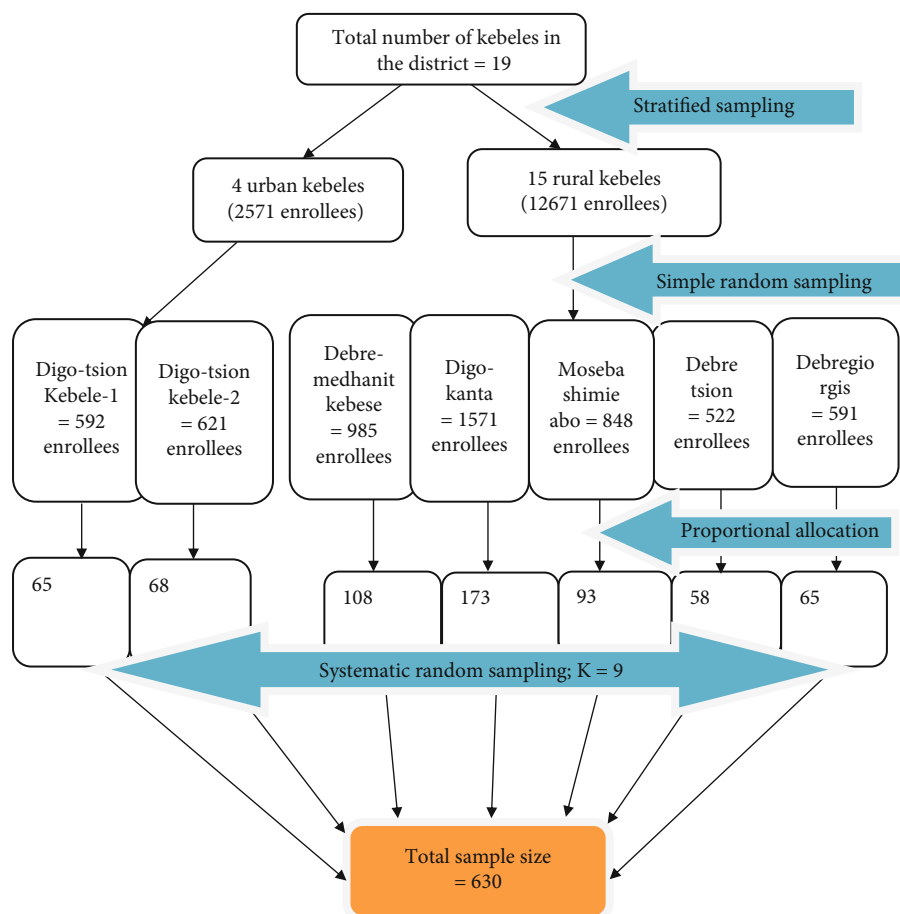
2.6. Sampling Technique and Procedure. A stratified multi-stage sampling technique was employed to select the study participants. After kebeles were stratified into urban and rural kebeles, a simple random sampling method was applied to select 30% of kebeles from each stratum. Finally, the study participants were selected using a systematic random sampling method (Figure 1).

2.7. Data Collection Tools and Procedures. A structured questionnaire developed by reviewing various literatures [16, 17, 20, 21]. Then, 10 items related to satisfaction on a 5-point Likert scale were used. Data were collected through face-to-face interviews with the heads of households. Data collection was conducted by four BSc nurses, supervised by one senior public health officer.

2.8. Data Quality Assurance. The questionnaire was prepared in English and translated to Amharic and back to English to ensure consistency. A pretest was conducted among 32 study participants who live in Dega Damot

TABLE 1: Sample size calculation using associated factors of CBHI scheme satisfaction.

Variable	Proportion	Sample size
Having adequate knowledge of the CBHI benefit packages	45.7%	630
Households who visited only hospitals	14.8%	320
Households who agreed with the laboratory services received	87.9%	270
Households with enrollment length ≥ 12 months	69.1%	542

**FIGURE 1:** Sampling procedure of study participants in Bibugn district, Northwest Ethiopia, 2022.

district. A two-day training was given to data collectors on the objectives of the study, methods of data collection, data collection tools, and ethical principles. Spot checks on the quality of data collection were made in the field, and the completeness of questionnaires was checked. The internal consistency of the scales was checked using Cronbach's alpha test.

2.9. Data Processing and Analysis. The data were entered into Epi Data version 4.6 and then exported into SPSS version 23.0 for analysis. Descriptive statistics such as frequencies, means, medians, and percentages were calculated. Bivariable and multivariable logistic regression analyses were carried out to assess the association between independent variables and the outcome variable. Variables with a p value of less than 0.2 at CI 95% in the bivariable analysis were included in the multivariable logistic regression, analysis

and a p value < 0.05 at 95% CI was used to declare the statistical significance. The Hosmer and Lemeshow goodness-of-fit test was checked to ensure that the model was adequate ($p = 0.12$). Multicollinearity was checked using the variance inflation factor ($VIF = 1.72$) and the internal consistency of the 10 items was checked using Cronbach's alpha (0.84).

2.10. Operational Definitions

- **Households' heads overall satisfaction:** Households' heads were labelled as satisfied if they scored median or above median on satisfaction questions [17, 20].
- **Knowledge of the CBHI benefit package:** Households were labelled as having adequate knowledge if they scored greater than or equal to the median of the CBHI benefit package knowledge questions [17].

- **Wealth Index:** It is the score which show the households economic status. It was assessed by using respondents' reported assets: farmland, crops production, livestock, infrastructure (refrigerator, TV, radio, bed, phone, bicycle, motorcycle, etc.), sanitary condition, housing conditions, dwelling construction, water source, and other vital items in the household. Household wealth index was computed using principal component analysis (PCA). Variables with no outlier frequency (<5% and >95%) were used for PCA and variables with communality values greater than 0.5 were used to create factor scores. Households were categorized as poor, medium, and rich by taking previous similar study as a reference (20).

3. Results

3.1. Sociodemographic Characteristics of Study Participants. A total of 604 households' heads participated in this study, which gives a response rate of 95.9%. Of these study participants, 91.2% were males, and the median age of participants was 39 (IQR: 25–88) years. About 80% of the participants were rural residents (Table 2).

3.2. Experience of Households in CBHI Schemes. Three-fifths of the households (60.1%) had a 4-year length of enrollment, more than half (54.6%) of the respondents had a history of visits at both health centers and hospitals, and more than three-fourths of the study participants (76%) visited health care facilities more than five times since enrolling in the CBHI schemes (Table 3).

3.3. Household's Head Knowledge on CBHI Benefit Packages. About half (49.3%) of the participants were labelled as having poor knowledge of the CBHI benefit packages (Table 4).

3.4. Health Service Provision–Related Factors. One-fourths (25.7%) of the participants reside in >5 km distance from healthcare facilities. About 72.7% of the participants reported that they got and agreed with the prescribed drugs. Three out of five of the participants (60.4%) reported that they did not get respect from the healthcare providers during their visit to healthcare facilities (Table 5).

3.5. Level of Households' Heads Satisfaction With the CBHI Schemes. According to the current study, about 56.1% (95%CI = 52.2, 59.9) of household heads were satisfied with the CBHI schemes (Figure 2).

According to the Likert-scale questions, the respondents scored a minimum of 20 and a maximum of 50 points with a median score of 37 (Table 6).

3.6. Bivariable and Multivariable Logistic Regression Analyses. In multivariable regression analysis, age, residence, type of health institution visited, distance to health facility, getting prescribed drugs and agreement with it, friendliness of healthcare providers, and knowledge of CBHI benefit packages were found to be statistically significant independent predictors of satisfaction at $p < 0.05$, 95% CI.

TABLE 2: Sociodemographic characteristics of the participants enrolled in the CBHI schemes in Bibugn district, Northwest Ethiopia, 2022.

Variables	Categories	Frequencies	%
Age	≤ 39	310	51.3
	> 39	294	48.7
Sex	Male	551	91.2
	Female	53	8.8
Marital status	Married	528	87.4
	Unmarried	76	12.6
Family size	≤ 5	315	52.2
	> 5	289	47.8
Level of education	No formal education	352	58.3
	1–8	168	27.8
	9 and above	84	13.9
Occupation	Farmer	496	82.1
	Merchant	80	13.2
	Others	28	4.6
Residence	Rural	481	79.6
	Urban	123	20.4
Wealth index	Poor	197	32.6
	Medium	186	30.8
	Rich	221	36.6

The odds of satisfaction among enrollees greater than 39 years were 85% higher as compared to their counterparts (AOR = 1.85; 95% CI: 1.1, 2.94). Similarly, rural residents were 4.1 times more likely to be satisfied with the CBHI schemes than urban residents (AOR = 4.13; 95% CI: 2.2, 7.62). Furthermore, the likelihood of households' head satisfaction among those households who visit health centers only with the CBHI schemes was lower by 66% as compared with those who visit both hospitals and health centers (AOR = 0.34; 95% CI: 0.2, 0.55). Households who lived 5 km or less from health facilities were 3.2 times more likely to be satisfied with the CBHI schemes as compared to their counterparts (AOR = 3.18, 95% CI: 1.82, 5.55).

Similarly, the odds of households' head satisfaction were 2.3 and 3.6 times higher for those enrollees who got and agreed with healthcare service providers when compared to those enrollees who disagreed (AOR = 2.31; 95% CI: 1.36, 3.92; AOR = 3.65; 95% CI: 2.18, 6.10), respectively. Moreover, participants who had good knowledge of CBHI benefit packages were three times more likely to be satisfied with the CBHI schemes than those who had poor knowledge (AOR = 3.00, 95% CI: 1.9, 4.67) (Table 7).

4. Discussion

In this study, the level of satisfaction with the CBHI schemes among households' heads in Bibugn district was found to be 56.1% (95%CI = 52.2, 59.9). This result is in line with studies conducted in Southern Ethiopia (54.1%) [20], Southwest

TABLE 3: Experience of households with CBHI Schemes in Bibugn District, Northwest Ethiopia, 2022.

Variables	Categories	Frequencies	%
Length of household enrollment	1 year	49	8.1
	2 years	81	13.4
	3 years	111	18.4
	4 and above years	363	60.1
Health institution visited	Health center	246	40.7
	Hospital	27	4.5
	Both	331	54.8
Frequency of health facility visit	≤ 5 times	145	24.0
	> 5 times	459	76.0
Participated in CBHI-related meetings	Yes	543	89.9
	No	61	10.1
Type of membership	Paying member	547	90.6
	Indigent member	57	9.4

TABLE 4: Knowledge of participants on CBHI benefit packages in CBHI enrollees of Bibugn District, Northwest Ethiopia, 2022.

Knowledge questions towards CBHI		Frequencies	%
CBHI is good way of helping clients to relieve health expenditure	Yes	508	84.1
	No	96	15.9
Covers only care with in the country (Ethiopia)	Yes	434	71.9
	No	170	28.1
Covers only care from public health institutions	Yes	419	69.4
	No	185	30.6
Does not cover transportation fee	Yes	559	92.5
	No	45	7.5
Covers inpatient care	Yes	496	82.1
	No	108	17.9
Covers outpatient care	Yes	582	96.4
	No	22	3.6
Does not cover medical care for cosmetic values	Yes	365	60.4
	No	239	39.6
Does not cover kidney dialysis	Yes	377	62.4
	No	227	37.6

Ethiopia (54.7%) [17], Nigeria (58.1%) [22], and Turkey (53.3%) [23]. However, the finding of this study is higher when compared to studies conducted in Bahir Dar, Ethiopia (50.2%) [24], Ghana (46.9%) [25], and Nigeria (42.1%) [26]. This difference may be due to the differences in study settings, since the former studies were facility-based, whereas the current study is community-based. In addition, differences in the sociodemographic characteristics of the respondents may also be the reason for the observed difference. For instance, only female participants were included in the study conducted in Bahir Dar, Ethiopia.

On the other hand, the finding of this study is lower than those of earlier studies conducted in the Wolaita zone, Ethiopia (91.38%) [16] and Bangladesh (83.4%) [27]. The differences in the operational definition of satisfaction may

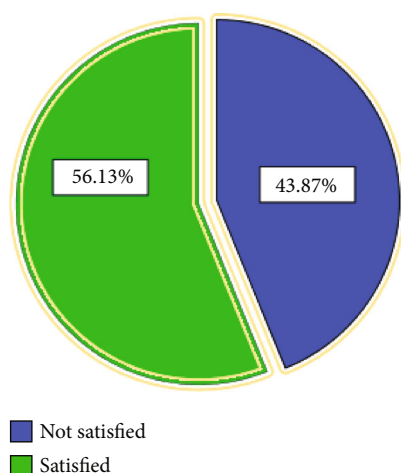
possibly be the reason for the difference in these results because the satisfaction score was calculated based on a percentage of the maximum scale in both of the former studies.

In this study, those households' heads aged less or equal to 39 years were less likely to be satisfied with the CBHI schemes as compared to their counterparts. This finding is supported by previous studies conducted in Ethiopia [16, 20], Nigeria [26], and Turkey [23]. The possible reason could be that the frequency of getting sick increases as age increases, which in turn increases the frequency of health care service utilization. This is supported by evidence from a recent study in Ethiopia that stated that older age is associated with a decrease in drop-out rates from the CBHI schemes [28].

According to the current study, being an urban resident was negatively associated with the CBHI scheme satisfaction.

TABLE 5: Health service provision-related characteristics of households' heads in the CBHI schemes in Bibugn district, Northwest Ethiopia, 2022.

Variables	Categories	Frequencies	Percent
Distance from health facility	≤ 5 km	499	74.3
	> 5 km	155	25.77
Agreement with laboratory services	Yes	533	88.2
	No	71	11.8
Agreement with prescribed drugs	Yes	439	72.7
	No	165	27.3
Got immediate care	Yes	418	69.2
	No	186	30.8
Friendliness/respect from healthcare providers	Yes	239	39.6
	No	365	60.4

**FIGURE 2:** Household heads satisfaction with CBHI schemes in households of Bibugn district, Northwest Ethiopia, 2022.

This is similar to a study conducted in Burkina Faso [12]. This might be due to the fact that urban residents may have higher expectations for healthcare service quality and may not get their expectations fulfilled during their visits to health care facilities, and they may prefer using private health facilities than rural residents. Contrary to this study, urban residency was associated with household satisfaction in insurance schemes in a study done in Turkey [23].

In this study, we found that there is a significant association between the type of health facility visited and satisfaction with CBHI schemes. Study participants who visited only health centers were less satisfied compared to households who visited either hospitals only or both hospitals and health centers. This is in harmony with previous studies done in Ethiopia [17] and Nigeria [26]. This may be attributed to the fact that hospitals are staffed with better providers (doctors and experienced professionals), equipped with advanced medical equipment, have a better drug and reagent supply, which may increase the quality of service and client satisfaction [29]. This evidence is supported by a study done in India, which reported that client satisfaction with health insurance was associated with the availability of doctors [30]. In addition, a recent report from Ethiopia revealed that the inaccessibility of hospitals is associated with dropouts from the CBHI schemes [28].

Distance from health facilities is also found to be a significant predictor of households' heads satisfaction with the CBHI schemes. The odds of satisfaction with the CBHI schemes among those participants who lived 5 km or less from health facilities were 3.2 times higher as compared to their counterparts. This result is supported by studies done in Ethiopia that reported travel time to the nearest health institution as a predictor of enrolment in the CBHI schemes [31, 32].

Friendliness or getting respect from health care providers also had a significant association with households' satisfaction with the CBHI schemes. This finding is supported by previous studies conducted in Ethiopia [16] and Ghana [25, 33]. Evidence shows that implementation of the Compassionate, Respectful, and Caring (CRC) increases patient satisfaction [34].

This study also showed that getting prescribed drugs and agreeing with them was significant predictor of satisfaction in CBHI beneficiaries. Those who got it and agreed were more likely to be satisfied than those who did not. This finding is consistent with previous studies conducted in Ethiopia [20] and Bangladesh [27]. This might imply two things. The first one is the perception of CBHI users that the quality of health care providers may be poor. The second one is poor communication or counselling by health care providers to their patients, which again goes to the implication of poor practice in CRC or patient-centered care.

Moreover, our study also shows that knowledge about CBHI benefit packages is associated with households' satisfaction with the CBHI schemes. Those participants who had a good knowledge about CBHI benefit packages were more likely to be satisfied than those with poor knowledge. This result is similar to the previous study findings in Ethiopia [17, 20] and Nigeria [26]. This may be linked to the fact that an enrollee's satisfaction gets better only if they know the rules and regulations, or rights and obligations, including the benefits offered by the schemes, and when they act accordingly. This can be supported by previous studies conducted in Ethiopia, Sudan, and Senegal that showed enrollees poor knowledge of the health insurance benefit packages is often associated with dropout [21, 35–37]. In addition, knowledge and understanding of CBHI are also reported to be an enabler of enrolment [32].

TABLE 6: Household heads' satisfaction towards CBHI schemes among enrollees in Bibugn district, Northwest Ethiopia, 2022.

Variables	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Satisfied with the opening hours/working hours of the CBHI	1 (0.2%)	46 (7.6%)	84 (13.9%)	297 (49.2%)	176 (29.1%)
Satisfied with collection process of insurance cards	1 (0.2%)	57 (9.4%)	132 (21.9%)	257 (42.5%)	157 (26%)
Satisfied with the time to make use of the CBHI program after payment of registration fee	31 (5.1%)	160 (26.5%)	169 (28%)	159 (26.3%)	85 (14.1%)
Satisfied with the schedule for paying of premium	1 (0.2%)	39 (6.5%)	114 (18.9%)	257 (42.5%)	193 (32%)
Local CBHI management is trust worthy	5 (0.8%)	58 (9.6%)	142 (23.5%)	239 (39.6%)	160 (26.5%)
Satisfied with permitted health institutions (satisfied with line of referral)	75 (12.4%)	184 (30.5%)	143 (23.7%)	108 (17.9%)	94 (15.6%)
Satisfied with the information provided about CBHI	1 (0.2%)	66 (10.9%)	109 (18%)	255 (42.2%)	173 (28.6%)
Satisfied with CBHI benefit packages	2 (0.3%)	56 (9.3%)	133 (22%)	240 (39.7%)	173 (28.6%)
Want to stay enrolled in the CBHI schemes	0 (0%)	75 (12.4%)	69 (11.4%)	273 (45.2%)	187 (31%)
Recommend others to be a member of CBHI	3 (0.5%)	63 (10.4%)	175 (29%)	203 (33.6%)	160 (26.5%)

TABLE 7: Bivariable and multivariable logistic regression analyses of factors associated with satisfaction with the CBHI schemes in households in Bibugn district, Northwest Ethiopia, 2022.

Variables	HH satisfaction		COR(95% CI)	AOR(95% CI)
	Satisfied	Not satisfied		
<i>Age of household head</i>				
≤ 39	129	181	1	1
> 39	210	84	3.50 (2.49–4.92)	1.85 (1.17–2.94)*
<i>Residence</i>				
Rural	289	192	2.19 (1.46–3.29)	4.13 (2.24–7.62)**
Urban	50	73	1	1
<i>Length of enrolment</i>				
1 year	14	35	1	1
2 years	34	47	1.80 (0.84–3.87)	2.23 (0.78–6.36)
3 years	56	55	2.54 (1.23–5.24)	2.29 (0.84–6.20)
4 and above years	235	128	4.59 (2.38–8.84)	2.49 (1.00–6.20) *
<i>Health facility visited</i>				
Health center	76	170	0.16 (0.11–0.23)	0.34 (0.20–0.55)**
Hospital	20	7	1.03 (0.42–2.53)	1.15 (0.37–3.60)
Both	243	88	1	1
<i>Distance from health facility</i>				
≤ 5 km	289	160	3.79 (2.57–5.59)	3.18 (1.82–5.55)**
> 5 km	50	105	1	1
<i>Agreement with prescribed drug</i>				
Yes	292	147	4.98 (3.37–7.38)	2.31 (1.36–3.92)*
No	47	118	1	1
<i>Agreed with healthcare providers</i>				
Yes	191	48	5.83 (3.99–8.52)	3.65 (2.18–6.10)**
No	148	217	1	1
<i>Knowledge of CBHI benefit packages</i>				
Poor	117	181	1	1
Good	222	84	4.08 (2.90–5.75)	3.00 (1.93–4.67)**

*p value < 0.05, **p value < 0.001.

5. Limitations of the Study

This study might have a recall bias since there is a time gap between receiving healthcare services and data collection period. Due to its nature of only quantitative study, some important variables that may affect households' satisfaction may have been missed.

6. Conclusion

The overall satisfaction of household heads with the CBHI schemes was good. Factors such as age, residence, the type of health facility visited, distance to health facilities, relationships with healthcare providers, agreement with prescribed medications, and knowledge of CBHI benefit packages were identified as statistically significant predictors of satisfaction. These findings suggest that improving access to healthcare services, fostering better relationships between healthcare providers and beneficiaries, and enhancing awareness of CBHI benefits could further increase satisfaction levels among households. Furthermore, further study is needed by using other study designs, such as a mixed approach with qualitative and quantitative methods.

Nomenclature

CBHI	community-based health insurance
EHIA	Ethiopian Health Insurance Agency
FMOH	Federal Ministry of Health
HSTP	Health Sector Transformation Plan
LMIC	low-and middle-income countries
NGO	nongovernmental organization
NHIS	national health insurance schemes
VIF	variance inflation factor
WHO	World Health Organization

Data Availability Statement

Data will be available upon request from the corresponding author.

Ethics Statement

Ethical approval was obtained from the Institutional Review Board (IRB) of Bahir Dar University College of Medicine and Health Sciences with the reference number 0122/2021. A verbal informed consent was obtained from the household heads' since written informed consent is not appropriate or feasible according to the educational level of the population being studied. However, all the purpose, benefit, confidentiality of the information, and the voluntary nature of participation in the study were informed to each study participant. All the processes of the research were performed and secured in accordance with the relevant guidelines and regulations.

Consent

The authors have nothing to report.

Disclosure

A preprint has previously been published [38].

Conflicts of Interest

The authors declare no conflicts of interest.

Author Contributions

Y.L. conceptualized the study, and G.T. and A.K. were involved in the design, analysis, interpretation, report, and manuscript writing. B.A.G., A.F.G., and M.A.M. made substantial contributions to the conception, analysis, and interpretation of data, drafting the manuscript, and critical revision of important intellectual content. All the authors read and approved the final manuscript.

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References

- [1] WHO, "Universal Health Coverage (UHC) 2019" Updated 24 January 2019. Available from: [https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-\(uhc\)](https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc)).
- [2] O. Ahoobim, D. Altman, L. Garrett, V. Hausman, and Y. Huang, *The New Global Health Agenda: Universal Health Coverag* (Rockefeller Foundation, 2015).
- [3] WHO, "Community-Based Health Insurance" 2020 Available from: <https://www.who.int/news-room/fact-sheets/detail/community-based-health-insurance-2020>.
- [4] Y. Habiyouzeye, *Implementing Community-Based Health Insurance Schemes: Lessons From the Case of Rwanda: Høgskolen i Oslo og Akershus* (Fakultet for Samfunnsfag, 2013).
- [5] EHIA, "Evaluation of Community-Based Health Insurance Pilot Schemes in Ethiopia" <https://www.hfgproject.org/wp-content/uploads/2015/05/CBHI-Evaluation-5-20152015>.
- [6] S. Feleke, W. Mitiku, H. Zelelew, and T. Ashagari, *Ethiopia's Community-Based Health Insurance: A Step on the Road to Universal Health Coverage* (World Bank Group, 2015).
- [7] A. Tahir, A. O. Abdilahi, and A. E. Farah, "Pooled Coverage of Community Based Health Insurance Scheme Enrolment in Ethiopia, Systematic Review and Meta-Analysis, 2016-2020," *Health Economics Review* 12, no. 1 (2022): 38, <https://doi.org/10.1186/s13561-022-00386-8>.

- [8] EHIA, "CBHI Trend 2011 to 2020" 2020. Available from: <https://ehia.gov.et/sites/default/files//Resources/CBHI%2520Trend%25202011%2520to%25202020.pdf>.
- [9] C. Glenn, A. McMichael, and S. R. Feldman, *Measuring Patient Satisfaction Changes Patient Satisfaction* (Taylor & Francis, 2014), <https://doi.org/10.3109/09546634.2011.666883>.
- [10] A. Kusi, K. S. Hansen, F. A. Asante, and U. Enemark, "Does the National Health Insurance Scheme Provide Financial Protection to Households in Ghana?," *BMC Health Services Research* 15, no. 1 (2015): 331, <https://doi.org/10.1186/s12913-015-0996-8>.
- [11] D. Nageso, K. Tefera, and K. Gutema, "Enrollment in Community Based Health Insurance Program and the Associated Factors Among Households in Boricha District, Sidama Zone, Southern Ethiopia; a Cross-Sectional Study," *PLoS One* 15, no. 6 (2020): e0234028, <https://doi.org/10.1371/journal.pone.0234028>.
- [12] P. J. Robyn, T. Bärnighausen, A. Souares, et al., "Does Enrollment Status in Community-Based Insurance Lead to Poorer Quality of Care? Evidence From Burkina Faso," *International Journal for Equity in Health* 12, no. 1 (2013): 31, <https://doi.org/10.1186/1475-9276-12-31>.
- [13] A. Asfaw, B. Etana, B. Mulatu, and Z. K. Babure, "Household Heads Satisfaction and Associated Factors on Community-Based Health Insurance Scheme in Gudeya Bila District, Oromia, Ethiopia," *Journal of Public Health Research* 12, no. 2 (2023): 22799036231181181, <https://doi.org/10.1177/22799036231181181>.
- [14] K. Zepre, "The Level of Household Satisfaction With Community-Based Health Insurance and Associated Factors in Southern Ethiopia," *Frontiers in Public Health* 11 (2023): 1165441, <https://doi.org/10.3389/fpubh.2023.1165441>.
- [15] J. M. Nebi and B. R. Tadesse, "Household Satisfaction With Community Health Insurance Scheme and Associated Factors in Adama Woreda, East Shewa Zone, Ethiopia," *International Journal of Science, Technology and Society* 8, no. 3 (2024): 178–195.
- [16] A. S. Badacho, K. Tushune, Y. Ejigu, and T. M. Berheto, "Household Satisfaction With a Community-Based Health Insurance Scheme in Ethiopia," *BMC Research Notes* 9, no. 1 (2016): 424, <https://doi.org/10.1186/s13104-016-2226-9>.
- [17] K. Mitiku Kebede and S. M. Geberetsadik, "Household Satisfaction With Community-Based Health Insurance Scheme and Associated Factors in Piloted Sheko District; Southwest Ethiopia," *PLoS One* 14, no. 5 (2019): e0216411, <https://doi.org/10.1371/journal.pone.0216411>.
- [18] BDHO, *Bibugn District Annual Health Sector Report* (BDHO, 2020).
- [19] BDCO, *Bibugn District CBHI Office Annual Report* (BDCO, 2021).
- [20] T. Addise, T. Alemayehu, N. Assefa, and D. Erkalo, "The Magnitude of Satisfaction and Associated Factors Among Household Heads Who Visited Health Facilities With Community-Based Health Insurance Scheme in Anilemo District, Hadiya Zone, Southern Ethiopia," *Risk Management and Healthcare Policy* Volume 14 (2021): 145–154, <https://doi.org/10.2147/RMHP.S290671>.
- [21] B. Ashagrie, G. A. Biks, and A. K. Belew, "Community-Based Health Insurance Membership Dropout Rate and Associated Factors in Dera District, Northwest Ethiopia," *Risk Management and Healthcare Policy* Volume 13 (2020): 2835–2844, <https://doi.org/10.2147/RMHP.S277804>.
- [22] O. Daramola, A. Adeniran, and T. Akande, "Patients' Satisfaction With the Quality of Services Accessed Under the National Health Insurance Scheme at a Tertiary Health Facility in FCT Abuja, Nigeria," *Journal of Community Medicine and Primary Health Care* 30, no. 2 (2018): 90–97.
- [23] S. A. A. Jadoo, S. E. W. Puteh, Z. Ahme, and A. Jawdat, "Level of Patients' Satisfaction Toward National Health Insurance in Istanbul City (Turkey)," *World Applied Sciences Journal* 17, no. 8 (2012): 976–985.
- [24] B. Aragaw, *Assessment of Community Based Health Insurance Women Patients Satisfaction and Associated Factors at Felege Hiwot Referral Hospital, Northwest Ethiopia* (2019), <https://hdl.handle.net/123456789/9954>.
- [25] E. Badu, P. Agyei-Baffour, I. Ofori Acheampong, M. P. Opoku, and K. Addai-Donkor, "Perceived Satisfaction With Health Services Under National Health Insurance Scheme: Clients' Perspectives," *The International Journal of Health Planning and Management* 34, no. 1 (2019): e964, <https://doi.org/10.1002/hpm.2711>.
- [26] S. Mohammed, M. N. Sambo, and H. Dong, "Understanding Client Satisfaction With a Health Insurance Scheme in Nigeria: Factors and Enrollees Experiences," *Health Research Policy and Systems* 9, no. 1 (2011): 20, <https://doi.org/10.1186/1478-4505-9-20>.
- [27] A. R. Sarker, M. Sultana, S. Ahmed, R. A. Mahumud, A. Morton, and J. A. Khan, "Clients' Experience and Satisfaction of Utilizing Healthcare Services in a Community Based Health Insurance Program in Bangladesh," *International Journal of Environmental Research and Public Health* 15, no. 8 (2018): 1637, <https://doi.org/10.3390/ijerph15081637>.
- [28] W. A. Eseta, T. D. Lemma, and E. T. Geta, "Magnitude and Determinants of Dropout from Community-Based Health Insurance Among Households in Manna District, Jimma Zone, Southwest Ethiopia," *Clinicoeconomics and Outcomes Research: CEOR* 12 (2020): <https://doi.org/10.2147/CEOR.S284702>.
- [29] ANRSHIA, *Community Based Health Insurance Law* (ANRSHIA, 2020).
- [30] N. Devadasan, B. Criel, W. Van Damme, P. Lefevre, S. Manoharan, and P. Van der Stuyt, "Community Health Insurance Schemes & Patient Satisfaction-Evidence From India," *The Indian Journal of Medical Research* 133, no. 1 (2011): 40–49.
- [31] D. D. Atnafu, H. Tilahun, and Y. M. Alemu, "Community-Based Health Insurance and Healthcare Service Utilisation, North-West, Ethiopia: A Comparative, Cross-Sectional Study," *BMJ Open* 8, no. 8 (2018): e019613, <https://doi.org/10.1136/bmjopen-2017-019613>.
- [32] D. M. Dror, S. S. Hossain, A. Majumdar, T. L. Pérez Koehlmoos, D. John, and P. K. Panda, "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, no. 8 (2016): e0160479, <https://doi.org/10.1371/journal.pone.0160479>.
- [33] A. P. Fenny, U. Enemark, F. A. Asante, and K. S. Hansen, "Patient Satisfaction With Primary Health Care—A Comparison Between the Insured and Non-Insured Under the National Health Insurance Policy in Ghana," *Global Journal of Health Science* 6, no. 4 (2014): 9, <https://doi.org/10.5539/gjhs.v6n4p9>.
- [34] A. Edmealem, D. Tsegaye, A. Andualem, S. Ademe, and S. Gedamu, "Implementation of Compassionate and Respectful Health Care Service at Northeast Ethiopia: Patients' Perspective," *International Journal of Caring Sciences* 13, no. 2 (2020): 991–1003.
- [35] A. D. Mebratie, R. Sparrow, Z. Yilma, G. Alemu, and A. S. Bedi, "Dropping Out of Ethiopia's Community-Based Health

- Insurance Scheme,” *Health Policy and Planning* 30, no. 10 (2015): 1296–1306, <https://doi.org/10.1093/heapol/czu142>.
- [36] C. Herberholz and W. A. Fakihammed, “Determinants of Voluntary National Health Insurance Drop-Out in Eastern Sudan,” *Applied Health Economics and Health Policy* 15, no. 2 (2017): 215–226, <https://doi.org/10.1007/s40258-016-0281-y>.
- [37] P. Mladovsky, “Why Do People Drop Out of Community-Based Health Insurance? Findings From an Exploratory Household Survey in Senegal,” *Social Science & Medicine* 107 (2014): 78–88, <https://doi.org/10.1016/j.socscimed.2014.02.008>.
- [38] Y. Leykun, G. Tadesse, A. Ketemaw, B. A. Getahun, A. F. Getahun, and M. A. Messelu, *Level of Household’s Head Satisfaction and Associated Factors Towards Community-Based Health Insurance (CBHI) Schemes Among Enrollees in Northwest Ethiopia* (A Community-Based Cross-Sectional Study, 2024).