

Research Article

Acceptance for Social Health Insurance among Health Professionals in Government Hospitals, Mekelle City, North Ethiopia

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Received 16 October 2019; Revised 10 April 2020; Accepted 23 April 2020; Published 6 May 2020

Academic Editor: Jagdish Khubchandani

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Background. Ethiopia is one of the countries with high out-of-pocket payments leading to catastrophic health expenditure. The government of Ethiopia introduced social health insurance (SHI) scheme with the overall objective of achieving universal health care access. Studying health professionals' acceptance to pay for social health insurance is crucial for the successful implementation of the scheme. Therefore, this study aimed to assess the acceptance of social health insurance and its associated factors among health professionals in government hospitals, Mekelle city, North Ethiopia. **Methods.** An institution-based cross-sectional study design was used. The study participants were selected using systematic random sampling. Data were collected using a structured interviewer-administered questionnaire and analyzed using SPSS version 20. Bivariable and multivariable logistic regression models at a 5% level of significance, and odds ratios with 95% CI level were used to determine the association between the health professionals' acceptance of health insurance and explanatory variables. **Results.** The study revealed that 62.5% of the respondents were willing to participate in the SHI scheme in which 74.9% were willing to pay 3% or more of their monthly salary. Health professionals' acceptance for SHI significantly associated with monthly salary (AOR = 9.49; 95% CI: 2.51, 35.86), awareness about SHI (AOR = 3.89; 95% CI: 1.05, 14.28), history of difficulty in covering medical bills (AOR = 6.2; 95% CI: 2.42, 15.87), attitudes towards social health insurance (AOR = 7.57; 95% CI: 3.14, 18.21), and perceived quality of health care services if SHI implemented (AOR = 2.89; 95% CI: 1.18, 7.07). **Conclusion.** The study indicated that there were still a high proportion of health professionals who were not willing to pay for SHI. Therefore, strengthening awareness creation, creating awareness about SHI, promoting the scheme using the different channels of communication to bring about favorable attitude, and providing health care services with required standard quality could help to increase the acceptance of SHI by health professionals.

1. Background

Social health insurance (SHI) is a health care funding mechanism that plays an important role in cross-subsidization and reducing the influence of high costs of health care [1]. It is characterized by compulsory universal coverage and financed by employers and individual contributions [1, 2]. Globally, 150 million people face financial catastrophe, and about 100 million people are pushed into poverty annually due to the need to pay for health services [3], and 90% of the

people affected reside in low-income countries [4]. A survey of 89 countries indicate that 3%, 1.8%, and 0.6% of households face catastrophic health expenditure in low, middle-, and high-income countries, respectively [5]. Besides, a cross-sectional survey in Mongolia, Burkina Faso, and Uganda show that 5.5%, 15%, and 2.6% of households suffered from catastrophic health expenditures, respectively [6–8]. In Ethiopia, out-of-pocket spending is very high accounting for 37% of the total expenditure in the health sector [9].

A systematic review of WTP for health insurance from ten countries in low- and middle-income countries showed that the mean WTP of individuals and households is 1.18% and 1.82% of GDP per capita and 1.39% and 2.16% of adjusted net national income per capita, respectively [10]. Studies indicate that the average WTP for SHI per person per month in Iran was 5.5 \$US [11], and households in Vietnam are willing to pay 4% of their income for health insurance [12]. In Malaysia, 72.5% of the academic staff are willing to pay an average of RM 79.32 per month per household [13], and 71.2% of patients attending specialist clinics supported the proposed NHI and 61.4% are willing to pay up to \$ 192 per year [14].

In Africa, studies indicate that 30% of households in South Africa [15], 90% of households in Ghana [16], 87% of the uninsured respondents in Namibia [17], and 52.5% of civil servants (18) and 89% of households in Nigeria [18] are willing to pay for health insurance schemes. Besides, 63.6% of households in Ghana and 43.8% of households in Nigeria are willing to pay a premium of \$3.03 a month [16] and 5% mandatory premium [18], respectively. Households in Ghana are also willing to pay 1.9%–2.5% of their income for health insurance [16]. In Ethiopia, studies indicate that 69.8% of civil servants in Debre Markos [19] and 71.3% of teachers in Wolaita Sodo [20] are willing to pay the proposed premium (3% of their salary) for SHI.

Evidence shows that sociodemographic and economic factors such as the age of household head [10, 16, 21], sex [17, 21–23], level of education [11, 24], family size [10, 11, 25], and economic status of the households [16, 26, 27]; health and health-related factors such as health status [20, 25, 28, 29]; and awareness, knowledge, and attitude towards health insurance schemes [14, 20, 30] determine the acceptance of SHI. However, there is limited evidence in the study area. Therefore, this study aimed to assess the acceptance of SHI and its associated factors among health professionals in government hospitals, Mekelle city, Ethiopia.

2. Methods

2.1. Study Design and Setting. An institution-based cross-sectional study design was used to assess acceptance for social health insurance and its associated factors among health professionals in Mekelle city. The study was conducted in Mekelle city which is 783 km away from Addis Ababa, the capital city of Ethiopia. According to the 2007 Census, the town has a total population of 273,000. Administratively, it is divided into seven subadministrative units. According to the Mekelle City Health Office report in 2016, the city has one Teaching Referral Hospital and two General Hospitals staffed with 1,440 health professionals.

2.2. Study Population and Sampling Procedures. The source population of this study was all health professionals in the government hospitals in Mekelle city. The study population of this study was health professionals from randomly selected government hospitals. All health professionals who

have served at least 3 months were included in the study. All health professionals who were expatriates were excluded from the study.

The sample size was determined using single population proportion formula by taking 53% of the health professionals are willing to pay for SHI [20], 5% margin of error, 95% CI, and 10% nonresponse rate.

$$N = (Z\alpha/2)^2 \times p \times [1-p] / w^2 = (1.96)^2 \times 0.53 \times (1-0.53) / 0.0025 = 382.78$$

The final sample size was $382.78 + 38.28$ (response rate) = $421.06 \approx 421$.

Three government hospitals in the study area were included in the study, and a list of the health professionals was obtained from the three hospitals. The sample was allocated to each hospital proportional to the number of health professionals in each hospital, and a systematic random sampling technique with a sampling interval of 3 was used to select the study participants.

2.3. Study Variables

2.3.1. Response Variable. The response variable of the study was the acceptance of SHI among health professionals. Acceptance of SHI was measured by asking the respondents “Are you willing to pay for SHI? The alternative options were “Yes” if respondents were willing to pay 3% and above of monthly salary or “No” if respondents were not willing to pay at least 3% of their monthly salary. The 3% premium was set by the government of Ethiopia to implement the SHI [31].

2.3.2. Explanatory Variables. The sociodemographic and economic factors (age, sex, education, marital status, family size, children <5, adults >64 years, monthly salary, and wealth status); health and health-related factors (perceived health status, presence of chronic disease, history of illness within 6 months of the survey, history of difficulty covering the medical bill); and health insurance-related factors (awareness or ever heard about SHI, knowledge, attitude toward social health insurance and health insurance experiences) were the explanatory variables.

2.3.3. Knowledge of SHI. Knowledge of study participants about SHI was assessed by asking them a set of 10 questions about social health insurance, and the right answer was given a value of 1 and 0 for those incorrect answers. Respondents who had a score greater than or equal to the mean score were considered as good knowledge about SHI unless as poor [14].

2.3.4. Attitude towards SHI. Attitude was defined as what the health professionals think or feel about SHI and measured using 6 questions: (1) the proclamation of SHI by the Ethiopian government is good; (2) social health insurance is very important; (3) redistribution of health care cost from sick to healthy is good; (4) the arrangement of making monthly deduction from salary for SHI is good; (5) social

health insurance should be made compulsory; and (6) social health insurance is a program that should be initiated and sustained. Each question contains five points Likert scales (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). Those who had a mean score greater than 3 were considered as having a positive/favorable attitude otherwise negative/unfavorable [32].

2.3.5. Wealth Status. The wealth status of study participants was assessed based on housing condition and durable assets and divided into three equal parts: low-, middle-, and high-wealth status.

2.4. Data Collection Procedures. A structured interviewer-administered questionnaire was developed by reviewing the literature on acceptance of health insurance [10, 11, 13, 20, 27–30, 33, 34]. It had closed-ended questions consisting of sociodemographic characteristics, economic status, health status, knowledge and attitude, and acceptance of SHI. For data collection, six students supervised by two senior nurses were assigned with the principal investigator's critical follow up. The data collectors and supervisors were approached by the principal investigator and took the data collection training if they agreed to participate in the data collection process. The data collectors and supervisors were trained for two days on data collection procedures.

A pretest was conducted on 21 (5% of the sample) health professionals in Wukro hospital, and necessary modification was done after the pretest. Then, in the final data collection, the study participants assisted by the data collectors filled in the questionnaire. The collected data were checked by the data collectors' supervisors as well as the principal investigator.

2.5. Data Processing and Analysis. Data were entered into Epi Info version 3.5.1 and exported to Statistical Package for Social Sciences (SPSS) version 20 for analysis. Data were cleaned and coded before entry. Descriptive statistics like percentage, frequency, mean, median, standard deviation, and IQR were used to show a clear picture of the characteristics of the respondents. For describing wealth status, principal component analysis (PCA) was used and divided into three equal parts (three tiles) as low-, middle-, and high-wealth status. Initially, bivariable logistic regression at a p value of less than 0.25 was used to identify factors independently associated with the outcome variable. Then to control the effect of confounding, multivariable logistic regression analysis was done. Statistical significance was determined using 5% of the level of significance and odds ratio with 95% CI.

3. Results

3.1. Demographic and Socioeconomic Characteristics of the Respondents. A total of 408 health professionals participated in the study with a response rate of 97%. The study revealed that 50.2% were males, 92% were Tigrie, 85.7% were

Orthodox Christians, 54.4% were married, and 68.6% had family size ≤ 3 . Majority (57.1%) of the study participants were nurses followed by physicians (15.2%). The mean age of respondents was 32 ± 6.7 years (Table 1).

3.2. Health and Health-Related Characteristics of the Respondents. Out of 408 health professionals participated, 87.5% perceived their health status (self-rated health status) as good, 10.5% had a chronic medical illness, 18.4% had a history of at least one episode of illness within six months of the survey, and 99% got treated of them 78% was treated in government health institutions. Regarding medical bills of treatment, 75.6% of those who had a history of illness within six months of the survey were treated freely and 20.1% of study participants ever had a history of covering medical bills (Figure 1).

3.3. Awareness, Knowledge, and Attitudes about Social Health Insurance. The study revealed that 84.8% of the respondents ever heard about SHI, and the source of information was media (39.8%), conferences/meetings (29.1%), colleagues (16.1%), and friends and patients (14%). Only 6.6% of the respondents had any form of health insurance previously. The mean score of respondents on knowledge about SHI was 4.5 ± 2.76 , and 59.3% of the respondents had good knowledge about SHI, 64% of the respondents had a positive attitude towards SHI, and 50% of the respondents had a good perception about the quality of health care services if SHI implemented.

3.4. Acceptance of Social Health Insurance. The study indicated that 62.5% of the respondents were willing to participate in the scheme of which 74.9% were willing to pay 3% or more of their monthly salary. The median (IQR) of maximum willingness to pay was 3% [1] of monthly salary (Table 2). The main reasons for not accepting or not willing to participate in the SHI scheme were the respondents' perceptions that the government is responsible to finance SHI and health care services should be free for health professionals because they are at risk for infection (Figure 2).

3.5. Factors Associated with Acceptance of Social Health Insurance. The study revealed that monthly salary, history of difficulty of covering medical bills, awareness (ever heard) about SHI, attitudes towards SHI, and perceived quality health care services if SHI implemented were the factors statistically associated with acceptance (willing to pay) SHI among health professionals.

The health professionals who earn ≥ 10024 ETB monthly salary were 9.49 (AOR = 9.49; 95% CI: 2.51, 35.86) times more likely to be willing to pay for SHI than those who earn < 6488 ETB. Respondents that ever had a history of difficulty of covering medical bills were 6.2 (AOR = 6.2; 95% CI: 2.42, 15.87) times more likely to be willing to pay compared with those who did not have. Study participants whoever heard about SHI were 3.89 (AOR = 3.89; 95% CI: 1.05, 14.28) times more likely to be willing to pay for SHI than those never

TABLE 1: Sociodemographic and economic characteristics of health professionals in government hospitals, Mekelle city, North Ethiopia, 2017 (N = 408).

Variables	Category	Frequency (n = 408)	Percentage (%)
Sex	Male	205	50.2
	Female	203	49.8
Age	20–30	220	53.9
	31–40	146	35.8
	≥41	42	10.3
Mean age ± SD	32 ± 6.7		
Ethnicity	Tigrie	372	91.1
	Amhara	17	4.2
	Others	19	4.7
Religion	Orthodox	353	85.7
	Muslim	33	8
	Others	22	5.3
Marital status	Single	168	41.2
	Married	222	54.4
	Others	18	4.4
Family size	1–3	280	68.6
	≥4	128	31.4
Children <5	Yes	142	65.2
	No	266	34.8
Adults >64	Yes	19	4.7
	No	389	95.3
Professions	Physician	62	15.2
	Pharmacist	37	9.1
	Nurse	233	57.1
	Midwifery	22	5.4
	Medical laboratory	29	7.1
	Physiotherapy	7	1.7
	Others	18	4.4
Level of education	Diploma	44	10.8
	Degree	328	80.4
	Masters	18	4.4
	Specialist	18	4.4
Work experiences in years	1–5	246	60.3
	6–10	101	24.7
	≥11	61	15
Median (IQR)	5 (4)		
Monthly salary	<6488 ETB	229	56.1
	6488-10024 ETB	131	32.1
	≥10024 ETB	48	11.8
Median (IQR) ETB	6488 (3119)		
Wealth status	Low	135	33.1
	Middle	150	36.8
	High	123	30.1

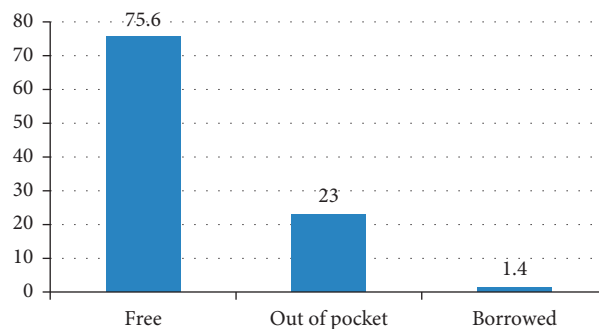


FIGURE 1: Medical bills of treatment among health professionals in government hospitals, Mekelle City, North Ethiopia, 2017.

TABLE 2: Health professionals' acceptance for social health insurance in government hospitals, Mekelle City, North Ethiopia, 2017.

Variables	Category	Frequency	Percentage (%)
Willing to participate in SHI (<i>n</i> = 408)	Yes	255	62.5
	No	153	37.5
WTP <3% of monthly salary (<i>n</i> = 408)		217	53.2
WTP <3% of monthly salary (<i>n</i> = 255)		64	25.1
WTP >3% of monthly salary (<i>n</i> = 408)		191	46.8
WTP >3% of monthly salary (<i>n</i> = 255)		191	74.9
Median of maximum willing to pay with IQR (%)		3 (1%)	

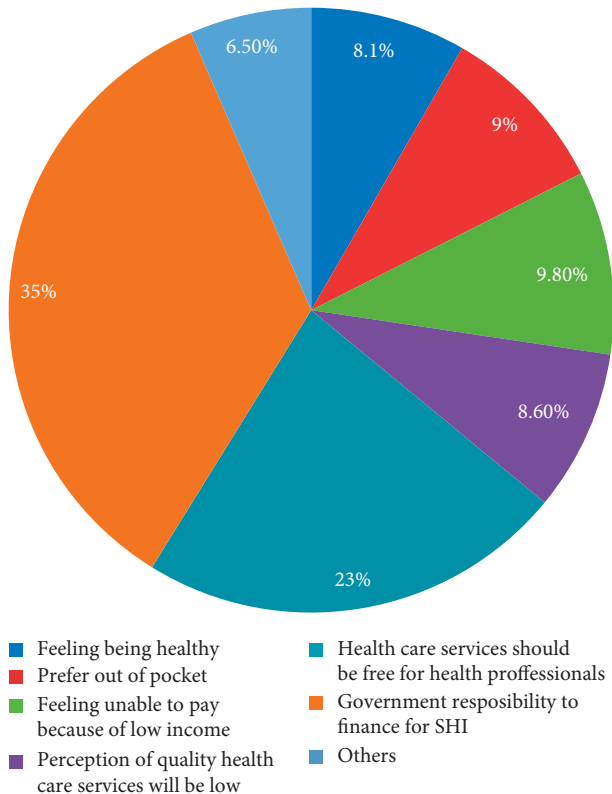


FIGURE 2: Reasons for not accepting social health insurance among health professionals in government hospitals, Mekelle City, North Ethiopia, 2017.

heard. Health professionals with positive attitudes were 7.57 (AOR = 7.57; 95% CI: 3.14, 18.21) times more likely to be willing to pay than those with unfavorable attitudes. Regarding the perceived quality of health care services, those who perceived as good were 2.89 (AOR = 2.89; 95% CI: 1.18, 7.07) times more likely and those who perceived as poor were 81% (AOR = 0.19; 95% CI: 0.06, 0.59) times less likely to be willing to pay compared with those with neutral perception (Table 3).

4. Discussion

This study showed that 62.5% of the respondents were willing to participate in the SHI which is lower than studies done in Nigeria [35], Ghana [16], and Eastern Caribbean [33] where 83.9%, 90%, and 69.5% are willing to participate in SHI scheme, respectively. This may be due to the

difference in the insurance experiences and premium collection approach. For Example, in Ghana, the formal sector shall contribute 2.5% of their 17.5% Social Security and National Insurance Trust (SSNIT) contribution. The contribution levels have an inbuilt cross-subsidization mechanism, whereby the rich pay more than the less privileged, adults pay on behalf of children, the healthy cover for the sick, and urban dwellers pay more than the rural dwellers [36], whereas in Ethiopia, the formal sector shall contribute 3% per month from the net salary and its similar for all employee [31].

In this study, 46.8% were willing to pay greater than or equal to 3% of monthly salary which is lower than the finding of a study conducted in Debre Markos, where 68.9% are willing to pay 3% of monthly salary for SHI scheme. This disparity could be due to the difference in the burden of medical bills when seeking health care services [34].

The Median (IQR) maximum premium among those who were willing to participate was 3% (1) of monthly salary which is in line with the premium proposed by the Ethiopian government [31] and a study conducted in Addis Ababa city [30]. However, it is lower than that of a study conducted in Vietnam where respondents are willing to pay 4% of their income for SHI [12], and it is higher than the finding from Ghana [16]. This could be due to the socioeconomic differences among countries.

The results of this study showed that respondents with high monthly salaries were more likely to be willing to pay for SHI. This could be due to their ability to afford health insurance premiums and contribution for SHI being progressive is good. This finding is in line with the findings of studies done in Addis Ababa [29], Cameron [37], and Selangor state, Malaysia [38]. However, it contradicts a study conducted in Malaysia where those with lower salaries are more willing to pay compared with those with a higher salary. This could be due to better income that results in better health status, and this lowers the demand for health insurance [13]. In Malaysia, government-subsidized insurance schemes purchased based on each person's ability to pay [39] and people with a high salary might prefer private health care insurance.

Respondents who had previous financial problems to cover medical bills were more likely willing to pay for SHI. This is consistent with findings in rural China which indicate that individuals who worry about medical expenditure are more willing to pay for health insurance than those who do not [28]. It is also consistent with studies done in Ghana [16] and Wolaita Sodo, Ethiopia [20].

TABLE 3: Factors associated with acceptance for social health insurance among health professionals in government hospitals, Mekelle city, North Ethiopia, 2017.

Variables	WTP		COR (95%CI)	AOR (95%CI)
	Yes	No		
Sex				
Male	95	110	1	
Female	96	107	1.039 (0.70, 1.53)	
Age			1.121 (1.08, 1.16)*	1.029 (0.95, 1.11)
Marital status				
Married	134	88	3.44 (2.28, 5.20)*	1.54 (0.66, 3.58)
Other than married	57	129	1	
Family size				
1-3	105	175	1	1
≥4	86	42	3.41 (2.19, 5.30)*	1.72 (0.62, 4.78)
Children <5 years				
Yes	103	39	5.34 (3.41, 8.36)*	2.55 (0.95, 5.34)
No	88	178	1	1
Adults >64				
Yes	14	5	3.35 (1.18, 9.49)*	1.33 (0.29, 6.05)
No	177	212	1	1
Level of education				
Diploma	6	38	1	1
Degree and above	185	179	6.54 (2.70, 15.86)*	1.32 (0.39, 4.47)
Monthly salary				
0-6488 ETB	70	159	1	1
6488-10024 ETB	79	52	3.45 (2.20, 5.40)*	1.16 (0.56, 2.607)
≥10024 ETB	42	6	15.9 (6.48, 39.12)*	9.49 (2.51, 35.86)**
Wealth status				
Low	64	71	1	
Middle	68	82	0.92 (0.57, 1.46)	
High	59	64	1.02 (0.62, 1.66)	
Perceived health status				
Good	165	192	1	1
Fair	16	22	0.84 (0.43, 1.66)	0.39 (0.11, 1.35)
Poor	10	3	3.87 (1.05, 14.33)*	1.56 (0.14, 17.44)
Chronic medical illness				
Yes	32	11	3.76 (1.84, 7.70)*	2.43 (0.67, 8.80)
No	159	206	1	1
History of illness in the previous 6 months				
Yes	42	33	1.57 (0.94, 2.60)	
No	149	184	1	
History of difficulty covering medical bills				
Yes	61	21	4.37 (2.54, 7.53)*	6.2 (2.42, 15.87)**
No	130	196	1	1
Ever heard about SHI				
Yes	185	161	10.72 (4.50, 25.54)*	3.89 (1.05, 14.28)**
No	6	56	1	1
Have/had health insurance				
Yes	18	5	4.41 (1.60, 12.12)*	1.98 (0.44, 8.99)
No	173	212	1	1
Knowledge about SHI				
Poor	29	137	1	1
Good	162	80	9.56 (5.90, 15.48)*	0.77 (0.32, 1.85)
Attitude toward SHI				
Positive/favorable	180	81	27.47 (14.08, 53.58)*	7.57 (3.14, 18.21)**
Negative/unfavorable	11	136	1	1
Perceived quality of services if SHI is implemented				
Poor	11	103	0.44 (0.19, 0.99)*	0.19 (0.06, 0.59)**
Good	163	44	15.25 (8.15, 28.52)*	2.89 (1.18, 7.07)**
Neutral	17	70	1	1

*Statistically significant results at p value<0.25; **statistically significant results at p value<0.05; 1: reference category; COR: crude odds ratio; AOR: adjusted odds ratio.

Health professionals whoever heard (aware) about SHI were more likely to be willing to pay than those who never heard. This finding is consistent with findings from Ebonyi State, Nigeria [40] and Central Vietnam [12]. This could be health professionals whoever heard about SHI are aware of the benefits of having health insurance.

Regarding attitude, respondents with a favorable attitude were more likely to be willing to pay than those with unfavorable attitudes. This is consistent with the finding of a study conducted in southwestern Nigeria [34]. This study revealed that perception about the quality of health care services if SHI implemented was positively associated with acceptance of SHI. This is similar to the result of research done in Debre Markos [19].

The main reason mentioned by respondents for not willing to participate was that the respondents thought it as the government's responsibility to finance for SHI and health care services should be free for health professionals. This is similar to a study conducted in Malaysia in which the main reason is that health care services should be provided free of charge and subsidized fully by the government [38].

In this study, health-related factors like perceived health status, chronic medical illness, and history of illness were not statistically significant. This could be due to less financial burden for seeking treatment as most health professionals in the study area have privileged access and may get health services freely.

5. Limitations of the study

This study could not show the temporal relationship between acceptance for SHI and explanatory variables due to the nature of the study design. Another limitation of this study could be social desirability bias in which health professionals may tend to give favorable responses as they are the main stakeholders for sensitizing and implementing health-related policies such as SHI.

6. Conclusion

The study indicated that nearly two-thirds of the study participants were willing to participate in the SHI. However, there was still a high proportion of health professionals who were not willing to pay for SHI. Monthly salary, having a history of difficulty in covering medical bills, awareness about and attitude towards SHI, and perceived quality of services if SHI is implemented are factors significantly associated with health professionals' acceptance of SHI. Therefore, strengthening awareness creation, creating awareness about SHI, promoting the scheme using a different channel of communication to bring about favorable attitude, and providing health care services with required standard quality could help to increase the acceptance of SHI by health professionals.

List of abbreviations

CHI: Community health insurance
ETB: Ethiopian Birr

FGD: Focus group discussion
GDP: Gross domestic product
IQR: Interquartile range
SHI: Social health insurance
WTP: Willingness to pay.

Data Availability

The datasets supporting the conclusions of this article are available upon request to the corresponding author. Due to data protection restrictions and participant confidentiality, participants' data are not publicly available.

Ethical Approval

Ethical approval was obtained from University of Gondar Institutional Review Board and Permission letter was secured from Tigray Health Bureau and respective health institutions.

Consent

Written consent from study participants were obtained after explaining the purpose of the study and confidentiality was assured for the information provided by using the coding system; questionnaires did not have any personal identifiers and respondents were informed data are used for study purpose only. Confidentiality and anonymity were ensured. Study participants were informed that participation had no impact on the provision of their health care. All forms and data related to the study were stored in a locked room in a secured area, with controlled access available only to the investigators. Participation in the study was voluntary and individuals were free to withdraw or stop the interview at any time.

Disclosure

This study is part of a master thesis funded by the University of Gondar. The preliminary findings of this study were presented at Institute of Public Health, University of Gondar. The funders had no role in the study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Authors' Contributions

AT designed the study, developed data collection tools, performed the analysis and interpretation of data, and drafted the paper. MY and AK participated in the development of the study proposal, analysis and interpretation, revised drafts of the paper, and revised the manuscript. All authors read and approved the final manuscript.

Acknowledgments

We are very thankful to the University of Gondar for the approval of the ethical issue and its technical and financial support. We would like to thank the study participants, data collectors, and supervisors for their participation in the study.

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