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KNOWLEDGE, ATTITUDE, AND PERCEPTION TOWARDS SOCIAL HEALTH INSURANCE AND ASSOCIATED FACTORS AMONG HEALTH PROFESSIONALS WORKING AT PUBLIC HEALTH FACILITIES IN GONDAR CITY, NORTH WEST ETHIOPIA

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Abstract

Willingness to pay for and accept social health insurance varies across regions due to differences in knowledge, attitudes, and perceptions among employees. Ethiopia has introduced a social health insurance scheme despite facing challenges in its acceptance by the formal sector. However, little is known about the knowledge, attitudes, and perceptions of social health insurance. Therefore, this study aimed to assess the knowledge, attitudes, and perceptions regarding social health insurance and its associated factors among health professionals at public health facilities in Gondar City, Northwest Ethiopia. A facility-based cross-sectional and phenomenological design was used in this study. Four hundred and twenty-two participants and two focus group discussions were included for the quantitative and qualitative studies, respectively. A self-administered questionnaire and a focus group guide were used for data collection. Participants were selected using purposive and stratified simple random sampling techniques. EPI Data and Open Code software were used for data coding and entry, and the data was then exported to SPSS for analysis. Binary logistic regression and thematic analysis were used for quantitative and qualitative analysis, respectively. The results of the study suggested that knowledge and attitudes towards social health insurance were inadequate and unfavorable, despite positive perceptions found through quantitative analysis. Additionally, the qualitative findings suggested that knowledge, attitude, and perception were all poor. These findings highlight the need for targeted interventions to improve understanding and acceptance of social health insurance and to address negative attitudes towards it. By doing so, we can work towards increasing access to healthcare services and financial protection for individuals and families.

INTRODUCTION

Social health insurance (SHI) is a health financing access to healthcare services for the entire population or concept aimed at providing financial protection and specific groups within a country. It involves pooling

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funds from individuals and/or employers in advance, as defined by the World Health Organization (WHO) (Suthar et al., 2019). The collected resources are then used to provide healthcare services based on need, rather than the ability to pay (Lan and Anh, 2017). The WHO has strongly advocated for social health insurance as a means to achieve universal health coverage (UHC), ensuring that everyone has access to quality healthcare without facing financial hardship (WHO, 2018). This concept is based on solidarity, where healthier individuals and those with higher incomes contribute more to the insurance pool, while those who are sicker or have lower incomes receive the necessary healthcare services. By promoting social health insurance, the WHO aims to address the challenges of fragmented and inefficient health systems, inadequate financial protection, and inequitable access to healthcare services. Through pooling resources and spreading financial risks across the population, social health insurance can provide financial protection against high healthcare costs and improve access to essential services (Suthar et al., 2019; Mulatu et al., 2020).

The origins of social health insurance can be traced back to the late 19th and early 20th centuries, emerging as a response to the social and economic challenges brought about by industrialization and urbanization. Germany is often credited as the pioneer of social health insurance, introducing the compulsory sickness insurance scheme in 1883 (Spaan et al., 2012). This marked the beginning of a model where workers and employers made contributions to a common insurance fund to provide healthcare coverage. Since then, numerous countries worldwide have adopted social health insurance as a financing mechanism for their healthcare systems. The design and implementation of social health insurance programs vary across countries, reflecting their unique social, economic, and political contexts. As part of its efforts to advance UHC globally, the WHO actively promotes social health insurance (Spaan et al., 2012; Fenny et al., 2018). It provides technical assistance, policy guidance, and knowledge sharing to support countries in developing and strengthening their social health insurance schemes. The ultimate goal is to ensure that everyone can access the healthcare services they need without experiencing financial hardship, contributing to the overarching objective of achieving health for all (Mekonen et al., 2018). In line with this, the WHO has proposed that outof-pocket expenditure should be limited to less than 30 to 40% of total healthcare expenses (WHO, 2018). This recommendation recognizes that excessive out-of-pocket payments can create an economic burden, preventing individuals from utilizing healthcare services due to the direct payments required. Consequently, health financing approaches on a global scale support the implementation of a risk-pooling mechanism to address this obstacle to healthcare access, specifically prioritizing the protection of individuals with lower socioeconomic status (Ahmed et al., 2016).

Countries adopting social health insurance programs face enormous challenges in their implementation due to the negative effects of limited knowledge and poor attitudes. People with prior knowledge, awareness, and positive attitudes have been enablers of its implementation (Mulatu et al., 2020; Amo-Adjei et al., 2016; Bezuidenhout and Matlala, 2014). Studies in Pakistan have shown that limited efforts to improve the knowledge, understanding, and attitudes of beneficiaries have resulted in strong resistance to the program. However, other low- and middle-income countries outside Africa have achieved high levels of health insurance coverage despite low levels of social health insurance in sub-Saharan Africa (Mekonen et al., 2018). Few studies in Nigeria have indicated that formal employees have poor attitudes toward, and awareness of, the risk-pooling effect of SHI (Chen et al., 2017). They strongly believed that their premium contributions should not be used to cover the healthcare costs of others; instead, they should be kept and paid back. Studies in some parts of the region have found that 82 and 64% of participants had poor knowledge and unfavorable attitudes towards SHI, respectively. Insufficient training and orientation about the program were the major factors contributing to poor knowledge (Fenny et al., 2018; Adewole et al., 2015). Other studies have noted that the severity of illness affects acceptance. People with chronic illnesses are more likely to accept the program than healthy people, which indicates a poor attitude (Ahmed et al., 2016).

Low- and middle-income countries in Africa have varying acceptance rates of social health insurance. Only eight of the 36 countries observed had a mean level of any type of health insurance above 10%, while only four had a coverage level above 20% (Barasa et al., 2021). Poor public awareness, limited training, and poor community mobilization contributed to these disparities (Amu et al., 2018; Fang et al., 2019). To avoid the negative effects of out-of-pocket payments in Ethiopia, a fee waiver system was established as a measure, although coverage remained low in various regions (Alebachew et al., 2018). The proposed social health insurance system faces challenges due to numerous factors. Most studies on demand, acceptance, and willingness to pay for social health

insurance were below the expected benchmark. Low acceptance and willingness to pay were attributed to low levels of knowledge, unfavorable attitudes, and poor perceptions among formal sector employees (Fenny et al., 2018).

Studies indicate some progress in the domestic share of health expenses, yet household out-of-pocket expenditure (33%) remains the main domestic source. This is directly linked to the level of knowledge and attitudes of payroll-based workers (Mulatu et al., 2020). Evidence also indicates that efforts to improve the level of knowledge and understanding among government employees lag far behind in Ethiopia. Studies in northern Ethiopia demonstrated that the lower willingness to pay and acceptance of social health insurance were due to the lower commitment of different stakeholders to creating awareness of the program (Mathauer et al., 2008). Poor knowledge and unfavorable attitudes led the community to rely heavily on out-of-pocket health expenses, reaching about 40% of total health expenditures (Admasu et al., 2016).

Social health insurance and community-based health insurance (CBHI) are the two health insurance schemes proposed and under implementation, targeting universal health coverage (Ethiopia, 2015). Poor knowledge, unfavorable attitudes, and poor perceptions of health insurance have made healthcare beneficiaries dependent on high out-of-pocket expenditures. Studies indicate that joining the social health insurance scheme is mandatory for all in the formal sectors in Ethiopia, with active employees required to pay a monthly premium of 3%, while pensioners are required to pay 1% of their monthly salary. However, the majority of employees have poor comprehension of the program (Birara, 2018). Despite the government's plan to fully implement social health insurance by 2014, it has been repeatedly postponed due to strong resistance from government employees. A low level of awareness of the program is the immediate reason for the postponement and resistance (Fenny et al., 2018). Many factors affect knowledge of and attitude towards social health insurance, including socioeconomic characteristics, healthcare and health insurance-related elements, awareness, and attitudinal factors (Mekonen et al., 2018). Many studies have indicated that low levels of knowledge, attitudes, and perceptions among employees adversely affect acceptance, willingness to pay, and demand for health insurance schemes. Since social health insurance is new to the country, it is crucial to focus on improving formal employees' knowledge, attitudes, and understanding of social health insurance. Therefore, this study aimed to explore and assess the knowledge, attitudes, and perceptions of social health insurance and associated factors among health professionals working in public health facilities in Gondar.

MATERIALS AND METHODS

Study design, period, and population

This study was conducted using facility-based cross-sectional and phenomenological designs from August 20 to September 30, 2022, focusing on health professionals working at health facilities in Gondar City. Gondar City is located 760 km north of Addis Ababa, the capital city of Ethiopia. It consists of four sub-cities and 20 kebeles, with a current estimated total population of 395,000, as per the 2018 population projection. The city has one comprehensive specialized public hospital with 1,150 health professionals and eight health centers with 196 health professionals, providing healthcare services for the population of the city and surrounding areas. All health professionals working at the public health facilities in Gondar City were considered the source population for both quantitative and qualitative studies. The study population included health professionals working and accessible during the study period at public health facilities in Gondar City.

Sample size determination and sampling procedure

The number of study participants was determined using the single population proportion formula, assuming a 50% proportion, 95% confidence interval, and 5% margin of error. Considering a 10% non-response rate, the total sample size was calculated to be 422 (Figure 1). Concurrently with the quantitative survey, two focus group discussions (six discussants each, n=12) were conducted using the rule of thumb. Data were collected through separate discussions regarding knowledge, attitudes, and perceptions of social health insurance and related factors. Focus group discussion was utilized to gather new and emerging ideas about social health insurance and its related factors. Members of the focus group discussions were purposively selected from all health professionals.

All public health facilities were included and stratified into health centers and hospitals due to differences in structure and numbers of working health professionals. Then, the final number of study participants for each

health facility was determined based on proportional allocation, taking into account the total sample size and population. Because of professional differences within each health facility, the final number of study participants was computed and obtained by running sub-stratification proportional to size allocation. Eventually, a simple random sampling technique was used to select study participants. Regarding the qualitative study, members of focus group discussions were selected using a purposive sampling technique, considering professional diversification (Figure 1).

Study variables and outcome measurement

Knowledge, attitude, and perception of social health insurance were the dependent variables, which were measured dichotomously using a five-point Likert scale and percentage, respectively. Sociodemographic and economic factors such as age, sex, educational status, monthly salary, profession, work experience, marital status, and family size, and economic and psychosocial factors such as awareness, trust in health insurance, family income, belief in social health insurance, health and health-related factors, and health insurance-related factors such as benefit packages and payment rates were the independent variables.

Data collection and Quality assurances methods

Data were collected using semi-structured, self-administered, and pretested questionnaires adapted by reviewing the related scientific literature. Adapted questions were used to measure health professionals' knowledge, attitudes, and perceptions. The validity and reliability of the questions were checked, and they had closedended content consisting of sociodemographic characteristics, economic status, health status, knowledge, attitude, and perception of SHI. For data collection, three data collectors, supported by one supervisor, were assigned and guided by the principal investigator's follow-up. The data collectors and principal investigator verified the quality of the data during data collection. Regarding the qualitative part, an interview guide for focused group discussions was deployed for data collection. Note Books, audio recorders, and other supportive materials were used for data gathering. Data were collected using an FGD guide for members of the discussants. One focus group discussion was conducted in the hospital, while the other was conducted in health centers. Note Books and audio recorders were used to retain the data and were later used for translation and transcription purposes. Discussants were purposively selected from facilities, with the primary goal of obtaining comprehensive and genuine information. A one-hour focus group discussion was undertaken concurrently with the collection of quantitative data, and discussants were excluded from the quantitative study to avoid information bias.

To ensure data quality, several measures were taken during the study. Firstly, the questionnaire was pre-tested on 5% of the study population to identify any potential issues or ambiguities. This allowed for necessary adjustments and refinements to be made to the questionnaire before the actual data collection process. Prior to data collection, appropriate supervision, training, and orientations were provided to the data collectors. This ensured that they understood the aims and procedures of the study and were equipped with the necessary knowledge and skills to accurately gather data from participants. During the data collection phase, a daily review of the collected data was conducted. This review aimed to identify any errors or inconsistencies in the data. If errors were identified, they were promptly communicated to the data collectors for further correction, ensuring the accuracy and reliability of the collected data. After the data were entered into the EPI DTA version 4.6 software, a thorough cleaning process was carried out. This involved identifying and removing any inconsistencies, outliers, or other data-related issues that could potentially affect the quality of the data. This step was crucial in preparing the data for subsequent analysis and interpretation. The reliability of the data was assessed using the alpha value of the Cronbach's alpha test for knowledge, attitude, and perception. The alpha values obtained were 0.78, 0.86, and 0.82, respectively. These values indicate a high level of reliability, as they exceed the threshold of 0.70 commonly used to determine the internal consistency of the data. This suggests that the data collected for knowledge, attitude, and perception were dependable and consistent.

Furthermore, the distribution of the data was assessed for normality. The z-score values, which indicate the deviation from the mean, were evaluated. It was found that all z-score values fell within the range of -1.96 to +1.96 (Amu et al., 2018). This indicates that the data followed a normal distribution, which is an important characteristic for many statistical analyses.

Data analysis and interpretations

After data collection, the results were entered into a computer using Epidata version 4.6 and cleaned. Data were exported to SPSS version 25. Bivariate and multivariable analyses were performed, and the association of covariates with knowledge, attitudes, and perceptions of social health insurance was examined. All possible factors with a p-value <0.25 under bivariate analysis were entered into a multi-variable analysis to control for the effect of confounding variables. The Hosmer and Lemenshow goodness-of-fit test found that the model was a good fit for this study. The association between the dependent and independent variables was measured and tested using p-value and 95% CI for odds ratio. Statistical significance was set at p-value <0.05.

Ethical approval and consent to participate

Ethical approval was obtained from Wollo University, College of Medicine and Health Science (CMHS), Department of Pharmacy, with a letter dated 29/2022, referencing CMHS 370/20/14. A formal letter of cooperation was provided to each facility to ensure the legality of this study. Verbal consent was obtained from each respondent, who were informed of their right not to participate in the study; their responses were kept anonymous, and their information was treated confidentially. Participants were assured that their responses were solely for the study's purpose, and their participation was voluntary. The respondent's data was anonymized. Written informed consent was obtained from all participants, who were adults aged ≥ 18 years. During the data collection process, participants were informed that they could read the information sheet and agree to fill out the questionnaire. They were also assured that all data collected would be kept confidential using codes instead of personal identifiers, and would only be used for the study's purpose.

RESULTS

Socio demographic characteristics of respondents

Out of 422 study participants, 418 health professionals completed the questionnaire, resulting in a response rate of 99.1%. Among the total study participants, more than two-thirds (290; 70.3%) were females. In terms of age, the majority of participants fell between 30 and 40 years old, with a mean age of 31.6 ± 5.7 years. Furthermore, the findings revealed that a high proportion of participants were degree holders (176; 41.2%) and married (214; 50.1%) (Table 1).

Regarding profession and work experience, the majority of health professionals were nurses (120; 28.1%) (Figure 2), and most had 5–10 years of work experience (171; 40.5%). A large proportion of health professionals (83.6%) earned a salary exceeding 6,000 ETB, with the majority (63.2%) working in hospitals. In terms of their spouses' educational background, the majority (44.5%) had obtained a degree. Additionally, a significant number of these professionals (87.6%) had between 3 and 6 dependents (Table 1).

Knowledge, attitude, and perception towards social health insurance among health professionals

More than half of the study participants ($X\bar{}$ = 3.01) responded that social health insurance covers all health care expenditures for enrolees, and they also stated that SHI enables pooling risk in health care expenditures ($X\bar{}$ = 2.55).In contrast, less than half of the study participants disagreed that SHI is the premium contributed by formal employees ($X\bar{}$ =1.36), characterized by compulsory universal health coverage ($X\bar{}$ =1.82) and a financing approach for mobilizing funds and pooling possible risks of healthcare expenditures($X\bar{}$ = 1.92). Furthermore, less than half of the health professionals ($X\bar{}$ = 3.01) were found to disagree that SHI could prevent catastrophic health expenditures ($X\bar{}$ =2.36), and they responded negatively that 3% of their basic salary could be contributed to the scheme ($X\bar{}$ = 1.64) (Table 2). The findings also revealed that a significant proportion of participants reportedly disagreed with the importance of SHI, its relevance in reducing direct medical expenses, and supporting households whose income is unpredictable. The majority of health professionals 296 (70.1%) were found to have poor knowledge of social health insurance (Figure 3).

Over all, this finding was supported by the cumulative mean ($X\bar{}$ =2.04), which indicated that the level of knowledge among health professionals working in public health facilities was poor (Table 2). From the perspective of attitude, a significant number of health professionals disagreed and reported that SHI could reduce the burden of medical bills ($X\bar{}$ =1.69) and promote the equity of health services ($X\bar{}$ =1.77). More than half (68.7%) of the health professionals reported that SHI could not promote improved health facilities; indeed, a significant number of them responded that they were not able to participate in the scheme. Three quarters (75.9%)

of participants indicated that SHI would enhance efficiency and, in the meantime, they reported that no negative effects related the SHI scheme. A significant proportion 314 (74.4%) of health professionals and the overall weighted mean ($X\hat{}$ =2.21) showed that attitudes towards social health insurance was found to be unfavourable because the mean was below the average (Table 3).

Regarding perception, more than three quarters (78.2%) of health professionals reported that they had heard about social health insurance, and a significant number of them (67.2%) believed that the health care system should be properly funded through the scheme .Furthermore, more than half of them (55.5 and 55.3%) believed in the involvement of the government and individuals in the contribution of Social health insurance and thought that Social health insurance should be compulsory for all formal employees, respectively. However, a large proportion of health professionals (62.7 and 69.5%) neither saw media advertisements nor read information about social health insurance during their lifetime, respectively (Figure 4).

Besides, a large proportion (59.7%) of health professionals thought that their families could afford all medical bills, despite 80.2% of them believing that enrolling in SHI was important (Table 4).

Table 1. Socio-demographic characteristics of health professionals working at public health facilities in Gondar city, Northeast Ethiopia, 2022.

Type of Variable	Frequency (#)	%
Sex		
Male	127	29.7
Female	291	70.3
Age		
<30 years	148	35.1
31–40 years	181	43.9
41--50 years	52	12.4
>50 years	37	8.7
Marital status		
Single	156	36.8
Married	210	50.1
Divorced	13	4.2
Separated	30	7.1
Widowed	9	2.1
Educational level		
Certificate	12	3.3
Diploma	134	32.3
Degree	176	42.1
Masters	96	22.9
Educational level of your spouse		

High school	4	1.4
Diploma	169	40
Degree	188	44.5
Masters	57	13.6
Field of study		
Medicine	62	14.5
Pharmacy	58	14.1
Nurse	121	28.1
Midwife	116	27.1
Health officer	26	6.8
Laboratory	9	2.1
Others	26	6.1
Work experience		
<5 years	81	19.7
5–10 years	169	40.5
11–16 years	92	22
>16 years	76	18.2
Monthly salary		
<6,000ETB	67	16.4
>6,000ETB	351	83.6
Type of facility		
Hospital	356	85.2
Health center	62	14.8
Number of dependent children +old age		
None	64	15.6
<3	290	74.4
3–6	29	87.6
>6	35	82.9

Table 1. Cont'd

ETB, Ethiopian birr.

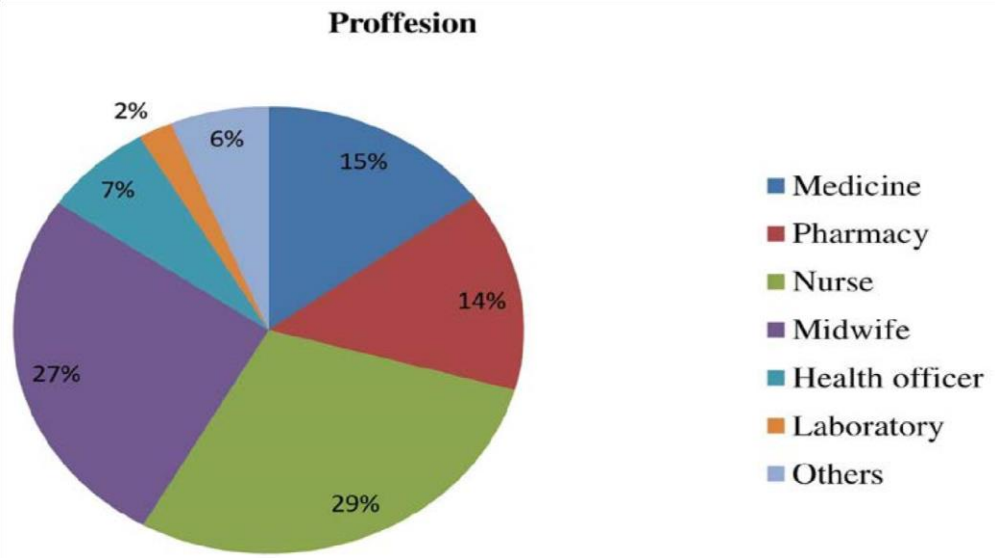

Figure 2. Distribution of respondents by profession, Northwest Ethiopia, 2022.

Table 2. Tabular description of knowledge towards social health insurance among health professionals in Gondar city, Ethiopia, 2022.

Table 2. Cont'd

Social health insurance prevents catastrophic health expenditures	Strongly disagree	209	49.5	2.36
	Disagree	164	39.3	
	Neutral	15	4	
	Agree	18	4.5	
	Strongly agree	11	2.6	
Employees are expected to contribute 3% of their basic salary	Strongly disagree	165	40.8	1.64
	Disagree	161	35.8	
	Neutral	1	0.2	
	Agree	75	19	
	Strongly agree	16	4.3	
Social health insurance enables enrolees to pool risk in health expenditures	Strongly disagree	162	39.1	2.55
	Disagree	210	50.5	
	Neutral	1	0.2	
	Agree	39	9.2	
	Strongly agree	4	0.9	
Social health insurance covers all health care expenditures for enrolees	Strongly disagree	142	34.4	3.01
	Disagree	185	44.4	
	Neutral	2	0.5	
	Agree	44	10.4	

	Strongly agree	43	10.2	
Social health insurance is crucial for health care management	Strongly disagree	181	43.4	1.45
	Disagree	204	49.3	
	Neutral	1	0.2	
	Agree	18	4.3	
	Strongly agree	12	2.8	
The introduction of social health insurance reduces direct medical payments for health care	Strongly disagree	48	11.4	2.09
	Disagree	142	34.6	
	Neutral	102	24.6	
	Agree	121	29.4	
	Strongly agree	71	16.8	
Social health insurance supports rural households whose income is unpredictable	Strongly disagree	167	39.6	2.01
	Disagree	38	9.5	
	Neutral	104	25.1	
	Agree	38	9	
	Strongly agree	95	23	
The social health insurance scheme excludes treatment abroad, kidney dialysis/treatments, artificial teeth, and plastic surgery	Strongly disagree	112	27.3	2.27
	Disagree	112	26.5	
	Neutral	98	23.2	
	Agree			
	Strongly agree			

Factors associated with knowledge, attitude, and perception towards social health insurance

such as age, type of facility, salary, work experience, marital status, profession, number of dependents, reading about social health insurance, obtaining policy documents, learning about SHI, receiving training

In the bivariate logistic regression analysis, variables were

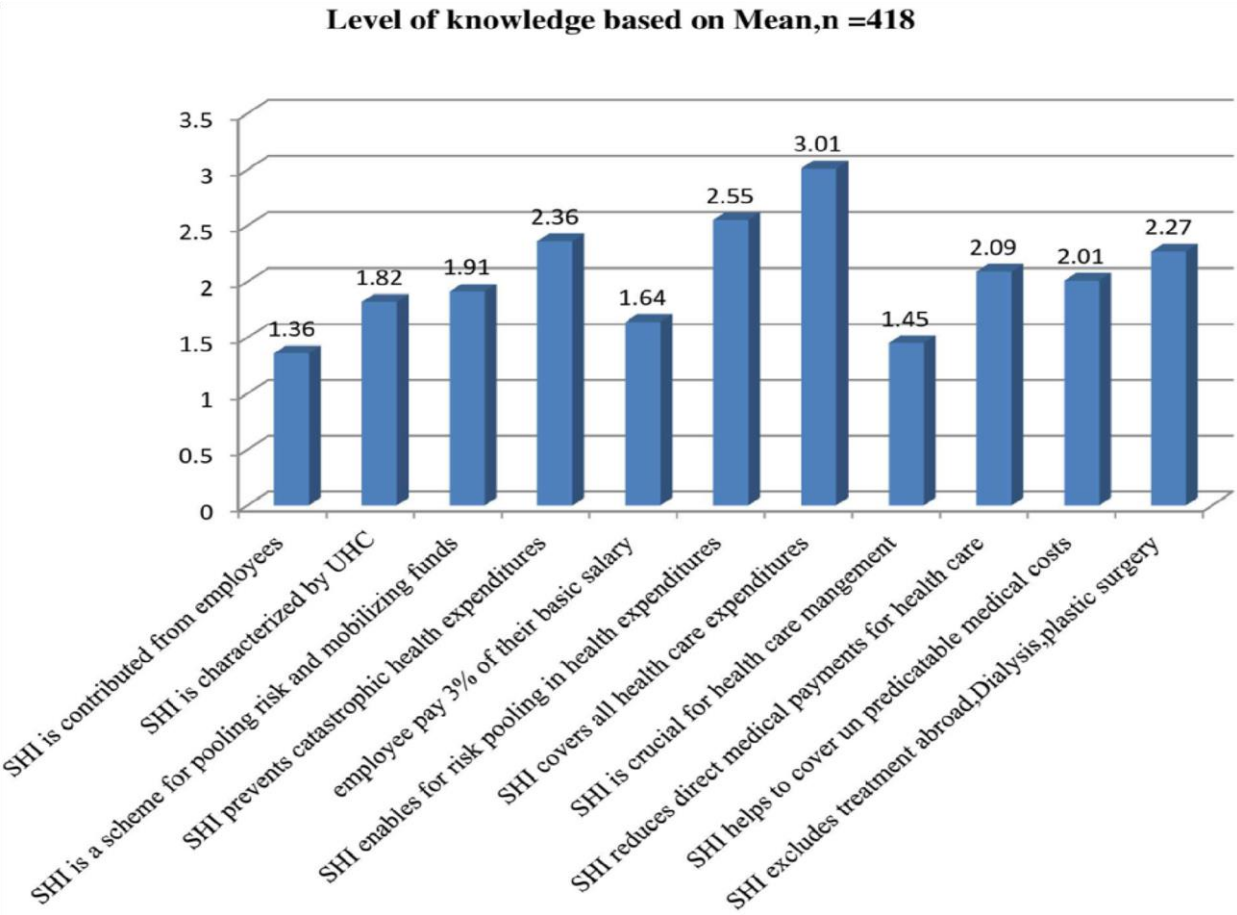

Figure 3. Diagrammatic presentation of knowledge based on mean findings from North West Ethiopia, 2022.

Table 3. Attitude towards social health insurance among health professionals in Gondar city, North West Ethiopia, 2022.

Attitude questions	Mean=418
SHI reduces the burden of medical bills	1.69
SHI will promote equity of health services	1.77
SHI will promote improved health facilities	1.85
You are willing and able to participate in the scheme	1.92
There are adverse consequences associated with the scheme	2.01
Social health insurance will enhance efficiency	2.08
You are trustful or certain on social health insurance	2.15
You are satisfied with your current payment systems	2.23
Social health insurance will enhance social inclusion	2.31
Risk protection systems are low in formal sectors	2.38
You are strongly willing to accept and promote SHI	2.46
Your contribution for SHI enables the poor to access health care	3.08
Premium payment for community-based health insurance scheme is expensive	2.85
Overall/Weighted mean	2.21

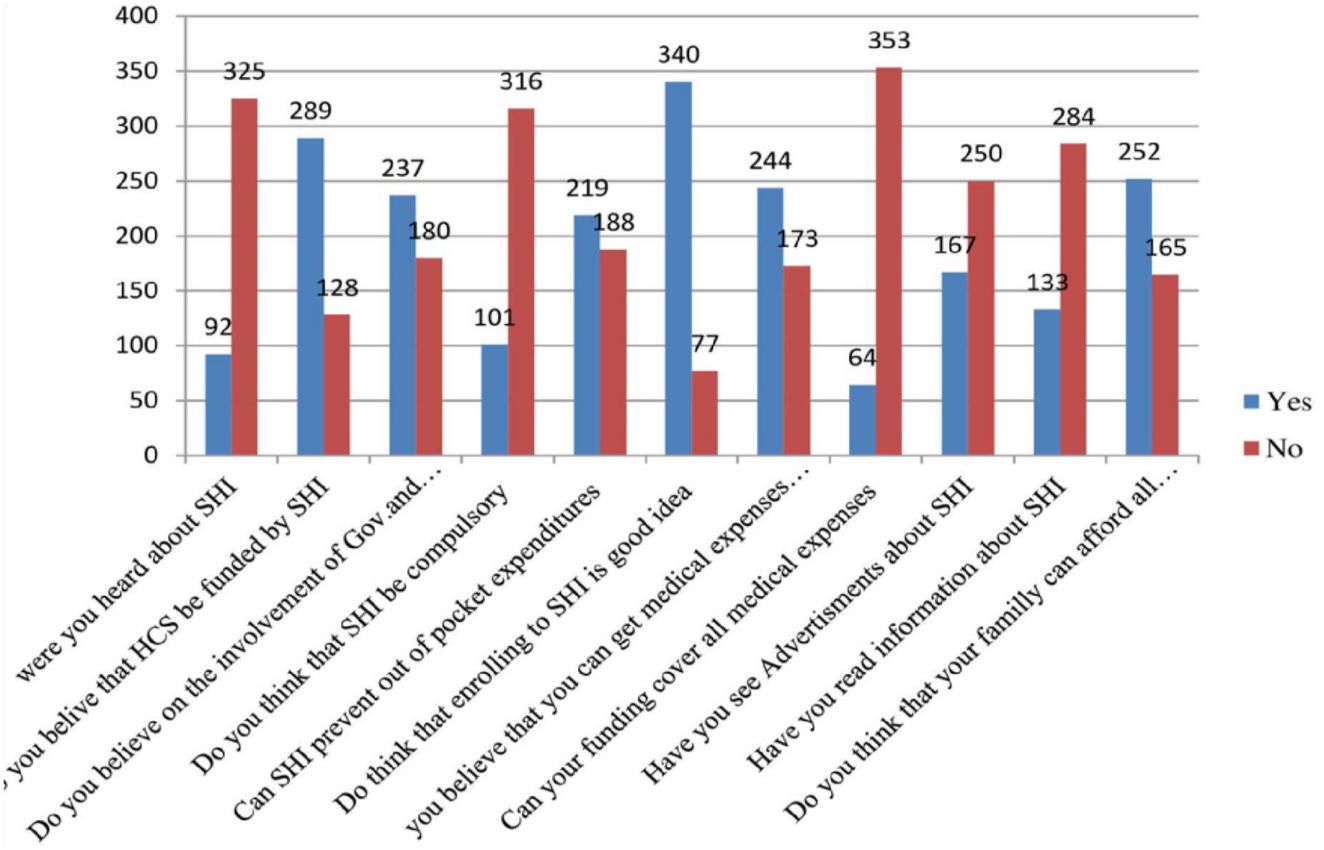

Figure 4. Schematic representation of perception towards SHI among health professionals in Gondar city, Northwest

Ethiopia, 2022.associated with knowledge of social health insurance at a p-value of <0.25. Subsequently, these variables underwent multivariable logistic regression analysis, revealing that work experience, marital status, profession, number of dependents, reading about SHI, obtaining policy documents, learning about SHI, and receiving training were significantly associated with knowledge of social health insurance at a p-value of 0.05 (Table 5).

According to the study's findings, health professionals' salaries were significantly associated with their knowledge of social health insurance. Health professionals with salaries less than 6,000 ETB were about 1.5 times more likely to have good knowledge of social health insurance than those with a basic salary of greater than 6,000 ETB (AOR = 1.10, 95% CI: 1.91, p-value = 0.01). Additionally, health professionals with over 16 years of work experience were about 2.4 times more likely to have good knowledge compared to those with less work experience (AOR = 1.28, 95% CI: 2.69, p-value = 0.00) (Table 6).

Regarding age, profession, and marital status, health professionals who were ≥50 years old, nurses, and separated were 1.3 (AOR = 1.16, 95% CI: 1.99, p-value = 0.004), 2.2 (AOR = 1.69, 95% CI: 7.43, p-value = 0.03), and 2.3 (AOR = 1.23, 95% CI: 13.7, p-value = 0.02) times more likely to have good knowledge towards social health insurance, respectively. Additionally, those with a greater number of dependents, those able to read about SHI, and those obtaining policy documents were 1.4 (AOR = 1.04, 95% CI: 1.97, p-value = 0.04), 2.4 (AOR = 1.36, 95% CI: 4.22, p-value = 0.002), and 2.8 (AOR = 1.63, 95% CI: 4.78, p-value = 0.000) times more likely to have good knowledge of social health insurance than their counterparts. The findings also indicated that health professionals who received training and learning were 4.7 (AOR = 1.23, 95% CI: 17.98, p-value = 0.00) and 14.5 (AOR = 5.96, 95% CI: 43.81, p-value = 0.023) times more likely to have good knowledge of social health insurance compared to those not trained and unexposed to learning, respectively.

From the perspective of attitude, salary, profession, work experience, number of dependents, history of sickness, chronic illness, and receiving training were found to be significantly associated with attitudes towards social

health insurance ($p < 0.05$). Health professionals with salaries of less than 6,000 ETB were about 1.4 times more likely to have a favorable attitude towards social health insurance than those with a basic salary of less

Table 4. Perception towards social health insurance among health professionals in Gondar city, Northwest Ethiopia, 2022.

Variable	Yes=418	% of yes responses
Have you heard about social health insurance?	92	21.5
Do you strongly believe that Health care systems should be properly funded through social health insurance?	289	67.7
Do you believe in the involvement of the government and individuals in the contribution of Social health insurance?	237	55.5
Do you think that Social health insurance should be made compulsory for all formal employees	101	55.3
Can social health insurance prevent out-of-pocket expenditures?	219	51.3
Do you think that enrolling in SHI is a good idea?	340	80.6
Do you believe that you can get proper medical expenses through social health insurance?	244	57.8
Can your funding system cover all aspects of you and your family medical expenses	64	15.2
Have you seen media Advertisements about social health insurance?	167	39.6
Have you read some sort of information about SHI?	133	31.5
Do you think that your family can afford all medical bills Weighted percentage mean	252 53.6	59.7

than 6,000 ETB (AOR = 1.25, 95% CI: 1.99, pvalue = 0.021). Additionally, professionals in the medicine field were 2.2 times more likely (95% CI = 1.69–7.43, p-value = 0.03), those with work experience of ≥16 years were 2.1 times more likely (AOR = 1.58, 95% CI: 3.69, p-value = 0.041), and those with six or more dependents were about 1.4 times more likely (95% CI: 1.04, 1.97, p-value = 0.04) to have a favorable attitude compared to their counterparts, respectively.

The odds of being sick, receiving training, and having chronic illness were found to be 1.9, 1.7, and 1.6 times more likely to have a favorable attitude towards social health insurance compared to those who were not trained and were not sick, respectively (Table 7).

Regarding perceptions of SHI and related factors, sex, educational level, marital status, age, access to information, and awareness were significantly associated with health professionals in Gondar. Among these factors, being female, being married, and being under 30 years old were

2.7 (AOR = 1.19, 95% CI: 3.28, p-value = 0.004), 3.1 (95% CI: 1.35, 8.24, p-value = 0.02), and 1.6 (95% CI: 1.06, 2.09, p-value = 0.01) times more likely to have a good perception compared to their counterparts. Furthermore, the odds of having adequate information and awareness were 2.1 and 2.6 times more likely to result in better perception towards social health insurance compared to those with limited access to information and awareness, respectively (Table 8).

Qualitative results

There were a total of 12 discussants, comprising seven males and five females. Nine of the discussants were between the ages of 25 and 40 years. All participants had degrees or higher qualifications. The focus group discussions included professionals from various fields, including medicine, pharmacy, laboratory, health officers, nursing, and midwifery. Thematic analysis identified 14 categories, which were further grouped into six key themes. Direct quotes from the participants were used to support the findings where appropriate.

Theme 1: Knowledge about SHI

Among all discussants, four were reported to have good knowledge of social health insurance within their respective institutions, despite slight limitations. This is illustrated as follows:

"For me, the level of understanding and communication about social health insurance is very promising and pretty good. Fortunately, I had an experience to discuss and read about social health insurance scheme and even had been discussed with my workmates" (pl1).

"Social health insurance is very crucial for lower

Table 5. Knowledge and associated factors towards social health insurance among health professionals, Gondar city, Northwest Ethiopia, 2022.

Variable	Type of response	Level of knowledge			p-value for X^2
		Poor	Good	# total	
Have you read about social health insurance?	yes	34	258	292	0.00
	No	97	29	126	
Have you got policy documents to understand social health insurance?	Yes	46	106	152	0.02
	No	214	52	266	
Have you got resources to read about social health insurance?	Yes	19	79	98	0.40
	No	297	23	320	
Were you taught about social health insurance at studentship	Yes	13	65	78	0.00
	No	302	38	340	
Have you received trainings about social health insurance after formal deployment	Yes	9	17	26	0.03
	No	322	70	392	
Have you heard about social health insurance on social media	Yes	69	113	182	0.00
	No	94	142	236	
Did you read about social health insurance on social media	Yes	68	152	220	0.06
	No	134	64	198	
Have you ever seen advertisements about social health insurance on social media	Yes	25	82	107	0.01
	No	209	102	311	

Table 6. Multivariable logistic regression for factors associated with knowledge towards social health insurance among health professionals in Gondar city, Northwest Ethiopia, 2022.

Variable	Category	Knowledge		OR (95% CI)		p-value
		Good	Poor	Crude	Adjusted	
Salary	≥6,000 Birr	238	113	Ref	Ref	0.01*
	<6,000 Birr	46	20	1.4 (1.19, 1.87)	1.5 (1.10, 1.91)	
<16 years		152	59	Ref	Ref	0.00*
≥16 years		142	65	1.6 (1.34, 1.98)	2.4 (1.28, 2.69)	
Work experience						
Age	>50 years	11	26	1.7 (1.39, 1.86)	1.3 (1.16, 1.99)	0.04*
	<50 years	220	181	Ref		

Marital status	Separated	12	18	3 (1.15, 17.32)	2.3 (1.23, 13.7)	0.00*		
	Others	210	178	Ref	Ref			
Profession	Nurse	53	68	1.5 (1.60, 3.72)	2.2 (1.69, 7.43)	0.03*		
	Others	124	153	Ref	Ref			
	≥6	240	143	1.5 (1.17, 1.89)	1.4 (1.04, 1.97)			
No of dependents	<6	26	9	Ref	Ref	0.04*		
Reading about SHI	Yes	258	34	1.7 (1.06, 2.64)	2.4 (1.36, 4.22)	0.002*		
	No	29	97	Ref	Ref			
Getting policy documents	Yes	106	46	2 (1.26, 3.32)	2.8 (1.63, 4.78)	0.000*		
	No	52	214	Ref	Ref			
Learn about SHI	Yes	65	13	11.8 (3.64, 28.25)	14.5 (5.96, 43.81)	0.000*		
	No	38	302	Ref	Ref			
Getting trainings	Yes	17	9	2.9 (1.87, 10.03)	4.7 (1.23, 17.98)	0.023*		
	No	70	322	Ref	Ref			

Table 6. Cont'd

Table 7. Multivariable logistic regression for factors associated with attitude towards social health insurance among health professionals in Gondar city, Northwest Ethiopia, 2022.

Attitude	**OR(95%CI)**				
Variable	**Category**	**p-value**			
Favorable	**Unfavorable**	**Crude**	**Adjusted**		
Salary	≥6,000 Birr	251	98	Ref	Ref
				(1.37, 1.91)	1.4 (1.25, 1.99)
					0.021*

Table 8. Multivariable logistic regression for factors associated with perception towards social health insurance among health professionals in Gondar city, Northwest Ethiopia, 2022.

Perception	**OR (95% CI)**			
Variable	**Category**	**p-value**		
Good	**Poor**	**Crude**	**Adjusted**	

and shift my attention" (ph6).

Theme 5: Factors affecting attitude

Members of the focused group discussion clarified that health professionals' attitudes towards social health insurance could be correlated with many factors. History of illness, profession, income, family size, and scope of social health insurance were found to affect attitudes, as stated by the discussants. They strongly suggested that those with chronic illness and those paid less should enroll in the scheme for a sufficient health service. All notionswere strengthened by the discussants' explanations as "*I believe in the notion that health*

professionals with frequent history of illness must enroll the program and get advantaged so long as they can afford to pay the stated amount" (pgp7).

"SHI should not be implemented in the health sector since we are front line health care providers and I believe in the sense that we should get exempted service instead" (pn8). Health professionals with lower income and larger family size would not be able afford to pay medical bills and would suffer with out-of-pocket expenditure, hence they should enrol to protect them from catastrophic health expenditures" (pp6).

Theme 6: Factors affecting perception

Regarding perception, professionals' ability and habit of reading, limitations with digital technology, lack of media advertisement, and advocacy about the program were centrally discussed and correlated with perceptions of SHI among health professionals. These statements were illustrated in the following quote.

"Due to the workload, we are encountering, our ability and habit of reading about new programs designed by MOH is quite poor" (ph6).

"I am with limitations to search resources required for update and this made me suffer with lack of sufficient information about SHI" (pl9).

DISCUSSION

This study examined, determined, and explored the level of knowledge, attitudes, and perceptions of social health insurance and its associated factors among health professionals working at public health facilities in Gondar City. According to the findings of this study, the overall level of knowledge and attitude among health professionals was found to be poor ($X\hat{} = 2.04$) and unfavorable ($X\hat{} = 2.21$), respectively, whereas perception of SHI was found to be good per the findings. This finding is in contrast to a study undertaken in Nepal, where the knowledge of company workers about SHI was reasonably good (Sharma and Banjara, 2020). This difference might be due to the study settings, awareness creation, and provision of compatible training for enrolees. Moreover, professional differences among the study participants might have brought about the disparity, as this study was undertaken on health professionals, while the other study was on paramedics. Therefore, the findings will direct the provision of trainings and awareness creation before the launch of the SHI program.

With regard to attitudes and perceptions, this finding contradicts the studies undertaken in West Ghana, Nigeria, and South Africa, where unfavourable attitudes and poor perceptions have been reported (Amo-Adjei et al., 2016; Oladimeji et al., 2017; Uzochukwu et al., 2015). However, it was considerably comparable with research findings in Nigeria, where the existence of poor knowledge enhanced poor healthcare utilization and, at the same time, poor attitude contributed to low enrolment rate (Ballon and Skinner, 2008; Nadpara, 2009). In addition, this finding was comparable with study findings in the western region and South Africa, where the rate and extent of SHI implementation increased because of better perception and awareness of the program (Sharma and Banjara, 2020; Oladimeji et al., 2017; Nguyen and Hoang, 2017). These different findings might be due to the difference in the study settings and the variation in the health policy for information system structures between Ethiopia and the respective countries. Therefore, enacting and passing legislation for an appropriate health policy structure, which will be geared towards an effective implementation of SHI, will increase acceptance rates and hasten the enrolment of the program. Furthermore, this finding was also comparable with the health insurance assessment undertaken in Ethiopia, where poor knowledge and unfavourable attitudes were found to contribute to low willingness to pay (Gessesse et al., 2016). Evidence from the qualitative findings of this study indicated that the majority of health professionals were found to have poor knowledge, perceptions, and unfavourable attitudes. A significant number of discussants agreed that they did not have adequate information about social health insurance despite being well aware of and informed about CBHI. In addition, the findings of the FGD showed that payrollbased health insurance would have a negative impact on lower-paid health professionals, although the program enables equitable distribution of healthcare costs. This was in line with a study undertaken in Addis Ababa, where a misunderstanding of SHI and a higher preference for out-of-pocket expenditure was reported (Obse et al., 2015). However, this finding was in contrast to findings in China, where those with a better awareness of SHI were enrolled (Chen et al., 2017). This disparity was due to differences in the study settings. Based on this finding, extensive work is required in the pre-launch phase of the program, focusing on capacity building and training.

Furthermore, this finding was comparable to studies undertaken in Ghana, Nigeria, and Pakistan with regard to knowledge and attitude (Asenso-Okyere et al., 1997; Omotowo et al., 2016: Yazbeck et al., 2020). However, it was in contrast to studies undertaken in Nigeria and Nepal (Uzochukwu et al., 2015; Acharya et al., 2021). This significant variation might be due to differences in creating awareness, training, and availability of sufficient resources. This finding was also in line with a study conducted in northern Ethiopia, which revealed that a significant number of government employees had limited information on health insurance, particularly social health insurance (Agago et al., 2014). At the same time, this finding was similar to the idea that they had limited knowledge of social health insurance, as per the discussion results of most FGD members (Omotowo et al., 2016). However, this was in contradiction with the assessment done in Malaysia on health insurance, which stated that enrolees would have advanced basic information about HI (Salameh et al., 2015). This variation might be due to the difference in study settings and design in which this study attempted to address the issue of incorporating a qualitative study design, while the other was solely used in the quantitative study design. Therefore, the drawbacks of implementing social health insurance will be addressed by working on the improvement of knowledge, attitude, and perception towards SHI by triangulating different study designs and widening the scope.

Knowledge factors towards social health insurance

Knowledge of SHI was correlated with sociodemographic, technical, and organizational factors. According to the findings of this study, salary, work experience, marital status, profession, number of dependents, reading about SHI, getting policy documents, learning about SHI, and receiving trainings were significantly associated with knowledge towards social health insurance at a p-value <0.05 after running multivariable logistic regression. Health professionals with salaries less than 6,000 ETB were about1.5 (AOR = 1.10, 1.91 at 95 CI with p-value =0.01) times more likely to have good knowledge of social health insurance than those with a basic salary of greater than 6,000ETB. This finding is comparable to those of previous studies (Agago et al., 2014; Ahmed, 2019; Yeshiwas et al., 2018). Additionally, those health professionals with greater than 16 years' work experience were about 2.4 (AOR = 1.28, 2.69 at 95 CI with p-value =0.00) times more likely to have good knowledge as compared to health professionals with less than 16 years of work experience. This finding is supported by a study conducted in South Africa (Bezuidenhout and Matlala, 2014). These findings imply that income and work experience affect health professionals' SHI knowledge. Particular attention should be paid to employees with lower salaries and minimal work experience in explaining SHI. Regarding age, profession, and marital status, health professionals who were ≥50 years, nurses, and separated were about 1.3 (AOR = 1.16, 1.99 at 95 CI with p-value = 0.004), 2.2 (AOR = 1.69, 7.43 at 95 CI with pvalue = 0.03), 2.3 (AOR = 1.23, 13.7, at 95 CI with pvalue = 0.02) times more likely to have good knowledge of social health insurance in contrast to their counterparts, respectively; this was comparable and consistent with previous studies (Ballon, and Skinner, 2008; Nosratnejad et al., 2014) with regards to age. However, this was contradictory to findings in Nigeria and Ghana (Adewole et al., 2015; Amo-Adjei et al., 2016; Asenso-Okyere et al., 1997) from the perspective of marital status, where being married had a positive impact on knowledge of health insurance. On top of this, this finding indicated that those having a greater number of dependents, those able to read about SHI, and those receiving policy documents to read were 1.4 (AOR = 1.04, 1.97 at 95 CI with p-value = 0.04), 2.4 (1.36,4.22 at 95 CI with p-value =0.002), and 2.8 (AOR = 1.63,4.78 at 95 CI with p-value =0.000) times more likely to have good knowledge towards social health insurance as compared with those having less dependents, unable to read about SHI and neither to get those without policy documents. These results were comparable and in line with the previous studies (Sharma and Banjara, 2020; Mathauer et al., 2008; Tewele et al., 2020; Yang, 2018). The disparities among the findings might be due to the difference in the study settings where other studies undertaken were far behind, did not include qualitative designs, and were conducted in different locations. Therefore, age, marital status, number of dependents and resource availability affect effective and efficient implementation of social health insurance.

Besides, this finding also indicated that health professionals with the odds of having trainings and able to learn were about 4.7 (AOR = 1.23, 17.98) at 95 CI with p-value = 0.00) and 14.5 (AOR = 5.96, 43.81 at 95 CI with p-value = 0.023), times more likely to have good knowledge towards social health insurance than untrained health professionals and those unable to learn respectively. This is consistent with other studies conducted under different settings (Acharya et al., 2021; Amu et al., 2018; Mekonnen et al., 2019). In addition, the qualitative findings indicated that a lack of continuous training and limited access to SHI-related documents contributed to

poor knowledge, attitude, and awareness of SHI advocacy roles. Hence, the provision of sufficient trainings and capacity building for SHI is a central operation that must be undertaken at every phase of its implementation.

Attitudinal factors towards social health insurance

From the perspective of attitude, salary, profession, work experience, number of dependents, history of sickness, chronic illness, and receiving trainings were found to be significantly associated with attitudes towards social health insurance ($p < 0.05$). Health professionals with salaries greater than 6,000 ETB were about 1.4 (AOR =1.25, 1.99; at 95% CI with p-value =0.021) times more likely to have favourable attitudes towards social health insurance than those with a basic salary of less than 6,000 ETB. This result is in line with the findings in Nigeria and Vietnam (Lan and Anh, 2017; Ahmed et al., 2016). In addition, those on medicines were 2.2 (AOR = 1.69, 7.43 at 95% CI with p-value = 0.03), those with work experience of ≥16 years were 2.1 (AOR = 1.58, 3.69 at 95% CI with p-value = 0.041) and number of dependents ≥6 were about 1.4 (1.04, 1.97 at 95% CI with p-value = 0.04) times more likely to have favourable attitudes compared to their counterparts, which incomparable with previous studies (Salameh et al., 2015; Ahmed et al., 2016). However, this contradicts studies conducted in Nigeria and Ghana, where health professionals were not strongly correlated (AsensoOkyere et al., 1997; Olugbenga-Bello and Adebimpe, 2010). This difference might be due to variations in the study settings. As depicted from these findings, those who were sick, receiving training, and getting a chronic illness were found to be 1.9, 1.7, and 1.6 times more likely to have favourable attitude towards social health insurance as compared with nonsick, non-trained, onchronically ill health professional, respectively. This was comparable with studies in China and Bangladesh (Fang et al., 2019; Ahmed et al., 2016; Saimy et al., 2016). The qualitative findings also showed that health professionals with a frequent history of illness and a larger family size must enrol in the program and get advantaged as long as they can afford to pay the stated amount. However, most healthcare professionals believe that healthcare services should be free for healthcare providers. This notion contradicts previous findings in different settings where the idea and principle of the SHI program were highly accepted and operational in the formal sector (Nguyen and Hoang, 2017; Nosratnejad et al., 2014). This significant variation might be due to differences in the study settings and design.

Perception factors towards social health insurance

In line with perceptions of SHI and related factors, gender, educational level, marital status, age, access to information, and awareness were significantly associated with perception among health professionals. Among the factors, being female, being married, and age <30 years were 2.7 (95% CI = 1.19–3.28; p-value = 0.004), 3.1 (95% CI = 1.35–8.24; p-value = 0.02), and 1.6 (95% CI = 1.062.09; p-value = 0.01) times more likely to have good perception as compared to their counterparts and this was consistent with other findings in different settings (Chen et al., 2017; Jacob, 2018; Kokebie et al., 2022). This suggests that information must be customized to meet the relevant needs of particular subgroups. Besides, those receiving adequate information and awareness were found to be 2.1 and 2.6 times more likely to have better perception towards social health insurance as compared with those with limited access of information and awareness towards social health insurance. These findings are similar to those reported in Indonesia, India, and Iran (Nosratnejad et al., 2014; Agustina et al., 2019; Reshmi et al., 2021). Skill limitations in digital technology and poor reading habits due to routine workloads were the main determinants impacting the negative effects on perception, as reported by the qualitative findings of this study. These finding contrasts with previous scientific evidence obtained from other countries (Oladimeji et al., 2017; Obse et al., 2015). This disparity might be due to the differences in the design and study settings. This ultimately indicates that working towards improving health professionals' ability to read, adopt, and exercise digital technology will hasten the implementation of social health insurance.

Conclusions

The study's results indicated inadequate knowledge and unfavorable attitudes toward social health insurance (SHI), despite positive perceptions identified through quantitative analysis. Qualitative findings further supported this, revealing poor knowledge, attitudes, and perceptions. Factors such as work experience, salary, profession, number of dependents, and training showed statistically significant associations with both knowledge of and attitude toward SHI. Additionally, a history of sickness and chronic illness correlated significantly with knowledge, while marital status, reading about SHI, and learning and obtaining documents were associated with attitude. Moreover, sex, educational level, marital status, age, and access to information were significantly linked

to perceptions of SHI. Most discussants acknowledged having poor knowledge, perceptions, and unfavorable attitudes toward SHI. Political stress, workload, and digital skills emerged as additional factors influencing knowledge, perception, and attitude toward SHI, as indicated by qualitative findings. These findings underscore the importance of targeted interventions to enhance understanding and acceptance of SHI while addressing negative attitudes. By doing so, efforts can be made to improve access to healthcare services and provide financial protection for individuals and families.

STRENGTH AND LIMITATION OF THE STUDY

Applying method triangulation was the strength of this study, as it allowed for the collection of comprehensive information. However, the focus on health professionals in public health facilities was a significant limitation. The findings on health professionals' perspectives might not support absolute generalizations due to the waived healthcare costs they experience.

ABBREVIATIONS

CBHI: Community Based Health Insurance; **EPIinfo:** Epidemiological information; **ETB:** Ethiopian Birr; **HI:** health insurance; **HIA:** Health Insurance Agency; **KAP:** knowledge, attitude, and perception; **LMICs:** low middleincome countries; **NHIS:** National Health Insurance; **OOP:** Out of Pocket; **SDG:** sustainable development goal; **SHI:** social health insurance; **SPSS:** Statistical Package for Social Science; **SSA:** Sub Saharan Africa; **UHC:** universal health coverage; **USD:** United States Dollar; **WHO:** World Health Organization; **WTP:** willingness to pay.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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