

Research Article

Willingness to Pay for Social Health Insurance and Associated Factors Among Public Servants in Lideta Sub-city; Addis Ababa, Ethiopia

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Abstract

Background: More than 4 billion people worldwide still lack social protection. However, the policy provides a framework for collaboration and coordination within the social protection system, aiming to deliver various services through an organized structure at all levels. Therefore, the aim of this study was to assess willingness to pay for social health insurance and its associated factors among public servants in Lideta Sub-city; Addis Ababa, Ethiopia. **Methods:** An institutional-based cross-sectional study was conducted from September 15 to November 15/2023 using systematic random sampling among 381 permanent public servants in Lideta sub-city of Addis Ababa Ethiopia. Participants were interviewed using a structured pretested closed questionnaire to obtain detail data from respondents for different variables. The data was entered into the Kobo toolbox and exported to SPSS version 26.00 for analysis. Descriptive analysis and cross tabulation was done to see the picture of the data. Bivariate and multivariate logistic regression analysis was done at 95% of confidence interval. Those variables with P-value less than 0.05 along with their Adjusted Odds Ratio (AOR) were declared as a predictor of the outcome variables in the study. **Results:** A total of 381 government employees completed the questionnaire with a response rate of 100 %. Overall, 64.3% of respondents were willing to pay the proposed premium (3% of their monthly salary). Public servant who knew social health insurance scheme [AOR= 2.24, (95% CI: 1.31, 3.82)], those have good knowledge [AOR= 4.23, (95% CI: 2.15, 8.32)], those had a history of chronic disease [AOR= 2.46, (95% CI: 1.16, 5.21)] were associated with willingness to pay for social health insurance. **Conclusions:** The willingness to pay 3% of the monthly gross salary for social health insurance was 64.3 %. Public servant who knew social health insurance, having good knowledge and history of previous chronic diseases are identified as predictors of willingness to pay for social health insurance. Thus, the government of Ethiopia and Addis Ababa city administration recommended starting social health insurance. In addition qualitative study will be further recommended to get the detail investigation.

Keywords

Social Health Insurance, Public Sectors, Willingness to Pay, Lideta Sub-city, Addis Ababa, Ethiopia

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1. Background

In the world more than 4 billion people still lack social protection including Social Health Insurance (SHI), which is used for raising and pooling funds to finance and manage health services that will lead to Universal Health Coverage (UHC) and assist countries achieve their health systems objectively [1, 2].

The key functions of the health financing system framework designed by the World Health Organization (WHO) include revenue generation, pooling, and purchasing of health services. This can be achieved through various means such as creating an insurance system, tax financing, private health insurance, and community-based health insurance (CBHI). These pooled funds will support public health by combining the health risks and contributions of employees. It is essential to focus on these healthcare financing mechanisms to achieve Universal Health Coverage in the country [3-6].

Health care insurance and financing represent a significant gap in sub-Saharan African countries. Ethiopia is among these nations that initiated health care financing strategies with its health policy launched in 1993. Health insurance was emphasized as a key component of the health care financing strategy (HCFS) in 1998, and it was further highlighted in the revised national health strategy in 2017 [7].

Developed countries often utilize Social Health Insurance (SHI) to mobilize funds and pool risks, while low- and middle-income countries rarely adopt this approach. In Ethiopia, there is a strategic healthcare financing system that has been established recently; however, it has not yet been effectively implemented. Currently, only 38% of the eligible population has joined the community health insurance program. Legal frameworks have been developed, and many preparatory activities have taken place to implement the Social Health Insurance Scheme, which requires government employees to contribute 3% of their gross salary [8, 9].

One major reason for the repeated postponement of the SHI scheme's implementation in Ethiopia is the resistance from public servants to pay the proposed premium amount. Although there is no national study on the willingness to pay (WTP) for SHI in Ethiopia, several localized studies have been conducted, focusing on specific groups of public servants. These studies have produced generalized findings indicating public servants' willingness to contribute to Social Health Insurance [8-10]. Therefore, the aim of this particular study was to assess the willingness to pay for social health insurance and its associated factors among public servants in Lideta Sub-city of Addis Ababa, Ethiopia.

2. Methods and Materials

2.1. Study Setting

The current study was conducted in the Lideta Sub-city of Addis Ababa, Ethiopia. Addis Ababa serves as the capital city

of Ethiopia, with a population of approximately 4.8 million residents. The city is divided into 11 sub-cities and 118 woredas, which is the smallest administrative unit in the city. According to the 2019 administrative report, there are 115,398 public servants in Addis Ababa who provide various public services. Within the Lideta Sub-city, there are 9,361 public servants dedicated to serving the community. Lideta Sub-city consists of ten woredas and has a total population of 356,802. It is bordered by Addis Ketema Sub-city to the North, Arada Sub-city to the North-East, Kirkos Sub-city to the East, Nifas Silk Lafto Sub-city to the South, and Kolfe Keranio Sub-city to the West [11].

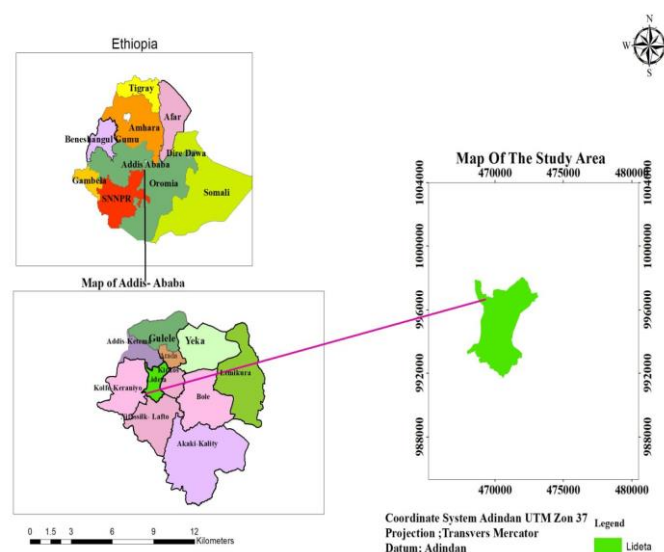


Figure 1. Map Lideta Sub-city, Addis Ababa, Ethiopia (Map of the Study Area, Arc GIS, 2023).

2.2. Study Design, Sample Size Determination and Sampling Procedure

An institutional-based cross-sectional study design was conducted from September 15 to November 15, 2023. The source population for the study included all public servants in Lideta sub-city, while the study population comprised the public servants selected and included during the study period. Employees in Lideta sub-city who were on annual leave or had been employed for less than six months were excluded from the study. The sample size for this study was calculated using a single population proportion formula, based on the assumption that 53% of public servants in South Ethiopia are willing to use social health insurance [12]. With a margin of error set at 5% and a confidence interval of 95% ($Z = 1.96$), alongside a 10% non-response rate, the initial sample size (n) was calculated to be 421 using the formula $n = (Z \alpha/2)^2 * p * (1-p) / d^2$.

However, since the total population of public servants in

the Lideta Sub-city is less than 10,000, a population correction formula was applied. Using the adjustment formula $n = \frac{no}{1 + no/N}$, the maximum sample size for the study was revised to 381.

The systematic random sampling method was employed using a K^{th} interval to select the desired subjects. The list of respondents was obtained from data collected and registered

one year prior to the study period. The K-interval was calculated by dividing the total number of public servants for the first month, which was 3,067, by the sample size ($3,067 / 381 = 8$). Initially, the first public servant was selected using a lottery method. Subsequently, every eighth public servant who qualified for selection was included in the study (Figure 2).

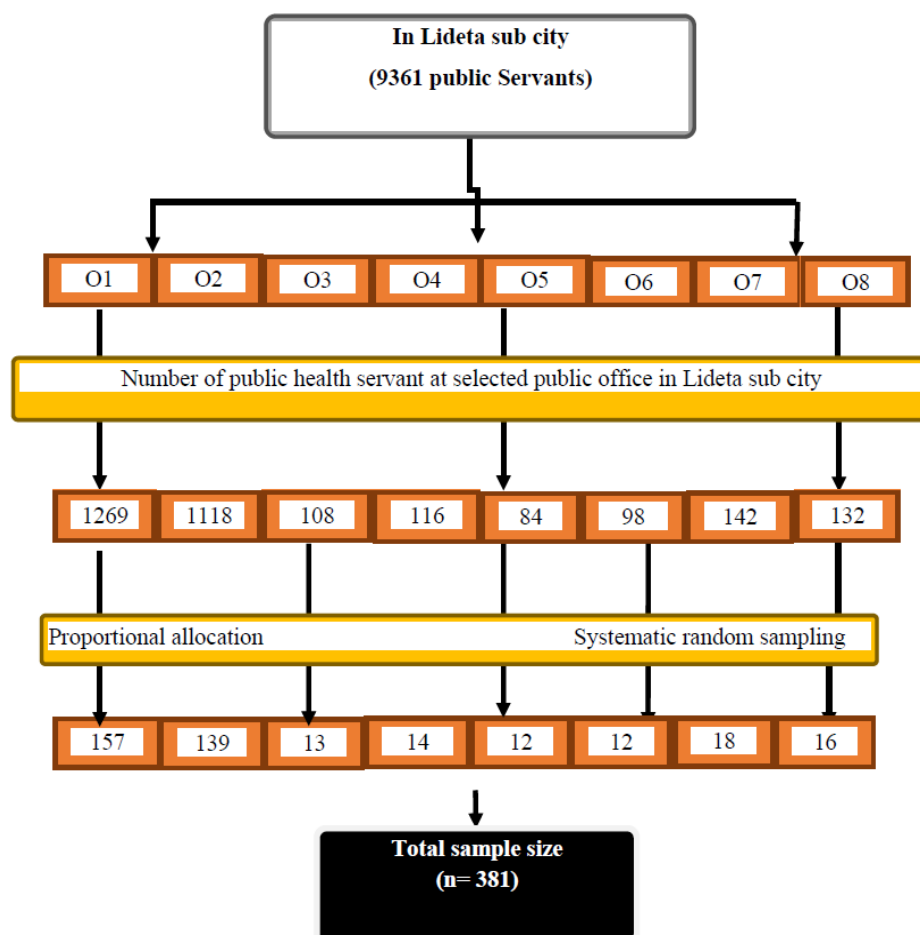


Figure 2. Schematic presentation of sampling procedure, Lideta Sub-city, Addis Ababa, Ethiopia.

2.3. Data Collection Procedures and Quality Control

Data was collected using a structured interview questionnaire, which was first translated from English to Amharic and then back to English to ensure consistency. To guarantee the quality of the data, a well-designed data collection instrument was pre-tested on 5% of the total sample size in the Kolfe Keranio Sub-city of Addis Ababa, Ethiopia. The research instrument underwent testing for internal consistency using the Cronbach alpha coefficient ($\alpha = 0.74$). The instrument was pre-coded, and necessary corrections were made before finalizing it. Based on the findings from the pretest, several modifications and amendments were implemented before

actual data collection began.

Five data collectors (diploma holders) and two supervisors (bachelor's degree holders), were trained for one day by the principal investigator. This training aimed to familiarize them with the research objectives and methodology, ensuring that their interviewing techniques were standardized and questions were asked consistently. During the data collection process in the field, questionnaires were reviewed at the end of each day for completeness, accuracy, and consistency by the principal investigator, who also implemented corrective measures as necessary.

2.4. Operational Definitions

Public Institution: A public institution is an established

organization owned and operated by the government or a public entity. This research focuses on public servants in all government institutions that are registered and directly accountable to the Lideta sub-city administration [12].

Health status of the participants: Health status refers to how individuals perceive their own health, rating it as excellent, very good, good, fair, or poor. In this research, a "good health status" is defined as a situation where the participant or their family members have become ill and visited a health facility at least once in the past six months. Conversely, "excellent health status" is determined when the participant or their family has been ill and sought care at a health facility at least once in the past year, or has remained healthy over the past year without any visits to a health facility [2, 13, 14].

Willingness to pay: Willingness to pay (WTP) refers to the maximum amount that a customer is prepared to pay for a product or service. In this study, WTP specifically pertains to the intention to enroll and pay for Social Health Insurance. A respondent is considered willing to pay for Social Health Insurance if they answer "yes" to both questions assessing their need and readiness to pay, and also indicate a willingness to dedicate at least 3% of their salary towards the Social Health Insurance premium [13, 14].

2.5. Data Analysis

The data were entered, edited, and coded using the Kobo Toolbox. Data export was performed for further analysis with SPSS software version 26.00. Descriptive statistics analysis including frequencies, percentages, means, and standard deviation was conducted to illustrate the distribution of the data, with results presented in tables and figures. Bivariate analysis was carried out for each independent variable determined the dependent variable. Variables with a p-value of less than 0.25 were selected through a stepwise elimination method and included in the multivariable analysis to evaluate the willingness to pay for social health insurance alongside various explanatory variables.

To check for multi-collinearity among the explanatory variables, correlation matrices, variance inflation factor ($VIF > 10$), and tolerance tests were utilized. A multiple logistic regression model was fitted to the data. The strength of the statistical association between the dependent and independent variables was assessed using a p-value of less than 0.05 and an adjusted odds ratio (AOR) within a 95% confidence interval.

The results from the multiple logistic regression models were considered significant at $p < 0.05$.

2.6. Ethical Clearance

The research proposal was approved by the Research Ethical Review Committee of the Africa Medical College Department of Public Health. A permission letter was obtained from the Addis Ababa City Administration Health Bureau Research Ethics Review Board. All procedures were conducted with human participants, and verbal informed consent was obtained from each participant. Participants were informed as they had the right to refuse participation at any time. To ensure confidentiality, each participant's information was protected by assigning identification numbers to the questionnaires and removing names and other identifying details during the interviews. The findings of the study were shared with the management bodies of the Lideta Sub-City Administration and the Department of Public Health at Africa Medical College.

3. Results

The present study was carried out on 381 (100%) respondents using systematic random sampling technique. The magnitude of participants' willing to pay a premium equivalent three percent for social health insurance was reported as 64.3%. The mean age of the participants were 38 years $\pm 4SD$ with a minimum and maximum of age 24 and 62 respectively.

3.1. Socio Demographic Characteristics

In the current study most of the respondents in the study who were willing to pay for social health insurance were married, totalling 244 participants (64.1%). This was followed by 119 single respondents (31.2%). Concerning monthly income and family size, 148 respondents (38.8%) earned a monthly income between 7,801 and 10900 ETB was willing to pay SHI. Additionally, 171 respondents (44.9%) had family sizes ranging from 4 to 6 members per household who were willing to pay the social health insurance premium (see Table 1).

Table 1. Respondents Socio Demographic Characteristics for Willingness to pay for SHI (n= 381).

Sr.No	Variables	Category	Frequency (No)	Percent (%)
1	Sex	Male	178	46.7%
		Female	203	53.3%
2	Age in Years	20 – 30	116	30.4%
		31 – 40	182	47.8%

Sr.No	Variables	Category	Frequency (No)	Percent (%)
3	Marital status	41 – 50	62	16.3%
		>= 51	21	5.5%
		Single	119	31.2%
		Married	244	64.1%
		Widowed	7	1.8%
		Divorced	11	2.9%
4	House Holds Family Size	< / = 3	200	52.5%
		4 – 6	171	44.9%
		>= 8	10	2.6%
5	Respondents Educational Status	Secondary School	3	0.8%
		Diploma	79	20.7%
		Degree	238	62.5%
		Masters and above	61	16.0%
6	Respondents Profession	Health Professionals	157	41.2%
		None Health Professionals	224	58.8%
		ETB 601-1650	4	1.0%
		ETB 1651-3200	1	0.3%
7	Respondents Monthly Income	ETB 3201-5250	61	16.0%
		ETB 5251- 7800	143	37.5%
		7801-10900	148	38.8%
		>=10901	24	6.3%

3.2. Individual Related Characteristics

In terms of information sources regarding social health insurance, the majority of public servants, 132 (35%), ob-

tained information from health professionals during their visits to health facilities. This was followed by 72 (19%) who received information from official advertisements via media platforms (Figure 3).

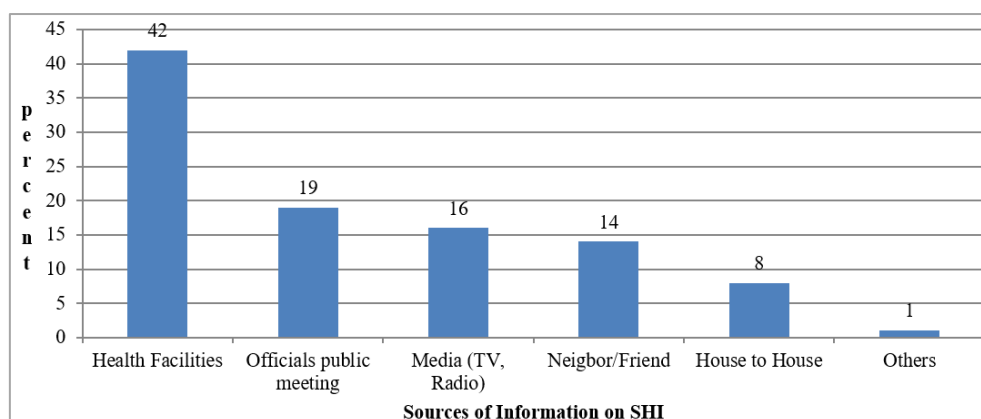


Figure 3. Source of information about Social Health Insurance (n=381).

3.3. Health and Health Related Factors (Characteristics)

In a particular study, researchers assessed health-related factors influencing willingness to pay for social health insurance premiums. Among the respondents, 166 individuals (43.6%) who rated both their own and their family's health as

good expressed a willingness to pay the premiums. Additionally, 297 participants (78.0%) who found their health facilities easily accessible were also willing to pay. However, 104 participants (74.8%) disagreed with the statement that their monthly income was insufficient to cover the cost of social health insurance (see Table 2).

Table 2. Health and Health Related Factors on willingness to pay for SHI (n = 381).

Sr.No	Variable	Category	Frequency (no)	Percent (%)
1	Self and family health status	Excellent	110	28.8%
		Very good	105	27.6%
		Good	166	43.6%
2	Health facility physically accessible	Yes	297	78.0%
		No	84	22.0%
3	Health facility service	Yes	313	82.2%
		No	68	17.8%
4	Suffering chronic illness	Yes	63	16.5%
		No	318	83.5%
5	Illness in the past 3 months	Yes	184	48.3%
		No	197	51.7%
6	Willing to cover social health insurance	Yes	344	90.3%
		No	37	9.7%
7	Willingness to pay 3 percent of your gross salary for Social Health Insurance	Yes	245	64.3%
		No	136	35.7%
8	Explained Reasons not willing due to services provided	Poor service delivery	7	5%
		Bureaucratic	6	4%
		Insufficient drug supply	24	18%
		Low monthly income	101	51%
		Others	35	21%

3.4. Factors Affecting the Willingness to Pay for Social Health Insurance

The study examined the factors influencing the willingness to pay for social health insurance among public servants in the Lideta sub-city of Addis Ababa, Ethiopia. Key factors tested included age, educational status, experiences with chronic illness, illness within the three months leading up to the study, self and family health status, knowledge of social health service coverage schemes, and other relevant variables. A step-

wise enter method was employed in the bivariate analysis. Variables with a p-value of less than 0.25 were identified as potential candidates for multivariate analysis based on their clinical significance. Potential confounders were adjusted, and the model's goodness of fit was evaluated using the Hosmer-Lemeshow test ($X^2 = 6.56$; $df = 8$; $P = 0.388$).

According to the results, the odds of willingness to pay for Social Health Insurance were two times higher among those who suffer from chronic illness than those who don't [(AOR = 2.43, (95% CI: 1.16, 5.21)], and it is statistically significant at p-value = 0.019. Moreover, public servants whose family

health status is very good were four times more likely willing to pay for Social Health Insurance than those whose family

health status is good [(AOR =4.23, (95% CI: 2.15, 8.32)] which is statistically significant at P-value < 0.001 (Table 3).

Table 3. Factors Associated with willingness to pay for Social Health Insurance.

Sr.No	Variables		WTP for SHI		COR (95% CI)	AOR (95% CI)	P-value of AOR
			Yes (%)	No (%)			
1	Sex	Male	115(30.2)	59(15.5)	1.15(0.56, 1.76)	0.82(0.51, 1.33)	0.423
		Female	130(34.1)	77 (20.2)	1.00	1.00	
2	Age category	<= 40 years	99(26.0)	67(17.6)	1	1	0.261
		> 40 years	146(38.6)	69(18.1)	1.43(0.94, 2.18)	1.31(0.82, 2.11)	
		Diploma	40(10.5)	39(10.2)	1	1	
3	Educational status	Degree	162(42.5)	78(20.5)	2.03(1.21, 3.40)	1.29(0.71, 2.37)	0.406
		>=Masters	43(11.3)	19(5.0)	2.21(1.10, 4.43)	1.54(0.69, 3.40)	0.290
4	Suffering from chronic illness	Yes	53(13.9)	10(2.6)	3.48(1.71, 7.09)	2.46(1.16, 5.21)	0.019 *
		No	192(50.4)	126(33.1)	1	1	192(50.4)
5	Illness in the past 3 months	Yes	135(35.4)	48(12.6)	2.25(1.46, 3.47)	1.82(1.13, 2.94)	0.014 *
		No	110(28.9)	88(23.1)	1	1	110(28.9)
6	Self and Family Health Status	Excellent	54(14.2)	56(14.7)	0.59(0.36, 0.91)	1.30(0.77, 2.21)	0.327
		Very Good	88(23.1)	17(4.7)	3.17(1.73, 5.81)	4.23(2.15, 8.32)	< 0.001
		Good	103(27.0)	63(16.5)	1	1	
7	Knowing Health service coverage under SHI scheme	Yes	190(49.9)	77(20.2)	2.65(1.68, 4.16)	2.24(1.31, 3.82)	0.003
		No	55(15.5)	59(14.4)	1	1	

*significant at P-value less than 0.05

** Significant at P value less than 0.001

4. Discussion

In the current study the magnitude of willingness to pay for social health insurance premium from three percent from their monthly salary was 64.3%. This indicated that nearly two third of respondents reported their willingness to pay. This finding is aligned and consistent with the study conducted in South West Ethiopia, which as 58.0% and other part of the country [15, 16, 20]. This similarity might be explained by similarity of the study setting and interests of public servants for social health insurance in Ethiopia. However, this study finding is lower than the study conducted in Mekelle city, Ethiopia which was 85.3% (18). Moreover, the study finding is higher than the study conducted in Ethiopia which was 42.3%, in Addis Ababa 28.7% & 35.4%, and in Mujja town 42.3% [14, 16, 18, 19, 21]. This difference might be due to difference in study setting, exposure to primary health care unit. Overall, the possible explanation for this difference

might be due to differences in study period, study area, study population, and also socio-demographic factors.

According to the results, the odds of willingness to pay for Social Health Insurance were two times more likely among those who suffer from chronic illness than those who did not. This finding was supported by a study conducted in Addis Ababa [16-18, 20-23]. This might be due to the fact that public servants with chronic illnesses might have difficulty living with current inflation and such high health costs. Therefore, it is obvious that those with chronic illnesses need intensive follow-up, and there are different expenditures for laboratory and medicine services. Chronic illness was associated with a willingness to pay for social health insurance.

This study showed that family health status was associated with the willingness to pay for Social Health Insurance. Public servants whose family health status was very good were 4 times more willing to pay for Social Health Insurance than those whose family health status was good. This finding was supported by a study conducted in Western Cape Province and

South Africa which is explained as 60% [19].

This study also revealed that, recent infections in the last three months were associated with a willingness to pay for Social Health Insurance. The odds of willingness to pay for Social Health Insurance were two times higher among public servants who got infections in the last three months than those who were not infected. This finding was supported by a study conducted in Ethiopia [14, 16, 18, 20]. This similarity might be explained by the fact that those parents who infect in the near future knew the cost of laboratory and medicine, and in order to cover this high cost, they were willing to pay for Social Health Insurance.

Knowing health service coverage under the Social Health Insurance scheme was associated with willingness to pay for Social Health Insurance. The odds of willingness to pay for Social Health Insurance were two times higher among public servants who knew about health service coverage under the Social Health Insurance scheme than those who did not. This study is also supported by study conducted in Ethiopia [14, 15, 18, 21]. This might be due to the fact that those who knew the services provided under the scheme were easily willing to pay for social health insurance.

One of the limitations of the present study was the limited number of studies conducted on the study setting leading to the restriction of further discussion and comparison. Due to the cross-sectional design of the study, it was difficult to show the cause-effect relationship between the outcomes and predictor variables which might allow for the possibility of optimistic fallacy and external validity.

Regardless of the aforementioned limitations the findings of this study provide the decision makers in the study setting with appropriate interventions for the promotion of women's decision-making.

5. Conclusions

In the current study, the willingness of public servants to pay for social health insurance was found to be high, at 64.3%. Respondents who reported very good health status within their family, had experienced illness in the past three months, were aware of the health services covered under social health insurance, and were suffering from chronic illnesses showed a significant association with their willingness to pay for the insurance. Therefore, it is essential for government bodies and stakeholders, including the Addis Ababa city administration and all sub-cities in Addis Ababa, to implement social health insurance as a key health policy. Furthermore, it is recommended that researchers conduct additional studies, including qualitative research, to gain deeper insights.

Abbreviations

SHI	Social Health Insurance
UHC	Universal Health Coverage

WHO	World Health Organization
AOR	Adjusted Odds Ratio
COR	Cruds Odds Ratio
ETB	Ethiopian Birr
CBHI	Community Based Health Insurance
CI	Confidence Interval

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Authors Contributions

Getachew Jufare: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Writing – original draft

Alemu Tesfahun: Methodology, Supervision, Writing – review & editing

Asefa Taresa: Supervision, Validation, Visualization, Writing – review & editing

Lakech Haile: Data curation, Formal Analysis, Software

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Conflicts of Interest

The authors declare no conflicts of interest.

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