

# THE SATISFACTION OF RESIDENTS IN CENTRAL HIGHLANDS WITH HEALTH INSURANCE: A CASE STUDY IN DAM B'RI COMMUNE, BAO LOC CITY, LAM DONG PROVINCE, VIETNAM

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## Abstract

This research is conducted as a test of the level of satisfaction of residents in the Central Highlands of Vietnam, specifically in DamB'ri Commune, Bao Loc City, Lam Dong Province. The survey of 100 residents at 4 hamlets of DamB'ri Commune did not record statistically significant differences in the level of satisfaction of participants for the criteria including sexes, educational level, occupation, and working age. Nevertheless, there was a statistically noticeable higher level of satisfaction with Health Insurance for participants who are officers at Hamlet 3. The results of the multiple linear regression method, including 7 independent variables and 1 dependent variable, based on the Health Belief Model (HBM), show that the awareness about restrictions and benefits are the core factors impacting the level of satisfaction of residents. The results also provide crucial evidence for authorities and policymakers to devise plans and solutions to increase the level of satisfaction with Health Insurance for people in Central Highlands.

**Keywords:** healthcare behavior, health insurance, health services users' satisfaction, health belief model (HBM), perceived barriers

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## 1. Introduction

Health Insurance is among one of the core policies of the Social Security System in Vietnam, highlighting the attention of the Party and State on the medical conditions of citizens. According to statistics of Vietnam Social Security (VSS) in 2021, approximately 87.96 million people are participating in Health Insurance, accounting for 90.85% of the total population (Vietnam Social Security, 2021). According to reports of the Ministry of Health from 2022 to 2023, the percentage of Health Insurance coverage in the total population witnessed a gradual increase from 2021 to 2023, reaching 91.01%, 92.03%, and 93.2%, respectively. Moreover, in 2024, the Ministry of Health targeted a 94.1% participation in Health Insurance for the total population, focusing on the accelerating attention of citizens to Health Insurance (Ministry of Health, 2023). Despite an increase in the proportion of residents owning Health Insurance, it has not achieved the target for

various reasons, including low income, unstable jobs, negative attitudes and low awareness towards healthcare conditions, restrictions in the travel distance to the medical centers, and the quality of these centers (Hau et al., 2022; Hoa & Linh, 2015).

As a result of the COVID-19 pandemic, the focus on healthcare has become one of the top concerns of people. A variety of research has shown that the side effects of COVID-19 and health issues driven by this pandemic have had a significant influence on the health conditions of citizens, both physically and mentally (Chin et al., 2022; Xiong et al., 2020; Anh, 2021; Kola et al., 2021; Thien et al., 2022). Furthermore, the quality of life has also experienced a considerable decrease since the pandemic and after the effects of COVID-19 were recorded (Malik et al., 2022; Minh et al., 2022; Tuyen & Nhan, 2023; Chau et al., 2023). The participation in and usage of Health Insurance provide residents with support in limiting the financial damage from daily risks, such as illnesses or accidents, contributing to the success of personal and familial financial management (Pitacco, 2014; Cutler and Zeckhauser, 2000; Dung & Duong, 2017).

DamB'ri Commune is an agricultural region with the leading advantages being the cultivation of core agricultural plantations such as coffee, tea, and mulberry. Agricultural activities require the usage of a large amount of pesticides and chemical fertilizers, which are one of the direct causes of soil and water pollution, leading to an indirect effect on people's health, especially for ones who have close and long exposure to these chemicals (Huyen, 2010; Nguyen et al., 2018; Dasgupta et al., 2007; Murphy et al., 2002). Even though the rate of Health Insurance participation in this area is rather significant, in reality, many issues related to the behaviors of using Health Insurance such as an avoidance of using Health Insurance for the prejudice of its quality, preference of self-treatment using indigenous medical knowledge, or the preference of private clinics over public hospitals covered by Health Insurance. This research was conducted to explain the reasons behind this avoidance of Health Insurance usage and to reveal the factors that have an important influence on their satisfaction towards Health Insurance. The results clarify the reality and elements affecting the use of Health Insurance in the DamB'ri Commune and therefore, contribute to proposing solutions to increase the coverage and satisfaction with Health Insurance in DamB'ri Commune.

## 2. Literature Review

Health Insurance has long played a crucial role in promoting public health and ensuring social security, especially in reducing medical expenses for civilians dealing with illnesses and diseases (Goel, 2014; Francesco, 2011; Mistry & Vyas, 2021). According to the World Health Organization (WHO), Health Insurance is regarded as a vital factor in strengthening the medical systems, protecting individuals from financial risks, and ensuring widespread and immediate access to medical services when health problems arise (WHO, 2000). Although numerous studies have examined the behaviors of Health Insurance utilization and influencing factors in different social contexts, especially in developing countries, these papers mainly showed regional disparities between various target research subjects, reflecting the characteristics of each area in medical service approaches.

One striking discrepancy lies in the percentage of self-medications between urban and rural populations in Vietnam. In the article of Okumura et al. (2002), the rate of self-prescription in the countryside ranged from 40% to 60%, and in the study by Hoai and Dang (2007) reached 76% in cities. Moreover, this number was even significantly higher

for farmers in Central Areas of Vietnam, with 83.3% engaging in self-medications without doctors' prescriptions (Ha et al., 2019). This gap underscores not only the difference in access to medical services but also the impact of cultural practices and habitual behaviors on healthcare decisions. Regarding the barriers, while the research of developing countries such as Uganda (Basaza et al., 2008) and Ghana (Jehu-Appiah et al., 2012) focused on financial constraints and perceived benefits, recent research by Dao (2020) in Vietnam highlighted concerns related to both the ability for medical services and long-term medical planning. This posed a need for a more comprehensive approach to studying the behaviors of using Health Insurance, particularly in rural areas in Vietnam.

The relationship between Health Insurance knowledge and behaviors also revealed notable differences. While studies by Goel (2014) and Mistry & Vyas (2021) confirmed the positive correlation between Health Insurance knowledge and the level of usage, Edward et al. (2018) suggested that general medical knowledge could be of higher importance than Health Insurance knowledge in the medical service decisions. This implies that widening general medical knowledge was as important as educating people about Health Insurance. More noticeably, recent research about Vietnamese medical services in Vietnam (Nga et al., 2021; Tuan, 2024; Luong et al., 2024) highlighted the importance of health facilities and infrastructures and the expertise of medical staff. However, this research mainly focused on lowlands and urban areas, whilst the study of Tran et al. (2016) in rural areas showed challenges that geographical and cultural characteristics posed on medical service access.

Regarding perceived risks, compared to the research of Acharya et al. (2022) in Nepal, which emphasized the impact of the perception of illness susceptibility and severity on the decision to participate in Health Insurance, research in Vietnam showed a more complicated view, especially in rural areas where residents considered injuries such as back or joint pains as not serious enough to warrant medical care, thus, avoiding Health Insurance.

In general, these studies showed that even though there have been several studies about Health Insurance usage behaviors, there is a clear need for further research on the effects of cultural and regional characteristics, especially in Central Areas of Vietnam. This gap has become even clearer when specific characteristics of each region, such as agricultural focus, impact of chemicals in cultivation, and the role of Indigenous Medicine in these societies, have been put under consideration. Understanding how these factors interact will provide a more comprehensive picture of health insurance behaviors in these regions, helping to understand the existing gaps in healthcare access and utilization in Vietnam.

### **3. Methods**

#### ***3.1. Quantitative Survey Questionnaire***

This research uses a quantitative approach through surveys to measure the satisfaction of DamB'ri's residents with Health Insurance. Specifically, the questionnaire is designed according to the Likert scale with five levels from strongly disagree to strongly agree, divided into different questions. In order to understand the current healthcare behaviors of residents in this area in correlation with the use and evaluation of Health Insurance, this research focuses on the factor of "the awareness about the level of severity of different illnesses," which is the crucial factor in determining the access and usage of healthcare

services. Only when residents recognize the severity of illness risks can they acknowledge the importance and benefits of participating in Health Insurance.

The current research uses the Health Belief Model (HBM), developed by Rosenstock, Hochbaum, Kegeles, and Leventhal in the 1950s, as the predictor of DamB'ri's residents' level of satisfaction with Health Insurance (Rosenstock et al., 1974). The group questions are designed to include 7 independent variables and 1 dependent variable to test the factors affecting the level of satisfaction of residents in DamB'ri Commune with Health Insurance: perceived susceptibility (6 items), perceived severity (5 items), perceived benefit (5 items), perceived barrier (5 items), cue to action (6 items), self-efficacy (7 items), Health Insurance knowledge (4 items), and level of satisfaction with Health Insurance (5 items).

### 3.1.1. Data Collection

This social study investigates the satisfaction of residents in DamB'ri Commune with Health Insurance using paper questionnaires to record the responses of participants. This study uses the probability sampling method, combining both a stratified sample (balance between the rate of male and female and among different age groups) and a cluster sample (based on geographical and social features to choose suitable hamlets). The surveyed regions in DamB'ri have similarities in natural, economic, cultural, and social characteristics; thereby, among 14 hamlets, this study focused on 4 hamlets, including Hamlet 2, Hamlet 3, Hamlet 6, and Hamlet 7. The data collected from 100 participants of these 4 hamlets in DamB'ri Commune are displayed in Table 1.

TABLE 1. Participant Information

Hamlet	n	Gender		Occupation					Working age			
		Male	Female	Farmer	Worker	Officer	Salesman	Retired	Young Worker	Prime-age Worker	Middle-aged Worker	Elderly/Retired Worker
Hamlet 2	26	18	8	11	2	3	6	4	5	9	6	6
Hamlet 3	25	13	12	9	5	7	3	1	4	7	11	3
Hamlet 6	25	10	15	14	4	3	4	1	5	8	4	8
Hamlet 7	24	11	13	11	4	2	4	2	9	4	2	9
<b>Total</b>	<b>100</b>	<b>52</b>	<b>48</b>	<b>45</b>	<b>15</b>	<b>15</b>	<b>17</b>	<b>8</b>	<b>23</b>	<b>28</b>	<b>23</b>	<b>26</b>

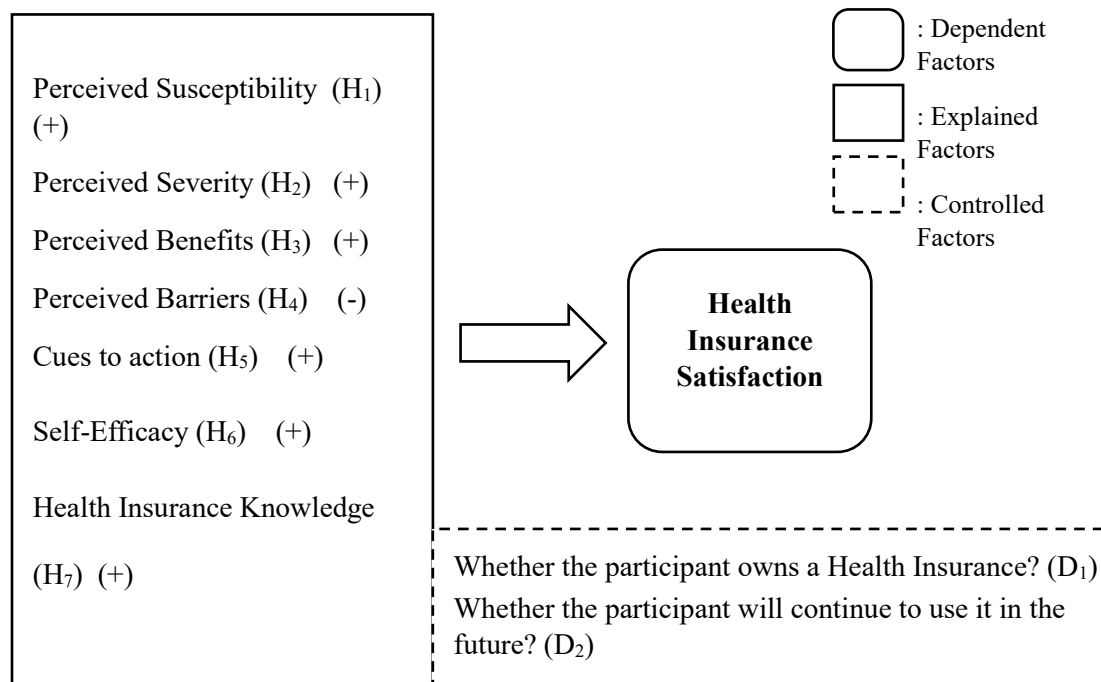
### 3.1.2. Research Model

The Health Belief Model (Rosenstock et al., 1974) is one of the foundational and popular theoretical frameworks in healthcare behavior research, which was conceptualized in the 1950s by social psychologists working in public health services in the United States. The model indicates that the perception of a person in health threats, illness severity, susceptibility, and healthcare behaviors may either influence or anticipate how they plan to prevent health risks.

HBM posits six main constructs predicting health behaviors: Perceived Susceptibility, Perceived Severity, Perceived Barrier, Perceived Benefit, Cue of Actions, And Self-Efficacy. Besides the intrinsic elements of HBM, for the specific conditions of residents of DamB'ri Commune, the research proposes an additional factor of Health Insurance Knowledge (HIK). This is considered an essential construct that is perceived through the process of an individual's observation, awareness, and research and thereby, affects the level of satisfaction with Health Insurance. The research also includes the dependent

variable of Health Insurance Satisfaction (HIS) and two control variables Health Insurance Ownership and Future Usage of Health Insurance. The study proposes seven hypotheses as follows:

- H<sub>1</sub>: Perceived susceptibility has a positive correlation with the level of satisfaction of residents with Health Insurance
- H<sub>2</sub>: Perceived severity has a positive correlation with the level of satisfaction of residents with Health Insurance
- H<sub>3</sub>: Perceived benefit has a positive correlation with the level of satisfaction of residents with Health Insurance
- H<sub>4</sub>: Perceived barrier has a negative correlation with the level of satisfaction of residents with Health Insurance
- H<sub>5</sub>: Cue to action has a positive correlation with the level of satisfaction of residents with Health Insurance
- H<sub>6</sub>: Self-efficacy has a positive correlation with the level of satisfaction of residents with Health Insurance
- H<sub>7</sub>: Health Insurance Knowledge has a positive correlation with the level of satisfaction of residents with Health Insurance



**Figure 1.** Proposed Model

### 3.2. Qualitative Research by In-depth Interview

The qualitative research was conducted to directly capture people's perceptions, thoughts, and satisfaction levels regarding health insurance. Additionally, the qualitative research results help supplement and explain remaining issues identified from the quantitative analysis results. The study employed in-depth interviews with questions focusing on awareness, perceptions, satisfaction, and habits of using Health Insurance. Thirty people

agreed to participate in the survey, including: staff from DamB'ri commune health center (5 participants), DamB'ri Commune People's Committee officers (5 participants), and 20 residents from 4 hamlets (hamlets 2, 3, 6, and 7). From a total of 20 resident interviews, in-depth data from 15 participants were approved for use under a broader research project (Code: C2024-18b-00), whereas the remaining data were collected independently for the purposes of this study. In-depth interviews were conducted until data saturation was achieved.

#### 4. Results

##### 4.2. The differences in the level of satisfaction of residents in DamB'ri Commune with Health Insurance

The perception and usage of Health Insurance by residents in DamB'ri Commune are influenced by a variety of factors, resulting in a direct impact on the level of satisfaction with this form of insurance. Table 2 shows the variation in satisfaction among participants of different genders through an independent sample T-Test.

**Table 2.** Difference in satisfaction with Health Insurance between genders among hamlets

Hamlet	n (%)	Mean	Gender		
			Male	Female	P-value
All	100 (100%)	3.55	3.53	3.57	0.796
Hamlet 2	26 (26.0%)	3.49	3.48	3.53	0.904
Hamlet 3	25 (25.0%)	3.58	3.42	3.75	0.303
Hamlet 6	25 (25.0%)	3.54	3.70	3.43	0.354
Hamlet 7	24 (24.0%)	3.59	3.60	3.58	0.950

Table 2 indicates that there is a fair level of satisfaction among 100 participants from 4 hamlets in DamB'ri Commune, ranging from 3.49 to 3.59. Moreover, Hamlet 7 has a higher level of satisfaction than the three remaining hamlets, with a mean value of 3.59; however, the discrepancy is not significant. The P-value (0.303-0.950) of all variables is larger than 0.05, showing no statistically significant difference in the satisfaction of respondents of different genders.

The study also uses One Way-ANOVA to compare the means of satisfaction of residents in DamB'ri Commune for the remaining indicators, such as educational level, working age, and occupation.

**TABLE 3.** The difference in the satisfaction of residents in DamB'ri Commune with Health Insurance

Hamlet	Educational Level					Working age					Occupation					
	(1)	(2)	(3)	(4)	P-value	(1*)	(2*)	(3*)	(4*)	P-value	Farmer	Worker	Officer	Salesman	Retired	P-value
Hamlet 2	3.73	3.24	3.43	3.70	0.643	3.28	3.42	3.70	3.57	0.760	3.20	3.90	3.73	3.67	3.65	0.443
Hamlet 3	-	3.26	3.64	3.90	0.389	3.75	4.17	3.22	3.27	0.056	3.29	3.08	4.23	3.93	3.00	<b>0.035</b>
Hamlet 6	2.60	3.69	3.65	3.10	0.170	3.80	3.48	3.45	3.48	0.850	3.54	3.45	3.60	3.80	2.60	0.699
Hamlet 7	-	3.85	3.66	3.31	0.254	3.47	3.20	4.00	3.80	0.235	3.75	3.65	3.53	3.05	3.80	0.729
Total	<b>3.28</b>	<b>3.50</b>	<b>3.60</b>	<b>3.54</b>	<b>0.761</b>	<b>3.55</b>	<b>3.59</b>	<b>3.45</b>	<b>3.58</b>	<b>0.887</b>	<b>3.46</b>	<b>3.44</b>	<b>3.91</b>	<b>3.60</b>	<b>3.48</b>	<b>0.235</b>



*Note: Education level: (1)Primary; (2) Lower Secondary ; (3) Upper Secondary and (4) College/University  
Working age: (1\*)Young Worker; (2\*) Prime-age Worker; (3\*) Middle-aged Worker and (4\*) Elderly/Retired Worker*

The results of the One Way-ANOVA test in Table 3 shows that the values of Sig. ANOVA's Test of all hamlets are all larger than 0.05 and Sig. F's Test is also larger than 0.05, delineating that there is no difference in the satisfaction of participants for health insurance among different educational levels, working age, and occupation. However, in separate analyses for each hamlet, the results show that there is a difference in the level of satisfaction with participants in Hamlet 3. Specifically,  $P\text{-value} = 0.035 < 0.05$ . According to the responses of Hamlet 3, MEAN values of different jobs witness significant variations with the highest MEAN = 4.23 for governmental officers, higher than those of other jobs.

#### **4.2. Factors affecting the satisfaction of residents in DamB'ri Commune with Health Insurance**

##### **4.2.1. Checking the reliability of the scale**

The research model includes seven independent concepts and a first-order unidirectional dependent concept. Each concept is measured indirectly and has at least four sets of questions (observed variables). Table 4 below presents the results of Cronbach's Alpha coefficient analysis of the observed variables to check the reliability of the scale.

**TABLE 4.** Cronbach's Alpha coefficient analysis results

Variables	Number of Items	Overall Cronbach's Alpha	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Perceived Susceptibility (SUS)	6	0.838	0.337 - 0.779	0.778 - 0.868
Perceived Severity (SEV)	5	0.929	0.702 - 0.869	0.902 - 0.934
Perceived Benefits (BEN)	5	0.884	0.647 - 0.802	0.842 - 0.877
Perceived Barriers (BAR)	5	0.767	0.519 - 0.576	0.714 - 0.735
Cues to action (CUE)	6	0.850	0.435 - 0.802	0.791 - 0.860
Self-Efficacy (SEL)	7	0.866	0.533 - 0.717	0.836 - 0.863
Health Insurance Knowledge (INS)	4	0.722	0.464 - 0.608	0.599 - 0.688
Health Insurance Satisfaction (SAT)	5	0.819	0.461 - 0.731	0.746 - 0.823

Table 4 shows that the coefficients of Cronbach's Alpha of the concepts are all large at 0.6 and the correlation coefficients of the total variables of the questionnaires are all greater than 0.3. The results show that the scale is reliable, and no observed variables are excluded from the scale.

##### **4.2.2. Exploratory Factor Analysis**

The Exploratory Factor Analysis (EFA) was conducted in multiple stages to refine the measurement model. As shown in Table 5, all analyses met the statistical requirements with KMO values  $> 0.5$ , significant Bartlett's tests ( $p < 0.001$ ), and eigenvalues  $> 1$ .

In the initial EFA for independent variables, nine factors were extracted explaining 72.8% of variance. Four variables ( $SEL_2$ ,  $SU_1$ ,  $SU_3$  and  $SU_5$ ) were eliminated due to low factor loadings or cross-loading issues. The second EFA iteration extracted eight factors accounting for 71.1% of variance, leading to the removal of  $SUS_6$  due to insufficient factor loading (-0.512).

In the third analysis, the dependent factors have the value of KMO = 0.808 (greater than 0.5) and the Sig. Bartlett's Test = 0.000 (less than 0.05), Eigenvalue = 1.613 (greater than 1), data extracted 7 factors with total variance extracted being 69.3% (greater than 50%). The smallest loading factor coefficient is 0.502 and no observed variables are excluded from the EFA analysis.

TABLE 5. Exploratory factor analysis results

Parameter	EFA Independent Variable (1 <sup>st</sup> )	EFA Independent Variable (2 <sup>nd</sup> )	EFA Independent Variable (3 <sup>rd</sup> )	EFA Dependent Variable
KMO value	0.786	0.796	0.808	0.831
Bartlett value	2565.989***	2135.829***	2090.908***	161.803***
Eigenvalue	1.053	1.079	1.613	2.911
Total extracted variance	0.728	0.711	0.693	0.582
Smallest loading factor	-	-	0.502	0.624
Number of extracted factors	9	8	7	1
Excluded variable	SEL <sub>2</sub> , SU <sub>1</sub> , SU <sub>3</sub> , SU <sub>5</sub>	SU <sub>6</sub>	0	0

Based on the results of the rotation matrix, there are 7 factors with the smallest loading factor being 0.502, and no variable is eliminated from the analysis. The factors ( $X_n$ ) are defined as follows:

- $X_1$ : *Perceived Susceptibility (SUS)*, including two variables SUS<sub>2</sub> and SUS<sub>4</sub>.
- $X_2$ : *Perceived Severity (SEV)*, including variables SEV<sub>1</sub>, SEV<sub>2</sub>, SEV<sub>3</sub>, SEV<sub>4</sub> and SEV<sub>5</sub>.
- $X_3$ : *Perceived Benefit (BEN)*, including variables BEN<sub>1</sub>, BEN<sub>2</sub>, BEN<sub>3</sub>, BEN<sub>4</sub> and BEN<sub>5</sub>.
- $X_4$ : *Perceived Barrier (BAR)*, including variables BAR<sub>1</sub>, BAR<sub>2</sub>, BAR<sub>3</sub>, BAR<sub>4</sub> and BAR<sub>5</sub>.
- $X_5$ : *Cue to Action (CUE)*, including variables CUE<sub>1</sub>, CUE<sub>2</sub>, CUE<sub>3</sub>, CUE<sub>4</sub>, CUE<sub>5</sub>, and CUE<sub>6</sub>.
- $X_6$ : *Self-Efficacy (SEL)*, including variables SEL<sub>1</sub>, SEL<sub>2</sub>, SEL<sub>3</sub>, SEL<sub>4</sub>, SEL<sub>5</sub>, SEL<sub>6</sub> and SEL<sub>7</sub>.
- $X_7$ : *Health Insurance Knowledge (INS)*, including variables INS<sub>1</sub>, INS<sub>2</sub>, INS<sub>3</sub> and INS<sub>4</sub>.

In the next stage, this research conducts an Exploratory Factor Analysis (EFA) for the dependent variable - Health Insurance Satisfaction (SAT). The EFA results for this dependent factor have the value of KMO = 0.831 (larger than 0.5) and Sig. Bartlett's Test = 0.000 (smaller than 0.05), Eigenvalue = 2.911 (larger than 1), data extracted 1 factor with total variance extracted being 58.2% (greater than 50%). The result of the Component Matrix shows that there is 1 factor extracted with the smallest loading factor coefficient of 0.624 and no observed variables are excluded from the analysis. Thereby, the dependent factor Y - Health Insurance Satisfaction (SAT) consists of variables SAT<sub>1</sub>, SAT<sub>2</sub>, SAT<sub>3</sub>, SAT<sub>4</sub> and SAT<sub>5</sub>.

Following this, the research conducts a regression analysis for factors affecting the satisfaction with Health Insurance.

#### 4.2.3. Regression Result

Before performing a regression equation estimation, the study calculates the correlation coefficient between the pairs of independent variables and the VIF index to test the model



for any violation of multicollinearity. The estimated results of the correlation coefficient and VIF index are shown in Table 6, the correlation matrix table below.

TABLE 6. Correlation Matrix

Variables Y	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>	X <sub>7</sub>	D <sub>1</sub>	D <sub>2</sub>	VIF
Y	1.000									---
X <sub>1</sub>	0.238	0.000								1.423
X <sub>2</sub>	0.161	0.492 *	1.000							1.982
X <sub>3</sub>	<b>0.649 *</b>	0.399 *	0.472 *	1.000						1.696
X <sub>4</sub>	-0.203	0.013	0.065	0.102	1.000					1.061
X <sub>5</sub>	0.351 *	0.365 *	0.568 *	0.499 *	0.067	1.000				1.970
X <sub>6</sub>	0.288 *	0.174	0.411 *	0.423 *	0.004	0.496 *	1.000			1.517
X <sub>7</sub>	0.024	0.099	0.103	0.106	0.050	0.167	0.212 *	1.000		1.062
D <sub>1</sub>	0.264 *	0.032	-0.052	0.255	0.107	0.235	0.109	0.021	1.000	1.361
D <sub>2</sub>	0.299 *	0.062	-0.108	0.092	0.059	0.103	0.077	-0.052	0.394 *	1.255

Note: \*\* level of significance 1% and \* level of significance 5%

The estimated results in Table 6 show that the correlation coefficient between the two independent variables, X<sub>2</sub> and X<sub>3</sub>, has the highest value ( $r = 0.649$ ) and the highest VIF index is  $1.982 < 3$ . This result confirms the regression model does not violate the multicollinearity assumption. Following this, the results of the regression analysis are presented in Table 7 below.

TABLE 7. Regression Results

Observed Variables	Y: Satisfaction				Sig.
	$\beta$	Std. Error	Beta	t. stat.	
Constant	1.067	0.633	----	1.685	0.096
X1: Perceived susceptibility	0.048	0.057	0.072	0.843	<u><b>0.401</b></u>
X2: Perceived severity	-0.190	0.086	-0.224	-2.208	0.030
X3: Perceived benefit	0.585	0.089	0.616	6.574	0.000
X4: Perceived barrier	-0.137	0.065	-0.156	-2.108	0.038
X5: Cue of action	0.110	0.103	0.108	1.068	<u><b>0.288</b></u>
X6: Self-efficacy	0.092	0.092	0.089	1.005	<u><b>0.317</b></u>
X7: Health Insurance Knowledge	-0.081	0.107	-0.056	-0.756	<u><b>0.452</b></u>
D1: Participation in Health Insurance?	-0.26	0.405	-0.055	-0.652	<u><b>0.516</b></u>
D2: Future Use of Health Insurance?	0.976	0.319	0.247	3.058	0.003
Number of observations	100				
Adjusted R <sup>2</sup>	<b>48.8%</b>				
D1: Dummy Variable, D <sub>1</sub> = 1 if the individual has Health Insurance, otherwise D <sub>1</sub> = 0					
D2: Dummy Variable, D <sub>1</sub> = 1 if the individual intends to continue using Health Insurance in the future, otherwise D <sub>2</sub> = 0					

The results of the regression test show that Sig. F's Test = 0.000 < 0.05 indicating that the use of the regression test is reasonable. Adjusted R<sup>2</sup> = 0.488 shows that the independent variables used in the regression test have an effect of 48.8% on the variation of the dependent variable SAT. The results show that X<sub>1</sub>, X<sub>5</sub>, X<sub>6</sub>, X<sub>7</sub>, and D<sub>1</sub> all have Sig. values > 0.05 so these variables do not have an influence on Y. Meanwhile, the Sig. values of X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub>, and D<sub>2</sub> are lower than 0.05 so these variables are statistically significant and have an influence on SAT.

The regression results in Table 7 show that the regression coefficients of  $X_3$  and  $D_2$  have positive signs and a positive influence on the level of satisfaction of participants with Health Insurance, at a 1% significance level. By contrast, the regression coefficients of  $X_2$  and  $X_4$  have negative signs and have a negative influence on the level of satisfaction of participants with Health Insurance. Among these variables,  $X_3$  (perceived benefits) is considered the factor with the most noticeable influence on the satisfaction of participants with Health Insurance, with a Beta value of 0.616, higher than all other variables. According to the results, the study confirms hypotheses  $H_3$  and  $H_4$ , and rejects other hypotheses. These results show that the higher the perceived barrier is, the lower the satisfaction of participants with Health Insurance is. In contrast, the more perceived benefits of Health Insurance are achieved, the higher the satisfaction of residents towards this form of insurance is.

## 5. Discussion

The analysis of the satisfaction of residents with Health Insurance based on 4 factors does not reflect significant statistical difference, which is contradictory to the initial hypothesis, assuming that among people with different educational levels, occupations, ages, and genders, there is a discrepancy in the level of satisfaction with Health Insurance. However, in the in-depth analysis of occupations of each hamlet, the research finds that governmental officers have a noticeably higher level of satisfaction compared to people with other jobs. This depicts that people who work in the governmental sector have a thorough perception of the benefits of Health Insurance. In the interview with N.T.P - Manager of DamB'ri Commune Health Station, she said: *"Patients always expect an immediate relief of illnesses, but healthcare officers must follow a strict procedure of prescription with suitable dosage and ingredients, which must be compatible with each stage of the illness and the regulation of the Ministry of Health. We cannot instantly prescribe patients with the strongest dose but need to be based on the stage of each illness. Residents are not aware of this and say the medicine covered by Health Insurance is of low quality and ineffective"* (Qualitative data of the research). Different from the view of officers, a proportion of residents hold the view that *"they do not prefer Health Insurance as it takes a long waiting time but the medicine is ineffective, and that for minor illnesses, they can self-diagnose and purchase medicine from private pharmacies without the need of medical tests"*. For these reasons, the research records a preference of up to 50% for self-prescription and medical check-ups at private clinics without Health Insurance. The result above is similar to the habit of Vietnamese self-prescription which was mentioned in different research, ranging from 40 to 60% for rural areas and being approximately 76% for urban areas (Okumura, Wakai and Umenai, 2002; Hoai & Dang, 2017; Health Vmo, 2012). From the results collected, the research agrees with the study of Van Ha, An Mai, and Ha Nguyen (2019) in which the majority of participants (83.3%) who are farmers tended to buy medicine without a prescription from doctors (Ha, Nguyen & Nguyen, 2019). However, the result from in-depth interviews reveals that the participants maintain the view that medicines covered by Health Insurance do not ensure the removal of illnesses and there are plenty of restrictions on the use of Health Insurance in healthcare services, which is contradictory to the positive views in previous studies showing that residents recently tend to use Health Insurance as it helps reduce medical costs. As can be seen from the results, one of the factors that has a direct impact on the satisfaction of people for the use of Health Insurance is the level of understanding and perception about the quality of the medicine.

Additionally, a portion of Dam B'ri commune residents prioritize using healthcare methods based on indigenous knowledge, such as using herbs, traditional remedies for prevention, treatment of illnesses, and strengthening immunity. Mr. N.V.T (45 years old) shares a treatment method involving soaking feet in a mixture of local medicinal leaves (such as ngai leaves – *lá ngãi* and piper lolot – *lá lốt*) combined with rock salt. This remedy helps alleviate his polyarthritis symptoms, which he has suffered from for over a decade. Notably, he learned this treatment from the Cham people, demonstrating the exchange and transmission of indigenous medical knowledge between ethnic communities in the region. The testimonials from Dam B'ri commune residents highlight their reliance on traditional home remedies due to limited healthcare access. Ms. N.T.H (34 years old) describes using male papaya with honey or preserved lemons for treating sore throats and coughs, noting her family mostly self-treats at home because the nearest health station is 7-8 kilometers away and the hospital is 20 kilometers distant. Meanwhile, Ms. N.T.N (67 years old) shares beliefs about traditional treatments for serious conditions like cancer, recounting stories of people who reportedly recovered from terminal illnesses using remedies made from young papaya fruit, leaves, and flowers combined with salt or honey. She also mentions using ginger tea for low blood pressure but cautions that people with “hot blood” (*máu nóng*) should avoid certain remedies as they may cause dysentery. Furthermore, Ms. N.T.T (64 years old, village 13) describes the local medicinal plants she uses around her home. She harvests honeysuckle (*kim ngân hoa*) and dries it to make tea for detoxifying the liver, uses *Cleistocalyx operculatus* Roxb leaf (*lá vối*) for cooling the liver and reducing liver enzymes, and combines wild honey with black galangal (*sả đen*) to boost immunity and prevent cancer. She also specifically mentions using young avocado seed leaves (not from the 034 variety) as a morning tea to help reduce diabetes (Qualitative data of the research). These accounts illustrate how indigenous medical knowledge is valued and transmitted within the community, serving as an alternative healthcare system when formal medical facilities are not easily accessible.

Besides, other research has shown that the satisfaction of people participating in Health Insurance also depends on other factors, such as the quality of the healthcare stations, the expertise of the medical officers, and the support and credibility of medical centers (Nga, Lien & Thuoc, 2021; Tuan, 2024; Luong, Tin & Thien, 2024; Bach, Long, Vuong and Cuong, 2016). When recognized as negative factors, these may create barriers to the access and satisfaction of residents for Health Insurance. Chief among these is the barrier in the attendance fee as the regression results show that the perceived barrier has a negative correlation with the satisfaction of residents. Regarding the fee, the research has recorded the opinion of residents in “*a dramatic rise in the Health Insurance fee to 1,263,000 VND/person/year*” (qualitative data of the research). Despite a deduction if bought in a family, this amount remains high for some rural households. The above results comply with previous research about participation and satisfaction with Health Insurance when barriers related to a lack of finance, insufficient benefit recognition, difficulty in usage, a lack of information and security, and most notably the low quality of the local medical system appear (Basaza et al., 2008; Dong et al., 2009; Jehu-Appiah et al., 2012; Olowe, 2019; Dao, 2020). Among these studies, the perception of Health Insurance has the most considerable effect on the satisfaction of residents, with a high Beta index of 0.616. The study agrees with the previous findings stating that the higher the perception of residents for Health Insurance is, the higher their satisfaction is (Goel, 2014; Francesco, 2011; Mistry & Vyas, 2021; Le, 2023; Dung & Duong, 2017; Erlangga et al., 2019; Prinja, 2019; Fox et al., 2001). However, the main difference in the results of the research at

DamB'ri Commune is the factor of perceived severity and health risks with a negative Beta index of -0.224, contradictory to the satisfaction of the surveyed people (Acharya, Devkota, & Kreps, 2022; Lishko & Burgess, 2010; Edward et al., 2018). The results from the in-depth interview have provided further insights to explain why the perception of severity and health risks at DamB'ri is different from previous studies. In reality, the majority of residents at the surveyed hamlets are farmers and *"do not consider muscle, joint, and bone injuries such as backache, and bone, joint, muscle, or waist pains as illnesses but simply a consequence of their daily working activities or of weather impact"* (qualitative data of the research). Therefore, further research about perceived illness and healthcare behaviors of residents in central highlands is needed to clarify the satisfaction with Health Insurance of these residents.

The study acknowledges two key limitations related to the number of participants. The first limitation lied upon the population of 100 participants with a 10% error rate, considered acceptable in social studies (*according to Yamane's (1967) sample size calculation formula*). The decision of setting the error rate at 10% rather than 5% was influenced by the characteristics of the targeted research area: mountainous region with low, sparsely distributed population. Besides, logistical difficulties such as the time constraints (as participants spent most of their time on the fields) or their defensive attitude (related to their negative experiences with strangers) resulted in some unqualified responses. However, to limit the data reliability issues, using a mixed-method approach, the study additionally employs qualitative research results to enhance the reliability of the article's data, aiming to supplement factors observed by the authors that influence the research subjects which the quantitative model has not yet explained. As of the second limitation in the qualitative research, while the study conducted an in-depth survey for the understanding of the perception, satisfaction, and behaviors of residents towards Health Insurance, only 30 individuals were interviewed, relatively small compared to the total population of this region. However, due to the repetition in information and the saturation in the data, the study came to a conclusion that 30 participants were sufficient. Having said that, the results provided useful perspectives in measuring the satisfaction of residents with Health Insurance, setting a foundation for further studies explaining the Health Insurance usage behaviors of residents in this region.

## 6. Conclusion

The research about the satisfaction of residents in DamB'ri Commune on Health Insurance has uncovered notable insights into their perceptions, qualifications and utilization of Health Insurance. The findings indicate that even though there was no noticeable disparity in the satisfaction based on gender, working age, educational level, and occupation at a general level, the detailed analysis in each hamlet revealed a significantly higher satisfaction among officers in Hamlet 3. This suggests that perceptions for the benefits of Health Insurance may vary across occupations. Furthermore, the result shows that perceived barriers and benefits are key factors impacting individual satisfaction with Health Insurance, in which the primary barriers were high health insurance fee (1,263,000 VND/individual/year), extended waiting time, and concerns over the effectiveness of medicines covered by Health Insurance. These contribute to the fact that 50% of residents prioritized self-medication and private clinics over services provided by Health Insurance. Additionally, people's use of folk and traditional medicine methods for health prevention and care is considered one of the

factors influencing citizens' decisions to use health insurance, alongside the Health Belief Model (HBM). Thus, it can be seen that besides factors from the HBM model, the study also recognizes the impact of folk and traditional medicine as an influence on people's usage behavior and satisfaction with health insurance. This further reinforces the data reliability of the research.

Most significantly, this research has identified a significant issue related to the difference in the perception of illness severity between residents and medical officers. Many residents, especially farmers, did not consider back, joint, and muscle pains as illnesses but rather as natural consequences of their physical labor and exposure to weather conditions. This perspective likely affected their decisions about using Health Insurance and thereby should be taken into account when shaping future medical policies. Moreover, this research has also opened the door to new approaches for understanding the perception of residents in this area regarding illnesses and healthcare habits in the future. The findings from this research have provided a valuable framework for policy makers to develop and refine strategies aimed at enhancing the satisfaction of residents on Health Insurance for DamB'ri Commune specifically and for Central Highland of Vietnam in general.

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