

# FACTORS INFLUENCING CUSTOMER SATISFACTION IN HEALTH INSURANCE: A COMPREHENSIVE STUDY IN BENGALURU, INDIA

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## ABSTRACT

### OBJECTIVE:

This paper focuses on the multifaceted dimension of customer satisfaction in health insurance within Bengaluru city. Bengaluru city is a metropolis in India with a diversified population with diverse insurance preferences, and healthcare requirements. Through this comprehensive study, we strove to analyze the impact of demographic features and health insurance benefits on customer satisfaction.

### METHODS:

We have gathered data using a structured questionnaire. Chi-square and logistic regression tests were conducted using R – Program to understand which factors influence consumer satisfaction in Health Insurance (HI).

### SUMMARY:

This research investigates the factors influencing customer satisfaction in health insurance (HI) in Bengaluru, India, a city with diverse healthcare needs and insurance preferences. Using statistical tools like Chi-square and Logistic Regression in R, the study identifies key demographic and policy-related factors affecting satisfaction.

### RESULTS:

Occupation ( $p < 0.01$ ), family income ( $p < 0.001$ ), health insurance type ( $p < 0.05$ ), and 'Is affected by COVID-19 previously' ( $p < 0.05$ ) features are statistically significant. Claim settlement ratio ( $p = 0.004$ ), co-payment percentage ( $p = 0.034$ ), network hospitals coverage ( $p = 0.018$ ), tax benefits ( $p = 0.015$ ), and waiting periods ( $p = 0.020$ ) were found to be influencing factors of HI customer satisfaction.

### CONCLUSION:

This customer satisfaction study enables policymakers and insurance service providers to understand the dynamics of the customer. The government, HI providers and researchers can use these results to plan new HI policies and improve customer satisfaction in HI.

### KEYWORDS

Customer satisfaction, purchase decision, Health Insurance, logistic regression

## INTRODUCTION

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Only 38% of India's population is covered under different health insurance (HI) including government-sponsored and private health insurance policies [6]. The health insurance penetration rate is very low and has to reach all of the citizens of India for a better healthy nation. The Rotileanu and Onișor study [13] identified the need for private health insurance to complement the limited coverage of public health packages, especially during crises like the COVID-19 pandemic. It also highlights the importance of enhancing customer satisfaction. The customer satisfaction is a primary factor for any business success, thus many businesses consider customer satisfaction as the primary driver of their business growth and try to keep their customers satisfied [5]. Therefore, understanding factors influencing customer satisfaction in the area of the health insurance industry has become important for insurance providers, policymakers, and researchers.

In this modern era with more technological advances in health care, more awareness of health, growing expenses of health care, most of the customers who have greater health care needs but often struggle with the affordability of HI [9]. "Out-of-pocket payments" may create a barrier to healthcare system utilisation, which is particularly crucial in the oldest population segments [11] and recently co-payment for each claim is imposed to avoid the fraud claims, with all these people considering health insurance as a vital shield for medical expenses.

The COVID – 19 pandemics had a significant impact on the overall insurance sector in India. Medical emergencies experienced by people during the pandemic emphasized the significance of having adequate insurance coverage [7] While only 10% of people considered health insurance necessary before the outbreak of Coronavirus in India, this has now increased to almost 70% who consider it essential to protect themselves from unforeseen events [12].

The Concept of health insurance has grown beyond financial investment for tax saving. It serves as a safeguard against unforeseen medical emergencies. In recent years after COVID-19, the healthcare industry witnessed significant changes such as telehealth, video consultation, treatment protocols, regulatory frameworks, and technological advances. These changes forced the health insurance industry to design new plans, new features, and new competition. This encourages insurance providers to have enumerated insurance plan options to choose from based on customer social, cultural, economic, and individual preferences.

Consumers often struggle to select the best option when selecting HI plan from range of available choices. While it is theoretically sound to argue for the utilitarian value of providing individuals with a variety of options, considering the vast diversity in risk profiles and preferences, real-world observations in health insurance markets suggest the prevalence of choices that do not align with utility-maximizing behavior.[1]

According to Ong et al. [10] factors affecting satisfaction among PhilHealth members in the Philippines, finding that the most significant factor is Expectation (EX). Their study recommends employee training and policy improvements to enhance services for PhilHealth members Krishnan and Pai [8] in their study in Kerala, India, examined customer satisfaction dimensions in health insurance. It identified three dimensions: insurance agent-related factors, insurance company-related factors, and insurance policy-related factors. That study found that customer satisfaction with health insurance products is not dependent on gender, age, or nature of employment but noted that these demographic variables can influence specific factors within customer satisfaction, such as gender's impact on agent-related and policy-related factors. Further research is needed to explore how various demographic factors affect specific aspects of customer satisfaction

## METHODS

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### DESIGN

We have selected the variables which all can affect the insured satisfaction and validated with the previous research. Costa-Font and Font-Vilalta [4] explained that age is an important variable affecting how likely customer wants health

insurance, but companies calculate insurance premiums based on age and screen them for medical claims, marital status were found in the Astari and Kismiantini [3] study; the income level variable was found in the Antwi and Zhao [2] study; other variables were selected based on their explainability of the dependent variable and the same was tested in this study.

**Dependent variable:** Insured satisfaction, whether a respondent was satisfied with a health insurance policy or not. If a response was yes (I'm satisfied with my health insurance plan) captured as one (1) and if a response was no (I'm not satisfied with my health insurance plan) captured as zero (0).

## HYPOTHESIS

- $H_0$ : all categorical independent variables (age, marital status, occupation, family income, insurance type, and 'is affected with COVID-19') are not related to the dependent variable (insured satisfaction)
- $H_1$ : all categorical independent variables are related to the dependent variables.
- $H_0$ : all variables including insurance benefits doesn't fit the model.
- $H_1$ : all variables including insurance benefits fit the model.

## TEST

All the tests listed below were conducted using the R – programming language.

- Descriptive statistics like frequency and percentage ratios were carried out along with the below-listed test.
- The Chi-square tests were carried out to test the relationship between insured satisfaction and individual independent variables.
- The binary Logistic Regression test was conducted to test the significance of each independent variable with respect to the dependent variable.

## DATA COLLECTION AND SAMPLE

Data was gathered through surveys. The structured questionnaire was designed by a systematic review of existing health-insurance satisfaction surveys; it was pilot-tested among 30 respondents to ensure reliability and internal consistency (Cronbach's  $\alpha=0.82$ ) and used to collect the required information and extended to around 500 individuals in Bengaluru, with 356 respondents having submitted the survey. Sample elements were selected using the snowball sampling technique. The research was done in strict adherence to the "Code of Ethics for Research" of Gandhi Institute of Engineering and Technology university, Odisha, as part of my Ph.D. program. The participation was voluntary, and informed consent was received from all the participants after detailing the research objectives, design, and academic purpose. To ensure their privacy, no personal identifiers were recorded, and all responses have been kept confidential. The information collected will be used purely for academic purposes. None of the information will be distributed to outside sources or reused beyond the scope of this project.

## RESULTS AND DISCUSSION

Table 1 shows the number of observations and frequency of the study along with Chi-square results. The total number of observations for the study was 356 which is 71% of the overall sample selected for the study. More than 85% of respondents are below 45 years of age group, and respondents with single as a relationship status are less than 15%. If we analyse the total family income of the household around 33% of respondents have less than 5 lacks family income per year. Irrespective of their income, people hold health insurance as per our study 263 respondents were satisfied with their insurance policy.

**TABLE 1: FREQUENCY AND PERCENTAGE FOR THE CATEGORICAL INDEPENDENT VARIABLES**

Variable	value	Insured satisfaction		Chi-Square(p-value)
		Dissatisfied frequency (%) [N = 93]	Insured satisfaction Satisfied frequency (%) [N = 263]	
Age	1 - 35 years	30 (32.26%)	120 (45.63%)	8.733 (p>0.05)
	36 - 45 years	44 (47.31%)	112 (42.59%)	
	46 -50 years	1 (1.08%)	5 (1.90%)	
	56 - 60 years	16 (17.20%)	22 (8.37%)	
	60 years and above	2 (2.15%)	4 (1.52%)	
Marital status	Married	76 (81.72%)	229 (87.07%)	1.1961 (p>0.05)
	Single	17 (18.28%)	34 (12.93%)	
Occupation	Homemaker	5 (5.38%)	28 (10.65%)	15.59 (p<0.01)
	Private employment	40 (43.01%)	153 (58.17%)	
	Public employment	22 (23.66%)	45 (17.11%)	
	Self-Employment	19 (20.43%)	22 (8.37%)	
	student	7 (7.53%)	15 (5.70%)	
Family income	10 to 15 lacks	9 (9.68%)	54 (20.53%)	38.277 (p<0.001)
	15 lacks and above	15 (16.13%)	99 (37.64%)	
	2 to 5 lacks	49 (52.69%)	69 (26.24%)	
	5 to 8 lacks	11 (11.83%)	9 (3.42%)	
	8 to 10 lacks up to 2 lacks	8 (8.60%) 1 (1.08%)	26 (9.89%) 6 (2.28%)	
Health Insurance plan type	Corporate health insurance plan	48 (51.61%)	171 (65.02%)	4.665 (p<0.05)
	Individual health insurance plan	45 (48.39%)	92 (34.98%)	
Is Affected with COVID-19	No	28 (30.11%)	117 (44.49%)	5.3039 (p<0.05)
	Yes	65 (69.89%)	146 (55.51%)	

Out of our sample, 60 % of respondents have corporate and 40 % of respondents have an individual insurance policy. Corporate policies are purchased and managed by corporates and apply for a larger group of employees hence, these corporate policies come with some additional features that are very expensive in individual insurance, thus 78 % of respondents among corporate policyholders are satisfied with insurance policy. The same satisfaction level among individual policyholders is 67%.

The results of the Chi-square test for the association between independent categorical variables and dependent variables are shown in the last column in Table 1. Computed values of age and marital status are greater than the chi-square critical value (at 5% significant value), so the null hypothesis for these variables was accepted and concluded that age and marital status are not related to health insurance satisfaction. Whereas the calculated Chi-square value is lesser than the critical value (at 5% significant value) for the occupation, family income, health insurance type, and 'Is affected by COVID-19 previously' hence concluded that all these categorical variables are related (dependent on each other) on insured person satisfaction by rejecting the null hypothesis.

## BINARY LOGISTIC REGRESSION ANALYSIS

The dependent variable in the logistic regression is usually binary. That is, the response variable can have possible outcomes as 1 or 0 whereas the success of the outcome will always be denoted with a probability of 1 (one), or the failure of the outcome always be denoted with a probability of 0 (zero) Health insurance characteristics like tax benefits, waiting periods, network hospitals coverage, sub-limits like room rent, premium amount, co-payment percentage, claim settlement ratio of the respective company, and benefits like hospitalization cash and health check-ups were added in a structured questionnaire to gather which all are important for the respondent and influence his/her satisfaction level. All these binary responses of yes/no ('yes' coded as 1 and 'no' coded as 0) for each variable supplied to the logistic regression model. To test all these variable fits the model (H0).

**TABLE 2: BINARY LOGISTIC REGRESSION ANALYSIS SUMMARY**

Characteristic	Estimate	Std. Error	Wald	Pr (> z )	Odd Ratio	95% CI for Odd Ratio
Hospitalization cash	-0.321	0.358	-0.898	0.369	0.730	0.36, 1.47
Benefits like health check-ups	-0.443	0.377	-1.174	0.240	0.640	0.30, 1.34
Claim settlement ratio	-1.029	0.356	-2.895	<b>0.004</b>	0.360	0.18, 0.71
Co-payment percentage	0.676	0.319	2.117	<b>0.034</b>	1.970	1.06, 3.71
Network hospitals coverage	0.721	0.304	2.374	<b>0.018</b>	2.060	1.14, 3.77
Premium amount	-0.022	0.306	-0.073	0.942	0.980	0.53, 1.78
Recommended by family/ friend/ agent/ health care professional	-0.463	0.423	-1.095	0.274	0.630	0.27, 1.46
M Sub-limits like room rent	-0.527	0.339	-1.554	0.120	0.590	0.30, 1.15
Tax benefit	-0.835	0.343	-2.432	<b>0.015</b>	0.430	0.22, 0.84
Waiting period	1.285	0.552	2.328	<b>0.020</b>	3.620	1.31, 11.6

The results of the binary logistic regression analysis for variables influencing insured satisfaction are shown in Table 2, which provides estimates, standard error (S.E), Z value, p values, odd ratios, and 95% Confidence interval ratios. In this study, all these variables are treated as categorical variables. The Wald test is used to test the hypothesis for individual regression coefficients. The ratio of estimated coefficient and standard error is known as Wald test values. For example, the coefficient for the waiting period is 1.285 and the respective S.E is 0.552 and the Wald value is 2.328 as shown in Table – 2, the p-value for the same is 0.020 which is lesser than the standard critical p-value (0.05) hence waiting period is statistically significant. The Wald value suggests that the waiting period, tax benefit, network hospital coverage, co-payment percentage, and claim settlement ratio were statistically significant at the significance level of 0.05 for each variable. 'The network hospital coverage' odd ratio (OR) is 2.060 and the 95% confidence interval (CI) is 1.14, 3.14, and 'The claim settlement ratio' OR value is 0.360 and 95% CI is 0.18, 0.71 have a more significant impact on health insurance satisfaction than the 'Is plan recommended by family/friend/agent/health care professional' OR is 0.274 and 95% CI is 0.27, 1.146. 'The premium amount' (OR is 0.980, 95% CI 0.53, 1.78) is not at all significant impact on health insurance satisfaction whereas, 'tax benefit' (OR is 0.430 and 95% CI 0.22, 0.84) and 'co-payment percentage' (OR is 1.970, 95% CI 1.06, 3.71) are a more

significant impact on insured satisfaction. Health insurance benefits like 'Hospitalization cash' (OR is 0.730, 95 % CI 0.36, 1.47) and 'health check-up' (OR is 0.640, 95% CI 0.30, 1.34) is not have any significant impact on insured satisfaction whereas 'waiting period' (OR is 3.620, 95% CI 1.31 and 11.6) has a more significant impact.

## KEY FINDINGS

### 1. Demographic Factors:

- Occupation ( $p < 0.01$   $p < 0.01$ ),
- family income ( $p < 0.001$   $p < 0.001$ ), and
- health insurance type ( $p < 0.05$   $p < 0.05$ ) significantly affect satisfaction.
- A history of being affected by COVID-19 ( $p < 0.05$   $p < 0.05$ ) also plays a role.

### 2. Policy-Related Factors:

- Claim settlement ratio ( $p = 0.004$   $p = 0.004$ )
- Co-payment percentage ( $p = 0.034$   $p = 0.034$ )
- Network hospital coverage ( $p = 0.018$   $p = 0.018$ )
- Tax benefits ( $p = 0.015$   $p = 0.015$ )
- Waiting periods ( $p = 0.020$   $p = 0.020$ )

Demographic variables such as occupation and family income significantly influence customer satisfaction in health insurance, the perceptions of value and the accessibility of services play crucial roles in shaping customer experiences and satisfaction levels in health insurance. A policyholder's occupation influences their satisfaction with health insurance services in several ways such as access to employer-sponsored insurance, risk exposure and coverage needs, awareness and decision-making and financial stability. Occupation influences insurance awareness, access to best quality insurance products, and financial stability, while family income affects affordability, perceived value, and financial security. By recognizing these demographic influences, insurers can develop targeted strategies to enhance customer experience, improve insurance offerings, and ensure better access to health insurance services for various consumer groups.

## IMPLICATIONS

- Policymakers and insurers can use these insights to design customer-centric HI policies.
- Emphasis on improving claim settlement processes, expanding hospital networks, and reducing waiting periods can enhance satisfaction.
- Tailored policies for different income groups and occupations may address diverse customer needs effectively.

## CONCLUSION

Customer age and marital status have no impact on contrary occupation, family income, health insurance type, and 'Is affected by COVID-19 previously' has an impact on customer satisfaction. Respondents are ready to pay more premiums if required and looking for good network coverage, a better claim ratio, and less co-payment percentage. It's obvious that paying a one-time premium is a better option than paying more share (co-payment) for each claim.

People are not buying insurance policies because someone such as a friend/family member/ insurance agent/health care professional suggested or asked, they are more keen on insurance company network coverage and claim settlement ratios. Benefits offered by health insurance provider like 'hospitalization cash', and 'health check-ups' has no impact on customer satisfaction. Waiting period for pre-existing deceases is more important and it has a significant impact on insured satisfaction. Though it is one of the regulatory requirements, if insurance providers can provide options to reduce the waiting periods might be helpful for enhanced customer satisfaction.

## Conflict of Interest

Authors advise that they have no conflicts of interest to disclose.

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