



Hospital Service Quality of Medical Examination and Treatment with Health Insurance and its Effects on Patient Satisfaction at the district level hospitals in Thai Nguyen Province

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Abstract

This study aims to identify factors affecting patient satisfaction on the hospital service quality of examination and treatment with health insurance at district level hospitals in Thai Nguyen province. 300 patients were under this survey. The regression models were examined to identify if there was a positive influence of hospital service quality of medical examination and treatment on patient satisfaction. The research findings showed that all 5 factors including reliability, responsiveness, assurance empathy and tangibles significantly and positively have an influence on patient perceived satisfaction. Based on research findings, the study proposes some recommendations to improve the quality of medical examination and treatment services with health insurance at these hospitals, contributing to improving patient satisfaction in order to reduce the load for higher level hospitals.

Keywords: Hospital service quality, health insurance, medical examination and treatment with medical insurance, patient satisfaction.



1. Introduction

Health insurance policy is an integral part and the most important part of each country's social policy. Health insurance is characterized by humaneness and insightful community sharing. Thanks to the good nature of health insurance, Vietnamese government has been paying special attention to the health insurance policy from the beginning of the country establishment. In the final report on health care in 2014, some key tasks and solutions of the Ministry of Health in the period 2015-2020 pointed out that “Ensuring equity and sharing in caring health services with health insurance for the people, as well as improving the quality of medical examination and treatment with health insurance in the context of a market economy is an urgent, challenging and a long-term policy” (Ministry of Health, 2015).

Up to present, the proportion of people with health insurance cards in Thai Nguyen province accounts for over 97.5% of the population. This result has made Thai Nguyen become one of three provinces with the highest percentage of people participating in health insurance in the whole country (Ministry of Health 2016). With the careful attention and guidance of the Provincial Party Committee, People's Council, Provincial People's Committee, Social Security of Thai Nguyen Province and the related authorities, Thai Nguyen will finish early the implementation of the "Roadmap for universal health insurance".

Connecting the medical examination and treatment with health insurance between district and provincial level hospitals which allow the district hospitals and the equivalent medical institutions become the initial medical institutions for people using health insurance cards, has brought the most favorable conditions for participants of health insurance to access to the medical services. However, medical examination and treatment services with health insurance at district hospitals in Thai Nguyen province still have many shortcomings that need to be overcome such as: the short list of medical drugs for treatment of diseases, limited medical services, complicated administrative procedures in medical examination and treatment with health insurance are still cumbersome; medical staff and doctors are lacking in both quantity and quality. Many people in different places reflect on ethical issues when they visit health care institution. Medical equipment is inadequate and weak, and profiteering of health insurance fund from many sides has occurred.

Therefore, this study attempts to investigate hospital service quality of medical examination and treatment at the district level hospitals and its effects on patient satisfaction who use health insurance. This would enable hospitals to have a better understanding of the effects of their service quality, which will lead to patient satisfaction in order to improve their service quality as well as build long-term relationships with their patients.

2. Literature review

In the recently years, there has been increasing interest in hospital services, as standards of living have changed and there is a demand for better medical care to improve lifestyles. Improving the quality of medical care services has become a primary concern for patients, and, in order to provide better service to patients, service quality has become increasingly important for hospitals in respect of satisfying and retaining patients ((Alhashem et al., 2011). Therefore, understanding inpatients evaluation of hospital service quality performance will improve the existing health care system outcome and enhance service quality, consequently, the number of satisfied inpatients increases and patients will continue to visit their hospitals (Arasli et al., 2008). However, hospitals that fail to understand the importance of delivering service quality and customer satisfaction may be inviting a possible loss of patients (Padma et al., 2010). Patient satisfaction is seen as being a



critical factor of considerable importance in the process of building and maintaining relationships in medical services (Aagja and Garg, 2010; Gaur et al., 2011).

Hospital service quality

Over last few decades, researches on service quality in general and hospital service quality in particular have grown substantively. The service quality model has been gaining a special attention after the controversial findings of Parasuraman et al. in 1985. The model looked at service quality as a comparison differentiation between the customer perception and expectation of the service and the actual performance of the service received by the customer provided by the company at a certain period of time (Parasuraman et al., 1985). According to Parasuraman et al. (1985, 1988), service quality is based on five dimensions (tangibles, reliability, responsiveness, assurance, and empathy). The SERVQUAL model has provided a comprehensive conceptualization of service quality with an instrument to measure perceived service quality, and provide more diagnostics and practical implications than were previously thought possible (adopted from Muslim, 2013).

Hospital service quality perception is based on patient judgment of the services provided by the hospital, such as the relationship between the patients and doctor or nurse (Martinez Fuentes, 1999). Chahal and Kumari (2010) suggest that patients base their perception of health care service quality on three dimensions: physical environment (comprising ambient condition, social factor and tangibles), interaction quality (comprising attitude and behaviour, expertise and process quality), and outcome quality (comprising waiting time, patient satisfaction and loyalty). Meanwhile, Arasli et al. (2008) identified six service quality dimensions in public and private hospitals: empathy; giving priority to the inpatient needs; relationship between staff and patients; professionalism; food and the physical environment (adopted from Muslim, 2013).

Until today, numerous researchers have studied hospital service quality (Muslim, 2014; Hussein, 2013; Swpnarag, 2018, etc.). In a developing country, researchers found that hospital service quality consists of seven dimensions (personnel quality, infrastructure, administrative process, process of clinical care, safety, overall experience of medical care, and social responsibility) (Duggirala et al., 2008). In an Asian country, by testing the SERVQUAL scale for measuring health care service quality, and their hospital service quality, researchers found that five dimensions existed to measure hospital service quality (tangibles, reliability, responsiveness, assurance, and empathy (Butt and Cyril de Run, 2010; and Sohail, 2003).

Patient satisfaction

In the hospital industry, patients' satisfaction plays an important role in measuring the quality of care and continuing their services. patient satisfaction is defined as the judgment made by patients on their expectations for care services that have been met or not in respect of both technical and interpersonal care (Esch et al., 2008). Thus, a hospital's ability to deliver these benefits on an ongoing basis will influence the patients' level of satisfaction. Customer satisfaction is meeting the customer expectations of products and services by comparing with the perceived performance. It means that customers are satisfied if the perceived performance matches their expectations of services. This implies that satisfaction reflects the degree to which a consumer believes that the possession and use of a service evoke positive feelings. Patient satisfaction was mediated by a patient's personal beliefs and values about a hospital and their previous expectations about the hospital. In the health care industry, the patients' orientations and the provider conditions were different, and that if these orientations and conditions were matched with the patient



expectations, then the patients would be satisfied, but if not, then the patients would be dissatisfied (Gill and White, 2009).

Relationship between hospital-perceived service quality, patient satisfaction and

Cronin et al. (2000) conducted an empirical study to establish linkage between quality, value, satisfaction and behavioral intention in service settings. This study confirmed a model showing indirect effects of service quality and service value on behavioral intention. This study revealed that customer satisfaction plays mediating role while linking the effect of service quality on behavioral intention of customers. Thus, it can be inferred that service quality influences perceived value or utility of service, which, in turn, influences customers' satisfaction level that decides their behavioral intention towards usage of a particular service provider. Other researchers have investigated the relationship between hospital service quality and patient satisfaction. Li et al. (2011) empirically examined moderating effect of customer satisfaction on the relationship between service quality and behavioral intention in hospital setting. The research findings showed a positive moderating effect for service quality dimensions like reliability and empathy whereas negative moderating effect for dimensions like responsiveness and assurance. Mohamed and Azizan (2015) found significant association between perceived service quality and patient satisfaction. This study establishes patient satisfaction as the dominant and significant determinant of behavioral compliance. It also establishes direct as well as indirect influence of perceived service quality on behavioral compliance mediated through patient satisfaction. Voon and Abdullah (2014) pointed dimensions of hospital service quality having positive and significant influence on employee perceived overall quality and patient satisfaction. Padma et al. (2010) explored the impact of hospital service quality dimensions on patients' and their attendants' satisfaction. This study found service quality dimensions like personnel quality, clinical care, image and trustworthiness having statistically significant impact on patients' satisfaction. Service quality dimensions like infrastructure, personnel quality, process of clinical care and administrative procedure were found to have statistically significant impact on attendants' satisfaction.

Hypothesis development

To assess patient satisfaction with the quality of medical examination and treatment services using health insurance, this study approaches the quality of medical services as a multi-dimensional structure based on the SERVPERF scale of service quality (Cronin and Taylor, 1992; Lee et al., 2000; Brady et al., 2002); study the influence of factors on patient satisfaction with Dang Hong Anh's medical services; research on patient satisfaction with health services by Le Nu Thanh Uyen and Truong Phi Hung; Objective "Program 527 / CTr-BYT on improving the quality of medical examination and treatment at medical facilities for the purpose of meeting the patient satisfaction using medical insurance", as well as recent applications in research. on the quality of health services in Vietnam (Nguyen Huynh Thai Tam, 2009; Nguyen Xuan Vy, 2011; Vu Thi Thuc, 2012; Nguyen Thi Lan Anh, 2017; Tran Thi Hong Cam, 2017 ...). Thus, it is proposed that:

Hypothesis: Hospital service quality of medical examination and treatment has a significant relationship with patient satisfaction



3. Research methodology

In order to collect data for this research, 3 district level hospitals were selected. These 3 hospitals were representative 3 different areas of the province: urban, mountainous and delta areas in Pho Yen, Phu Binh anh Dinh Hoa. The primary data was collected directly from survey questionnaires distributed to patients who were taking medical treatment at the selected hospitals. Samples were selected using a random sampling method according to the list of inpatient patients with health insurance. The sample size is determined on the formula for determining the sample size of Hair, Anderson, Tatham and Black (1998). The minimum sample size is determined at least 5 times the number of observed variables included in the research model. The total number of observed variables in the model includes 42 questions, of which 39 questions for SERVPERF and 3 questions for patient satisfaction. Therefore, the minimum number of samples to be collected is $42 \times 5 = 210$ observations. The total number of research samples of this study is 300 observations (patients), thus meeting the above criteria. At each district level hospital, the study randomly selected 100 inpatients. SPSS software was used to analyze the collected data.

Tools

Cronbach's alpha is used to test reliability of the questionnaire items. The reliability statistic test showed that the Cronbach Alpha of the factors under the study exceed the 0.7 cut-off point. This mean that the internal consistency reliability of the measure used in this research can be considered good for further steps of analysis. Factor analysis was used to combine the data for the regression model and correlation test was used to test the validity of the data. 5 factors (tangibles, reliability, responsiveness, assurance, and empathy) were valid for further analysis. The regression model was examined to see if there was any influence of hospital service quality of medical examination and treatment on patient satisfaction.

Exploratory factor analysis (EFA)

Exploratory factor analysis (EFA) for independent factors

KMO and Barlett's test results

KMO coefficient = $0.808 > 0.5$: factor analysis suitable for the research data. The result of Barlett's test is 5761,030 with significance level $\text{sig} = 0.000 < 0.05$ (reject hypothesis H_0 : observed variables are not correlated with each other in the whole), thus the data used for factor analysis are perfectly appropriate.

Factor matrix with Principal Varimax rotation

The results show that the initial 32 observed variables are grouped into 05 groups. Value of the total variance extracted = $62,651\% > 50\%$: meeting the requirement; it means that these five groups of factors explain 62,651% of the data variability. Eigenvalues value of all factors are high (> 1), 5th factor has Eigenvalues (lowest) = $2,432 > 1$. We extract 5 independent factors.

Table 1. Factor matrix with Principal Varimax rotation method

	Component				
	1	2	3	4	5
Responsiveness 10	.853				
Responsiveness 11	.831				
Responsiveness 6	.804				
Responsiveness 2	.785				
Responsiveness 7	.775				
Responsiveness 3	.770				
Responsiveness 9	.755				
Responsiveness 4	.726				
Responsiveness 1	.719				
Reliability 7		.846			
Reliability 6		.817			
Reliability 2		.792			
Reliability 3		.738			
Reliability 4		.726			
Reliability 1		.726			
Empathy 1			.789		
Empathy 6			.737		
Empathy 5			.735		
Empathy 7			.728		
Empathy 4			.689		
Empathy 3			.654		
Empathy 2			.629		
Tangibles 5				.856	
Tangibles 6				.833	
Tangibles 4				.764	
Tangibles 2				.729	
Tangibles 1				.709	
Tangibles 3				.698	
Assurance 1					.878
Assurance 2					.840
Assurance 4					.788
Assurance 5					.707

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.



The factor analysis results are quite good, 9 indicators of "Response" all converge to only one common factor, with factor load factors greater than 0.50 (from 0.719 - 0.853). Similarly, we also see the indicators of "Reliability", "Empathy", "Tangibles", "Quality Assurance" all have factor load factor of > 0.5. Therefore, these indicators all converge on only one common factor, these 5 factors are eligible for use in subsequent analyzes. The original model remains the same, no changes.

Exploratory factor analysis (EFA) for dependent factor

* *KMO and Barlett's test results* KMO coefficient = 0.699 > 0.5, Factor analysis is appropriate for research data. Barlett's test result is 271,069 with significance level sig = 0.000 < 0.05, (reject the hypothesis H0: observed variables are not correlated with each other in the whole) so the data used for factor analysis are perfectly relevant.

* *Eigenvalues and variance extracted for the dependent variable*: The results show that the three observed variables were initially grouped into one group. Total variance extracted = 70,744% > 50%; qualified; It can then be said that one factor accounts for 70.744% of the data variation. Eigenvalues coefficient value of the factor is 2.122 > 1

Factor matrix

Table 3. Component Matrix^a

	Component
	1
Patient satisfaction 2	.868
Patient satisfaction 1	.833
Patient satisfaction 3	.822

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

The factor load factor is very good (from 0.822 to 0.868) > 0.5, so the factor has practical significance, we extract one dependent factor for the next research steps.

3. Results and discussions

Regression analysis was used to identify factors affecting patient satisfaction with medical examination and treatment services at the district level hospitals in Thai Nguyen Provinces. 5 factors were tested including (1) reliability, (2) responsiveness, (3) quality assurance, (4) empathy and (5) physical aspects. Patient satisfaction was the dependent variable. SPSS 20.0 was used to examine the model. The regression results are as follows:

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.757 ^a	.573	.566	.4929358

a. Predictors: (Constant), tangible, quality assurance, responsiveness, reliability, empathy



The model summary table shows the R square = 0.573; This R square value indicates that independent variables in the model can account for 57.3% of the variance of the dependent variable, which means that variables in the model account for 57.3% % of patient satisfaction. The rest is dependent on other variables not included in the model.

Table 5: ANOVA^b

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	96.050	5	19.210	79.058	.000 ^a
Residual	71.438	294	.243		
Total	167.487	299			

a. Predictors: (Constant), tangibles, quality assurance, responsiveness, reliability, empathy

b. Dependent Variable: Patient satisfaction

The ANOVA table tests the acceptability of the model from a statistical perspective.

The ANOVA in the table 3 showed that F-ratio is 79.058. The significance value of the F statistic is less than 0.05, which means that the overall regression model is significant from 0.000. The multiple linear regression model is consistent with the data set and the model is fit to be used.

Table 6: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	-.884	.238		-3.712	.000		
Reliability	.241	.033	.298	7.229	.000	.856	1.169
Responsiveness	.174	.031	.229	5.561	.000	.854	1.171
Quality assurance	.328	.044	.299	7.466	.000	.905	1.105
Empathy	.285	.050	.240	5.706	.000	.822	1.217
Tangibles	.209	.045	.181	4.644	.000	.959	1.043

a. Dependent Variable: Patient satisfaction

From table above, the Variance Inflation Factor (VIF) of variables is fairly smaller than 2 indicated that there is no sign of multicollinearity between the independent variables in the model and does not affect the regression results. All significant predictor variables were less than 0.05 level of significance.

Regression results show that the coefficients of 5 independent variables (tangibles, reliability, responsiveness, assurance, and empathy) are less than 0.05, which means that all variables in the model are significant at 95% reliability level. All independent variables are positively and significantly influence on patient satisfaction with medical examination and treatment services at the district level hospitals in Thai Nguyen Province. Thus, we can reject the null hypotheses that there is no relationship between the variables in the model and patient satisfaction, and accept the hypothesis H₁ that there is a linear relationship between these variables and patient satisfaction.

Based on the regression results, we can rewrite the regression equation as followed:



$$Y = -.884 + 0.298*X1(*) + 0.229*X2 + 0.299*X3 + 0.240*X4 + 0.181*X5 \text{ or:}$$

$$\text{Patient Satisfaction} = -.884 + 0.298*\text{Reliability} + 0.229*\text{Responsiveness} + 0.299*\text{Quality assurance} + 0.240*\text{Empathy} + 0.181 \text{ Tangibles}$$

The results showed that at 95% confidence level, independent variables affect the dependent variable; and the slope coefficients 0.298, 0.229, 0.299, 0.240 and 0.181 are all positive, so the variables are in the same direction as the patient satisfaction.

When other factors remain unchanged, if the degree of contentment with the *reliability factor* increases by 1 unit, it will increase the patient satisfaction level by 0.298 units and vice versa.

When other factors remain unchanged, if the level of contentment with the level of *responsiveness factor* increases by 1 unit, it will increase the level of patient satisfaction by 0.229 units and vice versa.

When other factors remain unchanged, if the degree of contentment with the *assurance factor* increases by 1 unit it increases the patient satisfaction by 0.299 units and vice versa.

When other factors remain unchanged, if the degree of contentment with the *empathy factor* increases by 1 unit, it will increase the level of patient satisfaction by 0.181 units and vice versa.

When other factors remain unchanged, if the degree of contentment with the *tangible factor* increases by 1 unit, it will increase the level of patient satisfaction by 0.181 units and vice versa.

4. Conclusion and recommendation

The results of regression analysis showed that there are 5 factors that have statistically significant impacts on patient satisfaction with the quality of medical examination and treatment services using health insurance at district hospitals in Thai Nguyen province. The strengths of these factors are as follows: "Service capacity" is ranked first, the second is "Empathy" followed by the factors "Trust", "Tangible", "Response". The study proposes some recommendations to improve patient satisfaction with quality of medical examination and treatment services using health insurance at district hospitals in Thai Nguyen province, emphasizing the harmonious combination of the 3 aspects of "people" "administrative procedures" and "physical aspects".

Based on research findings, the following recommendations were forwarded:

- Developing human resources in Hospitals: Human resource development must be consistently concerned from the first to the last stage, constantly training to improve the qualifications of the medical staff; Renovating the service attitude of the medical staff with patients using health insurance - being more polite and hospitable.

- Paying special attention to understand the needs and concerns of each patient. Both doctors and nurses should more care, share with patients, and are ready to help patients, provide prompt services as well as thoughtful, personalized expression of their professional ability with regard to their reliability: the ability to deliver service promises reliably and accurately.

- Reforming administrative procedures and process in medical examination and treatment.

- Investing in modern medical equipment and upgrading material facilities.

- Strengthening the financial management of medical services with health insurance

- Other recommendations:



- + Promoting socialization of medical examination and treatment.
- + Strengthening leadership, management and working regulations.
- + Providing patients with sufficient, proper and timely information
- + Improving "doctor and patient" relationship communication.

This research examined the hospital service quality of medical examination and treatment with health insurance at the district level hospitals in Thai Nguyen province and its effect on patient satisfaction from the perspective of patients. However, this study did not explore the perspective of service providers. This is a limitation since it only considers the patients view, which might be different from the provider's view. This is a recommendation for the future study.

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