FACTORS INFLUENCING PATIENTS' SATISFACTION WITH HEALTHCARE SERVICES – A CASE STUDY OF PUBLIC HOSPITALS IN HUE CITY

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Abstract. The healthcare sector is becoming more competitive in Vietnam since patients now expect a higher level of service quality. This paper aims to investigate the impact of service quality dimensions on patient satisfaction in selected public hospitals in Hue city - the central region of Vietnam. Data were collected from 354 patients using a structured questionnaire. The second-generation analytical method (SmartPLS) was utilized to identify factors influencing the satisfaction of patients. The results of this study show that all five factors of healthcare service: hospital assurance; responsiveness; empathy; reliability and facilities were the significant predictors of patient satisfaction and these factors can explain 61.9 percent of the variance in patient satisfaction. Among these factors, hospital facilities and empathy were the most important predictors. The implication is that to keep patients satisfied with the hospital services, the public hospitals should invest more in equipment and improve the interaction process between patients and staff.

Keywords: patients' satisfaction, public hospital, PLS-SEM

1   Introduction

There is an increasing interest on healthcare services in many countries because the standards of living have improved and a demand for better health care has increased rapidly [1]. With the population of nearly 100 million people, the demand for good healthcare services has increased significantly in Vietnam during the recent decades. To meet the satisfaction of patients, hospitals have to improve its service quality. Thus, evaluating the satisfaction of hospital services and its predictors would significantly contribute to the success of hospitals in the future.

Located in central region of Vietnam, Hue city is the location of many public hospitals. In 2020, there are 12 public hospitals with 6,414 beds and around 260,000 patients were received per year [2]. Because there is a high competition among hospitals in attracting patients, the improvement of the healthcare service will subsequently increase the number of patients who continue to visit their hospitals. Hospitals that fail to understand the importance of delivering quality service and patient satisfaction may result in a possible decline in patients [3].

Although much research has been conducted in healthcare service quality, less attention has been paid to examine the effect of service quality dimensions on patient satisfaction in public hospitals in Hue city. Therefore, this study seeks to assess the perceptions of patients regarding the service quality using the SERVQUAL scale and its impacts on patient satisfaction in public hospitals in Hue city.

In the following sections, the literature review and hypothesis development are elaborated. Subsequently, the research methods and research results are presented. Next, the discussions are clarified, followed by the conclusion and limitations of the research.

2   Literature review

Patient satisfaction with healthcare service in hospitals is a measure of the extent to which a patient is satisfied with the service they received from the hospital [4]. Previous literatures have indicated that patient satisfaction are valuable assets for hospital success because if patients are happy with the healthcare service, they will continue to use the hospital services in the future [5]. In addition, understanding perceptions of patient satisfaction enable hospital managers to detect the issues of healthcare services and processes in need of improvement [6]. Thus, patient satisfaction is considered as the most important factors to determine the success of hospitals.

In the service sector, Parasuraman, Zeithaml [7] developed SERVQUAL scale to measure service quality through five dimensions including reliability, assurance, tangibles, empathy and responsiveness. Many researchers modified and applied these five dimensions to measure service quality of healthcare organizations and hospitals [8–12].

Hospital assurance: This dimension refers to quality of all the personnel (doctors, nurses, paramedical, and support staff) involved in delivering health service for patients. Previous studies show that friendly and courteous staff tend to improve the satisfaction of patients in the hospital [13]. Padma also found that interpersonal skill of medical personnel, doctors' qualification and examination, treatment results were a significant predictor of patient satisfaction [14]. Thus, the first hypothesis is:

H1: Hospital assurance has a significant effect on patients' satisfaction

Responsiveness: This dimension refers to the duration of time that patients have to wait to be served by the hospital staff such as admission, stay and discharge of patients. Many studies reported that patients are not happy with the long waiting times for diagnosis, treatment, etc. in the hospitals across countries [15]. The ease of getting appointments, ambulance services, simplicity of admission and discharge, etc. all are essential in ensuring patient satisfaction [6]. During the whole hospitalization hospital staff should demonstrate that they care about its patients, are careful in protecting and enhancing the hospital's reputation, do everything to gain the patients' confidence in the hospital and ensure that patients feel safe during their

hospitalization [16]. So, well-defined administrative procedures are required to make the patients' stay in the hospital. Thus, the second hypothesis is:

H2: Hospital Responsiveness has significant effect on patients' satisfaction

Reliability: This factor involves trust in the services and consistency in care delivery. It is the ability of hospitals to perform the promised service dependably and accurately. This dimension mainly implies nurses and midwives' demeanor and sharing behaviors to patients. This makes patients feeling positive and confident. The reliability dimension also comprises confidentiality of privacy, providing services as promised and equal treatment to all. According to Al-Damen, patients were satisfied with the hospitals services if patients felt confident when receiving medical treatment [26]. Similarly, Irfan found that when doctors/staff observe the promised time, they felt more happy [10]. Thus, the third hypothesis is:

H3: Hospital Reliability has significant effect on patients' satisfaction

Empathy: Empathy in this context of this study relates to the helpfulness in the interaction process between patients and nursing aides who deal with providing facility services to patients. This dimension deals with the caring nature of the staff, meaning how helpful the staffs are. The study carried out by Junaha show that when the doctors understand patient's needs, they tend more satisfaction with the healthcare services [17]. During the treatment process, if the doctor/staff clearly answers the patient's questions or explain clearly the result of the examination, patients feel more happy [18]. The fourth hypothesis is:

H4: Hospital Empathy has significant effect on patients' satisfaction

Hospital facilities: Hospital facilities includes the tangible features of a service delivery (including equipment, signage, availability of resources, etc.). It is also referred to physical environment of the hospitals. As services are primarily intangible, customers judge the quality of services based on the tangible aspects of services. Technological capability of a hospital including equipment to test and treat various ailments is a part and parcel of the hospital infrastructure. Aladvan identified "physical environment" as one of the factors influencing the patients' satisfaction in the Jordan [19]. Ngatunga also stated that "facility" was an influencing factor of patient satisfaction. The fifth hypothesis is:

H5: Hospital Facilities has significant effect on patients' satisfaction

Based on the review of existing literature on hospital service quality, the research model of this study is shown in Figure 1. The figure presents the elucidation of five elements used in the current study. All these five dimensions have been deliberated from the perceptions of patients. Five dimensions of perceived service quality comprising 22 items were developed based on the literature review.
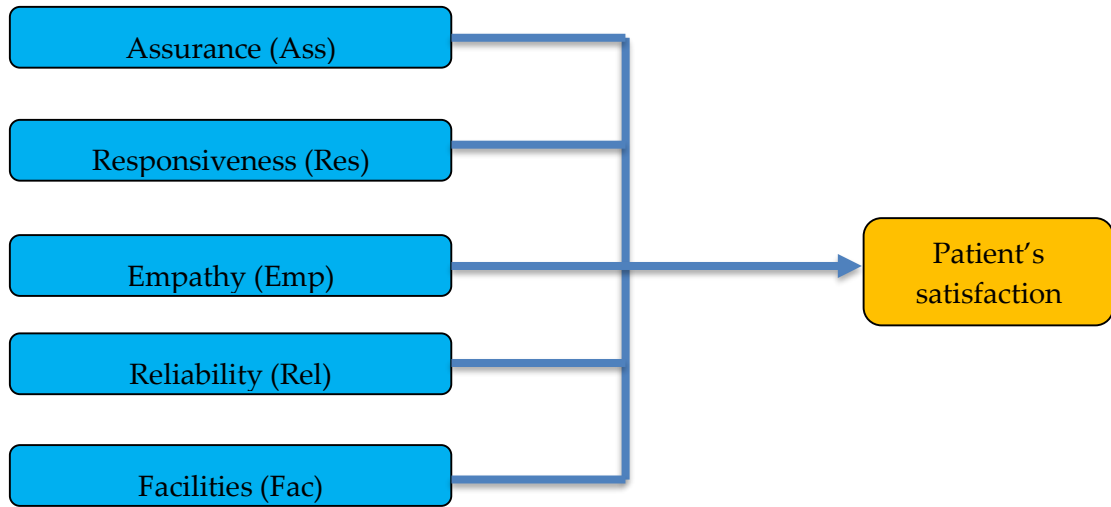
Figure 1. Research conceptual model

3   Research methods

A survey instrument was adopted from previous studies on hospital service quality for data collection from patients in three selected public hospitals in Hue city. These hospitals are Hue Central Hospital; Hue University of Medicine and Pharmacy Hospital and Hue city hospital. The final questionnaire comprised of total 22 items which were borrowed and modified from previous research carried out by Parasuraman, Zeithaml [7]; Al-Damen [26] and Irfan [10]. The details of these items are described as following:

Assurance (ASS): Four items were included in this dimension: The doctor examines the patient very carefully (Ass1); Nurses perform well medical procedures (Ass2); Hospital staff treats patients very well (Ass3); Hospital staff are polite (Ass4).

Responsiveness (RES): There are five items in this dimension: long waiting time for administration procedures (Res1); long waiting time for the discharging procedure (Res2); long waiting time for lab examination and/or imaging diagnostic procedures (Res3); crowded hospital (Res4) and late nurse/midwives response (Res5).

Empathy (EMP): This dimension consists of six items: The doctors understand patient's needs (Emp1); The doctor clearly answers the patient's questions (Emp2); The doctor clearly explains the result of the examination, treatment and return (Emp3); The doctor gave me good advice about my health (Emp4); Nursing counseling for patients with peace of mind before taking blood test, x-ray, ultrasound, minor surgery (Emp5); When the patient needs, the hospital staff are available to help (Emp6).

Reliability (REL): There are three items in this dimension including Patient privacy and confidentiality are maintained by the hospital (Rel1); Hospital provided services as promised (Rel2); Equal treatment to all (Rel3).

Hospital facilities (FAC): This dimension consists of four items: There are enough beds for patients (Fac1); Hospitals are always clean (Fac2); Patients easily find the office room (doctor room, x-ray room, etc.) (Fac3); and The hospital seems to have modern medical equipment (Fac4).

Patients' satisfaction (SAS): Three items were used to measure this dimension. I was delighted with the medical treatment I received at the hospital (Sas1); I was happy with the nursing care I received at the hospital (Sas2) and If possible I would prefer to use the hospital service next time (Sas3).

The survey method was employed in this study. The study population was patients and/or their family members who experienced as patients/their relatives in the selected hospitals, so they have understandings of healthcare service quality of these hospitals they were treated.

According to Hair, PLS-SEM is appropriate approach when it is used to test a theoretical framework from a prediction perspective and the sample size is small [21]. This research aims to identify factors that predict patient satisfaction, thus, PLS-SEM is suitable for data analysis. In terms of sample size, because this study utilized PLS-SEM analysis, the use of 10 times rule for determining minimum sample size is appropriate for this approach [20, p.20]. This rule states that minimum sample should be "*10 times the largest number of structural paths directed at a particular construct in structural model*". Structural model of this study involves five direct paths, thus the minimum sample size should be at least 50 respondents. In this study, 354 returned respondents obtained via the survey met the minimum requirement of sample size.

The research utilized regression model, where data were analyzed by using PLS-SEM model (Partial Least Squares – Structural Equation Models). This is suitable for predictive models and investigate the relationship between dimensions of hospital service quality and inpatients' satisfaction.

4   Results

4.1   Demographic Profile of Respondents

Survey respondents in this research have quite diverse characteristics. The personal characteristics taken from the respondents include gender, age, education, income and residence. The majority of respondents who took part in this research came from Thua Thien Hue province (67%) where these hospitals are located. Females consisted of 56.1% of the total sample. It seems that a large proportion of the respondents was between 45–65 years old (34.2 %). Result showed

that 80.8% of the respondents hold a diploma or less. The question on the patients' occupation showed that the distribution of patients' occupation was diverse including farmers; teachers; businessman and governmental officers.

4.2   Results

A two-step approach, recommended by Hair [20] was adopted for the data analysis. The first step is the confirmation of the outer measurement model and the second step involves the validation of the structural relationships among the latent constructs. SmartPLS 3.0 was employed for data analysis in this study.

Evaluation of measurement model

The confirmation of outer measurement model was evaluated on the criteria of reliability, convergent validity, and discriminant validity of the observed variables together with unobserved variables [21].

Table 1. Outer loadings

	ASS	RES	EMP	REL	FAC
Ass2	0.754				
Ass3	0.862				
Ass4	0.932				
Res1		0.848			
Res2		0.868			
Res3		0.817			
Res4		0.806			
Res5		0.847			
Emp1			0.802		
Emp2			0.820		
Emp4			0.804		
Emp5			0.801		
Rel1				0.828	
Rel2				0.879	
Rel3				0.842	
Fac1					0.839
Fac2					0.858
Fac3					0.827
Fac4					0.810

Source: SmartPLS output

First, the indicator loadings (outer loadings in reflective measurement models) examine the acceptable item reliability, in which the recommended minimum is 0.7 [20]. The results show that three items: Ass1; Emp3 and Emp6 were removed from further analysis due to their low loadings (< 0.7), all outer loadings values in the model are higher than 0.7, indicating that the construct explains more than 50% of the indicator's variance. The reliability of the measurement items was examined using composite reliability (CR) values. It is suggested that CR values should be above 0.70 [22].

Table 2 shows that all CR values of the indicators are well above the 0.7 thresholds. Thus, the reliability of the measurement items is satisfied. In teams of, the average variance extracted (AVE) is used to evaluate convergent validity. The criterion for evaluating convergent validity is that the AVE for each construct should be 0.5 or higher [22]. Table 2 shows that all the AVE values range from 0.648 to 0.921, which indicates adequate convergent validity. Thus, both the validity and reliability of the reflective measurement model are confirmed.

To establish discriminant validity, this study followed the most recent literature [22]. The heterotrait-monotrait ratio (HTMT) criterion was applied to additionally assess discriminant validity of the reflective constructs because the Fornell-Larcker criterion and cross- loadings are not sufficiently sensitive to detect many discriminant validity problems [22]. HTMT is the average heterotrait-heteromethod correlations relative to the average monotrait-heteromethod correlations. Here, heterotrait-heteromethod correlations explain the correlations of indicators across constructs measuring different phenomena, while monotrait-heteromethod correlations indicate the correlations of indicators measuring the same constructs.

As shown in Figure 1, all HTMT values are below the threshold of 0.90, which confirms that discriminant validity is established for the reflective constructs of this study.

Table 2. Results of Measurement Model

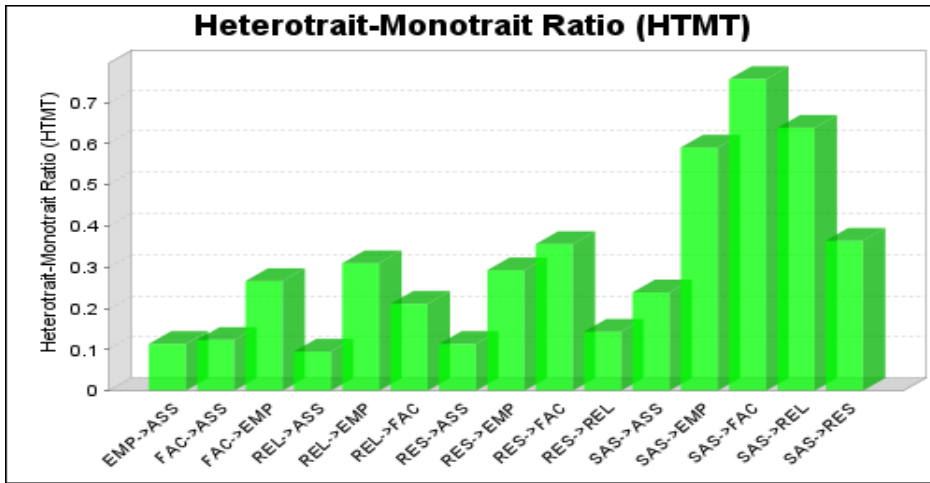| Factors	Cronbach's Alpha	CR	AVE
FAC	0.854	0.901	0.695
RES	0.894	0.921	0.701
EMP	0.822	0.882	0.651
REL	0.808	0.886	0.722
ASS	0.829	0.888	0.727
SAS	0.723	0.845	0.648

Source: SmartPLS output

Figure 1. The Heterotrait-monotrait ratio (HTMT)

Structural model analysis

Having examined the measurement model's reliability and validity, the next step is to evaluate the structural model. The coefficient of determination (R^2) measures the ability of the exogenous variables in explaining the endogenous variables for the structural model and is thus a measure of the model's predictive accuracy. The result of bootstrap (5,000 time) show that the R-square value of 0.61 indicates that all hospital quality factors in the present model are able to explain 61 percent of the variance in patients' satisfaction. Thus, this research model has an appreciable explanatory power and can serve as a robust framework for investigating patient satisfaction in the future [20].
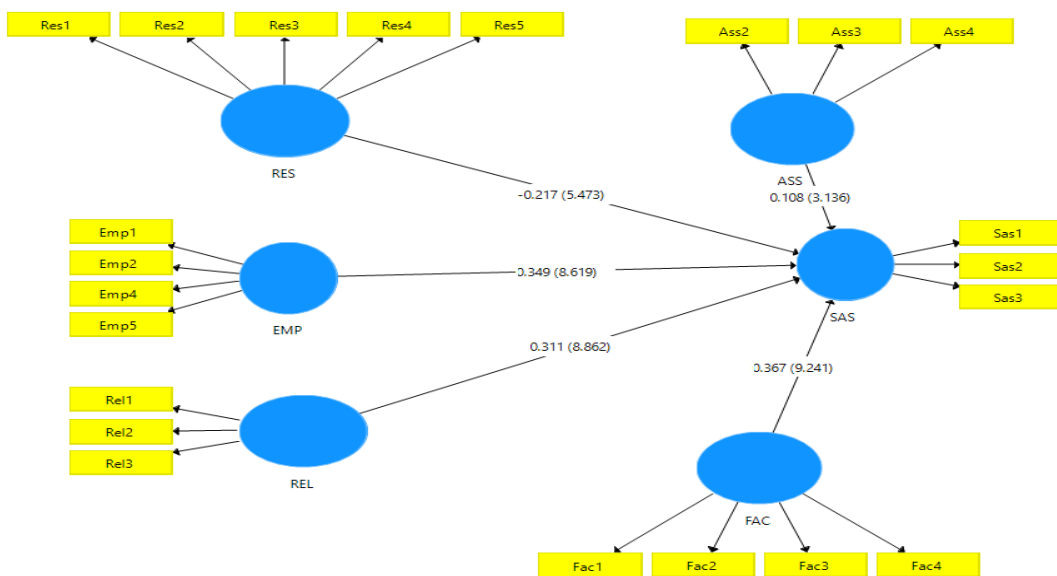

Figure 2. The validated structural mode

Table 3. Path coefficients and hypothesis testing

Hypothesis	Coefficient	Standard Deviation	P Values	Results
H1: ASS -> SAS	0.367	0.034	0.002	Support
H2: RES -> SAS	-0.217	0.040	0.000	Support
H3: EPM -> SAS	0.349	0.041	0.000	Support
H4: REL -> SAS	0.311	0.036	0.070	Support
H5: FAC -> SAS	0.108	0.038	0.001	Support

Source: SmartPLS output

Table 3 presents coefficient and p-values for evaluating the statistical significance of each path of the proposed model. A statistically significant and positive relationships which were found between all five service dimensions (ASS, RES, EPM, REL and FAC) and patient satisfaction (SAS) indicate that these factors influenced positively on the satisfaction of patients in these public hospitals. Of those factors, hospital facilities have strongest influence on patient satisfaction (β = 0,367; t-value = 9,241), follow by empathy factor (β = 0.349; t- value = 8.619). The impact of REL on patient satisfaction rank third (β = 0.311; t- value = 8.862. The least influencing factor is ASS (β = 0.108; t- value = 3.136). Thus, hypothesis H1; H3; H4 and H5 were supported. The sign of RES coefficient that is significantly negative at $p < 0.01$ indicates that the delay of administration; waiting time and crowded people in public hospitals reduce the satisfaction of patients.

Predictive relevance (Q^2) is a criterion of predictive accuracy. As a rule of thumb, if a Q^2 value is larger than zero, it suggests that latent exogenous constructs involved in the structural model possess predictive relevance for latent endogenous constructs [20]. The Q^2 value of our model is 0.391; which supports the underlying assumption of this study, that the endogenous construct (Patient Satisfaction) involved in this study have strong predictive relevance.

5   Discussion

The present study investigates the roles of survive dimensions of hospital services (that are hospital assurance; responsiveness; empathy; reliability and facilities) in relation to patient satisfaction. The results show the effect of hospital facilities is significantly stronger than the other factors. This finding is in line with many previous studies which indicated that modernization of hospital equipment, making the service areas and the healthcare devices more visually attractive, and cleanliness increases patient perceptions of healthcare quality and their satisfaction [23, 24].

Empathy is the second important factors influencing patient satisfaction. This result of the study indicates that the good interaction between inpatient and hospital staff will increase the satisfaction of inpatients. The finding of this study is similar with the work of [14] and [25] where

they found that the empathy played an important role in enhancing the satisfaction of patients in the hospitals. This result implies that to increase the level of patient satisfaction in the public hospitals, the manager should set priority on improving professional knowledge and skills of doctors and nurses/midwives as well as better practicing interpersonal interaction between patients and hospital staff.

More importantly, the study proved that there is an impact of the "Responsiveness" factor on patient satisfaction the public hospitals. The negative coefficient (-0.217) indicated that if the responses of the public hospitals are too long (too much time for administration procedures; too much time for the discharging procedure; the long waiting time for lab examination and busy nurses/midwives), it will impact negatively on patient satisfaction. This finding is consistent with the study carried out by Al-Damen [26] at the public hospital in Jordan and [23].

6   Conclusion

The understanding of factors influencing patients' satisfaction in the public hospitals is very crucial because patient's satisfaction is needed for the success and sustainability of hospitals. This study indicates that all five service dimensions of hospital services have positively influenced the patients' satisfaction in the public hospitals in Hue city. However, the importance of these factors were different. Hospital facilities had strongest influences while assurance had the least influence. To enhance patient satisfaction, hospitals need to improve personnel quality, patient safety, and social responsibility by training of professional skills for doctors and nurses/midwives to improve communication between hospital staff and patients; nursing-aides in interpersonal interaction because it is important factors in achieving a high level of patient satisfaction.

Although the current research has identified critical influencing factors of hospital service in the public hospitals, there are some limitations of this study that need to be highlighted. *First,* this study is limited to the modern hospitals in city region and cannot generalize the findings to other bad quality hospitals in rural areas. Hence, future studies should involve hospitals in the rural areas to compare the influence of service quality on patient satisfaction. *Second*, the absence of qualitative research methods such as in-depth interviews and focus groups with patients is another limitation of this study. Thus, future studies should incorporate the qualitative methods of data collection. *Lastly*, it is recommended that future research may also consider a longitudinal approach to examine whether patient satisfaction will result in patient loyalty.

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