PATIENT' SATISFACTION AND QUALITY OF HEALTHCARE: CASE OF HOSPITALS IN HO CHI MINH CITY*

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Abstract

The study aims to assess the patient' satisfaction by using a new method called SERVQUAL technique which conducted in Ho Chi Minh City (HCMC)' hospitals. This technique will measure the gap between patients' expectation and their perception followed 6 dimensions of inpatient healthcare service in a public hospital and a private hospital. The higher the gap score is, the greater patients satisfy. On the other hand, this technique will also measure the importance weight of each dimension and combine with the gap score to rank the quality of dimension. The final results showed that in public and private hospital at this moment, their healthcare service in two HCMC' hospitals have not met patients' expectations, although in public hospital, in each dimension, the gap score is better than in private hospital. In other words, to rank the quality of each dimension will help two hospitals in term of determining their weakness which should be improved in the future.

Keywords: Satisfaction, Expectation, Perception, Public Hospital, Private Hospital

Introduction

In recent years, healthcare has been seen operating as a commercial, for-profits organization that is growing rapidly in both developed and developing countries. Relationships between patients and hospitals are similar to those between customers and service providers where hospitals strive to provide services that meet or exceed patients' expectations. In the past, people would go to hospital when they had illnesses/diseases or in cases of emergency; but in modern time, people tend to be more attentive to prevention and promoting health awareness thus their visits to hospitals are not just to receive quality treatment but expect more services that would ensure total quality healthcare experience. Regardless of clinical factors, effectiveness and efficiency of therapy, nowadays, the quality of healthcare is dependent upon other dimensions comprised of environment, hygiene, attitude of staffs, facilities and material information, etc. by patients. On the other hand, World Health Organization (WHO) has mentioned that patient is a centered point in a healthcare system that anything affecting them will significantly impact a success or a defeat of hospital or organization as well as to decisions of policy-makers in making plans or strategies for their own system (WHO, 2006). Consequently, it is obvious to recognize a crucial role of patient in healthcare at this moment, hence, to deliver quality services will be

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revealed as a key factor in searching for sustainable competitive advantage, differentiation and excellence among competitors (Jabnoun, 2005).

However, how to realize that whether the quality of healthcare provided in a certain hospital and whether a hospital met patient' expectations or not. Recently, in the world, the concept of "patient' satisfaction" has been mentioned as a valuable tool for assessing quality of healthcare, which concerns as regard consumer-oriented in medical quality assurance (Donabedian, 2003). Moreover, WHO also proclaims in "Assessment of Quality" document that satisfaction of patient is one of nine crucial standards to evaluate the quality of healthcare services (Donabedian, 2003).

Over a past decade, health system in Vietnam has had many reforms in term of changing health models, cooperation with foreign parties or expansion activities of public hospitals. More and more private sectors include pharmacy store, clinics, hospitals have opened and operated, hence, people now have lots of alternatives and choices for their treatment place. However, in parallel with these changes, there are still a lot of challenges and difficulties happening in healthcare industry recently. The important question for managers and administrators nowadays in Vietnam' hospitals is how to recognize and understand exactly whether delivered services at their own hospital are good or bad, satisfied or unsatisfied by patients. That is also a difficult question because of a limitation of instrument, equipment and techniques for evaluating. Therefore, this study attempts to assess the quality of inpatient healthcare service by using a new technique called SERVQUAL to measure patient' satisfaction at Ho Chi Minh City (HCMC) hospitals.

The results of study will provide evidences to recognize whether hospitals met and satisfied the expectation of inpatients or not. Moreover, it will help to determine the weaknesses which should be considered to overcome for improving patient' satisfaction. Nevertheless, an initial research will be a hinge for some next relevant studies in the future.

Literature Review

Role of patient with the quality of healthcare service in hospital

In empirical theory, when hospitals talking about quality, it used to taking into account specific clinical data in related to the outcome of patient. However, following the modern theory, hospital nowadays is seen as the business organization where patient is the center of care who themselves assess the quality of healthcare services and the procedure of healthcare system. Therefore, the result of treatment is not only the essential factor, but also crucially depends on providing quality, supplying effective services to satisfy and meet the demand of patient.

Judith, whose report of the new role for patients in assuring high quality care, mentioned that patients now can play a number of roles in healthcare to improve quality and reduce cost (Judith, 2004). He presented three important roles of patient in assuring quality:

- Firstly, patient can be informed choosers of care; patients will have a comparison and select high performing providers, hospitals, nursing home and health plans for themselves. Moreover, patients can motivate providers to improve their performance. By choosing high-performing providers and selecting cost-effective evidence-based treatment options, patients can obtain higher quality care for themselves and stimulate quality improvement among the institutions and providers in their health care market.

- Secondary, when patients collaborate with their providers and take on a significant role in maintain their health, they are in essence helping to "produce" health. Nevertheless, when patients are engaged in their care (engage in effective self-care, taking prevention and collaborating with providers to define and implement care plans), they can play a crucial role

in their own safety by being vigilant partners, assuring that healthcare providers have correct information about their medical history and care plans.

- Finally, patients can be evaluators of healthcare when they are the source of data on provider and witnesses of system performance and when they participate in defining the parameters of quality. Patients' assessments of care can be fed back to providers and thus be the basis for quality improvement.

Furthermore, Dr. Claire R. Brown from School of Public Health, Griffith University, Australia, published on Oxford Journal, she puts a question to discuss that is "Where are the patients in the quality of health care". She concludes that if patients are not placing the same weight on patient health outcomes as the rest of the health care community (Claire, 2007). It may lead to the argument that the same weight does not need to apply to their definitions of quality, only whether or not they are satisfied. In briefly, to evaluate the patient's satisfaction are a crucial task, which decides the quality of healthcare and the success of health system in a country or hospital.

Measure patient' satisfaction and assess the quality of healthcare: SERVQUAL Technique

Recently, the new concept of measurement approach to assess the quality of healthcare has been developing and implicating, that is measurement of patient's satisfaction. However, if only using the single satisfaction to determine the quality of healthcare, it would be perhaps theoretical, empirical deficiencies and the high likelihood of risky bias as well (Davoll, 2013). These problems include failure to consider the patient's personal important fulfilment (Crow, 2002) and the consistently positive skew of satisfaction indices (Verbeek, 2001). Therefore, the introduction of SERVQUAL technique has been seen as one of the best tool to solve these problems.

SERVQUAL were originally introduced by Parasuraman in 1985 and reassessment in 1991 in the area of service quality (Parasuraman, 1991). SERVQUAL based on the view of the customer's assessment. This assessment has been conceptualized as a gap between the customer's expectations by way of SERVQUAL, from a class of service providers and their evaluation of the performance of particular service providers.

In Healthcare, Scardina and Arikan reported that SERVQUAL was superior in validity and reliability for evaluating patient satisfaction in medical care. However, caution should be exercised, and adaptations must be within the stated guidelines to ensure that the integrity of the instrument is maintained (Arikan, 1999; Scardina, 1994).

SERVQUAL mentions the quality of healthcare service in 5 dimensions of healthcare services, includes:

Tangibles: Tangibles are the appearance of physical facilities, equipment, personnel and communication.

Reliability: It promises delivery, service provision, problem resolving and cost.

Responsiveness: It emphasizes attentiveness and promptness in dealing with customers' requests, questions, complaints and problems.

Assurance: is defined as employee's knowledge of the firm and its employee capacity to inspire trust and confidence in the customer.

Empathy: Empathy is conveying through personalized services.

In our study, we mention on 6 dimensions of inpatient healthcare services, which are appropriate with the real situation in hospitals in Vietnam currently, such as:

Facility and Material are something that people can see and be appealed to. A hospital which has visually appealing facilities, materials or modern equipment as well as professional rating performance appears to win patients' first impressions. In previous studies, facility dimension was seen as a serious matter and was the reason of patients'

dissatisfaction (Lech, 2002), especially in public hospital (Zahida, 2012). In accordance with official data by the Ministry of Health and some other researches, Vietnamese healthcare market size by the end of 2011 could be approximate US$9bn. Furthermore, healthcare service is the largest segment at US$6.67bn, referring 72% of total market; medical equipment sales containing the lab and diagnostic imaging equipment about US$1.89bn (or 20%).

Process feature: includes convenience in moving and timeliness for treatment procedure. As indicated in a report in Canada, there appears to have been marginal increases in satisfaction with "timeliness of access to care" since 2001. The increases are slight at best, however, it is still the case that barely half of Canadians (46 per cent) are satisfied in this regard (Stuart, 2007). In Vietnam, currently, it is one of the factors causing patients' dissatisfactions. When patients enter in a certain hospital, they usually get lost in a maze of clinic rooms, laboratory rooms or drug store, etc; the arrangement of these facilities is not conveniently and appropriately suitable for patients to find their ways while at the hospitals. It will be very difficult for disabled patients or the elderly. Moreover, waiting time at clinic room or wait time for doing and receiving test or wait time for making payments cause tiredness, dissatisfactions and anxiety for patients who already have problems of their own.

Attitude of staffs: Psychology, which is one of the crucial factor impacting successful rates of treatment. There are a lot of matters relating to patients' psychology but physicians' attitude is a prerequisite importance. A certain sympathetic action or a gusty performance also affects patient' feeling and results in good or bad satisfaction evaluation from patients. Therefore, attitude is crucial which is embodied in service providers who correctly interpret laboratory reports, diagnose the disease competently, provide appropriate explanation to queries, courtesy and generate a sense of safety. Thus, the greater the perceived good attitude from the healthcare providers, the greater the satisfaction of patients will be. According to a J.D. Power and Associates report, high patient satisfaction is more influenced by superior service-related communication with nurses and physicians than impressive technology or facility (Power, 2012).

Technical Skills: is illustrated for interpersonal skills, including expressing knowledge, skills and promptly response of doctors and nurse. Patients are not scientists or professional who can understand clearly about their illness, diagnosis and treatment therapies. They will not know whether or not a therapy or treatment is appropriate for their illness. But they themselves can quickly acknowledge or grasp their illness conditions by observing physician's performance and gestures. J.D. Power also mentioned that higher patient satisfaction is more influenced by interpersonal skills of nurses and physicians (Power, 2012).

Environment: The environment of the hospital can also play a critical role in patient' satisfaction. Above all, patients want to know whether the facility is clean, sterile and safe, and that proper disease control procedures are followed consistently. However, they also want patient rooms and common areas such as waiting rooms to be warm, comfortable and inviting. John Reiling has warned that to address the problems of errors in healthcare, assurance of quality and serious safety issues, fundamental changes of health care processes, culture, and the physical environment are necessary and need to be aligned (John, 2008). Furthermore, in a study of GUP IIoh in Nigeria, hospital environment is ranked 3rd importance to impact to patient' satisfaction (Iloh, 2013).

Information: in Vietnam, to provide information and education in hospital is one of the compulsory accreditations of quality. However, rarely hospitals actually consider and pay more attention in this matter.

Research Methodology

Study design

This is a cross-sectional study. Studies were conducted in 2 hospitals in Ho Chi Minh City, a public and a private hospital. At first, 2 pilot studies were done to determine the mean and standard deviation of overall gap score. Then based on the result of pilot studies, to calculate the sample size by using formula for comparing 2 mean of 2 sample:

$$n = \frac{2\left(z_{1-\frac{\alpha}{2}} + z_{1-\beta}\right)^2}{\left(\frac{\mu_0 - \mu_1}{\sigma}\right)^2}$$

The equation was suggested by Lehr (1992)

Finally, 75 samples are computed for each hospitals.

Patients were selected to join in this study should be met some criteria, contains: firstly, patients who admitted for treatment stayed at least 3 days in hospital and prepared to be discharged. Secondary, who are over 18 years old can communicate well, in case of under 18 years old or elderly or limited communication, their relatives who directly took care for them will be selected. Do not interview patients who are going to transfer to another hospital or severe or moribund. Using self-completion questionnaire fill, drop-off and pick up. Survey instrument using was edited by the author, include 7 questions of general information and 25 questions of 6 dimensions. Using Likert scale 5 points to measure patients' agree or disagree in expectation/ perception survey and 100 points scale to measure importance weight.

Analyze method

Testing a reliability of instrument:

We used Cronbach' alpha indicator to test the reliability coefficient of instrument. The instrument is good if Cronbach' alpha is more than 50%.

Descriptive characteristic variables:

- Binary and categorical variables are presented by frequency and percentage.
- Continuous variables are shown by mean, median, standard deviation, min and max.

Computing Expectation, Perception, Gap and Importance weight scores:

- Using SERVQUAL technique, following step by step:

Part 1: Steps to obtain GAP scores

Step 1: Firstly, to obtain the score for each question of the Expectation. Next, obtain a score for each question of Perception. Calculate the Gap Score each of the statements (Gap Score = Perception – Expectation).

Step 2: Obtain an average Gap Score for each dimension by assessing the Gap Scores for each of the statements that constitute the dimension and dividing the sum by the number of statements making up the dimension.

Step 3: In table 1 transfer the average dimension SERVQUAL scores (for all six dimensions) from the instrument. Sum up the scores and divide it by six to obtain the overall measure of service quality or Overall Gap Scores.

Table 1 Calculation to obtain unweight SERVQUAL score

Contents	Scores
Average Facilities SERVQUAL score	
Average Process SERVQUAL score	
Average Attitude SERVQUAL score	
Average Technical Skill SERVQUAL score	
Average Environment SERVQUAL score	

Table 1 (Con.)

Contents	Scores
Average Information SERVQUAL score	
AVERAGE OVERALL GAP SCORE	

Part 2: Steps to obtain Importance weight and to rank quality of each dimensions

Step 1: In Table 2 calculate the Importance Weights Scores for each of the six dimensions (Using 100 points scale to measure)

Table 2 Importance weight for each dimension

Contents	Scores
Importance of Facilities	/ 100
Importance of Process	/ 100
Importance of Attitude	/ 100
Importance of Technical Skill	/ 100
Importance of Environment	/ 100
Importance of Information	/ 100
TOTAL 100 points	100

Step 2: In Table 3 enter the average GAP score for each dimension (from Table 1) and the importance weight for each dimension (from Table 2). Then multiply the average score for each dimension with its importance weight. We call a new parameter that is Weighted SERVQUAL Scores.

Step 3: According to the results of weighted SERVQUAL scores, we rank the quality for each dimension.

Table 3 SERVQUAL Weighted Scores

SERVQUAL Dimension	Table 1 x Table 2	Weighted Score	Ranking
Average Facilities			
Average Process			
Average Attitude			
Average Technical Skill			
Average Environment			
Average Information			

Multivariate regression:

- Dependent varialble: $Y_{Overall}$ (Gap score of Overall dimensions)
- Independent variable:
  - + Demographic: Gender, age.
  - + Socio-economic: Hometown, income, occupation (dummy variable)
  - + Treatment: Length of stay, using insurance
  - + Cost for treatment: Total non-medical cost, total medical cost.
- Regression model:

$$Y_{Overall} = \beta_0 + \beta_1 Gender + \beta_2 Age + \beta_3 Hometown + \beta_4 Income + \beta_5 Occupation + \beta_6 Length + \beta_7 Insurance + \beta_8 Total\_cnonmedical + \beta_9 Total\_cmedical$$

-Expected signs:

Table 4 Summarize table of expected signs

Variable	Descriptive	Expected
Gender	0: Male 1: Female	-
Age	Continuous	+
Hometown	0: HCMC 1: Province	+
Occupation	0: un-work 1: Work	+
Income	Continuous	-
Length	Continuous	-
Using Insurance	0: Non-insurance 1: Insurance	+
Total non-medical cost	Continuous	-
Total medical cost	Continuous	+/-

Results and Discussion

Reliability Coefficient of instrument

Table 5 Cronbach' alpha

Dimension	Cronbach's alpha			
	HMUH		VHH	
	Study	Pilot	Study	Pilot
Facilities & Material	77.09	65.24	79.13	91.50
Process feature	80.18	79.10	78.82	91.61
Attitude of Staffs	94.55	86.52	92.32	94.77
Technical Skill of D&N	85.91	70.40	91.41	89.77
Environment & Hygiene	83.28	84.59	85.54	89.99
Information & Education	71.72	88.43	83.09	56.61

The content of survey used in this study was designed by author which was based on the content of some standardized surveys in the world, for instance, SERVQUAL' instrument of Parasuraman, HCAHPS Survey of CAHP' Hospital in United State of America, PSQ tool of RAND Health Organization in UK and Picker Questionnaire (PPE-15) in UK.

Using the Cronbach' alpha for testing reliable coefficient of instrument, the results in Table 5.1 show that in each dimension, there is a high consistency internal questions among patients' answers in both pilot and main study (alpha > 50%). It refers that this survey is fairly good and a reliable tool which could be applied to measure patients' satisfactions.

Characteristics of patients in 2 hospitals

Table 6 Frequency and percentage of characteristics of patients

Variable	Public Hospital		Private Hospital	
	Frequency	%	Frequency	%
Sex				
Male	37	49.33	15	20.00
Female	38	50.67	60	80.00
Residence				
Ho Chi Minh City	20	26.67	30	40.00
Province	55	73.33	45	60.00
Occupation				
Civil servant	7	9.33	5	6.67

Table 6 (Con.)

Variable	Public Hospital		Private Hospital	
	Frequency	%	Frequency	%
Private staff	7	9.33	9	12.00
Housewife	8	10.67	16	21.33
Un-employ	3	4.00	2	2.67
Elderly/Retired	25	33.33	12	16.00
Freelance	23	30.67	29	38.67
Student/Pupil	2	2.67	2	2.67
Type of payment				
Non-insurance	28	37.33	44	58.67
Insurance	47	62.67	31	41.33

Variable	Public Hospital			Private Hospital		
	Mean	SD	Min-Max	Mean	SD	Min-max
Age	59.33	18.66	17-90	46.52	21.68	21-92
Income	271.24	298.99	0-1420	403	518.90	0-2500
Length	5.94	4.98	3-30	4.12	2.44	3-16
Transport	31.05	48.70	2 – 284	15.89	24.79	0 – 150
Lodging	352.66	350.29	90 – 2400	99.92	59.44	45 – 375
Food	39.08	33.64	15 – 210	26.06	18.14	15 – 140
Other	9.09	25.23	0-140	1.13	4.72	0 – 30
Non-Med	**452.02**	**429.83**	**142-2583**	**140.69**	**82.94**	**55 – 494**
Medical	**563.88**	**251.86**	**92.4-1133**	**783.76**	**348.55**	**106-1045**

Inpatients participated in studies are vary in demographic profiles, similarities and differences between public and private hospital. In Table 6, in public hospital, the number of female and male join in are equal, but in private, the number of female is four times as many as male. Most patients in public hospital were older than in private with mean of age was 59.33 years compared with 46.52 years. Almost patients admitted to two hospitals came from the other provinces and focused on 3 group: elderly/retired, freelancer and housewife (33.33%, 30.67%, 10.67% in public and 16%, 38.67% and 21.33% in private). There is a common trend in payment for treatment between 2 hospitals, insurance is used much than non-insurance for payment of patients in public hospital vice versa in private hospital. It is reflected by income per month of patients in private hospitals who have higher income than patients in public (mean of income is 271.24 USD, SD=198.99 in public and 403 USD, SD=518.90 in private). The average length of stay in public is approximate 6 days and in private is 4 days.

In study, we attempt to collect data of the personal cost that patients must to pay for their treatment, include 2 categories: medical cost (doctor fee, drug fee per day, surgical procedure, laboratory test) and non-medical cost (transportation for round trip, lodging, food and other cost per day) and take them to multiply by length of stay regardless transportation, surgical procedure and laboratory cost to compute the total cost that patients paid reality when they were discharged. Since then, to determine the correlation between cost and patients' overall gap score or patients' satisfaction, whether, the higher the cost is, the less satisfaction is. In general, as the result shown, total non-medical cost in public hospital is higher than in private hospital, in contrast with total medical cost.

Expectation, Perception and Gap score for each dimension:

Table 7 show us the expectation score, perception score and the gap score in each dimensions of healthcare services.

Table 7: Mean score of Expectation, Perception and Gap

Dimensions	Public Hospital						Private Hospital					
	Expectation		Perception		Gap-Score		Expectation		Perception		Gap-Score	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Facilities												
Modern equipment	4.01	.81	4.18	.80	.17	.86	4.22	.70	4.04	.70	-.18	.60
Enough facilities	4.34	.64	4.29	.73	-.05	.80	4.41	.61	4.13	.79	-.28	.64
Enough material	4.25	.73	4.34	.74	.09	1.00	4.42	.57	4.36	.56	-.06	.62
Performance	4.38	.63	4.50	.70	.12	.86	4.49	.60	4.40	.54	-.09	.54
Average	**4.25**	**.59**	**4.33**	**.57**	**.08**	**.68**	**4.39**	**.54**	**4.23**	**.51**	**-.16**	**.45**
Process												
Quickness in recording	4.32	.70	4.32	.87	.00	1.01	4.42	.57	4.30	.71	-.12	.67
Convenience in moving	4.29	.67	4.20	.85	-.09	.94	4.25	.63	4.14	.65	-.11	.62
Quickness in doing test	4.40	.67	4.26	.82	-.13	.97	4.44	.59	4.16	.82	-.28	.68
Quickness in procedure	4.38	.76	4.05	.78	-.33	.90	4.50	.50	4.34	.62	-.16	.59
Quickness in payment	4.36	.74	4.25	.79	-.10	.87	4.41	.57	4.29	.69	-.12	.69
Average	**4.35**	**.64**	**4.21**	**.61**	**-.13**	**.75**	**4.40**	**.49**	**4.25**	**.51**	**-.15**	**.44**
Attitude of Staffs												
Doctor' behavior	4.41	.65	4.57	.49	.16	.67	4.53	.55	4.48	.53	-.05	.54
Doctor' listening	4.42	.66	4.60	.51	.17	.74	4.48	.62	4.42	.54	-.06	.63
Doctor' explanation	4.45	.64	4.50	.57	.05	.73	4.53	.57	4.37	.63	-.16	.54
Nurse' behavior	4.46	.66	4.56	.62	.09	.71	4.53	.57	4.41	.65	-.12	.61
Nurse' listening	4.42	.64	4.54	.62	.12	.67	4.50	.60	4.33	.68	-.17	.57
Nurse' explanation	4.42	.64	4.61	.51	.18	.67	4.45	.70	4.40	.65	-.05	.56
Others politeness	4.40	.65	4.50	.66	.10	.81	4.50	.64	4.37	.67	-.13	.74
Average	**4.43**	**.60**	**4.55**	**.49**	**.12**	**.64**	**4.50**	**.56**	**4.40**	**.52**	**-.10**	**.46**
Technical skills												
Doctor' expression	4.44	.72	4.50	.62	.06	.77	4.57	.52	4.33	.70	-.24	.67
Doctor' response	4.48	.62	4.46	.64	-.02	.77	4.52	.57	4.37	.67	-.15	.48
Nurse' manipulation	4.42	.64	4.42	.66	.00	.73	4.54	.55	4.41	.65	-.13	.44
Nurse' response	4.52	.60	4.57	.54	.05	.65	4.54	.57	4.42	.64	-.12	.46
Average	**4.46**	**.59**	**4.49**	**.51**	**.02**	**.63**	**4.54**	**.48**	**4.38**	**.59**	**-.16**	**.44**
Environment												
Airy, freshly	4.38	.85	4.53	.72	.15	1.03	4.53	.50	4.10	.81	-.43	.87
Silence	4.30	.83	4.56	.62	.26	.85	4.48	.52	4.29	.65	-.19	.56
Safety	4.29	.89	4.57	.54	.28	.87	4.58	.49	4.44	.52	-.14	.42
Hygiene	4.34	.84	4.49	.66	.15	1.02	4.50	.50	4.32	.52	-.18	.53
Average	**4.33**	**.81**	**4.54**	**.51**	**.21**	**.86**	**4.52**	**.47**	**4.29**	**.52**	**-.23**	**.49**
Information												
Enough information	3.73	1.06	3.32	.98	-.41	1.10	3.85	.94	3.00	1.03	-.85	1.14
Opening talk show	3.82	1.05	3.38	.97	-.44	1.17	3.82	.92	2.93	.85	-.89	1.20
Average	**3.78**	**.96**	**3.35**	**.86**	**-.43**	**1.01**	**3.84**	**.84**	**2.96**	**.87**	**-.88**	**1.07**
GAP SCORE					**-.02**	**.60**					**-.28**	**.39**

Facility and Material: There is a similarity expectation of patients in 2 hospitals, range from 4-point to 5-point, the average of expectation in public hospital is 4.25 and 4.39 in private. However, patients in public perceived much more than in private which is represented by the gap score between perception and expectation. Most of factor in reality in private hospital is measured lower than their expectation, whereas in public, only a gap of "Enough facilities" received a negative point. Mean of Gap Score of "Facility and Material" in public is .08 and -.16 in private.

Process feature: In this dimension, as same as the above result of facility, expectation in 2 hospitals is too high, from level 4 to level 5, the average of expectation in public is 4.35 and 4.40 in private. Similarly, patients in private feel that they did not perceive as much as they expected before choosing hospital so that the all of gap is negative point. Likewise, the real perception in public hospital is lower than patient' expectation regardless "Quickness in recording" which has a positive gap score. Mean of Gap score of "Process" is -.13 and -.15 in turn of public and private.

Attitude of staffs: As the result shown, patients in public hospital received the respect and good behavior, attitude from hospital' staffs better than patients in private hospital which has negative points at all ad hoc with nurse' explanation (.18), doctor's listening (.17) and doctor' behavior (.16). Mean of Gap score of "Attitude of Staffs" is .12 in public and -.10 in private.

Technical Skills: 3 in 4 perception in this dimension satisfied patients except "Doctor' response" with gap score is -.02 in public hospital, vice versa with private hospital, all of factors did not meet or satisfy patient' expectation. Two hopeless perception are doctor' explanation (-.16) and nurse' listening (-.17). Mean of Gap score of "Technical skills" in private is -.16 and .02 in public.

Information: in 2 hospitals, there are the same negative results. Mean of Gap score of Information is -.43 and -.88 in turn of public hospital and private hospital.

Total Average gap score: to compute the total average gap score, 2 hospitals have a negative average gap score (-.02 in public and -.28 in private) which means in term of total service quality, 2 hospitals have not met the expectation of patients.

Importance weight and ranking quality for each dimension

Table 8 and 9 represent the importance weight score and average weighted SERVQUAL score for each dimensions:

Table 8 Importance weight of Dimensions

IW	Public Hospital		Private Hospital	
	Mean	**SD**	**Mean**	**SD**
Facilities	15.77	9.03	16.21	14.06
Process	13.82	8.03	13.52	9.44
Attitude	17.64	9.19	19.21	13.95
Technical Skills	33.20	16.77	35.78	18.05
Environment	12.28	8.97	9.26	6.85
Information	7.29	4.96	6.02	4.48

Table 9 Average Weighted SERVQUAL

AWS	Public Hospital		Private Hospital	
	Score	**Rank**	**Score**	**Rank**
Facilities	1.26	3	-2.59	4
Process	-1.79	5	-2.02	2
Attitude	2.11	2	-1.92	1
Technical Skills	0.66	4	-5.72	6
Environment	2.57	1	-2.12	3
Information	-3.13	6	-5.29	5

It is obvious to recognize that in public and private hospital, "Technical skill" is seen as the most important in 6 dimensions (33.20% and 18.05%), whereas "Information" is the least important (7.29% and 4.48%). Whereas, to compute the average weighted SERVQUAL in each dimensions by taking average gap score of each dimensions multiplies by its' important proportion, since then, ranking the dimensions to determine which ones is high quality and which ones is worse at this moment. As the result shown, in public hospital, the dimension of Environment is the first rank, next in turn are "Attitude of staffs", "Facilities and Material", "Technical skills" and "Process feature", the last one is "Information and Education". On the other hand, in private hospital, "Attitude of Staffs" ranks at first, next in turn are "Process feature", "Environment", "Facilities and Material" and "Information", the last is "Technical Skills".

Multivariate regression

Table 10 shows the results of regression analysis between overall gap score and characteristics profiles of respondents. As result shown, in public hospital, there are statistically significant associations between mean of gap score and gender, age, hometown and insurance.

Table 10 Regression analysis

Variable	Public Hospital Coef (Robust S.E)	Private Hospital Coef (Robust S.E)
Gender	**-.277 (.114) ****	.081 (.086)
Age	**.015 (.003) ***	**.005 (.001) ***
Hometown	**.439 (.074) ***	**.451 (.082) ***
Occupation	.167 (.130)	.021 (.063)
Income	-.0002 (.0001)	**-.0001 (.00005) *****
Length	-.001 (.007)	.002 (.011)
Insurance	.073 (.090)	.068 (.077)
Total non-medical cost	-.0001 (.0001)	-.0002 (.0004)
Total medical cost	**-.0009 (.0002) ****	**-.0003 (.0001) ***
_cons	-1.023 (.237)	-.635 (.123)
Number of obs in Public = 75	Number of obs in Private = 75	
F (9, 65) = 9,78	F (9, 65) = 19.90	
Prob>F = .0000	Prob>F = .0000	
R-squared = .5557	R-squared = .7109	
Root MSE = .4269	Root MSE = .2274	

- In public hospital: there are statistically significant association between mean of gap score and gender, age, hometown and insurance.

- In private: there are statistically significant association between mean of gap score and age, hometown, income and total medical cost.

In this part, we show the association between mean of gap score in each dimension and characteristic variables of respondents in two hospitals from table. Characteristic of patients add in these regression model which are also mentioned in previous studies with some significances in overall dimensions.

Gender: gender is one of the important factors which can impact the assessment of the quality of healthcare. In previous studies, there are some differences in expectation and satisfaction between men and women. Women seem to tend their satisfaction lower than men for most healthcare services (Schmittdiel, 2000). On the other study, they discovered that men tended to be more positive over all about their hospital experiences (Marc, 2012). Indeed, in our study, women usually express a higher expectation and lower perception than men do which causes a lower gap scores in female' satisfaction (Appendix) in each dimension. Gender has significant association with mean of gap score in Overall dimensions in public hospital. The results indicate that if patient is female, the gap score will be fallen. There is no significant association with any dimensions private.

Age: has been reported in several previous studies, those results indicated that age was also one of the most important basic factors affecting variation of satisfaction. Mikael Rahmqvist has concluded in his study that age was a feature determinant of the Patient Satisfaction Index (PSI) with elder patients scoring more highly and being more satisfied than young and adult patient (Mikael, 2001). In another study of Employment and Social Development Canada (HRSDC), they referred that satisfaction with healthcare services perceived increased from 81% in 20 to 34 years group to 90% for those aged 65 and over (HRSDC, 2007). In our own study, most patients in public hospital are older than in private with mean of age is 59.34 compared with 46.22 years. As same as relevant studies, age in our study also has a significant correlation. The results show that the older patients are, the greater gaps score are.

Hometown: there are a high number of patients, who came from other provinces, participated in studies. During time of survey, they always express their satisfaction and surprise with quality of healthcare in two hospitals. Because the quality of hospital in their hometown were bad, terrible and lack of professional physician, so that they decided to go to hospitals in public hospital for a higher quality. The relation of this factor to patient' satisfaction has not been seen in previous studies; however, we expected that there would be a positive correlation with satisfaction. As a result shows, there is a significant association between hometown and all dimensions in both of hospitals. The results refer that if patients come from province, there will be a significant increase of gaps score.

Occupation: Similarly to hometown, this element has not been mentioned previously. In regression, occupation is made dummy variable: Work and Un-work and we want to demonstrate that there is a correlation between work group and gap score in term of a positive trend. Because, in our own opinion, people, who are working, do not have much time and do not want to spend much time on treatment in crowded public hospitals. They perhaps want to finish treatment as soon as possible so that it is a reason they choose better hospitals like this public and private hospital for their treatment, hence, they will easy to be satisfied with their choices. As we expected, the results indicate that there is a correlation between occupation and gap score of Overall dimensions. The results presents that satisfaction will be increased if patients are in working group.

Insurance: a lot of patients used insurance for their payment in both of hospitals in the study. There are many various opinions in related to a correlation between insured and uninsured with satisfaction of healthcare. According to the results from a study of Gallup, 85% of American with health insurance coverage are broadly satisfied with the quality of

medical care they receive and with their healthcare cost, 15% who are uninsured are far less satisfied and only 27% are satisfied with their healthcare cost (Lydia, 2009). Conversely, in India, Devadasan mentioned that there is very little evidence that the relationship between using Community Health Insurance and satisfaction as well as there was no significant difference in the levels of satisfaction between the insured and uninsured patient in his study (Devadasan, 2011). In our opinion, occasionally, cost for treatment is always the most worrying factor for patients. Insured patients enjoy lower costs than those non-insured. Therefore, their satisfaction may exceed non-insured patients'. However, the result in study shows that indeed there is almost no correlation between Insurance and gap score in each dimension and overall dimensions. There is not a significant association between using insurance and overall dimensions in both of hospitals. One of the defects is not to ask them whether their insurance is compulsory or voluntary. It may be obvious to recognize the difference if we compare within in Insured patients.

Income: At private hospital, it has been observed that those patients without insurance usually pay out-of-pocket expenses more than those who have insurance; and this can be explained that their monthly income is higher than those at public hospital. In study, we add in factor "income" because we want to understand whether there is an effect from income on satisfaction of healthcare. Sara N. Bleich, whose study "How does satisfaction with the healthcare system related to patient experience", found that higher satisfaction among individuals with higher income per capita (Sara, 2007). Consequently, in our expectation, the more patients spend on treatment, the higher expectation they aim. The relationship between expectation and satisfaction will be represented by negative trend so that income and satisfaction indicate also a negative relationship. Income has no significant correlation with overall dimensions in public hospital and, in contrast in private hospital. The result referrers that the higher of income people earn per month, the slightly lower gaps score are.

Length of stay: Is the length of stay in hospital correlated with patient' satisfaction? That is a question that some administrators want to find out an answer. Borghans in his study referred that there is no correlation between length of stay and patient satisfaction in six out of seven specialties (Borghans, 2012). In contrast, in Japanese hospital, Tokunaga concluded that some unique satisfaction items (e.g. "skill of nursing care") for each group of length of stay ($\leq$ 1 week-group, 1 week < to $\leq$ 1 month-group, > 1 month) were significantly associated with overall satisfaction (Tokunaga, 2002). In our own opinion, normally, patients want to finish treatment as soon as possible. So, if a length of stay increases, they will suspect the quality of healthcare and will reduce their satisfaction. Unfortunately, in our study, there is no a correlation between length of stay and overall dimension in 2 hospitals

Total non-medical cost: patients in public hospital expensed for their non-medical much more than patients did in private hospital. Total non-medical cost in private hospital is four times less than the cost at public hospital. No researchers focus on the influence of this factor to satisfaction in previous studies, but in our study, we want to demonstrate that the lower gap score will happen if patients pay a lot for this cost. Normally, if they pay too much, they will feel uncomfortable and it will be one of the bad factors affecting satisfaction. Unfortunately, it is not as expected there is no correlation in each dimension and in overall dimensions between total non-medical cost and satisfaction score.

Total medical cost: in a study of Joshua Fenton, they found that patients who were most satisfied had about 9% higher total healthcare costs as well as 9% higher prescription drug expenditure (Joshua, 2012). In a study, Fenton also agree with this sentiment, he found in his study that higher patient' satisfaction was associated with higher healthcare expenditure (Joshua, 2012). However, in our opinion, there are maybe two viewpoints: the more patients pay, the least satisfaction they feel. But, sometimes, people think that paying a higher cost for medical means higher quality received in return (e.g. brand name drugs imported from

foreign countries appear to be much better than drugs made in Vietnam). Therefore, they pay a lot of money to get the quality of medical and feel satisfied with their decisions as well as greatly assess healthcare quality of hospital. Indeed, based on the results, we found that there is a significant negative trend between gaps score and total medical cost but as similar as income, only a small change when this cost increases. There is a significant association in both of hospitals. The results show that in spite of a negative trend between gaps and cost, there is a small change in gap score.

In our study, there are some variables which show no correlation in each dimension and overall dimensions, for instance insurance, length of staying or total non-medical cost, at least total medical cost with a small change. They could be explained by some defects in our study. As we mentioned above, this is a first time we apply a new method to measure patient' satisfaction, hence, we only conduct with a small sample in two hospitals, one public and one private. With a small sample, they may not express their correlation. Nevertheless, we only want to measure satisfaction and have a comparison between two hospitals in general; therefore, that perhaps causes no relation in some variables. In next studies in the future, we suggest that necessarily increase sample size, also survey outpatients and should classify patient into disease' group to have a accuracy in term of payment as well as cost that patients have to pay.

Conclusion

In Vietnam, recently, healthcare has been grown up rapidly along with some challenges of maintaining sustainable and developing. In chapter 2, we have mentioned the role and the importance of patients and their satisfaction in term of validating the quality of healthcare in hospital or health system. However, currently, there are few studies to consider about this topic. Most studies conducted is usually simple, unspecific and not able to determine which elements administrator should be considered for an adjustment and an improvement. They prefer to do some studies in related to assess effectiveness of treatment or therapies, which is often seen as a scale of quality for hospital. On the other hand, not appreciate the crucial of patient' role as well as benefits or lacking of instruments, valuable tools or not understanding clearly what satisfaction they have to measure on patient are also a barrier to restrain them from doing this research field. Therefore, that is a reason why this study is expected to be the best value instrument for applying in hospital and to be the hinge for another studies after.

After conducting study, we can conclude that

- The study satisfied our own initial objectives.
- SERVQUAL technique is actually demonstrated to be a reliable and usefulness technique to assess the patient' satisfaction as well as determine the quality of healthcare service in hospitals.
- According to results, although gap score in 2 hospitals are equal negative, which means the quality of healthcare services in both of hospitals have not met patients' expectation. However, the quality in each dimension of healthcare service in public hospital is better than in private. The crucial weakness in public hospital is providing information that should be improved strongly in the future because it is a main factor to lead the gap score down. Conversely, in private hospital, a lot of thing should be discussed together again among accountant in hospital' conference in order to determine the limitation, weaknesses and give out solutions to work-out, improve, reform or need to chance for getting better results in the future.

Furthermore, some regression models give us the evidences of influences of patient' characteristics to satisfaction with hospital services. It is very important and precious for

managers to determine respondents or specific groups, who should be taken into account to improving quality of healthcare appropriately as well as in constructing Marketing plan to attract people in the future.

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