

An Empirical Analysis on the Relationships Between Service Quality and Customer Satisfaction in the Malaysian Healthcare Services

Ahmad Othman

University College of Technology Sarawak, Sibul, Malaysia

Liu Yao

Universiti Malaysia Pahang, Kuantan, Malaysia

The purpose of this paper is to examine the relationships between service quality (SQ) and customer satisfaction (CS) in the Malaysian healthcare system. The study is significant due to the environmental pressures such as the demographic changes, the aging of populations, the emergence of new treatments and technologies, and the increased insistence on greater quality of service. A service satisfaction survey was conducted among visitors (either patients or their relatives and friends) that visited hospitals (both public and private) in 10 regions in Malaysia. A total of 1,000 questionnaires were distributed purposively to these visitors, of which 925 questionnaires were returned for further analysis, yielding a response rate of 92.5 percent. The study found that among the eight dimensions of SQ tested, safety measures were not at all significantly related to CS as compared with the other seven dimensions. On a detailed note, the quality satisfaction of customers is very much influenced by infrastructure (0.121), clinical care (0.601), and trustworthiness of the hospitals (0.139). Also as noted, the time satisfaction of customers is influenced by personnel quality (0.102), administrative procedures (0.562), and trustworthiness of the hospitals (0.168). Whilst the cost satisfaction of customers is influenced by administrative procedure (0.101), corporate image (0.130), social responsibility (0.315), and trustworthiness of the hospitals (0.261). On overall, the findings of this study suggest that trustworthiness and administrative procedures are the two most important factors that influence satisfaction of customers that the Malaysian healthcare industry should take a good care of.

Keywords: service quality (SQ), customer satisfaction (CS), healthcare, quality satisfaction, time satisfaction, cost satisfaction

Introduction

The healthcare industry is becoming significant and important to all especially developing nations. It has to cope with environmental pressures, such as the demographic changes, the aging of populations, the emergence of new treatments and technologies, and the increased insistence on greater quality of service in order to remain competitive. Towards this end, SQ and the closely related CS constructs are of vital concerns

Ahmad Othman, Ph.D., professor, University College of Technology Sarawak, Sibul, Sarawak, Malaysia.

Liu Yao, Ph.D., senior lecturer, Universiti Malaysia Pahang, Kuantan, Pahang, Malaysia.

Correspondence concerning this article should be addressed to Ahmad Othman, School of Business and Management, University College of Technology Sarawak, 96000 Sibul, Sarawak, Malaysia. E-mail: ahmadbo@ucts.edu.my.

for healthcare providers. Several studies dwelled on these two constructs in searching for linkages between SQ and CS (Zineldin, 2000; Lee & Yom, 2007; Panchapakesan, Chandrasekharan, & Prakash Sai, 2009).

SQ

Service is an economic activity involving time, place, space, and psychological benefits to satisfy consumers' needs without material characteristic. Quality is a multidimensional concept, meaning different things to different people. SQ is a form of attitude, related but not equivalent to satisfaction, which results from comparison of expectations with performance (Bolton & James, 1991). If expectations are greater than performance, then perceived quality is less than satisfaction and then customer dissatisfaction occurs.

Reviewing the healthcare literature, several frameworks for evaluating the healthcare quality have been proposed. Li (1997) evaluated SQ performance as clinical quality, customer (patient) satisfaction, responding to patient request, responding to patient complaints. According to Lee, Delene, Bunda, and Kim (2000), the dimensions core medical service which means the central medical aspects of the service (appropriateness, effectiveness and benefits to the patient) and professionalism/skill (Brown & Swartz, 1989) which evaluates knowledge, technical expertise, amount of training, and experience of the personnel, were found to be additional dimensions to responsiveness, assurance, tangibles, empathy, and reliability in evaluating healthcare SQ. Choi, Hanjoon, Chankon, and Sunhee (2005) suggested a four-factor structure, including physician concern, staff concern, convenience of core process, and tangibles, which reflect aspects of technical, functional, environment, and administrative quality.

Similarly, Dagger, Sweeney, and Johnson (2007) evaluated healthcare SQ comprehensively and developed a scale containing interpersonal quality, environment quality, and administrative quality. For interpersonal quality, three core themes were found: manner, communication, and relationship. Two core themes to underpin technical quality are expertise and outcome. Atmosphere and tangibles were the key themes underlying customers' perception of environment quality. Lastly, three themes comprised customers' perception of administrative quality: timeliness, operation, and support (Dagger et al., 2007). Panchapakesan et al. (2009) also established a conceptual framework of SQ in healthcare, which covers infrastructure, personnel quality, process of clinical care, administrative procedures, safety measures, corporate image, social responsibility, as well as trustworthiness of the hospital. Mainly referring to Panchapakesan et al. (2009), this study further provides empirical analysis.

CS

CS, in its widest sense, is seen as a complex process balancing consumer expectations with perceptions of the service or product in question. For healthcare providers, CS leads to favorable results, such as higher rates of patient retention, positive word of mouth, and higher profits (Zeithaml, 2000). Thus, satisfaction actually affects the outcome of medical practices. For these reasons, patient satisfaction assessment has become an integral part of healthcare organizations' strategic processes (Reidenbach & McClung, 1999).

However, the definitions of satisfaction and SQ are not always clearly distinguished in the services marketing literature (Tomiuk, 2000). In an attempt to provide conceptual and operational distinctions between the two, Boulding, Karla, Staelin, and Zeithaml (1993) proposed that the ideal expectation be used as the referent in the case of SQ and the desirable expectation as the referent in the case of satisfaction. Others like Kleinsorge and Koenig (1991), went further by suggesting that SQ and CS are almost interchangeable evaluations.

A dominant view on this issue is that SQ represents a cognitive judgment, whereas CS is a more affect-laden evaluation (Oliver, 1993, 1997; Gooding, 1995). For instance, Tse and Wilton (1988) defined satisfaction as the consumer's response to the evaluation of discrepancy between prior expectations and the actual performance of the product as perceived after its consumption. Consequently, it suggests a causal order consistent with the traditional multi-attribute attitude model framework (Wilkie, 1986), that positions SQ as an antecedent to satisfaction. Cronin and Taylor (1992) suggested that quality of specific healthcare services has a significant effect on patient satisfaction.

Given the important link between SQ and CS, this study also regards patient satisfaction as a function of SQ in healthcare organizations in Malaysia. The initial conceptual framework is shown below. In Figure 1, CS is set as the dependent variable of which quality, time, and cost are counted as its dimensions; while SQ including eight dimensions of infrastructure, personnel quality, process of clinical care, administrative procedures, safety measures, corporate image, social responsibility, and trustworthiness of the hospital, is viewed as the independent variable.

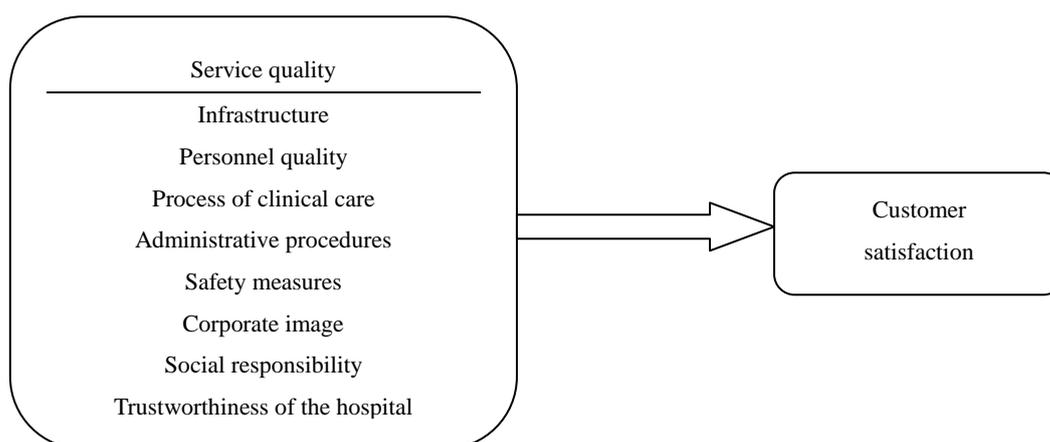


Figure 1. The initial conceptual research framework.

Objectives of Research

The objectives of this study are threefold, namely: (i) to determine whether or not the eight SQ dimensions become predictors for quality (one of the CS' components), (ii) to determine whether or not eight SQ dimensions become predictors for time, and (iii) to determine whether or not SQ dimensions become predictors for cost.

Research Design

Considering the differences in cultural and medical service delivery system between Malaysia and other countries, extra effort was put into the development of measurement items for this study. The development of the SQ scale was based on interviews conducted with 10 different adult patients to generate insights into how Malaysia healthcare users viewed the healthcare services that they received and the important aspects of healthcare service they felt according to their own experiences. The records from the interviews revealed that patients were generally concerned with the eight dimensions as mentioned above, when evaluating the quality of medical services with detailed items provided in Table 1. Overall, 29 items were modified from the scale items of Panchapakesan et al. (2009) and decided based on the results of the interviews. All items to measure

the patients' perception of services provided by the hospital used seven-point Likert scales, where "1" indicates "very low" level of service and "7" indicates "very high" level of service.

A total of 1,000 questionnaires were distributed purposively to visitors (either patients or their relatives and friends) that visited hospitals (both public and private) in 10 regions in Malaysia, of which 925 questionnaires were returned for further analysis, yielding a response rate of 92.5%.

Table 1

Measurement of the SQ

Components of Independent Variables	
No.	Infrastructure
1	Infection-free environment/treatment provided by the hospital during your stay
2	Level of availability of required drugs in time
3	Level of availability of medical equipment in proper working condition
4	Timely and hygienic food supplied to wards and rooms
5	Level of availability of life-support facilities to manage any sudden deterioration in health condition
6	Good house-keeping facilities (e.g. pillows, buckets, mugs, dressing material, etc.)
Personnel quality	
7	Courtesy shown by the hospital administrative staff to you
8	Level of availability of doctors and nurses, as and when required in your wards
9	Nurses' care and responsiveness to you
10	Doctors' friendly and caring attitude with due understanding of your feelings and needs
Process of clinical care	
11	Pre-operative advice given to you by doctors
12	Post-operative care provided by the hospital to you
13	Delay or cancellation of your scheduled admission/surgery
14	Information and appraisal provided by doctors about your health, medical tests, and treatment procedures
Administrative procedures	
15	Ease of getting diagnostic tests done
16	Simplified administrative procedures with respect to bill payment and discharge
17	Clear information and instructions provided by the hospital administration to you about hospital rules and procedures
18	The support provided by the hospital management to your attendant in taking care of you
Safety measures	
19	Adequacy of hygienic care procedures (e.g. wearing gloves) followed by the hospital personnel
20	Response to your allergic reaction to drugs by the medical staff
21	Presence of safety and comfort measures (e.g. handrails in aisles, ramps designed for wheelchairs) in the hospital
Corporate image	
22	Sincerity, honesty, and ethics followed by the hospital in providing services to you
23	Reputation enjoyed by the hospital
24	Investment in new technology and innovative practices by the hospital
Social responsibility	
25	Provision of medical services with nominal cost to the needy patients
26	Ethical principles followed by the hospital in delivering medical care to patients among different segments in the society
Trustworthiness of the hospital	
27	Your level of confidence in the doctors who treated you
28	Extent to which the services, functioning and administration of the hospital are credible
29	Maintenance of patient privacy and confidentiality by the hospital

Normally, customer or patient satisfaction was operationalized using two items: (1) how satisfied you were with the treatment you received in the hospital, and (2) how satisfied you were with your decision to use in the hospital. But since these two questions are too abstract for individuals to objectively answer, this study assessed CS by evaluating the trade-off of “get” versus “give-up” (Zeithaml, 1988) that most specifically reflects how the patient’s satisfaction should be. Specifically, items that represent consumers’ perceptions of the monetary cost and the consumed time were used as indicators for the “give-up”. Direct measures of the treatment results were utilized to measure the “get” from the service. The same seven-point Likert scales were used for those items as presented in Table 2.

Table 2

Measurement of the CS

Components of dependent variables	
No.	Quality
1	Fruitfulness of the medical treatment received by you
2	Correct assessment of your health condition by doctors
Time	
3	Ease of consulting with doctors (within a reasonable waiting time)
4	Prompt, simple, and clear admission processes and procedures
5	Hospital provided services as promised and on time
Cost	
6	Fair medical treatment provided to you by the hospital
7	Presence of correct, accurate and reliable billing system in the hospital

All coded data were input to the computer. SPSS 16.0 were used to formulate analyses of the close-ended questionnaire. The first phase of analysis consisted of the descriptive analysis, normality tests, single mean *t*-test, factor analysis, reliability analysis, and correlation analysis, in which the central tendency was to provide the validity of data, constructs as well as the measurement systems.

Then, further analysis was carried out to explore the relationships between SQ and CS through a number of multiple regression analyses.

Data Analysis and Results

A total of 1,000 questionnaires were distributed, of which 925 were returned for further analysis, yielding a response rate of 92.5 percent. The demographic characteristics of all the respondents are presented in Table 3.

According to Table 3, about 46.4 percent of all the respondents are male, while the rest 53.6 percent are female. For ethnic, most of the respondents (76.3%) are Malay, followed by Chinese (11.5%), Indian (10.9%), and others (1.3%). Correspondingly, almost 98.5 percent respondents are Malaysian, with only 1.5 percent non-citizen participants. If classified by age, the major part of the respondents is between 21 and 40, possessing 62.1 percent. Furthermore, the income level of the respondents is mainly below RM3,000, with 80.3 percent of all. Finally, the options of government and private hospital are nearly equal, with the former one (54.9%) a little more popular than the latter one (45.1%).

Table 3
Respondents' Demographic Profile (n = 925)

No.	Profile	Description	Frequency	Percentage (%)
1	Gender	Male	429	46.4
		Female	496	53.6
		Total: 925	Total: 100.0	
2	Ethnic	Malay	706	76.3
		Chinese	106	11.5
		Indian	101	10.9
		Others	12	1.3
		Total: 925	Total: 100.0	
3	Nationality	Malaysian	911	98.5
		Non-citizen	14	1.5
		Total: 925	Total: 100.0	
4	Age	≤ 20	136	14.7
		21-30	336	36.3
		31-40	239	25.9
		41-50	153	16.5
		51-60	52	5.6
		> 60	9	1.0
Total: 925	Total: 100.0			
5	Income	≤ RM2,000	449	48.6
		RM2,001-3,000	294	31.8
		RM3,001-5,000	123	13.3
		RM5,001-7,000	54	5.8
		> RM7,001	5	0.5
Total: 925	Total: 100.0			
6	Type of hospital	Government	508	54.9
		Private	417	45.1
		Total: 925	Total: 100.0	

Normality Test Using Probability Plot

The Probability Plot was used to determine whether the variables are normally distributed or not. Probability Plot (P-P Plot) plots a variable's cumulative proportions (Cum. Prop.) against the cumulative proportions of any of a number of test distributions. P-P Plot is generally used to determine whether the distribution of a variable matches a given distribution. If the points cluster around a straight line, the selected variable matches the test distribution; and if they are of normal distribution, the parametric analysis could be performed consequently. Based on the analyses, the nine variables demonstrate normal distribution whereby the points cluster around a straight line indicating that the distributions of the all variables are normal.

Single Mean *T*-test

Since the variables were proved to be normally distributed, a series of the one-sample single mean *t*-tests were conducted to assess whether the mean levels of each constructs are significant. Table 4 illustrates the

levels of infrastructure, personnel quality, process of clinical care, administrative procedures, safety measures, corporate image, social responsibility, and trustworthiness of the hospital, CS as well as quality, time, and cost. It shows that when the test value is 4.8, all the levels of the variables are significant.

Construct Reliability Test Using Cronbach's α

After the reduction of indices system through Varimax rotation of factor analysis, construct reliability coefficients using Cronbach's α (alpha) were used to assess the internal consistency or reliability among items of the system. Cronbach's alpha is widely believed to indirectly indicate the degree to which a set of items measures a single uni-dimensional latent index. Indeed, several investigators have shown that alpha can take on quite high values even when the set of items measures several unrelated latent indices (Zinbarg, Yovel, Revelle, & McDonald, 2006). Anyway, items with Cronbach's alpha value greater than 0.7, indicate that internal consistency is guaranteed for the measurement index.

Table 4 shows the Cronbach's alpha for all the independent variables and the dependent variables. Since the Cronbach's alpha for all factors are greater than 0.7, the reliability of the measurement system can be trusted.

Table 4

Reliability Statistics of Variables (n=925)

No.	Variables	Cronbach's alpha ^a	Item No.
1	Infrastructure	0.975	6
2	Personnel quality	0.976	4
3	Process of clinical care	0.974	4
4	Administrative procedure	0.974	4
5	Safety measures	0.974	3
6	Corporate image	0.974	3
7	Social responsibility	0.976	2
8	Trustworthiness of the hospital	0.974	3
9	Quality	0.975	2
10	Time	0.974	3
11	Cost	0.974	2
12	Customer satisfaction	0.972	7

Note. ^a Cronbach's alpha if item deleted.

Correlations Within Independent Variables and Dependent Variables

This section will provide the correlations between the eight independent and three dependent variables as shown in Table 5. With reference to Table 5, all coefficients are highly significant with all p -values achieving a high level of p less than 0.005 and most of the coefficients are within the superb range of 0.3-0.8. The coefficients are between the personnel quality and CS (0.854), between the administrative procedure and time (0.887), between the corporate image and cost (0.802), between the social responsibility and cost (0.820), and between the trustworthiness of the hospital and cost (0.824). According to statistics, there exists a high probability of multi co-linearity, which needs further verification. But, the whole system, to some extent, can still be trusted.

Table 5
Correlations Between IV and DV ($n = 925$)

		Quality	Time	Cost
Infrastructure	Pearson correlation	0.755**	0.753**	0.760**
	Sig. (2-tailed)	0.000	0.000	0.000
	n	925	925	925
Personnel quality	Pearson correlation	0.706**	0.756**	0.716**
	Sig. (2-tailed)	0.000	0.000	0.000
	n	925	925	925
Process of clinical care	Pearson correlation	0.854**	0.784**	0.764**
	Sig. (2-tailed)	0.000	0.000	0.000
	n	925	925	925
Administrative procedure	Pearson correlation	0.746**	0.887**	0.791**
	Sig. (2-tailed)	0.000	0.000	0.000
	n	925	925	925
Safety measures	Pearson correlation	0.744**	0.773**	0.777**
	Sig. (2-tailed)	0.000	0.000	0.000
	n	925	925	925
Corporate image	Pearson correlation	0.732**	0.792**	0.802**
	Sig. (2-tailed)	0.000	0.000	0.000
	n	925	925	925
Social responsibility	Pearson correlation	0.659**	0.735**	0.820**
	Sig. (2-tailed)	0.000	0.000	0.000
	n	925	925	925
Trust worthiness of the hospital	Pearson correlation	0.763**	0.796**	0.824**
	Sig. (2-tailed)	0.000	0.000	0.000
	n	925	925	925

Note. ** Correlation is significant at the 0.01 level (2-tailed).

Regression Analysis on Quality

The first series of regression analysis is performed on quality using the eight independent variables. By running SPSS, the regression result for quality is obtained in the following. In Table 6, R^2 is 0.764, which means that around 76% of variance of the quality is explained by the independent variables. In this test, DW is 1.86, which means that the factors here hardly have autocorrelation or serial correlation. From the derived coefficients, it can be seen that process of clinical care (0.601), trustworthiness of the hospital (0.139), and infrastructure (0.121) are the most significant predictors for quality.

Table 6
Regression Results on Quality

Model Summary							
Model	R^2	DW	ANOVA		F-value	Sig.	
IVQ	0.764	1.86			369.832	0.000	
Coefficients							
Model	Unstd. Co.		Std. Co.		Sig.	Co-linearity Statistics	
IVQ	B	Std. E.	Beta	t		Tolerance	VIF
(Constant)	0.047	0.103		0.460	0.646		

Table 6 continued

Infrastructure	0.121	0.036	0.107	3.362	0.001	0.256	3.899
Personnel quality	0.019	0.027	0.020	0.691	0.490	0.298	3.354
Process of clinical care	0.601	0.035	0.561	17.380	0.000	0.248	4.031
Administrative procedure	0.023	0.033	0.023	0.690	0.491	0.234	4.266
Safety measures	0.004	0.034	0.099	3.050	0.002	0.243	4.115
Corporate image	0.002	0.034	0.002	0.049	0.961	0.222	4.502
Social responsibility	-0.007	0.027	-0.007	-0.268	0.789	0.345	2.901
Trustworthiness of the hospital	0.139	0.034	0.134	4.094	0.000	0.240	4.165

Regression analysis on time. The second series of regression analysis is performed on time using the eight independent variables. By running SPSS, the regression result for time is obtained in the following. In Table 7, R^2 is 0.828, which means around 82 percent of variance of the time is explained by the independent variables. In this test, DW is 1.918, which means that the factors here hardly have autocorrelation or serial correlation. From the derived coefficients, it can be seen that administrative procedures (0.562), trustworthiness of the hospital (0.168), and personnel quality (0.102) are the most significant predictors for time.

Table 7

Regression Results on Time

Model Summary							
Model	R^2	ANOVA			DW	F-value	Sig.
IVT	0.828				1.918	552.799	0.000
Coefficients							
Model	Unstd. Co.		Std. Co.	t	Sig.	Collinearity Statistics	
	B	Std. E.	Beta			Tolerance	VIF
(Constant)	-0.142	0.089		-1.583	0.114		
Infrastructure	-0.010	0.031	-0.008	-0.305	0.760	0.256	3.899
Personnel quality	0.102	0.023	0.110	4.368	0.000	0.298	3.354
Process of clinical care	0.054	0.030	0.049	1.800	0.072	0.248	4.031
Administrative procedure	0.562	0.029	0.552	19.517	0.000	0.234	4.266
Safety measures	-0.004	0.029	-0.003	-0.119	0.905	0.243	4.115
Corporate image	0.082	0.029	0.082	2.811	0.005	0.222	4.502
Social responsibility	0.048	0.023	0.048	2.070	0.039	0.345	2.901
Trustworthiness of the hospital	0.168	0.030	0.159	5.682	0.000	0.240	4.165

Regression analysis on cost. The third series of regression analysis is performed on cost using the eight independent variables. By running SPSS, the regression result for cost is obtained in the following (Figure 2). In Table 8, R^2 is 0.805, which means around 81 percent of variance of the cost is explained by the independent variables. In this test, DW is 1.989, which means that the factors here hardly have autocorrelation or serial correlation. From the derived coefficients, it can be seen that social responsibility (0.315), trustworthiness of the hospital (0.261), corporate image (0.130), and administrative procedures (0.101) are the most significant predictors for cost.

Table 8
Regression Results on Cost

Model Summary							
Model	R^2	DW	ANOVA		F-value	Sig.	
IVC	0.805	1.989			472.860	0.000	
Coefficients							
Model	Unstd. Co.	Std. Co.	t	Sig.	Collinearity Statistics		
IVC	B	Std. E.	Beta		Tolerance	VIF	
(Constant)	0.030	0.092		0.327	0.744		
Infrastructure	0.065	0.032	0.058	2.027	0.043	0.256	3.899
Personnel quality	0.017	0.024	0.018	0.689	0.491	0.298	3.354
Process of clinical care	0.057	0.031	0.054	1.844	0.066	0.248	4.031
Administrative procedure	0.101	0.030	0.103	3.404	0.001	0.234	4.266
Safety measures	0.049	0.030	0.048	1.610	0.108	0.243	4.115
Corporate image	0.130	0.030	0.134	4.315	0.000	0.222	4.502
Social responsibility	0.315	0.024	0.329	13.236	0.000	0.345	2.901
Trustworthiness of the hospital	0.261	0.030	0.256	8.611	0.000	0.240	4.165

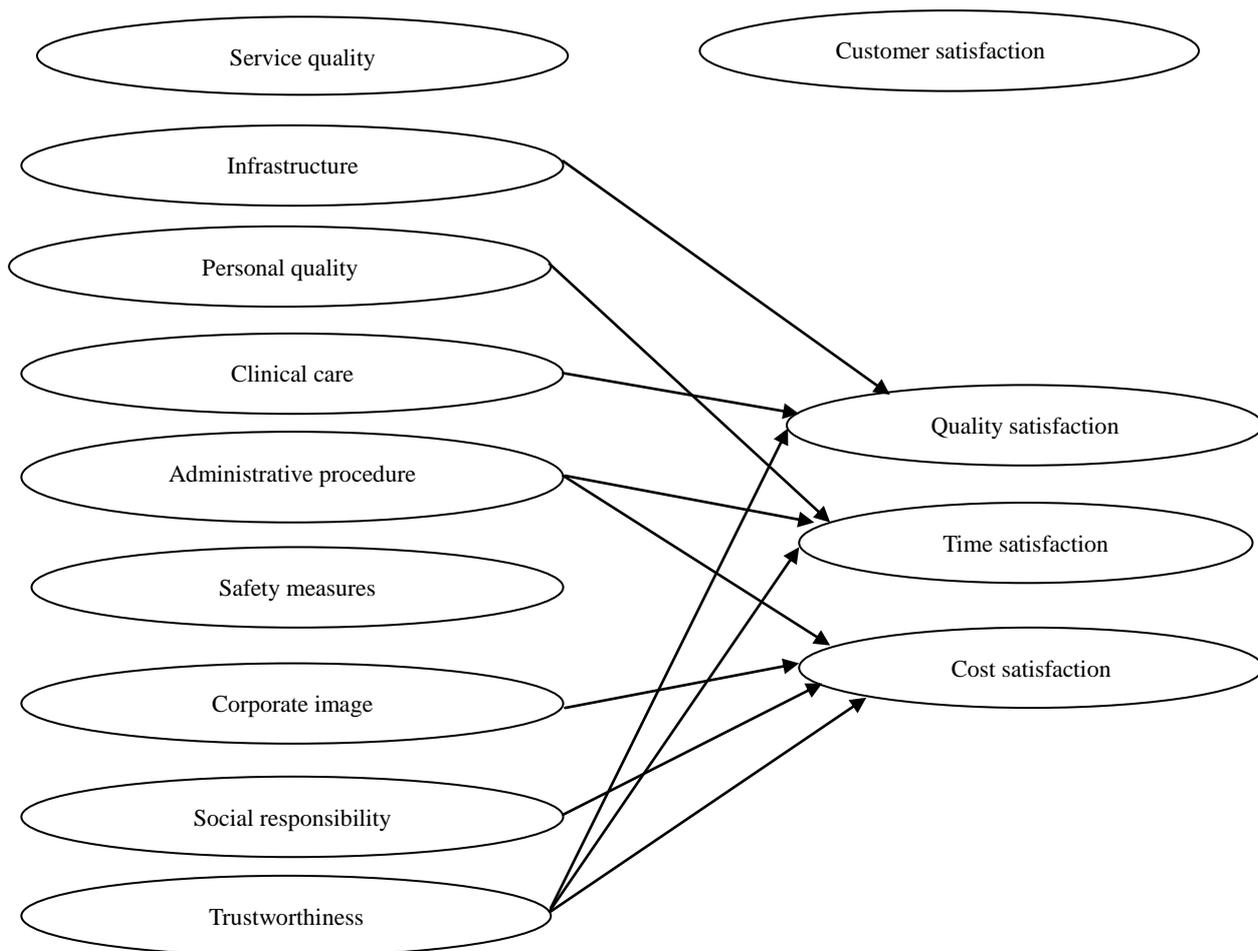


Figure 2. A modified framework.

Conclusions

The results of the empirical analysis on the relationships between SQ and CS within Malaysian healthcare organizations through rigorous testing and analysis including single mean analysis, correlation analysis, and multiple regression analysis were quite encouraging.

The outcome of the single mean *t*-test for SQ indicated that all SQ variables including infrastructure, personnel quality, process of clinical care, administrative procedures, safety measures, corporate image, social responsibility, and trustworthiness of the hospital are statistically proven to be significantly high. Upon further analysis, ranking of SQ starts with the highest mean of 5.314 for trustworthiness of the hospital, followed by infrastructure (5.247), safety measures (5.246), corporate image (5.2097), social responsibility (5.2091), process of clinical care (5.1318), administrative procedures (5.0645), and personnel quality (4.9529). Subsequently, the outcome of the single mean *t*-test for CS indicated that all variables which are quality, time, and cost are statistically proven to be significantly high. Upon further analysis, ranking of CS starts with the highest mean of 5.2329 for quality, followed by cost (5.2151) and time (4.9895).

The results of mean difference analysis show that CS as well as all its constructs did not demonstrate any differences in its means based on gender, ethnic, and nationality. However, CS has demonstrated a difference in means based on age, although all its constructs presented no differences. Furthermore, CS and all its constructs have shown differences in means based on income and type of hospital.

The study found that among the eight dimensions of SQ tested, safety measure was not at all significantly related to CS as compared with the other seven dimensions. On a detail note, the quality satisfaction of customers is very much influenced by infrastructure (0.121), clinical care (0.601), and trustworthiness of the hospitals (0.139); also noted, the time satisfaction of customers is influenced by personnel quality (0.102), administrative procedures (0.562), and trustworthiness of the hospitals (0.168); whilst the cost satisfaction of customers is influenced by administrative procedure (0.101), corporate image (0.130), social responsibility (0.315), and trustworthiness of the hospitals (0.261). Overall, the findings of this study suggest that trustworthiness and administrative procedures are the two most importance factors that influence satisfaction of customers that the Malaysian healthcare industry should take a good care of.

References

- Bolton, R. N., & James, H. D. (1991). A longitudinal analysis of the impact of service changes on customer attitudes. *Journal of Marketing*, 55, 1-9.
- Boulding, W., Karla, A., Staelin, R., & Zeithaml, V. A. (1993). A dynamic process model of service quality: From expectations to behavioral intentions. *Journal of Marketing Resources*, 30, 7-27.
- Brown, S. W., & Swartz, T. A. (1989). A gap analysis of professional service quality. *Journal of Marketing*, 53(4), 92-98.
- Choi, K. S., Hanjoon, L., Chankon, K., & Sunhee, L. (2005). The service quality dimensions and patient satisfaction relationships in South Korea: Comparisons across gender, age and types of service. *Journal of Services Marketing*, 19(3), 140-150.
- Cronin, J. J., & Taylor, S. A. (1992). Measuring service quality: A re-examination and extension. *Journal of Marketing*, 56, 55-68.
- Dagger, T. S., Sweeney, J. C., & Johnson, L. W. (2007). A hierarchical model of health service quality: Scale development and investigation of an integrated model. *Journal of Service Research*, 10, 123-123.
- Gooding, S. K. S. (1995). Quality, sacrifice, and value in hospital choice. *Journal of Health Care Marketing*, 15(4), 24-31.
- Kleinsorge, I. K., & Koenig, H. F. (1991). The silent customers: measuring customer satisfaction in nursing homes. *Journal of Health Care Marketing*, 11(4), 2-13.
- Lee, H., Delene, L. M., Bunda, M. A., & Kim, C. (2000). Methods of measuring healthcare service quality. *Journal of Business Research*, 48, 233-246.

- Lee, M. A., & Yom, Y. H. (2007). A comparative study of patients' and nurses' perceptions of the quality of nursing services, satisfaction and intent to revisit the hospital: A questionnaire survey. *International Journal of Nursing Studies, 44*, 545-555.
- Li, L. (1997). Relationships between determinants of hospital quality management and service quality performance—A path analytic model. *Omega, 25*(5), 535-545.
- Oliver, R. L. (1993). A conceptual model of service quality and service satisfaction. In T. A. Swartz, D. E. Bowen, & S. W. Brown (Eds.), *Advances in services marketing and management: Research and practice* (pp. 65-68). Stamford: JAI Press.
- Oliver, R. L. (1997). *Satisfaction: A behavioral perspective on the consumer*. Boston: Irwin-McGraw-Hill.
- Panchapakesan, P., Chandrasekharan, R., & Prakash Sai, L. (2009). A conceptual framework of service quality in healthcare: Perspectives of Indian patients and their attendants. *Benchmarking: An International Journal, 16*(2), 157-191.
- Reidenbach, R. E., & McClung, G. W. (1999). Managing stakeholder loyalty: When satisfaction is just not enough. *Marketing of Health Service, 21*, 21-29.
- Tomiuk, M. A. (2000). *The impact of service providers' emotional displays on service evaluation: Evidence of emotional contagion* (Unpublished Doctoral Dissertation, Concordia University, Canada).
- Tse, D. K., & Wilton, P. C. (1988). Models of consumer satisfaction formation: An extension. *Journal of Marketing Research, 25*(2), 204-212.
- Wilkie, W. L. (1986). *Consumer behavior*. New York: Wiley.
- Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing, 52*, 2-22.
- Zeithaml, V. A. (2000). Service quality, profitability, and the economic worth of customers: What we know and what we need to learn. *Journal of Academic Marketing Science, 28*(1), 67-85.
- Zinbarg, R., Yovel, I., Revelle, W., & McDonald, R. (2006). Estimating generalizability to a universe of indicators that all have an attribute in common: A comparison of estimators for omega. *Applied Psychological Measurement, 30*, 121-144.
- Zineldin, M. (2000). Total relationship management (TRM) and total quality management (TQM). *Managerial Auditing Journal, 15*(1), 20-28.