



SERVICE QUALITY AND OUTPATIENTS SATISFACTION IN PUBLIC HOSPITALS IN MALAYSIA

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ABSTRACT

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Keywords

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The objective of this research is to determine the relationship between service quality and outpatients' satisfaction towards public hospitals in Malaysia. Five dimensions from SERVQUAL model, Competency, Responsiveness, Courtesy, Tangibility and Reliability are used in the research model. A cross-sectional survey was conducted in hospitals located in States with the highest average outpatient numbers, namely Hospital Kuala Lumpur, Hospital Pulau Pinang and Hospital Putrajaya. The convenience sampling technique was used and 409 useful questionnaires were collected. The results showed that there is a significant positive relationship between Competency, Tangibility, Reliability and Outpatient Satisfaction. However, Responsiveness and Courtesy have a positive and insignificant relationship with Outpatients' Satisfaction. By determining the significant variables influencing outpatients' satisfaction, this study gives an insight for managers and staff of public hospitals on the effect of service quality towards outpatients' satisfaction and also recommends ways for improvement.

1. INTRODUCTION

Malaysian health care services run on a bi-layered system. On one layer is the government regulated universal health care system available to all eligible citizens, and co-existing with that is the private system which accommodates both local and international patients alike (Malaysian Investment Development Authority, 2015). In Malaysia, the major health care provider is the public sector (Jarrar *et al.*, 2016).

Patient satisfaction is recognized as one of the most important quality dimensions and key success indicators in the health care industry (Amole *et al.*, 2015). Experience with a health care service can have a direct influence on the patient's expectations of the services (Parasuraman *et al.*, 1991; Amole *et al.*, 2015). Outpatients' satisfaction is selected because according to Pouragha and Zarei (2016) patients' general impression towards a hospital relies significantly on the quality of the outpatient services and the most important part of a health care system is the hospital's outpatient department. To a patient, service quality is about satisfying the needs and providing the necessary medical services (Sathiyaseelan *et al.*, 2015).

2. PROBLEM STATEMENT

There have been many cases reported on poor service quality in Malaysian public hospitals. The public hospital in Penang State received several patients' complaints, including mistreatment of doctors and, bad attitude and temper of doctors that insulted patients (Assemblyman Shows 'Proof Patients Mistreated in Penang Hospital, 2013). A study conducted in Kelantan State indicated that medical errors for geriatric patient prescriptions from the outpatient pharmacy department were as high as 25.17% (Teoh *et al.*, 2015). There had been some court cases about medical negligence of public hospitals (Nazlina, 2014) waiting hour problem (When Patient Get Impatient, 2015) and also some issues concerning the competency of doctors in Malaysia due to the mushrooming of lenient intake requirements by deregulated tertiary institutions (Yong, 2013). A public hospital from Sabah State occasionally runs out of water and suffers electricity cuts at least once a week (Public Hospitals Need Attention, 2015). Car parking facility problems and dilemmas were also reported (Battle for Parking Space, 2015). The number of complaints sanctioned to the Preliminary Investigation Committees (PICs) and number of complaints per 1000 Practitioners was significantly increased in year 2014 (Malaysian Medical Council, 2014).

3. RESEARCH OBJECTIVE

The main objective of this research is to investigate public hospitals' service quality and effect on outpatients' satisfaction in Malaysia.

4. SIGNIFICANCE OF THE STUDY

A review of previous research shows that there are only a few studies on the relationship between service quality and patients' satisfaction in Malaysia. According to Bahari (2015) past researches are not widespread in Malaysia, or are limited in sample size (Eleuch, 2011; Haque *et al.*, 2012). Besides that, most of the studies have focused on inpatient services and assessing hospital services, but outpatient services have been neglected (Pouragha and Zarei, 2016). Research on outpatients is deemed important because based on Health Indicators 2016 from the Malaysia Ministry of Health; outpatient attendance is higher than inpatient attendance. Thus, the findings of this research would contribute for future research in this area.

The findings of this study can also offer an insight to operators of hospitals and health care services on the perception of outpatients' satisfaction, which will serve as a guideline in improving service quality.

5. LITERATURE REVIEW

Poor competency level of health care staff could lead to substantial dissatisfaction due to patients suffering. Professionalism is important to improve patient satisfaction by enhancing the relationship between doctors and patients (Ganasegeran *et al.*, 2015). A concern was raised recently about the quality of doctors in Malaysia because they are easily qualified with medical certification (Yong, 2013). Besides, the inability to communicate in English by doctors caused weak explanations to patients (1000 Trainee Doctors Quit Due to Poor English Report Says, 2015).

A study conducted by Pillay *et al.* (2011) showed that patients need to wait for at least two hours from registration until they receive treatment from doctors of public hospitals in Malaysia. Responsiveness has the greatest effect on service quality which affects patient satisfaction (Belaid *et al.*, 2015).

Several complaints about the behaviour of the health care staffs were received, including a doctor insulting a patient in a public hospital (ASPPMPH, 2013) nurses acting rudely (Villager Claims Bau Hospital Staff Acted Rudely, 2012) and the attitude of the staffs is lackadaisical to patients (Callous, 2011). All these complaints lead to patient dissatisfaction. Therefore, courtesy of the health care staff is a significant SERVQUAL dimension in Malaysia public hospitals.

A public hospital from Sabah occasionally runs out of water and suffers electricity cuts at least once a week (PHNA, 2015). There also have been car parking facility problems and dilemmas (BPS, 2015; Parking Dilemma at Miri General Hospital, 2015). This lead to patient dissatisfaction, therefore tangibility is a significant SERVQUAL dimension in this study.

There were cases in Malaysia public hospitals, which involved the mistreatment by doctor (ASPPMPH, 2013) and medical negligence (Nazlina, 2014; NCSTPHDD, 2015). Therefore, this indicates reliability is crucial for patient satisfaction in public hospitals.

6. THEORETICAL/CONCEPTUAL FOUNDATION

This study is using the SERVQUAL theory developed by Parasuraman *et al.* (1985). The SERVQUAL model evaluates the customer evaluation of service received (Parasuraman *et al.*, 1985; Amjeriya and Malviya, 2012). Initially, there were ten service quality dimensions identified, namely, accessibility, understanding, courtesy, tangibility, reliability, responsiveness, competence, communication, security and credibility (Parasuraman *et al.*, 1985; Amjeriya and Malviya, 2012) which then were collapsed into five that are reliability, assurance, tangibility, empathy and responsiveness (Parasuraman *et al.*, 1988; Butt and de Run, 2010). This study adopts five dimensions that are more relevant to the study on hospital outpatients' satisfaction, which are competence, responsiveness, courtesy, tangibility and reliability. This perception study measures the service quality received by the outpatients in public hospitals in Malaysia with the above mentioned five variables, which are dimensions of the SERVQUAL original and modified model.

6.1. Discussion on Variables and Hypotheses Development

6.1.1. Outpatient Satisfaction

The outpatient is defined as a patient who goes to the hospital, clinic, or dispensary for diagnosis or treatment but does not possess a bed (Encyclopedia and Dictionary of Medicine Nursing and Allied Health, 2003). Patient satisfaction is defined as individual assessment of health care providers and services (Hassali *et al.*, 2014). As the health care staff meets the expectation of patients, the patient satisfaction will increase (Amole *et al.*, 2015).

6.2. Competence and Outpatient Satisfaction

Competence is defined as the skills and knowledge needed for performance of service used (Parasuraman *et al.*, 1985; Amjeriya and Malviya, 2012). The modified definition for the hospital industry is the doctors' and hospital staff's qualifications, and doctors' reputation and experience (Amjeriya and Malviya, 2012). Competence also refers to how capable hospital staffs are when they are interacting with patients (Sajid *et al.*, 2008). It comprises training of the health care staff, their technical and cultural abilities as well as their communication ability with patients (Sajid *et al.*, 2008).

Past studies suggest that there is a positive relationship between competence and patient satisfaction (Abioye *et al.*, 2010; Amjeriya and Malviya, 2012; Hassali *et al.*, 2014). According to Abioye *et al.* (2010) patient satisfaction level could be affected by the communication skill of the doctors. The most important aspect that determines patient satisfaction is the quality of the health care service provided as patients' perception of ability of their health care provider will likely to affect their confidence in the skill of their health care provider (Alrubaiee and Alkaa'ida, 2011). Therefore, the following hypothesis is developed:

H1: There is a positive relationship between competency and outpatient satisfaction.

6.3. Responsiveness and Outpatients' Satisfaction

According to Parasuraman *et al.* (1985) responsiveness is defined as readiness to assist customers and give fast service. Another definition given by Wesso (2014) is the willingness of the staff to help in a pleasant and effective

way. The modified definition of responsiveness in the hospital industry refers to the quickness in answering complaints, care about patients, and showing the intention to help patients (Amjeriya and Malviya, 2012).

Responsiveness is the dimension which has the greatest effect on patients' satisfaction (Amjeriya and Malviya, 2012; Ramez, 2012; Yousapronpaiboon and Johnson, 2013; Hassali *et al.*, 2014). The health care providers do not react quickly to solve the patients' problems (Suki *et al.*, 2011). In the research carried out in Kuala Lumpur, Hassali *et al.* (2014) concluded that insufficient consultation time leads to low patients' satisfaction and proposed that there is a significant relationship between various races, waiting time and consultation time with patient satisfaction. Thus, the following hypothesis was developed:

H2: There is a positive relationship between responsiveness and outpatient satisfaction.

6.4. *Courtesy and Outpatient Satisfaction*

Courtesy reflects the employees' kind behaviour towards customers (Zaim *et al.*, 2010). Courtesy is defined as respect, politeness, and friendliness (Parasuraman *et al.*, 1985; Amjeriya and Malviya, 2012). The definition of courtesy for the hospital industry is modified as politeness of the staff and doctors to patients (Amjeriya and Malviya, 2012).

Many past studies illustrated that there is a positive relationship between courtesy and patient satisfaction (Zaim *et al.*, 2010; Amjeriya and Malviya, 2012; Van De Ven, 2014). Politeness of the health care staff are considered by patients to determine their level of satisfaction (Zaim *et al.*, 2010; Amjeriya and Malviya, 2012). Besides doctors and nurses, the courtesy of other staff members towards patient is also an important factor in assessing patient satisfaction (Van De Ven, 2014). Therefore, the following hypothesis is developed:

H3: There is a positive relationship between courtesy and outpatient satisfaction.

6.5. *Tangibility and Outpatient Satisfaction*

Tangibility is the physical environment in which the provider provides service, the equipment and facilities used for delivering the service and appearance of staff (Alshatnawi and Amlus, 2016). Tangibles include medical equipment, physical care facilities and hospital physical environment and surroundings (Nguyen and Nguyen, 2014). Previously, a number of studies have found that tangibility is a significant dimension for patients to increase the level of their satisfaction (Odgerel, 2012; Alshatnawi and Amlus, 2016; Pouragha and Zarei, 2016). Hospitals with good infrastructure, equipment and neat personnel attract many patients. This creates a positive signal and impacts quality, therefore, encourages patients to visit such hospitals for treatment (Efuteba, 2013). Thus, the following hypothesis is developed:

H4: There is a positive relationship between tangibility and outpatient satisfaction.

6.6. *Reliability and Outpatient Satisfaction*

Reliability is defined as the ability to perform the services accurately and dependably (Ramez, 2012). Reliability means organization should perform the services right the first time and respects every one of its commitments.

There is a significant positive relationship between reliability and patient satisfaction (Zaim *et al.*, 2010; Essiam, 2013). Patients have reported fairly high expectations, particularly to proper explanation of hospital procedures offered by the medical staff (Yousapronpaiboon and Johnson, 2013). There are only a few studies that the authors proposed separate constructs for the doctor's attributes and other staff characteristics (Alizadeh *et al.*, 2016). Therefore, the following hypothesis is developed:

H5: There is a positive relationship between reliability and outpatient satisfaction.

6.7. Proposed Research Model

Based on the above discussions, a research model had been developed. Figure 1 below shows the research model proposed for this research:

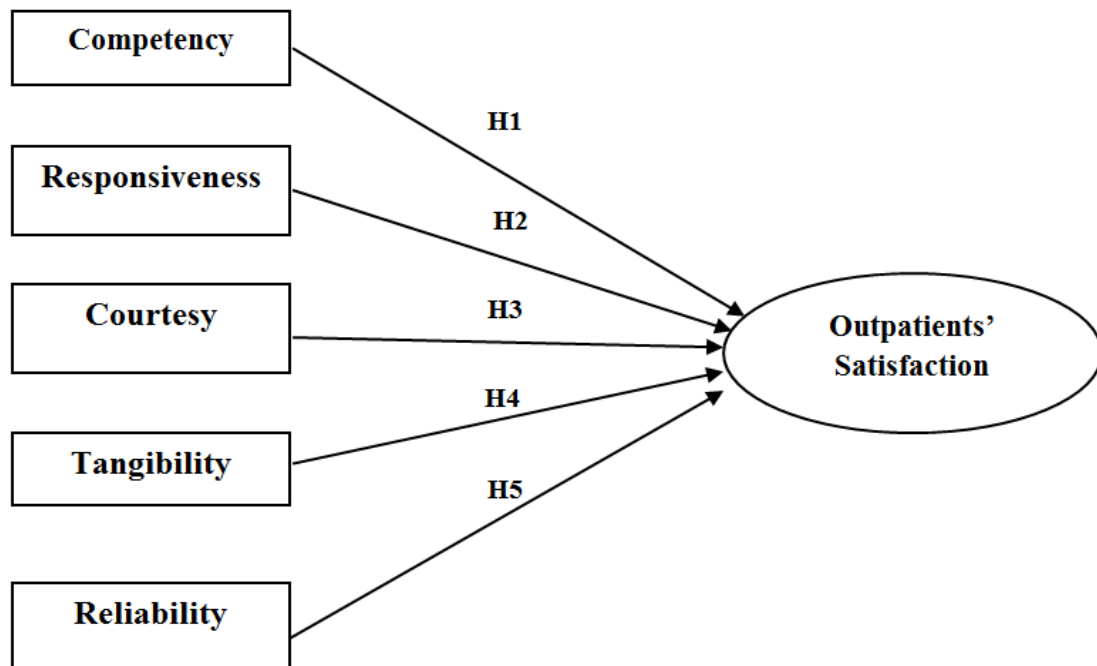


Figure-1. Proposed Research Framework.

Source: Developed for the research.
Adapted from Muhammad *et al.* (2011).

7. RESEARCH METHODOLOGY

7.1. Research Design

The purpose of this study is to examine the relationship between service quality and outpatient satisfaction for public hospitals in Malaysia. Self-administered survey questionnaires are used in this cross-sectional study.

7.2. Variables and Measurements

The variables, items, measurements and sources for the items are given in Table 1.

7.3. Population, Sample and Sampling Procedures

According to the analysis of the average number of outpatient population for each State in Malaysia by the Ministry of Health Malaysia (2015) hospitals in the States of Wilayah Persekutuan Kuala Lumpur, Penang and Wilayah Persekutuan Putrajaya are chosen, as they have the highest density of outpatients. As Hospital Kuala Lumpur and Hospital Putrajaya are the only hospitals in that particular State and the largest hospital in Penang is the Hospital Pulau Pinang (Rashid *et al.*, 2012) these three public hospitals were elected to conduct the survey.

The total population of outpatient attendance is 19,984,111 (MHM, 2015). Hence a sample size of 400 is sufficient for this study (Singh and Masuku, 2014). As the response rate was more than 80% based on the researchers' past experiences for hand delivered questionnaires, 500 questionnaires were distributed. Non-probability, convenience sampling method was chosen in this research to distribute the questionnaires to respondents (Aagja and Garg, 2010). Questionnaires were hand delivered to the respondents by the researchers between 3 and 21 January 2017. As this is a perception study, the questionnaires were distributed to the patients either before or after medical care. 409 out of 500 sets of the questionnaires collected are complete. Therefore, the usable response rate of this survey is 81.80%.

Table-1. Items on Each Variable, Measurement and Sources.

Variables		Measurement	Sources
Outpatients' Satisfaction			
OS1	Your feeling towards this public hospital provider is positive.	Five-point scale Likert	Hong (2009)
OS2	Your feel good about coming to this public hospital provider for your treatment.		
OS3	Your feel satisfied that the result of your treatment is the best that can be achieved.		
OS4	The extent to which your treatment has produced the best possible outcome is satisfying.		
OS5	Overall you are satisfied with this health care provider and the service it provides.		
Competency			
C1	Health staffs in government hospitals clinics have good medical skills.	Five-point scale Likert	Hassali <i>et al.</i> (2014)
C2	Test results, treatment, medications, procedures and side effects are explained in a way that is understandable.		
C3	Professionals like doctors, pharmacists, and support staff in the public hospital are highly skilled.		
C4	Health staff, particularly pharmacists, explained about drugs clearly, in detail, and in a way that was easy to understand.		
C5	Information and advice given by the health staff are very useful and helpful.		
C6	Registry division manages my business efficiently and quickly.		
Responsiveness			
R1	Doctors/nurses respond immediately when called by patients.	Five-point scale Likert	Wesso (2014)
R2	Doctors/nurses are willing to help patients.		
R3	Waiting time for admission not longer than a week.		
R4	Waiting time for admission not longer than 45min.		
Courtesy			
C'1	The manners and courtesy of staff of the hospital.	Five-point scale Likert	Amjeriya and Malviya (2012)
C'2	Support given then by staff.		
C'3	The personal interest and concern of the doctor and nurse in their problem.		
C'4	The overall treatment given them by staff of the hospital.		
Tangibility			
T1	Visually attractive and comfortable physical facilities.	Five-point scale Likert	Hong (2009)
T2	Pleasant smelling.		
T3	Pleasant temperature.		
T4	Patient friendly design of the clinic.		
T5	Professional appearance of physicians.		
T6	Convenient location.		
T7	Up-to-date medical machinery.		
T8	Easy access to the information regarding the clinic.		
T9	Ease of finding a parking space.		
T10	Closeness of parking spaces to the urgent care entrance.		
Reliability			
R'1	Careful diagnosis of patient's problems.	Five-point scale Likert	Hong (2009)
R'2	Reliability in handling the patient's problems.		
R'3	Correct performance of medical care in the first time.		
R'4	Maintaining accurate and neat records and documentation of the patient's medical history.		
R'5	Keeping patients informed about the follow-up examination.		
R'6	Efficient, reliable and affordable prescribed medicines.		
R'7	Physician reputation.		
R'8	Physician compliance with Universal precautions.		
R'9	Consistency of fees and other charges.		

7.4. Pilot Test

After finalized the sample size and sampling procedure, in order to test the reliability of the questionnaires, 30 sets of questionnaires were distributed to outpatients in Hospital Kuala Lumpur for the pilot test. 27 sets of them were found complete. The values of Cronbach's alpha of all variables are larger than 0.7, thus the questionnaire is reliable (Parsian and Dunning, 2009). The results of the normality test showed that all the skewness and kurtosis values are within the range between ± 2 , thus all the variables are normal (Hair *et al.*, 2010).

8. RESULTS

8.1. Demographic Profile of Respondents

The demographic profile of the 409 respondents is described in Table 2. In this study, 259 respondents (63.33%) are female and 150 (36.67%) are male. Among them, 251 (61.37%) are Malays, 75 (18.34%) are Chinese, 81 (19.80%) are Indians and only 2 (0.49%) are from other ethnicities.

Table-2. Demographic Profile of Respondents.

Category	Item	Frequency	Percent (%)
Gender	Female	259	63.33
	Male	150	36.67
Ethnicity	Malay	251	61.37
	Chinese	75	18.34
	Indian	81	19.80
	Others	2	0.49
Age	20 years and below	15	3.67
	21 to 29 years	48	11.74
	30 to 39 years	84	20.54
	40 to 49 years	124	30.32
	50 to 59 years	117	28.61
	60 years and above	21	5.13
Household Income	Below RM 1000	26	6.36
	RM 1000 to RM 1999	137	33.50
	RM 2000 to RM 2999	188	45.97
	RM 3000 to RM 4000	36	8.80
	RM 4000 to RM 5000	17	4.16
	RM 5000 and above	5	1.25
Education Level	Primary Level	197	48.17
	Secondary Level	153	37.41
	Diploma Level	37	9.05
	Bachelor Level	22	5.38
	Master Level and above	0	-
Hospital	Hospital Kuala Lumpur	269	64.30
	Hospital Putrajaya	69	16.87
	Hospital Pulau Pinang	77	18.83

Source: Developed for the research.

The adult respondents were selected for the survey as adults are deemed mature enough to answer the questionnaire. Thus, only 15 respondents (3.67%) fall under the age group of 20 years old and below, 48 (11.74%) within 21 - 29 years old, 84 (20.54%) within 30 - 39 years old, 124 (30.32%) within 40 - 49 years old, 117 (28.61%) within 50 - 59 years old, 21 (5.13%) 60 years old and above.

Table-3. Central Tendencies Measurements.

Variables		Means	Standard Deviation
Outpatients' Satisfaction			
OS1	Your feeling towards this public hospital provider is positive.	3.2274	0.8341
OS2	Your feel good about coming to this public hospital provider for your treatment.	3.2200	0.8549
OS3	Your feel satisfied that the result of your treatment is the best that can be achieved.	3.2100	0.8578
OS4	The extent to which your treatment has produced the best possible outcome is satisfying.	3.2396	0.7549
OS5	Overall you are satisfied with this health care provider and the service it provides.	3.3154	0.8259
Competency			
C1	Health staffs in government hospitals clinics have good medical skills.	3.3399	0.8514
C2	Test results, treatment, medications, procedures and side effects are explained in a way that is understandable.	3.3325	0.8671
C3	Professionals like doctors, pharmacists, and support staff in the public hospital are highly skilled.	3.3887	0.7846
C4	Health staff, particularly pharmacists, explained about drugs clearly, in detail, and in a way that was easy to understand.	3.3320	0.8358
C5	Information and advice given by the health staff are very useful and helpful.	3.3716	0.8247
C6	Registry division manages my business efficiently and quickly.	3.0782	1.0067
Responsiveness			
R1	Doctors/nurses respond immediately when called by patients.	2.9144	0.9951
R2	Doctors/nurses are willing to help patients.	3.2127	0.7709
R3	Waiting time for admission not longer than a week.	3.1125	0.9326
R4	Waiting time for admission not longer than 45min.	2.8484	1.0439
Courtesy			
C'1	The manners and courtesy of staff of the hospital.	3.2127	0.7709
C'2	Support given then by staff.	3.3423	0.8196
C'3	The personal interest and concern of the doctor and nurse in their problem.	3.2910	0.6795
C'4	The overall treatment given them by staff of the hospital.	3.3594	0.7830
Tangibility			
T1	Visually attractive and comfortable physical facilities.	3.1247	0.7993
T2	Pleasant smelling.	3.0807	0.7739
T3	Pleasant temperature.	3.2738	0.7973
T4	Patient friendly design of the clinic.	3.2885	0.7409
T5	Professional appearance of physicians.	3.3790	0.8199
T6	Convenient location.	3.1980	0.9739
T7	Up-to-date medical machinery.	3.1467	0.8448
T8	Easy access to the information regarding the clinic.	3.2176	0.8570
T9	Ease of finding a parking space.	2.7701	1.0054
T10	Closeness of parking spaces to the urgent care entrance.	3.1907	0.9486
Reliability			
R'1	Careful diagnosis of patient's problems.	3.3423	0.8106
R'2	Reliability in handling the patient's problems.	3.3374	0.8066
R'3	Correct performance of medical care in the first time.	3.3496	0.8269
R'4	Maintaining accurate and neat records and documentation of the patient's medical history.	3.4768	0.8195
R'5	Keeping patients informed about the follow-up examination.	3.3838	0.8106
R'6	Efficient, reliable and affordable prescribed medicines.	3.3032	0.8408
R'7	Physician reputation.	3.3985	0.7734
R'8	Physician compliance with Universal precautions.	3.4230	0.8370
R'9	Consistency of fees and other charges.	3.4572	0.8336

From household income perspective, there are 26 respondents (6.36%) having a household income of below RM1,000, 137 (33.5%) within RM1,000 - RM1,999, 188 (45.97%) within RM2,000 - RM2,999, 36 (8.80%) within

RM3,000 - RM4,000, 17 (4.16%) within RM4000 - RM5000 and only 5 (1.25%) above RM5,000. It can be deduced that the majority of the outpatients in the public hospitals in Malaysia have relatively low income as 85.83% of the respondents have a monthly household income of below RM3,000.

From the aspect of education level, 197 respondents (48.17%) have education only at the primary level, 153 (37.41%) achieved the secondary education level, 37 (9.05%) are diploma holders and the remaining 22 (5.38%) are bachelor degree holders.

8.2. Central Tendencies Measurement of Constructs

Central Tendencies Measurement of Constructs is shown in Table 3.

From Table 3, it can be seen that the mean value of T9 is the lowest among all the statements, with the value of 2.7701. This means that the respondents are not satisfied in term of tangibility, because of the difficulty in finding parking space in the public hospitals. On the other hand, R'4 has the highest mean among all the statements, which is 3.4768. This indicates that the respondents believe that the staffs in public hospitals keep the records and documentation of patients' medical history properly.

8.3. Reliability Test

Table 4 demonstrates the results of the reliability test. Among all the independent variables, Reliability had the highest Cronbach's Alpha with the value of 0.9323, while Responsiveness had the lowest Cronbach's Alpha of 0.7457. A Cronbach's Alpha of 0.70 is considered acceptable across all of the independent variables (Ong, 2014). Hence the questionnaire is consistently reliable.

Table-4. Reliability Statistics.

Variables	Construct	Cronbach's Alpha	Number of Item
IV 1	Competency	0.8678	6
IV 2	Responsiveness	0.7457	4
IV 3	Courtesy	0.8642	4
IV 4	Tangibility	0.8797	10
IV 5	Reliability	0.9323	9
DV	Outpatients' Satisfaction	0.8964	5

8.4. Normality Test

Table 5 shows the normality test of the constructs. From Table 5, it can be seen that the lowest skewness value is -0.7279 for R'3 and the greatest skewness value is 0.1247 for R4. Furthermore, the lowest kurtosis value is -0.6328 for R1 and the greatest kurtosis value is 1.4031 for R'3. Since the results of skewness and kurtosis results falls within ±2 as recommended by Hair et al. (2010) all the constructs are considered to be normally distributed.

8.5. Multicollinearity Test

The Pearson's correlation analysis results are shown in Table 6.

The highest correlation value is found between Competency (C1) and Reliability (R'1) with a value of 0.7314. However, the correlation between these two variables does not exceed 0.8 as recommended by Kumari (2008). Thus, there is no multicollinearity problem among the variables.

8.6. Tolerance and Inflation Variations

Table 7 shows the tolerance and inflation variations level.

Table-5. Normality Statistics.

Construct	Items	Skewness	Kurtosis
Competency	C1	-0.4972	0.5087
	C2	-0.5178	0.1005
	C3	-0.4078	0.2606
	C4	-0.3304	0.0130
	C5	-0.3618	0.2182
	C6	-0.1720	-0.3412
Responsiveness	R1	-0.0826	-0.6328
	R2	-0.0340	0.4206
	R3	-0.1163	-0.1340
	R4	0.1247	-0.4177
Courtesy	C'1	0.0340	0.4206
	C'2	-0.2498	0.5284
	C'3	-0.2944	0.7586
	C'4	-0.1114	0.2428
Tangibility	T1	-0.2570	0.7394
	T2	-0.3633	0.1923
	T3	-0.4153	0.5278
	T4	-0.1554	0.5847
	T5	-0.3176	0.1703
	T6	-0.2135	-0.2605
	T7	-0.3572	0.4423
	T8	-0.5276	0.3642
	T9	0.0516	-0.4568
	T10	-0.2853	-0.0953
Reliability	R'1	-0.2021	0.5138
	R'2	-0.4055	0.7975
	R'3	-0.7279	1.4031
	R'4	-0.4084	0.4967
	R'5	-0.4154	0.4884
	R'6	-0.5956	0.7499
	R'7	-0.2804	0.7743
	R'8	-0.3724	0.4904
	R'9	-0.3102	0.4858
Outpatients' Satisfaction	OS1	-0.4985	0.6092
	OS2	-0.2255	-0.0945
	OS3	-0.1113	0.0329
	OS4	-0.3593	0.2457
	OS5	-0.3549	0.0527

Table-6. Pearson Correlation Coefficients Matrix.

Variable	C1	R1	C'1	T1	R'1	OS
Competency (C1)	1.0000					
Responsiveness (R1)	0.6475	1.0000				
Courtesy (C'1)	0.6495	0.6643	1.0000			
Tangibility (T1)	0.5188	0.4922	0.5884	1.0000		
Reliability (R'1)	0.7314	0.5689	0.7163	0.6367	1.0000	
Outpatients' Satisfaction (OS)	0.6377	0.5127	0.5933	0.6131	0.6744	1.000

The lowest tolerance value is 0.3263 for reliability, which is greater than 0.1 as recommended by Awwad and Neimat (2010). In addition, the greatest variation inflation factor is 3.0648 for reliability, which is lower than 10 as recommended by Awwad and Neimat (2010). Thus, the multicollinearity problem does not exist.

Table-7. Tolerance and Variance Inflation Level.

Construct	Tolerance	Variance Inflation
Intercept		0
Competency	0.3822	2.6161
Responsiveness	0.4728	2.1149
Courtesy	0.3738	2.6749
Tangibility	0.5520	1.8116
Reliability	0.3263	3.0648

8.7. Multiple Linear Regression (MLR)

The model summary is shown in Table 8.

Table-8. Model Summary.

Root MSE	R ²	Adjusted R ²	Dependent Mean	Coefficient Variance
0.4686	0.5508	0.5453	3.2445	14.4418

Table 8 shows that the R² value is 0.5508. Thus, 55.08% of the change in the dependent variable, outpatients' satisfaction, can be explained by the five independent variables in this study, namely, competency, responsiveness, courtesy, tangibility and reliability.

Table 8 shows the ANOVA of MLR for outpatient satisfaction.

Table-9. ANOVA of Multiple Linear Regression for Outpatients' Satisfaction.

	Sum of Square	df	Mean Square	F	Pr > F
Model Error	108.5102	5	21.7020	98.85	<.0001
	88.4799	403	0.2196		
Total	196.9901	408			

Table 9 shows that the F value in this study has a value of 98.85 and the p value is less than 0.001. This shows that the Multiple Linear Regression in this study is significant, as it fulfils the condition recommended by Chang *et al.* (2015) that the p value should be less than 0.05. This result explains that at least one of the five independent variables has a significant relationship with outpatients' satisfaction. Therefore, the proposed conceptual framework used in this study fits.

Table 10 shows the construct Parameter estimates.

Table-10. Construct Parameter Estimates.

Construct	df	Standardized Estimate	Standard Error	T value	Pr > t	Hypo	Remarks
Intercept	1	0	0.1426	1.16	0.2478	-	-
C	1	0.2464	0.0559	4.56	<.0001	H1	Supported
R	1	0.0265	0.0476	0.55	0.5850	H2	Not Supported
C'	1	0.0770	0.0588	1.41	0.1592	H3	Not Supported
T	1	0.2639	0.0524	5.87	<.0001	H4	Supported
R'	1	0.2559	0.0613	4.38	<.0001	H5	Supported

Source: Developed for the research.

Table 10 shows that all of the independent variables have a positive effect. However, only three out of the five independent variables have a significant effect on the outpatients' satisfaction and the hypotheses supported pertain to Competency (p<.0001), Tangibility (p<.0001) and Reliability (p<.0001) as the p values are less than 0.05 as recommended by Chang *et al.* (2015). On the contrary, Responsiveness (p=0.5850) and Courtesy (p=0.1592) do not have a significant effect on outpatients' satisfaction and thus the hypotheses for these variables are not supported.

The equation of Multiple Linear Regression is formulated as:

Outpatient satisfaction = 0.1650 + 0.2553 (Competence) + 0.0260 (Responsiveness) + 0.0830 (Courtesy) + 0.3076 (Tangibility) + 0.2685 (Reliability).

9. DISCUSSION AND IMPLICATIONS

9.1. *The Relationship between Competence and Outpatient Satisfaction*

As hypothesised, there is a significant positive relationship between Competence and outpatients' satisfaction, which is in line with the results in [Hassali et al. \(2014\)](#), [Abioye et al. \(2010\)](#) and [Amjeriya and Malviya \(2012\)](#) studies. The finding in this study is similar to the result found by [Alrubaiee and Alkaa'ida \(2011\)](#) which supported that the quality of the health care service provided affects patients' confidence in the skill of health care provided. Besides, as evidenced by [Abioye et al. \(2010\)](#) communication skills of doctors would influence outpatient satisfaction. Clear and understandable information and/or explanations provided by health care staff to outpatient would lead to higher levels of outpatient satisfactions. Thus, H1 is supported.

9.2. *The Relationship between Responsiveness and Outpatient Satisfaction*

The result shows that there is a positive relationship between responsiveness and outpatient satisfaction. However, the relationship is found to be insignificant. This finding is different than past studies in [Hassali et al. \(2014\)](#), [Yousapronpaiboon and Johnson \(2013\)](#), [Amjeriya and Malviya \(2012\)](#) and [Ramez \(2012\)](#) This could be due to the payment for outpatient treatment in Malaysian public hospitals is RM1 or even free, which causes patients not to have much expectation for responsiveness from public hospitals. As mentioned earlier, past experiences with health care services could influence patients' expectations of services ([Amole et al., 2015](#)). This could be the reason for H2 not being supported. However, this may not be the case for private hospitals, where fee and charges are much higher.

9.3. *The Relationship between Courtesy and Outpatient Satisfaction*

Contrary to other studies which acknowledged a significant positive relationship between courtesy and outpatients' satisfaction ([Zaim et al., 2010](#); [Amjeriya and Malviya, 2012](#); [Van De Ven, 2014](#)) our research shows that there is an insignificant positive relationship between courtesy and outpatient satisfaction. Although the result indicates that health care staffs are polite, gave supports and showed concern with patients' problems and most of the outpatients are contented with their behaviours, the study shows that courtesy has no impact on determining outpatient satisfaction in public hospitals. This could be due to the majority of the outpatients for public hospitals in Malaysia have relatively low income and the service is given almost free of charge by the government. Hence, great courtesy is not expected. Furthermore, much importance is placed on more crucial service qualities such as competency, tangibility and reliability. As a result, H3 is not supported.

9.4. *The Relationship between Tangibility and Outpatient Satisfaction*

A significant positive relationship is found between tangibility and outpatient satisfaction, which is consistent with past studies ([Odgerel, 2012](#); [Alshatnawi and Amlus, 2016](#); [Pouragha and Zarei, 2016](#)). The significant positive result of tangibility from this study is similar to the finding of [Efuteba \(2013\)](#) which stated that hospitals with good infrastructures and equipment as well as neatly attired personnel that are visually appealing can attract patients, since a positive perception of the hospital is created. Thus, tangibility encourages patients to visit hospitals with such environments for treatment. Therefore, it shows that H4 is supported.

9.5. *The Relationship between Reliability and Outpatient Satisfaction*

Based on the results, there is a significant positive relationship between reliability and outpatients' satisfaction. The result is consistent with prior studies which were carried out by [Essiam \(2013\)](#) and [Zaim et al. \(2010\)](#) which concluded that the higher the ability to perform services accurately and dependably, the higher the level of outpatient satisfaction. It is also in line with the findings of [Yousapronpaiboon and Johnson \(2013\)](#) that health care providers who give proper explanations to outpatients would influence outpatient satisfaction. As a result, H5 is supported.

10. IMPLICATIONS OF THE STUDY

This study used the theory of SERVQUAL Model to explain the overall research framework on the relationship between service quality and outpatients' satisfaction towards public hospitals which can serve as a reference and research method for future researchers. The R-square value of 0.5508 with a good model fit indicates that the SERVQUAL model with the five variables, Competency, Responsiveness, Courtesy, Tangibility and Reliability successfully provides the explanation about the influence of these service quality factors on the outpatients' satisfaction towards public hospitals in Malaysia. This study can serve to reduce the research gap as it is one of the few studies in Malaysia which studied the relationship between service quality and outpatients' satisfaction towards public hospitals. Future researchers who intend to study a similar topic can obtain a better understanding from our findings.

As tangibility, reliability and competency are supported to have a significant relationship with outpatients' satisfaction; public hospitals in Malaysia should pay more attention to designing a pleasant and comfortable physical environment. The Malaysian Government may consider investing in more advanced and complete equipment, building more car parks, good interior design of doctors' chambers and having pleasant infrastructures and facilities in order to enhance outpatients' satisfaction.

Health care providers such as doctors should also strengthen their competency. Besides receiving training to have better medical skills and communication skills, they should also have good cultural skills so that they are able to improve the quality of the relationship between patients and physicians in a multi-racial country like Malaysia. Proper explanation to outpatients should be given and documents should be preserved neatly and accurately in order to prevent errors or misunderstanding.

10.1. *Limitation of Research*

There are a few limitations in this study. Firstly, the research is cross-sectional study which was carried out at a specified time period and there is no revisit or follow up on the outpatients' information. According to [Caruana et al. \(2015\)](#) the cross-sectional study does not bring out causal relationship results but provides correlation relationship.

Secondly, due to time constraints, the researchers were unable to distribute the survey to all the public hospitals in Malaysia. Therefore, only three of the highest density outpatient population States are targeted as places of the survey.

Lastly is the language barrier. During the data collection, we found that a large portion of respondents has low education levels with low English proficiency. Thus, we have to explain to the respondents the meaning of some questions either in Malay or Chinese language. Although we distributed the questionnaire personally and were available to answer any questions raised, it is possible that some of the respondents may still not have fully understood the questionnaire in English and answered the questionnaire incorrectly.

10.2. Recommendations for Future Research

The longitudinal study is recommended because data over a longer period of time can provide more accurate and better results and promote the understanding of the relationships between service quality and patient satisfaction by including other variables in the SERVQUAL model. Furthermore, research should be conducted at more hospitals.

In addition, respondents might be weak in English as English is not the official language in Malaysia. To overcome the language barrier, the researchers should provide three versions of the survey questionnaires in English, Malay and Chinese. This can increase the understanding of the survey questionnaires in this multi-racial country.

10.3. Conclusion

This research helps to improve the understanding of the relationship between service quality and outpatient satisfaction. All the research questions are answered and the objectives are fully achieved. The 0.5508 in R^2 value shows that SERVQUAL model is applicable in this study. Also, this research has found out that tangibility, reliability and competency are significant in influencing outpatients' satisfaction.

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