An Estimation of Service Quality in King Khalid Hospital, Saudi Arabia

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Abstract
This research has investigated the patient's utility of hospital-service provided by King Khalid Hospital, Saudi Arabia. SERVQUL model has been used after collecting primary data from 250 respondents on the five quality dimensions through simple random sampling. Cronbach' alpha statistic has confirmed the reliability of our constructs and instruments. Negative and significant gap between actual and expected quality has been observed in all five quality dimensions and in average overall quality provided by hospital as well. Reliability construct shows a highest gap in the quality. This study concludes the unsatisfactory service delivered by this hospital and gives suggestions to this hospital to improve its quality of service after doing the individual items' analysis.

Key Words: SERVQUAL model, Actual Quality, Expected Quality

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1. Introduction

Government of Saudi Arabia is investing a lot its budget on the health and social sector development. As 8% to 10% of the total budget has been allocated in this sector in a period of 2013-15 and Kingdom has a very good health infrastructure to provide the medical facilities to its inhabitants (SAMA, 2015). King Khalid Hospital (KKH) is a government sector hospital. It is a only public sector hospital that is providing medical services to Al-Kharj city and many other small cities, towns and villages surrounding the Al-Kharj region. It has a good medical infrastructure and team of well qualified staff. Therefore, the quality of this hospital is highly expected as it is also competing a number of private hospitals and medical centers. In case of public sector hospital service, the quality of service is also very important on the humanitarian grounds. As it is a state responsibility to provide the prompt hospital services to its inhabitants.

The quality of service has no precise definition. But it can tested by analyzing the gap between expectation of customer and actual received quality. A negative and significant gap of actual minus expected quality is an indication for poor services in any organization like KKH. On the other hand, a positive and significant gap may ensure a good quality service delivery. Quality of service can be differentiate in the technical and functional quality. The physical infrastructure and its appropriate usage can be ensured the technical quality. And, functional quality is concerned with a procedure of providing the services. Both kinds of quality dimension are very important in ensuring a quality of service because ignoring one can depress the performance of other. And, the expectation of customer are also very important in determining the quality of service in this regard. A positive or negative deviation of actual and expected service can be used to conclude about quality of service.

In case of our study, we are using a SERVQUAL model extended by Nyeck et al. (2002). He uses the five quality dimensions namely; tangibility, assurance, reliability, responsiveness and empathy. This model has also been used in many empirical research on the testing service quality in case of hospital services. Tangibility may explain the equipment infrastructure and human capital in acquiring the hospital services. Assurance reflects the courtesy, competency and behavior of staff to provide medical services if it is won by staff in accomplishing the trust of patients. Reliability captures the capacity of hospital to deliver the services with accuracy and timely manners. Responsiveness shows the level of enthusiasm of hospital staff in delivering quick services. Empathy requires the care in the individual cases particularly in the humanitarian way. The present study includes all of five quality dimensions through reasonable items in our questionnaire on the actual and expected service quality to capture the real gap between two and to conclude the level of service quality provided by KKH.

The present study targets at finding the service quality level at KKH. Secondly, it also wants to compare the five quality dimension to demonstrate that which quality dimension is more important in case of KKH. What kind of measures can help in achieving a better quality delivery in this case. In addition, we are also trying to capture the items which contributes most to service quality in each quality dimension. There has been no single study on the KKH as per our knowledge and our study is

going to fill this gap and has intention to add the most significant contributors in raising the quality of service provided by KKH.

2. Literature Review

There is vast literature on SERVQUAL model. This study focus only studies on the hospital services and particularly, on the recent literature with the agreement and disagreement on the satisfaction of hospital services.

Al-Faraj (2009) investigates SERVQUAL model with seven dimensions for 4 hospitals located in Syria after collecting the data from 474 respondents. He concludes the satisfactory service quality as 75% of respondents express the satisfactory service and average service score remain more than 2.5. Brahmbhatt et al. (2011) test this model for a mix sample of government and private sector hospitals in India after collecting a sample from 246 respondents with an objective to compare the quality dimensions in both kinds of hospitals. They find the negative and significant gaps in both types of hospitals. Therefore, they concludes a unsatisfactory service of hospitals. Reliability scores show highest difference in actual and expected quality. Further, private hospitals show better performance than public ones in the most of service quality dimensions.

Punnakitikashem et al. (2012) test this model on five quality dimensions in case of public hospital of Thailand after collecting the data from 350 respondents. They find negative service quality gaps for assurance and empathy. For the rest of service quality dimensions, the gap remains positive. Reliability and tangibility contributes most to the positive gap. Further, overall average of gap of service quality is found positive. Therefore, they conclude a satisfactory service quality of that hospital. Peprah and Atarah (2014) explore this model with six quality dimension by adding a new quality dimension of communication in the hospitals located in Ghana. They conclude the positive gaps in the quality dimensions of empathy and tangibility and negative gaps have been found for the rest of quality dimensions. Overall unsatisfactory service has been found. Further in the individual items' analysis, timely services, poor response of staff, poor infrastructure and poor reputation of hospital remained major contributors in the poor service quality.

Zarei et al. (2012) explore the 4 dimensions of SERVQUAL model for 8 hospital in Iran by collecting data from 983 respondents. They catch a negative score in the difference of actual and expected service quality in all tested dimensions. Therefore, they conclude a unsatisfactory service quality in the hospitals. Further, they find largest gap in empathy dimension. They also perform individual items analysis in each quality dimension and float a lot of policy recommendations to improve the service quality. In the same country, Anbari and Tabaraie (2013) work on five dimensions of service quality by collecting data from 385 respondents in 3 hospital located in Arak. They find negative gaps in all quality dimension while investigating the gap between actual and expected quality. Further, they find a largest gap in tangibility and suggest to improve infrastructure of hospitals to improve the service quality. They also find that patients show more concerns with the reliability dimension. Kazemi et al. (2013) search this model in case of hospital located in Iran. They discover the negative gaps in the analysis of five service quality dimensions and

conclude unsatisfactory service quality. Further, responsiveness contributes most of gap in the overall quality.

In case of Saudi Arabia, Sayed et al. (2013) examine the SERVQUAL model in case of one public sector hospital in Makkah. They find insignificant gap in the actual and expected quality and conclude a satisfactory service quality. Al-Azmi et al. (2012) explore this model in 3 public sector hospitals with explaining the impact of five quality dimensions on overall quality. They conclude that all dimensions remain significant contributors in explaining the overall quality. Further, they find highest influence of assurance in the analysis. Al-Borie and Damanhouri (2013) survey a mix sample of five public and private sector hospitals to test the SERVQUAL model. They finds a negative and significant gap in all quality dimension of hospital and conclude an unsatisfactory service quality delivered by these hospitals according to patients' expectations. Saaty (2015) explore the SERVQUAL model for the public sector hospitals located in different cities of Saudi Arabia. He finds negative gaps in all service quality dimensions and concludes unsatisfactory services of public hospitals. Further, he suggests to focus on all quality dimension to ensure the delivery of service according the patients' expectations.

3. Data and Methodology
We have collected the data from 250 patients in the various departments of hospital through a well-structured questionnaire in KKH. We have used simple random sampling to collect the data. Our questionnaire carries two parts. In the first part, the personal data of the patients has been asked. Second part contains forty-five items to ask the five service quality dimensions of SERVQUAL model and number of items are well distributed in each quality dimension. Each item has been asked with Likert scale of values 1-5 from strongly disagree to strongly agree. Therefore, the higher checked value is representing more level of satisfaction.

For the estimation of data, we have used the descriptive statistics to analyze the average value of each quality dimension with its minimum and maximum values. Correlation analysis has been done to compare degree of relationship of each quality dimension with overall quality. Personal profiles of respondents has been analyzed to check the demographic and economic conditions and to validate the well distributed respondents of all cohorts in our analysis. The reliability of our five quality constructs has been tested by Cronbach's alpha statistics. Quality gap analysis has been done by taking the difference of average actual quality and average expected quality. Further, its difference has analysis to be statistically significant or not through t-statistic test. Lastly, we have analyzed the contribution of each item in all quality dimension to compare the major contribution of each item in our analyses.

4. Empirical Analysis
At first, we are discussing the descriptive statistics in table-1. Results show that average score of all quality dimensions and average overall quality is greater but very close to 3. This result is depicting a picture of neutral opinion about the actual quality received. Minimum and maximum scores show that all kinds of opinion are presented in our data and standard deviation show a reasonable variation in the opinions.

Table 1
Descriptive Statistics

Quality Dimensions	Number of observations	Min.	Max.	Mean	Standard Deviation
Reliability (RB)	2500	1	5	3.0850	0.7943
Responsiveness (RS)	2250	1	5	3.1555	0.8452
Assurance (AS)	1500	1	5	3.1763	0.8762
Tangibility (TG)	2750	1	5	3.3132	0.7879
Empathy (EP)	2250	1	5	3.2319	0.8451
Overall Quality (OQ)	11250	1	5	3.1924	0.7891

Table-2 shows the correlation of all quality dimensions with each another and with overall quality. The results show very reasonable magnitudes of relationships among all quality dimensions as it is greater than 0.8 in all cases and showing inter-relationship in defining the quality. It also shows that all dimensions have very strong relationship with overall quality as it remains greater than 0.9 in all cases and highest relation has been observed in case of reliability.

Table 2
Correlation Analysis

Variables	RB	RS	AS	TG	EP	OQ
RB	1					
RS	0.872	1				
AS	0.879	0.841	1			
TG	0.843	0.826	0.812	1		
EP	0.857	0.829	0.826	0.816	1	
OQ	0.921	0.911	0.901	0.910	0.906	1

Table-3 reflects the economic and demographic features of all patients under our sample. The percentage participation of all aspects are showing a good distribution of respondents in our sample. As male and female both have participated in our sample. All cohorts of age groups and marital status are also presented in our survey. The level of education reflects a good image of our survey as most of percentage fall in cohort of graduates. Monthly income, family members and hospital sections are also showing a good distribution of our respondents. Further, average income between 5000 & 10000 remain highest in our survey.

Table 3
Economic and Demographic Aspects of Patients

Variables		Percentage of total Sample
Gender	Male	68.9
	Female	31.1
Age in Years	< 25	37.1
	25-34	28.9
	35-44	24.1

	45-54	7.9
	55-64	2.8
	> 65	2.0
Marital Status	Married	54.1
	Single	38.8
	Others	7.1
Education	Uneducated	4.71
	Secondary or less	13.92
	Diploma	12.32
	Graduate	49.1
	Master/PhD	19.95
Family Members	< 5	37.92
	5-10	46.89
	> 10	15.19
Monthly Income	< 3000 SR	16.11
	3000-4999	16.92
	5000-9999	38.27
	> 10000	28.70
Hospital-Section	Outdoor	43.12
	Emergency	37.17
	Psychological Dept.	12.92
	Others	6.79

Table-4 proves a very good type of reliability of our constructs and we can trust on our constructs for further analysis. As Cronbach's alpha value is greater than 0.8 in the actual quality received and it is greater than 0.9 in case of quality expected by patients. A very high value in expected quality also reflects that all patients want high quality and variation in that opinion is very low.

Table 4
Cronbach's Alpha Reliability Test

Number of Items	Quality Dimension	A	
		Actual	**Expected**
11	TG	0.834	0.961
10	RB	0.882	0.959
9	RS	0.861	0.967
6	AS	0.849	0.964
9	EP	0.889	0.957
45	OQ	0.951	0.989

Table-5 shows the quality gap analysis. Results show that all quality dimension gaps along with overall quality are negative and highly significant. Therefore, we are concluded an unsatisfactory service quality delivered by KKH in our analysis. This implies that hospital is not providing the service quality according to patients' expectations. The largest gap is found in the reliability dimension. This result is matching with our correlation analysis as reliability has a highest correlation with overall quality.

Table 5
Gaps in Quality Dimensions

Quality Dimension	Avg. Perceived	Avg. Expectation	Avg. Gap	t-value	P-value
TG	3.3132	4.8996	-1.5864	-29.642	0.000
RB	3.0850	4.8827	-1.7977	-28.963	0.000
RS	3.1555	4.8834	-1.7279	-27.983	0.000
AS	3.1763	4.9009	-1.7246	-29.734	0.000
EP	3.2319	4.8880	-1.6561	-27.734	0.000
OQ	3.1924	4.8909	-1.6985	-31.982	0.000

Table-6 shows analyses of individual items that are contributing most to each quality dimension. To take discussion short, we are just taking one highest gap item in each quality dimension. In the overall picture, all items are contributing negative and significant gaps. In reliability dimension, item No. 6 has negative and significant largest gap. This item is directly concerned with asking the level of accuracy in the services. Therefore, low level of accuracy is contributing most to reliability gap. Item No. 14 gives largest gap in responsiveness dimension. Item is asking about instant action on the complaints of patient. Therefore, its late response is becoming a largest reason for responsiveness gap. Item No. 25 has a largest gap in assurance gap. That is about the goodwill of hospital in the eyes of general public located around hospital. Therefore, a bad reputation is playing greater role in assurance gap. Item No. 28 is generating largest gap in tangibility quality dimension. That item is concerned about modern medical equipment. Therefore, outdated machines are majorly responsible for tangibility gap. Item No. 44 in the empathy dimension playing highest gap in empathy dimension. That is concerned about the dealing of hospital in the humanitarian cases. This negligence of hospital is contributing most in empathy dimension.

Table 6
Individual Item's Gaps Analysis

Quality Dimension	Item Number	Avg. Perceived	Avg. Expected	Avg. Gap	t-value	P-value
RB	1	3.0092	4.9015	-1.8923	-23.981	0.000
	2	3.1132	4.9145	-1.8013	-25.092	0.000
	3	3.0884	4.9067	-1.8183	-23.071	0.000
	4	2.9682	4.8416	-1.8734	-21.931	0.000
	5	3.6771	4.9289	-1.2518	-17.124	0.000
	6	2.7681	4.8308	-2.0627	-23.954	0.000
	7	3.0399	4.9111	-1.8712	-22.853	0.000
	8	3.2665	4.8479	-1.5814	-20.541	0.000
	9	3.0212	4.8739	-1.8527	-24.762	0.000
	10	2.9519	4.8702	-1.9183	-24.138	0.000
RS	11	3.1462	4.8737	-1.7275	-22.372	0.000
	12	3.1733	4.8926	-1.7193	-24.541	0.000
	13	3.2275	4.8726	-1.6451	-18.942	0.000
	14	2.6296	4.8210	-2.1914	-24.651	0.000
	15	2.8823	4.8495	-1.9672	-22.872	0.000
	16	3.3448	4.9173	-1.5725	-21.521	0.000
	17	3.0686	4.8895	-1.8209	-23.712	0.000

	18	3.5	4.9183	-1.4183	-19.264	0.000
	19	3.4273	4.9165	-1.4892	-18.251	0.000
AS	20	2.9624	4.8827	-1.9203	-22.541	0.000
	21	3.3290	4.9183	-1.5893	-22.061	0.000
	22	3.1430	4.8845	-1.7415	-24.251	0.000
	23	3.7142	4.9315	-1.2173	-18.713	0.000
	24	3.0845	4.9173	-1.8328	-22.582	0.000
	25	2.8248	4.8709	-2.0461	-21.873	0.000
TG	26	3.4283	4.9193	-1.4910	-18.582	0.000
	27	3.2247	4.9163	-1.6916	-22.951	0.000
	28	3.0439	4.8710	-1.8271	-24.712	0.000
	29	3.1022	4.8934	-1.7912	-21.417	0.000
	30	3.3357	4.9028	-1.5671	-24.719	0.000
	31	3.7536	4.9826	-1.229	-18.142	0.000
	32	3.2859	4.8173	-1.5314	-22.652	0.000
	33	3.3	4.9271	-1.6271	-21.942	0.000
	34	3.4446	4.9265	-1.4819	-22.651	0.000
	35	3.0962	4.8563	-1.7601	-22.562	0.000
	36	3.4297	4.8825	-1.4528	-19.412	0.000
EP	37	3.1040	4.8743	-1.7703	-25.015	0.000
	38	3.2467	4.9285	-1.6818	-21.824	0.000
	39	3.2041	4.8934	-1.6893	-23.762	0.000
	40	3.0896	4.8738	-1.7827	-24.162	0.000
	41	3.7017	4.9173	-1.2156	-17.261	0.000
	42	3.4738	4.9753	-1.5015	-21.623	0.000
	43	3.1838	4.8673	-1.6835	-21.742	0.000
	44	3.0051	4.8452	-1.8401	-22.527	0.000
	45	3.0782	4.8173	-1.7391	-21.425	0.000

5. Conclusions and Recommendations

This research explores the SERVQUAL model for King Khalid Hospital, Saudi Arabia. We have collected primary data from 250 respondents through a well-structured questionnaire on five quality dimensions of SERVQUAL model. Our analysis has confirmed the reliability of our sample and validity of our constructs. The results have found negative and significant gaps in all dimensions of service quality in our sample and in the overall average quality testing. A largest gap has been identified in the reliability quality dimension. Correlation analyses also confirms the highest relationship of this quality dimension with overall quality of services. This study concludes unsatisfactory hospital services with compare to patients' expectations. Further, our individual item's analyses float many policy implications for hospital. Hospital should provide the services in timely manners. Complaints of patients should be given first priority. Hospital should win confidence of community and win a good reputation through its technical and functional efficiency. Hospital needs to be advance in the medical equipment. Lastly, hospital should focus more on the humanitarian cases.

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