

Effective factors on improving the quality of hospital services in south of Iran

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Abstract

Objective: To determine the quality of service being provided in a hospital in southern Iran and to evaluate it from patients' perspective.

Methods: The cross-sectional study was conducted at a general university hospital in Shiraz, southern Iran, in two phases in 2015. The first phase comprised a survey based on SERVQUAL method-ServQual stands for Service Quality- and collected data from hospitalised patients. In second stage Decision Making Trial and Evaluation (DEMATEL) technique was employed to prioritize quality factors identified in first stage to suggest action. The second phase comprised experts who determined the relationship between 5 quality aspects and 14 criteria in line with DEMATEL matrixes. SPSS 16 was used for data analysis.

Results: Of the 208 subjects in the first phase, 103(49.5%) were men and 105(50.5%) were women. The second phase had 12 experts from among the senior nursing staff. In all the five aspects of service quality, the hospital was not able to meet the expectations of the patients ($p < 0.001$). DEMATEL analysis indicated responsiveness as the most important element for improving service quality, followed by reliability, empathy, assurance and tangibility.

Conclusion: The authorities running the hospital needed to eliminate the negative gap and improve service quality by taking necessary measures.

Keywords: Hospital services, Quality improvement, SERVQUAL model, DEMATEL technique. (JPMA 70: 1709; 2020)

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Introduction

The quality of the healthcare is essential because it needs to satisfy both the patients and the professionals.¹ Moreover, in the present constantly-changing environment, it is vital for the hospitals to pay special attention to the improvement of their service quality so as to raise their status and remain competitive.² This is because the patients who are satisfied with the service provided by a hospital are more likely to return to the same hospital for their other illnesses and to recommend the hospital to their friends and relatives.³

Quality improvement in the public sector is faced with loads of challenges, one of them being the concept of quality and its assessment.⁴ In order to assess and judge the quality of service, researchers have identified five main aspects, including tangibility, reliability, responsiveness, assurance and empathy.⁵ Tangibility is related to the appearance of existing facilities, equipment, staff and communication devices. Reliability means that the promised service is to be provided to the clientele in an appropriate, precise and impeccable

manner and without any delay. Responsiveness refers to the willingness to help the clientele and to provide emergency service. Assurance points to the alertness, presence of mind and ability of service providers in winning the clientele's trust. Empathy refers to paying special and friendly attention to the clientele.⁵

On a practical level, studies on service quality have been conducted based on the gap model the main idea of which is that service quality is dependent upon the point difference or the gap between the expectations and understandings of the clientele. In other words, based on this model, the service quality is defined through the assessment of the degree of gap between the common expectations of the clientele and their understandings of the delivery of the service.⁴

Based on this model, the SERVQUAL tool was created in 1988, and subsequently used in different environments in order to measure the understandings of the clientele in the five aforementioned aspects.⁵ If the provided service is beyond the expectations of the patient, it will be deemed as pleasant and extraordinary. If the provided service conforms to the patient's expectations, it will be deemed as satisfactory and, finally, if the service is less than what the patient expected it to be, it will be regarded as not satisfactory.⁶

Nowadays, with the improvement in information and technology, especially in medicine, the expectations of

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the patients rise day by day. The demand for a more modern, more efficient and worthier care with supervision is an inevitable offshoot of this change. Therefore, the health administrators, while paying attention to the limitation in facilities and resources, need an appropriate attitude regarding the improvement in service quality, one that can help them in employing those limited resources alongside increasing the satisfaction of the patients.⁷

Concerning the limited resources, administrators should prioritise the necessary aspects for the improvement of the service quality and give priority to the aspect which increases the satisfaction of the patients to a greater extent.⁸

The current study was planned to determine the different dimensions of the quality of services being provided in a hospital in southern Iran and to evaluate service quality from the patients' perspective in order to suggest steps to improve quality of care in the hospital.

Patients and Methods

The cross-sectional study was conducted at a general university hospital in Shiraz, southern Iran in 2015. The hospital has 37 wards and 680 beds. In the first phase, SERVQUAL model was used and all in-patients at the time were enrolled for the survey.

Only those who were conscious and willing to participate after having spent at least 24 hours in the hospital were included. For paediatric patients, the consent was filled out by their parents.

The sample size was calculated in line with earlier studies⁵ with a maximum error of 0.05, standard deviation of 0.22⁵ and confidence level of 95%. The SERVQUAL model has been widely applied in hospitals and healthcare organisations to evaluate service quality.⁹⁻¹³

The standard SERVQUAL questionnaire has 22 variables, and it is ranked on a five-point Likert scale. Validity and reliability of the Persian version of it were approved by the experts and had a Cronbach's alpha value of 94.5.

SERVQUAL has two sets of questions; one evaluating the expectations of the patients, and the other assessing their perceptions of the services provided. Service quality is

judged based on whether there are gaps between their perceptions and expectations. If this gap is positive, it indicates that the performance is beyond expectations, while if it is negative, it means that the performance is not able to meet the expectations of the patients.¹³

The second stage of the study was started after analysing SERVQUAL data using SPSS 16. The normality of data was assessed using Kolmogorov-Smirnov test and the paired sample t-test was employed to calculate the differences between perceptions and expectations.

Based on the analysis, the top 14 criteria were chosen for the second stage in which the DEMATEL technique was employed to prioritise these factors to suggest necessary action. DEMATEL was used to find out connection or casual relations between the 5 aspects and the 14 criteria of service quality based on the SERVQUAL model. The second stage comprised experts from among the nursing staff willing to participate. Based on the logic of DEMATEL technique, the questionnaires were exchanged twice between the researchers and the experts to determine the degree of conformity between the comments of the experts and the matrix of the relationships between the criteria and the service quality aspects, the intensity of the relationships between the latter being determined via the

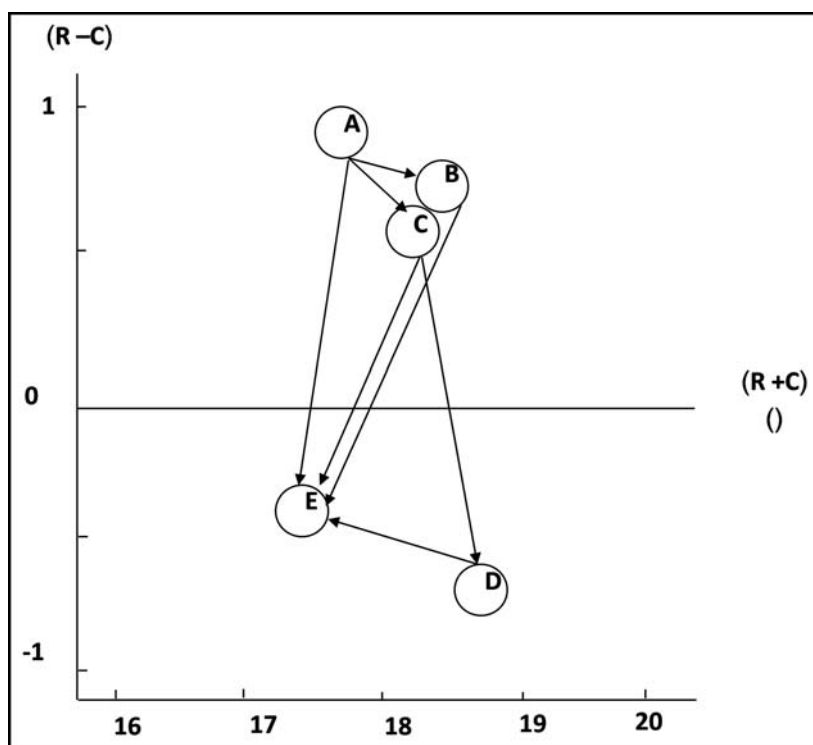


Figure: The digraph showing causal relations among five dimensions of service quality. The coordinates of the location of any aspect determined by (R-C) and (R+C) values. And impact of the factor on other factors and its direction determined by DEMATEL matrix.

grading of 1 (low effect) to 3 (high effect). The findings were finally analysed using Microsoft Excel.

According to the DEMATEL methodology, the total-influence matrix of five aspects of service quality from SERVQUAL model is completed based on influential relation between them. Also this is completed for 14 criteria of service quality separately.

The degree of importance and net effect for each aspect are provided by two indicators "R+C" and "R-C", where the importance of five aspects of service quality in terms of (R+C) values, the highest value is the most important aspect, whereas lowest is the least important aspect. For net effects, aspects are net causes with positive (R-C) values. In contrast, aspects are net receivers with negative (R-C) values.

Results

Of the 208 subjects in the first phase, 103(49.5%) were men; 105(50.5%) were women; 36(17.6%) were aged <20; 142(69.9%) did not have high school diploma; and 69(32.9%) had been in hospital <3 days (Table-1).

The patients expected assurance, followed by reliability,

Table-1: Demographic characteristics.

Demographic information		Frequency (percentage)
Gender	Male	103 (149.5)
	Female	105 (50.5)
Age groups	< 5	17 (8.3)
	5-10	8 (3.9)
	11-20	11 (5.4)
	20-40	56 (27.5)
	41-60	62 (30.4)
	61-80	42 (20.6)
	> 80	8(3.9)
Education Level	Under Diploma	142 (69.6)
	Diploma	42 (20.6)
	Upper Diploma	20 (10.1)
Length of Stay in Hospital (day)	1- 3	69 (32.9)
	4-7	49 (23.3)
	> 7	79 (37.6)

Table-3: The sum of influences given and received among the five dimensions of service quality.

Label	Five aspects of service quality from SERVQUAL model	R+C	R- C
A	Tangible	17.65	0.83
B	Responsiveness	19.38	0.72
C	Reliability	18.98	0.65
D	Assurance	19.10	0.63
E	Empathy	17.39	0.47

(R +C): Demonstrates the importance order of the factors, based on the greater the (R +C) value indicated the more importance of the factor. (R- C): Demonstrates the influences given and received, based on the greater the (R- C) value, indicated the greater influence of this factor on other factors.

Table-4: The sum of influences given and received among the 14 criteria of service quality.

Label	Service quality criteria from SERVQUAL model	R+C	R- C
a	The physical facilities at excellent hospitals will be visually appealing	17.65	0.83
b	The physical facilities at excellent hospitals will be enough.	19.38	0.72
c	Personnel at excellent hospitals will be neat in appearance	18.98	0.65
d	When excellent hospitals promise to do something by a certain time they will do so.	19.1	0.63
e	When a patient has a problem, excellent hospitals will show a sincere interest in solving it.	17.39	0.47
f	Excellent hospitals will get things right the first time.	15.98	0.39
g	The hospital insists on error-free records.	19.98	0.25
h	Personnel in the hospital give you prompt service	17.93	0.16
i	Personnel in the hospital are always willing to help you.	16.02	-0.97
j	The behaviour of personnel in the Hospital instills confidence in you	19.34	-0.87
k	You feel safe in your dealings with the Hospital.	17.38	-0.59
l	Personnel in the hospital are consistently courteous with you	15.98	-0.043
o	Personnel in the hospital have the knowledge to answer your questions.	16.03	-0.2
p	The hospital gives you individual attention.	0.19	-0.19

(R +C): Demonstrates the importance order of the factors, based on the greater the (R +C) value indicated the more importance of the factor. (R- C): Demonstrates the influences given and received, based on the greater the (R- C) value, indicated the greater influence of this factor on other fact.

Table-2: Mean and standard deviation of patients' perception, expectation and service gap in five SERVQUAL dimension.

Service Dimensions	Perception (Mean $\pm$ SD)	Expectation (Mean $\pm$ SD)	Service gap (Perception - Expectation)	Paired T-Test P-value	t
Tangible	3.88 $\pm$ 0.72	4.68 $\pm$ 0.46	-.802	.0001	-14.884
Reliability	3.83 $\pm$ 0.81	4.69 $\pm$ 0.45	-.854	.0001	-14.422
Responsiveness	3.68 $\pm$ 0.90	4.56 $\pm$ 0.61	-.882	.0001	-12.780
Assurance	3.94 $\pm$ 0.85	4.70 $\pm$ 0.47	-.760	.0001	-12.526
Empathy	3.81 $\pm$ 0.86	4.53 $\pm$ 0.57	-.722	.0001	-11.957
Total	3.83 $\pm$ 0.75	4.63 $\pm$ 0.43	-.800	.0001	-15.126

tangibility, responsiveness and empathy (Table-2). In all these domains, there existed a statistically significant difference between the expectations of the patients and the performance of the hospital ($p < 0.001$ each).

The five aspects of service quality, based on R+C values, were subsequently prioritised, with responsiveness having the highest importance and tangibility having the lowest (Table-3).

The expert group in the DEMATEL phase of the study comprised 12 senior members of the nursing staff who evaluated the 14 criteria of service quality that were assessed on the basis of their R+C and R-C values (Table-4).

Discussion

The findings of the study exposed a negative gap in all the 5 aspects of service quality, indicating that the needs and expectations of the hospitalised patients were not being met. Results of gap analysis between perceptions and expectations of medical-surgical patients in a public hospital in Saudi Arabia indicated that patients were not satisfied with the nursing service quality in relation to all dimensions. The gap score for all of the 5 dimensions of nursing services were negative.¹⁴

According to patients' perceptions about the service quality of a public hospital in Pakistan, the lowest mean value of quality dimensions was for empathy, highlighting the fact that public hospitals lacked the ability to handle patients' problems properly, services were not offered timely, and they were short of staff.¹⁵

In recent years, hospitals of different cities of Iran have been surveying service quality, using the SERVQUAL tool. In a study conducted 10 years ago in Shiraz also - where the hospital surveyed by the current study is also located - negative gap existed in all aspects of service quality¹⁶ which is quite in line with the results of the present study, implying that this weakness can still be seen in hospitals and has not yet been done away with after 10 years.

It was also the case with one of the surveyed hospitals in Tehran, where service quality from the viewpoint of in-patients had negative gap in all the aspects.¹⁷ In Zahedan, another city in southern Iran, the quality of service could not meet the standards in any aspect.¹⁸

In a survey of hospitals across Shiraz about a decade ago, the highest negative gap existed in the aspects of responsiveness and tangibility¹⁶ which is similar to the result of the present study, implying that responsiveness was, and still is the most significant problem in the quality of service.

The survey of certain hospitals in Zanjan, a city in central Iran, indicated that the highest and lowest negative quality gap existed in aspects of responsiveness and tangibility respectively,¹⁹ which is similar to our results. In a Tehran hospital, the highest and lowest negative gap existed in terms of tangibility and assurance respectively.¹⁷ As far as the hospitals of Zahedan are concerned, the highest and lowest gaps were related to empathy and assurance¹⁸ which is different from our results.

Based on the results of the current study, there exists a meaningful difference between the understandings and expectations of the patients in all the aspects of service quality, and this difference should be removed through administrative measures, including hospital's appearance, physical factors and medical equipment,²⁰ even clothes and personal hygiene of the staff.²¹ With respect to reliability, it is necessary for the service providers to keep their promises related to the provision of services at the designated time. Also, the hospital has to keep medical record of patients in a professional manner to improve reliability ratings.

Responsiveness is one of the important factors in service quality and one of its aspects is the availability of medical staff when and where they are expected to be.²² Determining the time and period of treatment is a contributing factor to overall responsiveness and informed patients tend to feel better.²³

In order to improve the service quality in terms of reliability and assurance, one could improve communication skills of the staff so that in their interaction with the patients, the personnel might be able to give them self-confidence and a sense of security. They also need to add to their knowledge so as to be able to provide clearer and more definite answers to the questions of the patients and in the process increase their trust in hospital.

Empathy plays an important role in the recovery of the patients.²⁴ The hospital under study should also provide essential training to the medical staff so that they can learn skills related to interaction with different patients, considering their personal tendencies and differences.

As determined by the current study, the hospital concerned should start with responsiveness, followed by reliability, empathy, assurance and tangibility.

The most effective variable related to service quality, as chosen by the respondents in the current study, was, "The physical facilities at excellent hospitals will be visually appealing", and the next variable was, "The physical

facilities at excellent hospitals will be enough".

In a Taiwan study using the same tools, the most effective variable was, "A perfect hospital has new and modern equipment and tools".⁸ Another study indicated that the quality of diagnosis and the result of treatment were the most important factors in the quality of medical service, with system management, environment and equipment being more important than other elements in service quality, according to the patients.²⁵ The tools employed to assess the quality of service in that study and the present one, however, were different, and that explains the difference in outcome.

Conclusion

The authorities running the hospital studied need to eliminate the negative gap and improve service quality by taking necessary measures. They have to creatively re-engineer and re-design their quality management processes to eliminate the negative gap in the quality of services.

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