



Patients' Views on Service Quality in Selected Iranian Hospitals: An Importance-Performance Analysis

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Abstract

Background: One of the basic steps to quality improvement in hospitals is to obtain patients' feedback.

Objectives: The aim of this study was to assess the quality of hospital services from patient's perspective in hospitals affiliated with the Dezful University of Medical Sciences (DUMS), Dezful, Iran.

Methods: In this cross-sectional study, 400 patients were selected from six hospitals of DUMS. The data was collected using the SERVQUAL questionnaire including 22 pairs of questions (organized in two aspects of service importance and performance) in 5 dimensions of tangibility, reliability, responsiveness, assurance and empathy. The importance-performance analysis (IPA) was used to determine the weaknesses of service quality and prioritizing the aspects requiring improvement.

Results: The mean age of the patients was 38.5, 32% (n = 128) had academic degrees, 55% (n = 220) were self-employed, and 16.5% (n = 66) did not have health insurance. The average length of day was 7.8 ± 8.3 days. The mean score of the importance and performance were 4.37 ± 0.75 and 3.72 ± 0.94 , respectively. The service quality gap was -0.65. Tangibility (-0.68) had the largest negative gap while the smallest gap was related to the reliability (-0.63). The gap between importance and performance was significantly negative in all attributes and dimensions ($P < 0.001$). The results of the IPA showed that the tangibility was located in the Q VI, reliability and assurance in the Q I, and the responsiveness and empathy in the Q III quadrants.

Conclusions: Quality of hospital services did not meet patients' expectations and there is a room for improvement and obviate the gaps. Decision-makers can further use the results of the IPA to effectively allocate limited resources giving special attentions to the organizational weaknesses.

Keywords: Service Quality, Patient Satisfaction, Importance-Performance Analysis

1. Background

Providing high-quality services is a key element to succeed in service industries. High quality services can lead to customer satisfaction and loyalty, reduce staff turnover, negate the costs of attracting new customers, and finally increase market share and profitability (1-5). The main mission of hospitals is to provide high-quality care to their patients and accomplishing this mission requires institutionalizing the concept of quality in hospitals (6). The service quality is defined as "the degree and direction of discrepancy between customers' expectations and perceptions of the service" (7).

Although the quality of hospital services is largely dependent on the performance of the medical staff, special attention has been dedicated to patients' perspectives in

recent years (8, 9). Patient's views as one of the most important indicators of health services quality are now a standard for judging about the quality of physicians and medical institutions (10). Improvement of service quality in hospitals requires obtaining patients' feedbacks on the provided services (11). Therefore, the accurate recognition of patients' expectations and perceptions, as well as the gap between them are crucial for quality improvement measures in hospitals (12, 13). Patients' feedbacks allow service providers are informed about issues that are important to the patient and need to be improved (14).

Measuring and monitoring the service quality in hospitals is an ongoing issue, and it has been shown that continuous monitoring of service quality can significantly improve the quality of care (15). The outcome of the service quality assessment can lead to the identification of weak-

nesses in the process of services delivery to patients. In recent years, numerous studies have been conducted on the quality of hospital services in Iran, and the findings of tow systematic reviews indicate that there is a negative gap between patients' perceptions and expectations of hospital services (3, 16). In fact, Iranian hospitals have failed to meet patients' expectations of the quality of their services. To the best of our knowledge, no study has been conducted on the quality assessment of hospital services in our study's region.

In addition, most previous studies have been limited to reporting only a gap between patients' expectations and perceptions and do not prioritize the weaknesses needed for improvement. Due to resource constraints, it is necessary to prioritize points that require quality improvement. To prioritize, we need a tool to do this. The importance-performance analysis (IPA), one of the most widely used tools in this field, is an efficient approach to identify and to prioritize points requiring improvement in the service process. The IPA was first introduced by Martilla and James in 1977 to evaluate the effectiveness of marketing plans (2). The simplicity and usefulness of IPA in identifying the weaknesses and strengths of the system and prioritizing them for adopting improvement strategies has led to its use in various fields including health services, transportation, hospitality and tourism, food services, banking, E-commerce and education (2, 17, 18). Using the IPA, weaknesses and strengths can be identified and provide insights for hospitals management team.

Numerous tools have been designed and introduced to measure service quality over the last three decades; tools such as technical and functional quality model, SERVQUAL, SERVPERF, HEALTHQUAL, SERVQHOS (7, 19). Due to the nature of our study and analysis method, we needed a questionnaire that had these two dimensions; the best tool in this area was the SERVQUAL. It has been the most popular tool for measuring the health services quality in the last two decades (7).

2. Objectives

Considering the importance and necessity of continuous improvement of the hospital services quality, this study aimed to assess the services quality from the patients' perspective using IPA in hospitals affiliated with DUMS, southwest of Iran.

3. Methods

3.1. Design and Sampling

This cross-sectional study was conducted from June until August 2018. The statistical population included all the

patients hospitalized in the six hospitals affiliated with Dezful University of Medical Sciences (DUMS), Iran. The DUMS provides health services to 715,000 individuals including three counties of Dezful, Shush and Gotvand.

Using the Cochran formula, considering $n = 650$, $d = 0.03$, the sample size was calculated as 400 who were recruited from hospitalized patients from six hospitals by a multistage sampling approach. Firstly, and based on proportional to size, the number of patients required from each hospital was determined such that larger hospitals were allocated with large number of patients. In the second stage, patients were selected from each hospital using convenient sampling method and according to inclusion criteria. The inclusion criteria included the age > 18 years old and being hospitalized for at least two consecutive days (20). Since quality assessment is a subjective issue, we chose the age of 18 and up to make more rational judgments. The patients not willing to participate and those admitted to intensive care units and pediatric ward were excluded from the study.

For collecting the data, the researcher attended in hospitals, and after selecting patients, explained the aims of the study to them, obtained their verbal consent, assured them about confidentiality of the information, and then provided them with a questionnaire. Patients completed questionnaires as self-reported, and the researcher helped fill out the questionnaire for illiterate patients.

3.2. Questionnaire

The SERVQUAL questionnaire was used for collecting the data. The questionnaire consists of two parts: the first part including demographic characteristics of patients and the second part consists of 22 pairs of questions organized into two aspects of importance and performance. Service quality has five dimensions including:

1. Tangibility: quality of the physical environment of hospital,
2. Reliability: ability to perform the promised service dependably and accurately,
3. Responsiveness: the willingness to help patients and to provide prompt service,
4. Assurance: the knowledge and expertise of employees and their ability to building trust and confidence in patient,
5. Empathy: relationship between patient and care staff and individualized care.

The questions were scored based on the Likert scale (from 1: total disagreement to 5: total agreement). Each of service quality attributes had two aspects of performance and importance, and patients rated them. Finally, the mean scores for each service quality dimension (in both

performance and importance aspects) calculated by summing the scores of each dimension's questions and dividing it by the number of questions. We used the Persian version of the questionnaire validated in previous studies (13, 21). Furthermore, the reliability of the questionnaire was verified by the Cronbach's alpha coefficient of 0.87.

3.3. Data Analysis

The data was analyzed using SPSS V. 18 software. The descriptive statistics were used to summarize the data. Wilcoxon test was used to compare the mean scores of importance and performance of services quality. The quality gap was calculated by deducting the performance and importance scores (Gap = performance- importance). The Mann-Whitney U and Kruskal-Wallis tests were used to assess the relationship between demographic variables and the quality gap.

IPA was used to determine the weaknesses and strengths of the service quality and to prioritize the shortcomings for quality improvement plans. The scores of the importance (expected satisfaction) and performance (perceived satisfaction) were determined for each quality attribute based on patients' perspectives (17). The levels of importance and performance of each quality attribute were depicted on a two-dimensional grid in which the Y-axis represented the importance and the X-axis represented the performance subdividing the IP matrix into four quadrants (Figure 1).

Each quadrant of this matrix provides a strategic guide to help managers to perceive the customers' concerns, as well as the necessary steps to boost customer satisfaction. The attributes with both high importance and performance fall into the Quadrant I (QI: keep up good work) representing the core strengths of the organization. Attributes with low importance and high performance are

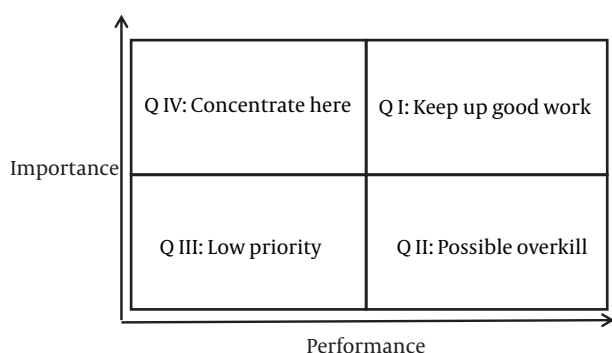


Figure 1. The Importance-Performance matrix

placed into the Quadrant II (QII: possible overkill) indicating the minor strengths. It is recommended to deviate the dedicated efforts and resources to QII attributes to other functions. The Quadrant III (QIII: low priority) belongs to the attributes with both low importance and performance. These attributes have low priority for quality improvement and represent minor weaknesses. The attributes assigned to the Quadrant IV (QIV: concentrate here) have high importance but low performance indicating the failure of service provider to meet the customers' perceived performance in this area. These attributes are the most important weaknesses of the organization requiring immediate attention and should have the highest priority in quality improvement plans (2, 17). Conclusively, the attributes within the QI quadrant are the most important strengths of the organization augmenting the competition capability whereas the attributes falling into the Q4 quadrant deliver the most important weaknesses requiring immediate improvement.

The mean values of the importance and performance for each attribute were utilized to determine the coordinates of each attribute within one of the IPA matrix quadrants. Considering that the mean scores of importance and performance were higher than 3 in all service quality attributes in this study, all the attributes were initially localized within the QI quadrant. Nevertheless, due to the pivotal role of the hospitals services, we decided to apply a secondary IP matrix in which the mean scores of importance (4.3) and performance (3.7) were considered as the intersection point of the matrix.

4. Results

The mean age of the patients was 38.5 ± 16.8 ranging from 18 to 94 years. About, 32% ($n = 128$) had academic degrees, 55% ($n = 220$) were self-employed, and 16.5% ($n = 66$) did not have health insurance. The average length of day was 7.8 ± 8.3 days. The most of the patients had been hospitalized in internal 38% ($n = 152$) and surgical 26% ($n = 104$) wards (Table 1).

The mean scores for importance, performance, and service quality gap have been shown in Table 2. Accordingly, the gaps between the importance and performance were negative in all the attributes and dimensions ($P < 0.001$).

Overall, the mean scores of importance, performance, and service quality gap were obtained 4.37 ± 0.75 , 3.72 ± 0.94 and -0.65 ± 0.19 respectively ($P < 0.001$). The highest and lowest mean scores of importance were related to the assurance (4.46 ± 0.81) and responsiveness (4.31 ± 0.49) dimensions, respectively. Regarding performance, the highest and lowest mean scores were also related to assurance (3.8 ± 1.07) and responsiveness (3.65 ± 1.09) respectively.

Table 1. Demographic Characteristics of Sample (N = 400)

Variables	No. (%)
Age (years)	
< 40	265 (66.3)
≥ 40	135 (33.7)
Gender	
Female	215 (53.7)
Male	185 (46.3)
Occupation	
Governmental	83 (20.7)
Self-employed	220 (55.1)
Without job	97 (24.2)
Educations	
Elementary and high school	272 (68)
University degree	128 (32)
Hospitalization	
First time	173 (43.2)
Second time	89 (22.3)
More than 2 times	138 (34.5)

The tangibility dimension represented the largest negative gap (-0.68) while the smallest gap (-0.63) was related to the reliability. There were significant negative gaps in all the quality attributes. The largest gaps between the importance and performance were related to the attribute of "Up-to-date and well-kept medical facilities and equipment", and "Cleanliness and a pleasant hospital environment". A significant relationship was detected between education level and service quality gap ($P < 0.05$). No significant associations; on the other hand, were seen between the service quality gap and other demographic variables.

The IP matrix was drawn after determining the importance and performance scores of each quality dimension and attribute. As shown in [Table 3](#), the tangibility dimension along with attributes of 2, 3, 6, and 18 were located in the Quadrant IV representing the weaknesses requiring urgent corrective actions. The responsiveness and empathy dimensions and attributes of 10, 11, 19, 21, and 22 fell into Quadrant III rendering low level importance and performance indicating low priority for improvement. Also, attributes of 4, 7, and 12 were located in the Quadrant II (i.e. the wasting area) where the importance is low from patients' viewpoints while there is overload hospital performance in this area. Finally, the reliability and assurance dimensions along with other attributes were placed in the Quadrant I where the importance and performance is high from patients' perspectives.

5. Discussion

The aim of this study was to evaluate the services quality of hospitals affiliated with the DUMS and our findings showed a significant negative gap between the importance and performance of the services quality from patients' perspectives. The findings of previous studies in Iran ([6](#), [13](#), [21](#)), Pakistan ([1](#), [4](#)), India ([22](#)), Brazil ([10](#)), Turkey ([23](#)), Poland ([24](#)), Jordan ([25](#)) and Saudi Arabia ([26](#)) also revealed negative gaps in the hospital services quality which is similar to our results. Also, a recent systematic review from Iran indicated negative gaps between patients' expectations and perceptions of hospital services quality ([16](#)). In this recent meta-analysis, the gap score of -0.9 was reported which was slightly higher than our study (-0.65). However, the average performance score was 3.69 in the recent report which was consistent with our finding representing.

According to our findings, the "assurance" was the most important aspect of service quality from patients' viewpoints. This is while the "responsiveness" was the least important aspect. Our findings are in accordance with previous studies ([4](#), [9](#), [27](#)). Likewise, the assurance and responsiveness aspects had the highest and lowest importance respectively from patients' perspectives, a study performed in the UAE ([28](#)). The assurance aspect of services quality is very important in hospitals and medical institutions as these facilities are directly in contact with societies health. Therefore, it's not surprising that this dimension is pivotal from patients' perspectives. We further observed that the "assurance" and "reliability" were the highest-ranked performance dimensions. These findings of ours were also consistent with the results of previous similar studies ([9](#), [27](#), [29](#)). This suggests that patients have trust in individuals providing care to them during hospital stay. In the term of performance, the responsiveness were considered as the weakest and the attribute C11: "Prompt performance of medical and non-medical services" from this dimension, had the second lowest performance score. In fact, patients expect hospitals to be responsive as quickly as they can. Accordingly, cumbersome procedures are among the hospitalized patients' main complaints ([30](#)).

The largest gap of service quality was related to the "tangibility" dimension suggesting that hospitals should pay more attention to physical and infrastructure aspects of service delivery. Similar results have also been reported in previous studies ([26](#), [27](#), [29](#)). In a systematic review of Iran, the tangibility also was reported as the second ranked negative gap of the services quality ([16](#)). Fatima et al.'s study also revealed that tangibility is the most common factor in measuring health services quality in developed and developing countries ([7](#)), which indicates the importance of this dimension in service quality. Findings of

Table 2. The Mean \pm SD Scores of Importance, Performance and Quality Gaps

	Quality Attributes and Dimensions	Importance	Performance	Gap	P Value
A	Tangibility	4.35 \pm 0.82	3.67 \pm 1.0	-0.68	0.001
A1	Neat and well-dressed personnel	4.55 \pm 0.61	4.18 \pm 0.82	-0.36	0.001
A2	Cleanliness and pleasant hospital environment	4.35 \pm 0.54	3.54 \pm 0.81	-0.81	0.001
A3	Up-to-date and well-kept medical facilities and equipment	4.35 \pm 0.78	3.25 \pm 0.42	-1.10	0.001
A4	Visually appeal of physical facilities	4.17 \pm 0.92	3.74 \pm 0.66	-0.43	0.001
B	Reliability	4.42 \pm 0.51	3.79 \pm 0.99	-0.63	0.001
B5	On time services	4.49 \pm 0.21	3.76 \pm 0.78	-0.73	0.001
B6	Willingness to provide the services	4.36 \pm 0.96	3.66 \pm 0.63	-0.70	0.001
B7	Error-free and fast retrieval of documents	4.24 \pm 0.41	3.88 \pm 0.98	-0.36	0.001
B8	Staff reliability	4.60 \pm 0.82	3.92 \pm 0.42	-0.68	0.001
B9	Providing services at the scheduled time	4.44 \pm 0.11	3.74 \pm 0.88	-0.70	0.001
C	Responsiveness	4.31 \pm 0.94	3.65 \pm 1.09	-0.66	0.001
C10	Providing information on schedule of the services	4.21 \pm 0.66	3.61 \pm 0.99	-0.61	0.001
C11	Prompt performance of medical and non-medical services	4.33 \pm 0.50	3.49 \pm 0.61	-0.84	0.001
C12	The willingness of staff to help patients	4.29 \pm 0.41	3.71 \pm 0.26	-0.58	0.001
C13	The availability of staff when needed	4.39 \pm 0.80	3.78 \pm 0.80	-0.61	0.001
D	Assurance	4.46 \pm 0.81	3.80 \pm 1.07	-0.66	0.001
D14	Trust in hospital staff	4.46 \pm 0.44	3.78 \pm 0.98	-0.68	0.001
D15	Safety and security in interaction with personnel	4.41 \pm 0.11	3.82 \pm 0.49	-0.58	0.001
D16	Polite and friendly attitude of personnel toward patients	4.51 \pm 0.38	3.80 \pm 0.92	-0.71	0.001
D17	Knowledgeable personnel to answer to patients' questions	4.48 \pm 0.75	3.77 \pm 0.40	-0.71	0.001
E	Empathy	4.33 \pm 0.84	3.67 \pm 1.11	-0.66	0.001
E18	Individualized attention to each patient	4.44 \pm 0.50	3.69 \pm 0.67	-0.74	0.001
E19	Paying attention to the patients' emotions and values	4.29 \pm 0.11	3.63 \pm 0.64	-0.66	0.001
E20	Availability of 24-hour services	4.48 \pm 0.56	3.87 \pm 0.30	-0.61	0.001
E21	Having patient's best interest at heart	4.22 \pm 0.94	3.56 \pm 0.48	-0.66	0.001
E22	Understanding specific needs of patients	4.26 \pm 0.78	3.57 \pm 0.73	-0.68	0.001
Total		4.37 \pm 0.75	3.72 \pm 0.94	-0.65	0.001

Table 3. Prioritization of the Service Quality Attributes and Dimensions - IP Matrix

Quadrants	Dimensions	Attributes
Q4: Concentrate here	Tangibility	A2, A3, B6, E18
Q3: Low priority	Responsiveness, empathy	C10, C11, E19, E21, E22
Q2: Possible overkill	-	A4, B7, C12
Q1: Keep up good work	Reliability, assurance	B5, B8, B9, C13, D14, D15, D16, D17, E20

other studies have also suggested that tangibility is a main factor affecting hospital performance from patients' perceptions (13, 21, 30). Since many health services are usually intangible, and it is difficult for patients to evaluate such services, the tangible aspects of health services such as

physical environment are crucial in forming patients' perspectives of services quality. In the health transformation program in Iran, one of the measures is the reconstructing of hospitals physical space and improving the hoteling services quality aiming to promote the quality of the phys-

ical environment in public hospitals. It is suggested that hospital managers take measures such as renovation of patient rooms, accommodation facilities, cleanness of rooms and hospital environments, improvement and proper use of signs and emblems in hospital, staff clothing, etc. to improve the quality of the physical environment.

There was a significant relationship between educational level and services quality gap. In this regard, the negative gap was greater according to the notions imparted by patients with academic degrees than other educational levels. This was in agreement with the findings of Al Fraihi and Latif study in Saudi Arabia (26). Some studies have suggested that variables related to individuals' awareness such as education level are related to higher expectations and lower satisfactions (31).

Based on IP matrix, the tangibility was located in the QVI, reliability and assurance in the QI, and the responsiveness and empathy in the QIII quadrants. In this regard, the four attributes located in the QVI area were identified as the major weaknesses and should be addressed immediately in order to reduce patients' complaints and improve the services quality. In other studies, poor facilities and uncaring attitudes have been among the main hospitalized patients' complaints (30). The modernization of medical equipment and facilities, as well as environmental cleanness can improve services quality and reduce the gap in the field of tangibility. In addition, motivated staff can also help to improve empathy and service delivery in medical faculties.

In our study, 10 attributes were localized to the QI quadrant of the IP matrix. These attributes comprise the main organizational strengths. Nevertheless, this does not mean hospital managers to be reluctant to pay attention to these dimensions. In fact, both health technologies and individual's awareness are rapidly growing and this can influence the service quality over the time.

5.1. Limitations

First; the structure and services of public hospitals in Iran are approximately similar. In addition, the results of our study are consistent with previous findings in Iranian hospitals. Nevertheless, the use of this study results in elsewhere should be cautious because patients' evaluation of quality largely depends on their context, level of awareness and expectations. Second; the unawareness of patients from their rights that may affect their evaluations and judgments on the services quality. Such unawareness may lead to an inevitable biased assessment. Third; the quality assessment was performed based on a functional approach; however, it is recommended to conduct the quality assessment in terms of technical aspects as well to obtain a comprehensive insight.

5.2. Conclusions

Our findings indicated that the hospital services quality did not completely comply with the patients' expectations, and there is still a room to improve services quality and reduce the negative gaps. Decision-makers can further use the results of the IPA to effectively allocate limited resources giving special attentions to the organizational weaknesses.

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Footnotes

Authors' Contribution: Ehsan Zarei selected the topic and designed the study, analyzed the data, interpreted the findings, wrote the first draft of the manuscript and revised the manuscript. Ali Bagheri selected the topic and designed the study, wrote the first draft of the manuscript and revised the manuscript. Abbas Daneshkohan analyzed the data, interpreted the findings, commented on the first draft of the manuscript and revised the manuscript. Soheila Khodakarim analyzed the data, interpreted the findings and commented on the first draft of the manuscript.

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