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Research Article

The Importance-Performance Analysis of the Quality of Services Provided for Patients in Hospitals Affiliated to Ahvaz Jundishapur University of Medical Science

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Abstract

Background: Quality is a key factor in the distinction of services, and it is a potential source of sustainable competitive advantage to increase productiveness and patient satisfaction. The identification of strengths and weaknesses in quality of provided services can help to recognize priorities and develop improvement strategies.

Objectives: Using importance-performance analysis (IPA) method, this study aimed to evaluate the quality of services provided in hospitals affiliated to Ahvaz Jundishapur University of Medical Sciences, Iran.

Methods: Using stratified random sampling, this descriptive-analytical and cross-sectional study included 307 patients admitted to five Educational Hospitals affiliated to Ahvaz Jundishapur University of Medical Sciences in 2016. Data collection tool was a standard questionnaire proposed by Tomes & Chee Peng Ng (1995), which included demographic information and questions regarding the quality of services provided in seven factors. In addition to IPA, data were analyzed using descriptive statistics, analysis of variance (ANOVA), Pearson's correlation, and chi squared test in SPSS software version 21.

Results: Total scores of quality factors were estimated as "important" in our research. In quality performance, "food", "physical environment" and "dignity" factors were estimated as "relatively inappropriate" by mean scores of 2.50 ± 0.95, 2.90 ± 0.97 and 2.94 ± 1.05, respectively. These three factors were located in the second region of the IPA matrix. While the other four factors, including "empathy", "relationship of mutual respect", "understanding of illness" and "religious needs," with mean scores higher than 3 were estimated as "appropriate" and located in the first region of this matrix. In all quality factors, scores of performance were lower than importance, and the gap between importance and performance in these seven factors ranged from 0.82 to 1.52. There was a significant relationship between age and education of respondents with the quality of services.

Conclusions: Given that the largest gap was related to the tangible dimensions of quality (including food and physical environment) and in order to improve the quality of services and competitive position, hospital managers must consider tangible dimension as a priority.

Keywords: Quality of Services; Importance-Performance Analysis; Hospital; Hospital Services

1. Background

Today, addressing the quality of services in all areas is one of the priorities of any leading organization. In the health sector, due to dealing with human lives, the promotion of quality and its guarantee has received more attention (1), and in hospitals, it is especially important because they offer intangible products to customers and want to reach a high competitive position by providing high-quality services (2). Each customer also measures quality based on what he or she personally values (3).

For health care providers, quality has found a new meaning due to the better level of education for patients or clients and the increase in costs (4). The British National Health Service (NHS) defines quality as "providing the right services to the right people, at the right time, in the right and practical way, within the average capacity of the community and in a humane way" (5). The degree of difference between customers' expectations (what they feel a service provider should

provide) and perceptions (experience of how services are delivered in the current situation), which is called the expectation-perception gap, is also called quality (6). Traditional attitudes evaluated the quality criterion as service characteristics, but new attitudes assessed quality as the customer wants (7). Although patients' opinions may differ from those of health professionals (8), their views on how health services are provided have been identified as an important determinant of evaluating and improving the quality of service providers (9). Customer feedback helps to identify and prioritize areas where there is a need for continuous improvement (10).

Research has shown that low quality services lead to more illness and disability, higher costs, and less trust in the health system (11). The United States spent more than $2 trillion on health care in 2006, yet only about 44% of customers were satisfied with the quality of service (12). High quality of services, in addition to being a key factor in differentiating services, excellence, and a potential source of sustainable competitive advantage to meet standards and increase productivity, also has an impact on patients' choice of the hospital, and by improving it, patients' satisfaction and as a result, their loyalty increases. Therefore, providing care according to the patient's expectations can improve the quality of services and thus reduce referrals, readmissions, and discharge with personal desire (6, 13-15). In a study, low quality care up to 49% was effective in discharging patients with personal satisfaction (15). Findings of studies have shown that patient satisfaction with the way of providing services has been influenced by various factors such as the performance of physicians, nurses, administrators, and even the physical environment of the centers (16). Therefore, if service providers understand which dimensions improve the quality of services, they can monitor them and increase the related performance (11).

A study showed that health care units can improve service delivery, reduce mortality and morbidity, increase quality of life, and reduce problems in client care and the rate of infection by evaluating quality followed by its improvement (4). In this regard, the first step to improve service quality is to identify the strengths and weaknesses of the services provided using service-quality measurement tools. In this regard, one of the most popular tools is importance-performance analysis (IPA) introduced by Martilla and James, who sought to assess client satisfaction and provide valuable information for managers to provide programs to improve service quality in accordance with their customers' expectations (17). The increasing importance of IPA model in pathology and identifying the strengths and weaknesses of the system and its efficiency in identifying priorities and adopting improvement strategies led to the use of this model in various research and operational areas, including health, finance, information systems, and education (18). Among Iranian studies that focused on evaluating the quality of services using IPA method, we may mention the studies conducted by Esmaeili et al. (17) and Bani Asadi et al. (1).

Unlike patients' perspective, there are several studies from the perspective of experts in the field of quality evaluation. The present study helps managers to evaluate the quality of provided services and use the analysis of patients' perspectives as a starting point for quality improvement to quickly identify the strengths and weaknesses of their organization and achieve solutions to improve service quality and competitive position.

2. Objectives

Since no research has been conducted on this critical issue in Ahvaz Jundishapur University of Medical Sciences University of Medical Sciences, the present study aimed to analyze the importance-performance of the quality of services provided to patients in hospitals affiliated to Ahvaz Jundishapur University of Medical Sciences, Iran.

3. Methods

The present study is a descriptive-analytical cross-sectional study. The statistical population of the study included all patients admitted to five hospitals of Ahvaz Jundishapur University of Medical Sciences in 2016. The inclusion criterion was the hospitalization of patients in these hospitals in order to have a correct and appropriate understanding of the factors studied for quality. The patients' unwillingness to participate in the research was the exclusion criterion. The sample size was calculated as 307 individuals using the following formula: $(d = 0.04 \ \& \ p = 0.5)\ n = \frac{z^2 p(1-p)}{d^2}$ Samples were selected using a stratified random sampling method categorized based on hospitals' beds.

The data collection tool was a questionnaire consisting of two parts: (1) demographic characteristics (age, gender, education, and hospitalization ward); and (2) a questionnaire of service quality proposed by Tomes & Chee Peng Ng (19). The service quality questionnaire in the hospital had 49 questions in two general dimensions: (1) tangible, and (2) intangible. The tangible dimension included two factors of "food' and "physical environment" and the intangible dimension included five factors of "empathy", "relationship of mutual respect", "dignity", "understanding of illness", and "religious needs". Respondents expressed their views on each item through the Likert scale (including very low 1, low 2, medium 3, high 4, and very high 5). This tool's validity was approved by local experts and specialists in the field. Cronbach's alpha was calculated to be 0.96. To interpret the findings of performance, the mean score more than 4 was considered as "appropriate", between 3 - 4 as "relatively appropriate", between 2 - 3 as "relatively inappropriate", and less than 2 as "inappropriate". Regarding importance, the same range of scores were used with substituting important for appropriate

in interpretation.

This study was approved by the Research Ethics Committee of Ahvaz Jundishapur University of Medical Sciences. Researchers informed the patients of the objectives of the study and assured them that their information and opinions would remain confidential, and they were free to withdraw from the research at any time. After obtaining an informed consent from all respondents, they fulfilled the questionnaires.

Data were analyzed based on the IPA model. In this analysis model, we drew a matrix consisting of four areas based on a combination of two factors: (1) patients' opinions about the importance of each of the factors of quality; and (2) current performance of hospitals for each factor. The average score of importance and performance of each factor on the coordinate axis indicated their location in one of the four regions of the matrix. We analyzed information based on the location of the dimensions in each of the areas of this matrix (Figure 1) as follows:

- Area 1: Indicated the highest level of importance and satisfaction with performance for that factor. In this situation, the hospital has managed these features well and must maintain its current performance.
- Area 2: Patients consider these factors important but are not satisfied with their performance. This is an important area for decision makers to focus on.
- Area 3: The factors in this area have lower importance and performance, are less noticed and have lower priority.
- Area 4: Indicated that patients have underestimated the importance of this dimension, but its performance is high, which means wasting resources.

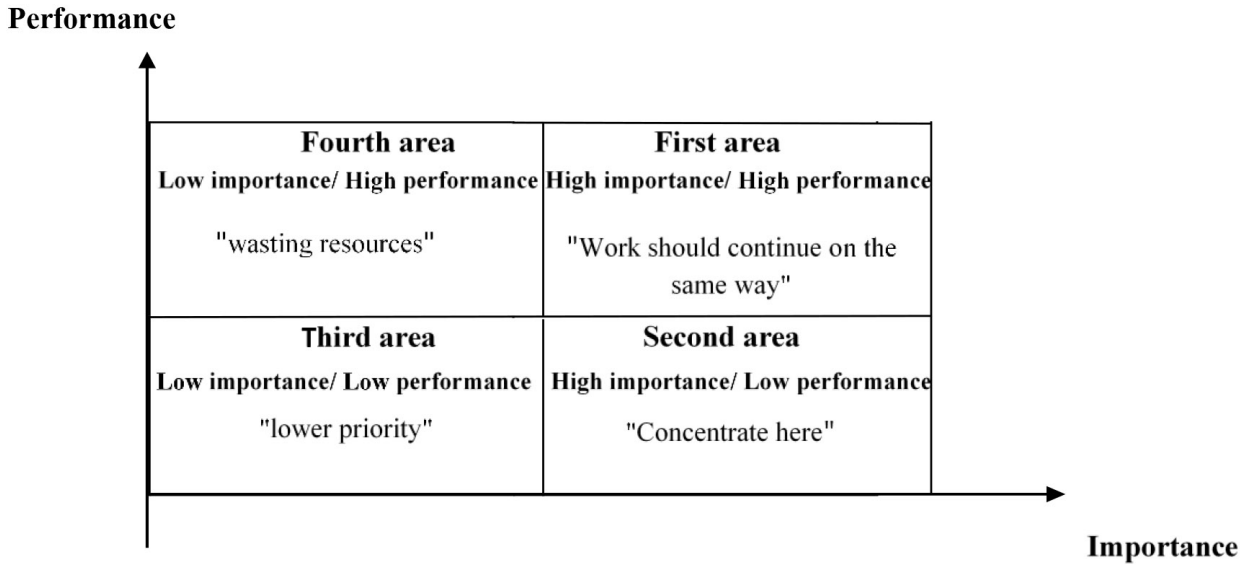

Figure 1. Zoning of importance-performance quad matrix

To determine the gap between the importance and performance of the quality of services provided, the central indicators of descriptive statistics (mean and standard deviation) and parity were used. To determine the difference between hospitals, analysis of variance (ANOVA), Pearson's correlation coefficient, and Chi-square tests were used in SPSS software version 21. We used Excel software to draw the importance-performance matrix of hospitals.

4. Results

This study included 307 individuals with a mean age of 34.13 ± 13.49 years (age range: 18 - 80 years). Most of the respondents had a high school diploma. Table 1 shows the frequency of patients' demographic variables.

Table 1. Frequency of Demographic Variables of Patients in the Studied Hospitals

Demographic Profile	Absolute Frequency	Relative Frequency
Gender		
Male	150	48.9
Female	157	51.1

Level of education		
Illiterate	20	6.5
Lower than diploma	84	27.4
Diploma	95	30.9
Associate degree	26	8.5
Bachelor's degree	60	19.5
Master's degree	22	7.2
Inpatient ward		
Surgery	72	23.5
Internal	99	32.2
Women and infants	22	7.2
Children	12	3.9
Intensive care	10	3.3
Emergency	67	21.8
Other	25	8.1
Total	307	100

Table 2 shows the importance and performance of service quality dimensions and their factors, as well as the gap between importance and performance.

Table 2. The Gap Between Mean Scores of Importance and Performance of Service Quality Dimensions [a, b]

Quality Factors	Importance	Performance	Gap
Empathy	4.01 ± 0.68	2.99 ± 0.98	-1.02 ± 1.06
Relationship of mutual respect	4.34 ± 0.59	3.51 ± 0.83	-0.82 ± 0.92
Dignity	4.14 ± 0.74	2.94 ± 1.05	-1.19 ± 1.15
Understanding of illness	4.39 ± 0.63	3.30 ± 0.97	-1.08 ± 1.06
Religious needs	4.20 ± 1.01	3.17 ± 1.24	-1.02 ± 1.46
Food	4.02 ± 0.76	2.50 ± 0.95	-1.51 ± 1.25
Physical environment	4.38 ± 0.61	2.90 ± 0.97	-1.48 ± 1.14
Quality Dimensions			
Tangible	4.20 ± 0.62	2.70 ± 0.89	-1.50 ± 1.11
Intangible	4.22 ± 0.59	3.18 ± 0.86	-1.03 ± 0.93

[a] Values are expressed as mean ± SD.
[b] P value < 0.01

In terms of importance, the average score of quality dimensions and all their factors was more than 4, and all were considered "important". The greatest importance was assessed in two factors: (1) understanding of illness, and (2) physical environment. The least importance was related to the factor of "empathy".

However, the performance of tangible dimension was estimated as "relatively inappropriate" and intangible dimension was estimated as "relatively appropriate". The factors of "relationship of mutual respect", "understanding of illness", "religious needs", were estimated as "relatively appropriate", and "relationship of mutual respect" had the highest performance score. The performance of the four factors of "empathy", "dignity", "food", and "physical environment" were estimated as "relatively inappropriate".

Paired t-test showed that the dimensions of service quality had a significant gap in terms of importance, performance, and all factors, and the estimated performance was lower than the importance. The narrowest gap was observed in the "relationship of mutual respect" factor (-0.82), and the widest gap was observed in "food" factor (-1.51).

The average score of importance and performance of each quality factor is shown in Figure 2.

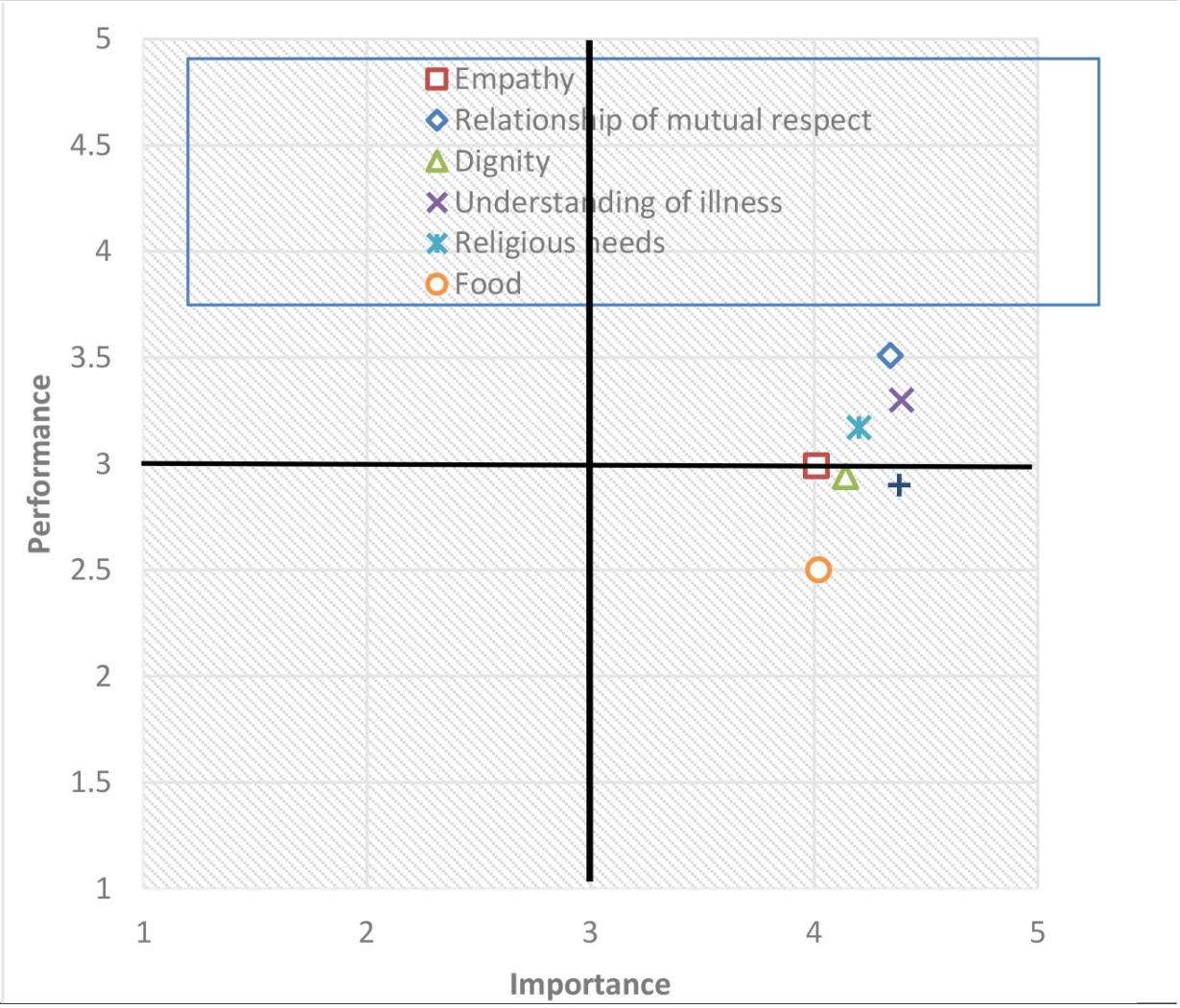

Figure 2. The importance-performance matrix of seven factors of quality of services provided to the patients

The importance-performance matrix shows that in the studied hospitals, the three factors of "relationship of mutual respect", "understanding of illness", and "religious needs" were in the first area of the matrix; the performance of hospitals in these factors was estimated to be "relatively appropriate." The three factors of "physical environment", "dignity", and "food" were also located in the second area; the performance of the studied hospitals in these factors was assessed as "relatively inappropriate". Factor of "empathy" was located at the border between the first and second areas, which should be improved.

Table 3 shows the dimensions of service quality and their factors based on the importance-performance model.

Table 3. Comparison of Service Quality Dimensions and Factors Based on the Importance- Performance Model

Four Areas of Importance-Performance Model	Service Quality Dimensions Provided and Their Factors Based on the Importance-Performance Model in the Studied Hospitals				
	Hospital 1	Hospital 2	Hospital 3	Hospital 4	Hospital 5
First area (maintain status)	Empathy; Relationship of mutual respect; Dignity; Understanding of illness; Physical environment; Religious needs; Tangible Intangible	Relationship of mutual respect	Empathy; Relationship of mutual respect; Dignity; Understanding of illness; Physical environment; Food; Religious needs; Tangible Intangible	Relationship of mutual respect; Understanding of illness	Relationship of mutual respect; Understanding of illness; Religious needs; Intangible

Second area (focus)	Food	Empathy; Dignity; Understanding of illness; Physical environment; Food; Religious needs; Tangible Intangible	_	Empathy; Dignity; Physical environment; Food; Religious needs; Tangible Intangible	Empathy; Dignity; The Physical environment; Food; Tangible
Third area (low priority)	_	_	_	_	_
Fourth area (waste of resources)	_	_	_	_	_

Dimensions of tangible and intangible in hospitals 1 and 3 were located in the first area of the matrix, and in hospitals 2 and 4 they were located in the second area of the matrix. In hospital 5, dimension of intangible was located in the first area, and dimension of tangible was located in the second area. In all hospitals, the "relationship of mutual respect" factor was located in the first area of the matrix, and the performance of the studied hospitals in this factor was estimated as "relatively appropriate". The "food" factor was located in the second area of the matrix in all hospitals except hospital 3. The "understanding of illness" factor was located in the first area of the matrix in all hospitals except hospital 2, and the performance of hospital 2 in this factor was assessed as "relatively inappropriate".

Independent t-test did not show a significant difference between the mean score of importance and performance of the seven factors of quality in different genders ($P < 0.05$). Pearson's correlation coefficient showed a significant association between age and the performance of the seven factors of service quality, but it did not demonstrate a considerable relationship with importance. Elderly patients aged above 65 reported better performance, Tukey post hoc showed ($P = 0.04$). Also, using one-way ANOVA, the relationship between education levels and seven factors of service quality was statistically significant. Based on the least significant difference (LSD) post hoc test, illiterate people reported the importance of the provided services and the performance of the hospital better than other groups ($P < 0.001$).

5. Discussion

In the present study, a significant relationship was observed between the variables of age and education with different factors of quality. People with higher education and younger age were less satisfied with the performance of services, which is consistent with the results of the studies by Zhao et al. (20) and Esmaeili et al. (17). A higher education increased the individuals' level of expectations to achieve their rights as patients and led service providers to become customer-oriented and competitive environments where the development and continuity of these organizations is possible to improve quality when they focus on patients' expectations (21, 22). There was no significant relationship between the mean score of importance and performance of quality factors in both sexes, which is consistent with the results of Esteki et al. (3). While Lin et al. (23) found that men perceived the existing quality more than women, Hashemi et al. expressed that women reported more perception of the existing quality (24).

Various studies have used IPA to measure the quality of services. These studies have been different in terms of number and type of factors considered for quality. Comparing the results of the present study with others, the factors considered for quality may not be completely consistent. The intangible dimension in this study included factors such as "empathy", "relationship of mutual respect", "dignity", "understanding of illness", and "religious needs". In the present study, the importance of this dimension in general was estimated to be "appropriate" and its performance was "relatively appropriate".

Among the factors of quality, "empathy" had the lowest average importance. Also, in the study by Montazer Al-Faraj et al., the lowest mean was related to the intangible affairs factor (25). The performance of the two factors of 'empathy" and "dignity" was estimated to be relatively inappropriate, which is similar to the results of the reliability factor in the study by Havasbeigi et al. (26). However, it does not agree with the results of the factors of empathy and guarantee in the studies conducted by Razlansari et al. (27) and Bahadori et al. (6). It is suggested that medical staff pay attention to quality in intangible dimensions while preserving human dignity and privacy of patients.

The performance of "understanding of illness" and "relationship of mutual respect" factors was estimated as "relatively appropriate". The "relationship of mutual respect" factor showed the narrowest gap with patients' expectations, which did not agree with the results of the factor of establishing a sincere relationship in the study by Javadi et al. (28), the factor of behavioral aspects in the study by Noorossana et al. (29), and the factor of accountability in the study by Tabibi et al. (30). IPA results indicated that hospital staff had a respectful behavior and showed sympathy with patients. A good relationship between the physician and patient is important in creating a climate of trust between them, and patients who

have enough of this relationship cooperate much more with the physician in treatment and have an impact on their subsequent visits (31). Therefore, it is suggested that the studied hospitals continue their current process and strengthen these factors through in-service training of clinical staff in the field of medical ethics and by establishing a reward system. The performance of religious needs was assessed as "relatively appropriate". Jahanpour et al. (32) considered the component of paying attention to patients' religious and belief principles as "relatively inappropriate".

According to the findings of the present study, the performance of the tangible dimension, in general, was estimated as "relatively inappropriate" and showed the largest gap with patients' expectations, which is consistent with the results of the studies carried out by Bani Asadi et al. (1), Razlansari et al. (27), Ameriun et al. (33), Atinga et al. (34), Gholami et al. (7), Javadi et al. (28) and Ebrahimnia et al. (8). However, in the studies by Havasbeigi et al. (26) and Jebraeily et al. (21), the mean score of patients' perceptions for this dimension was higher than their expectations. This quality dimension examines services other than diagnostic and treatment services such as hoteling and nutrition services. Due to the large number of patients and the low income, public hospitals face problems in this aspect, which can be one of the factors that patients feel a different quality in public and private hospitals' food services, as indicated by Zarei et al. (14). Hospitals should focus on food quality by distributing food at the right time with less delays, using less disposable catering utensils, and paying attention to the appearance of food, including appetizers, desserts, and drinks, variety of food in each meal, possibility to choose from the menu, diet appropriate to the disease, and catering 24 hours a day.

The results of our study indicated that all factors of quality were considered important from the patients' point of view, which is consistent with the results of Esmaeili et al. (17). The physical environment was identified as one of the most important factors from the perspective of patients. According to Salehnia et al., in the field of services and due to the intangibility of delivered services, the first thing that patients evaluate is the effect of the tangible dimension and the physical environment of the hospital. Therefore, firstly, they remember what they see, especially what is more tangible, and based on that, they form their perception of the hospital. Thus, this factor is of special importance to them (35). The performance of the physical environment was assessed as "relatively inappropriate" despite gaining the great importance in our studied hospitals. The studies by Noorossana et al. (29) and Sharifirad et al. (4) also reported the performance of this factor as "relatively inappropriate". However, the performance of the physical environment was assessed as "relatively appropriate" in the studies conducted by Ameriun et al. (33), Zarei et al. (14), and Yildiz (36).

In this study, we used the IPA model to analyze the data. Tzeng and Chang examined three models of SERVQUAL, IPA, and important factor (IF) for quality measurement and finally concluded that although all three methods are important in assessing service quality, IPA offers a more comprehensive view than other methods (37). According to the expressed model in the research method based on the formation of four areas in the IPA matrix and the location of each factor in these areas based on the mean scores of importance and performance, the position of "physical environment", "food", and "dignity" factors in the second area (i.e. the area where patients attach great importance to these factors but have little satisfaction with the performance of the hospital in these factors) indicates the special need for hospital managers to pay attention to these factors to eliminate existing weaknesses and improve the performance of hospitals. They need a special focus on the "physical environment" factor, which was of the highest importance. Nevertheless, due to the fact that the selected hospitals were public and teaching hospitals, the managers paid less attention to the physical environment compared to private hospitals; and as a result, they were estimated poor in this field. According to Zarei et al., in new established private hospitals, in addition to the medical aspects, the managers invest more in the physical aspects and hoteling and largely meet the expectations of patients (14).

5.1. Conclusion

According to the results of this study, in all factors of quality, there was a gap between expectations and performance. To improve performance, managers need to focus on the factors that are placed in the second area of the importance-performance matrix (the physical environment, food, and dignity) because these factors were very important for patients and the patients' satisfaction with the performance of the hospital in these factors was low. Given that the largest gap between importance and performance among the quality factors was seen among factors of tangible dimension (including food and physical environment), hospital managers need to consider tangible dimension in quality improvement as a priority for their competitive position.

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Authors' Contributions:

Faraji-Khiavi F and Ghorbani Z designed the research; Ghorbani Z collected data; Faraji-Khiavi F, Jahanbani E

and Dindamal B analyzed data; and all authors contributed in writing manuscript. All authors read and approved the final manuscript

Conflict of Interests:

The authors declared no conflict of interests.

Ethical Approval:

This study was approved by the Research Ethics Committee of Ahvaz Jundishapur University of Medical Sciences (code No: IR.AJUMS.REC.1394.221).

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