Vol. 03, No. 4 (2021) 383-390, doi: 10.24874/PES03.04.002

Proceedings on Engineering Sciences

www.pesjournal.net

ROLE OF TECHNICAL AND FUNCTIONAL QUALITY IN ACHIEVING PATIENT SATISFACTION (A STUDY OF OPINIONS OF SAMPLE OF PATIENTS IN MEDICAL CITY HOSPITALS)

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Keywords:

Technical quality; Functional quality; Patient satisfaction; Health services

A B S T R A C T

This study was prepared in order to reveal the role of the technical and functional quality of the health services provided in the hospitals of the Medical City in Baghdad in achieving patient satisfaction. The hospitals are (Baghdad Teaching hospital, Specialized Surgery Hospital, and Private Nursing Home). A random sample of (264) patients was selected by adopting the questionnaire tool as a measure of the study variables. The questionnaire was distributed to the hospitalized patients in the surveyed hospitals. SPSS Version 25 was used in the analysis. The results showed that the results showed that there is an effective and substantial relation between technical quality and patient satisfaction, as well as a positive and significant realtion between functional quality and patient satisfaction.

1. INTRODUCTION

Quality holds great importance for all business organizations as it is the key to success and competitive weapon for business in the provision of high-quality services. This is because it is one of the most important Competitive Priorities that achieve a competitive advantage for the organization in the local and international markets ensuring its survival, continuity and growth in the competitive environment. Health services of technical and functional quality contribute to achieving patient satisfaction where the health sector is one of the most important service sectors in any country, because they deal with human life by survival or death. Therefore, developing this sector in order to obtain health services of high technical and functional quality is a strategic goal for any country. Hospitals in Baghdad Medical City are among the governmental hospitals that provide their services to patients. However, it was remarked that some government hospitals in general and government hospitals with private wings suffer from poor quality of health services. They are characterized by a low level of technical and functional quality of health services provided to patients, which leads to the patient not obtaining a measure of good health service at the right time and place, or the reluctance of patients to receive treatment inside Iraq prefering overseas care Bearing greater cost and effort. (Holdford & Schulz 1999) conducted a study to assess the relative importance of technical quality (the service provided) and functional quality (how the service is provided) regarding patients'

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perceptions of the quality of the pharmaceutical service. The results indicated that the technical and functional quality of the pharmaceutical services positively and interactively affect the patient's perception of service quality because patient satisfaction is a special scale of the level of technical and functional service quality of health services provided by hospitals

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2. LITERATURE REVIEW

2.1 Technical quality of health services

The first to define the technical quality is (Gronroos, 1984), according to him, it is the answers to the question (What) i.e. what the patient gets from the hospital. It concerns the quality of the final product related to the internal operations in the hospital, which can be measured objectively when providing the service. Technical quality is the process of producing a service that is concerned with the technical aspect of the service that must meet the needs of the patient and this is what he actually gets from the service as a result of his dealing with the hospital (Akroush, 2009).

Dimensions of technical quality of health services

Most of the researchers agree that (tangibility, reliability, technical competence, and safety) represent the components of technical quality (Keramidou & Triantafyllopoulos, 2018), (Nasrul, 2020) (Khanfousi, 2018), (Keyser & Lariviere, 2014), (Park et al., 2013). Accordingly, the current study will address the components of technical quality as follows.

Tangibility: is an assessment of the organization's ability to manage its physical environment, which consists of (interior design, infrastructure, equipment, colors, walls, and employee appearance.

Reliability: is the ability of the service provider to perform the service in a good, accurate and reliable manner (Parasuraman et al., 1985). Reliability is related to reliability and consistency in providing service and meeting the needs of customers and it is related to the organization's fulfillment of its promises (Namupala, 2019).

Technical competence: means that the service provider possesses the technical capabilities, skills and knowledge necessary to perform the service at a constant level of technical quality (Omar & Murad 2019).

Safety: is the feeling of safety within the organization and not being exposed to risks or harm that would make the customer lose confidence in the service provider (Beyaz 2018). It means instilling a sense of reassurance to the customer by dealing with him in a transparent and clear manner (Al-Mandi & Mohammed, 2019).

2.2 Functional quality of health services

The functional quality was first defined by Gronroos (1998), who phrases is as (how) that is, how is the process of providing the service. Functional quality of the interaction between the service provider and the recipient of the service in the place where the service is provided depends mainly on aspects such as (time, absence of errors and safety in the service (Kowalik & Klimecka-Tatar, 2018).

Dimensions of the functional quality of health services

Most of the researchers agree that (credibility, responsiveness, empathy and promptness) represent the components of functional quality (Nasrul, 2020; Akan 1995; Akhtar 2011; Babic-Hodovic et al., 2017). Accordingly, the current study will deal with the dimensions of functional quality as follows.

Credibility: how creditable is the service provider? Is he reliable? (Al-Taie & Basheer, 2009). Credibility is considered the honesty and reputation of the hospital and the reliability of the information obtained (Khanfousi, 2018).

Responsiveness: the ability and immediacy of response of the service provider when providing the service. It reflects the willingness to help the patient and provide quick service.

Empathy: how the hospital and its personnel care about patients in order to make its patients feel valued and privileged (Suki, 2013). This affects the perceptions, attitudes and assessments of patients towards building perceptions about the quality of services provided to them (Suki, 2014).

Promptness: the easy access to the service on site and at the right time. Whether the service is available as the patient wants (Al-Ta'i & Basheer, 2009), and whether the patient's waiting is not more than what is required (Khanfousi, 2018).

2.3 Patient satisfaction

Devoting attention to the patient is an important and essential aspect of service organizations in the current century because of its great influence in determining the success of the organizations 'strategy and thus enhancing their competitive advantage in the environment in which they operate.

Therefore, patient satisfaction was defined as an evaluation process between what was expected and what was received from the services provided by the organization. It is also known as the result that the patient gets when the service provided exceeds his expectations (Dawi et al., 2018).

2.4 The relationship between the study variable

Many researchers focus on the quality of technical and functional service. Gronroos (1984) points out that technical quality refers to the technical result of the production process, or what the patient actually gets after providing the service. As for functional quality, it refers to the way in which the technical quality is transferred to the patient, it is related to the satisfaction the recipient feels with the process or provision of the service (Arora & Stoner, 1996). It has been shown that the results of the service are judged by both the outcome of the service and the process leading to that result Parasuraman et al., 1985). Some studies identified the relationship between technical and functional quality: what (the outcome of the service process) and how (How is the service provided) as the technical and functional quality may affect the service results differently (Dagger & Sweeney, 2006). It has been demonstrated that technical and functional quality has direct impacts on a patient's quality of life in their healthcare environment (Dagger & Sweeney, 2006).

Hypotheses and research model

In order to achieve the aim of the study in identifying the role of the technical quality of the health service on the patient's satisfaction in the medical city. The following hypothese were formulated:
There is a significant effect relationship between the two variables of technical and functional quality and patient satisfaction in the hospitals included in this study, from the patients' point of view.

Figure 1 shows this study research model that represents these relationships between the variables.

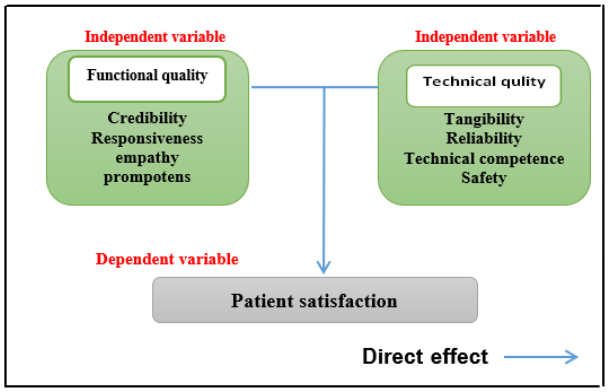

Figure 1. Proposed Figure study model

3. POPULATION AND SAMPLE

The current study is an explanatory research to examine the hypothese between the variables and focus on the interpretation of the effects between one variable and other variables. The study was conducted in the Medical City Hospitals in Baghdad, Iraq. All the hospitalized patients at Medical City Hospital were selected of private wings. The questionnaire was distributed to (249) patients. Table 1 and Table 2 illustrate the study population and the sample and how it is calculated in the hospitals studied.

Table 1. Total hospitalized patients in the medical city for the first and second months of 2021

The month	Surgical Specialties	Private Nursing Home Hospital	Baghdad Teaching Hospital	Total patients
First month	328	428	73	829
Second month	355	425	85	865
Total	683	853	158	1.694
Average	341.5	426.5	79	847

Table 2. Distribution of the sample to the hospitals studied

Hospitals	Ratio of total number	Sample calculation	Sample size (patient)
Surgical Specialties	341.5	341,5/847*264	106
Private Nursing	426.5	426,5/847*264	133
Baghdad Teaching	79	79/847*264	25
Total Patients	847	847/847*264	264

3.1 The practical side

Scale reliability testing

The data distribution test was also performed to determine the type of data distribution, whether normal or abnormal. (Kolmogorov-Smirnov) for the technical quality variable was (0.087), for the functional quality variable was (0.091) and for the patient satisfaction variable was (0.109). The value of the significance level of the Kolmogorov-Smirnov test) for all the research variables shows that it was smaller than the significance level at (0.05), which Indicates that the variables do not follow a normal distribution. Based on this result, the variables that do not follow the normal distribution will be treated by relying on the standard formula through what is known as the standardization method, after dividing the difference between the values of the variables from their arithmetic mean by their standard deviations. Table 3 shows the results of the normal distribution test for the study data.

Measuring the degree of occurrence of the variables

a. Degree of occurrence of the technical quality variable

The data collected was processed using (SPSS V.25) in Table 4. The results indicate that the technical quality

variable has an arithmetic mean of (3.43) and a standard deviation (0.580). The technical competence dimension obtained the greatest relative importance, reaching (0.648), while the safety dimension obtained the lowest percentage, reaching (0.607).

Table 3. Normal distribution test results

Test parameter / Variables	Kolmogorov-Smirnov			
	Test statistic	Degree of freedom	Significance level	Statistical significance
Technical quality	0.087	249	0.000	Significant
Functional quality	0.091	249	0.000	Significant
Patient satisfaction	0.109	249	0.000	Significant

b. Degree of occurrence of functional quality variable

The results in Table 5 indicate that the functional quality variable has an arithmetic mean of (3.24) and a deviation for the two dimensions of reliability and responsiveness (0.597,0.597), while it accured after the promptness with a standard deviation of (0.616).

c. Degree of occurrence of patient satisfaction variable

The results in Table 6 indicate that the patient satisfaction variable has an arithmetic mean of (3.26) and a standard deviation of the indicator (the hospital has specialized medical staff commensurate with the patients' condition, which creates an appropriate atmosphere for interaction) of (4.06), i.e. obtaining the greatest relative importance. While the index (the hospital has all the amenities that the patient needs from the halls and their equipment) got the lowest percentage, with a standard deviation of 2.85.

Table 4. ranking of importance of the dimensions of technical quality variable

	Technical quality variable dimensions	Mean	standard deviation	Availability percentage of the dimension	Gap size	Gap size to the total	Arrangement of dimensions
1	Tangibility	3.20	0.580	64	36	29	1st
2	Reliability	3.72	0.680	74.4	25.6	20	
3	Technical competence	3.82	0.648	76.4	23.6	19	2nd
4	Safety	2.97	0.607	59.4	40.6	32	3rd

Table 5. Ranking of importance of the dimensions of the functional quality variable

	Dimensions of functional quality variable	Average	Standard deviation	Availability percentage of dimension	Gap size	Gap size to the total	Ranking of the dimensions
1	Credibility	3.55	0.597	71	29	20.6	1st
2	Responsiveness	3.55	0.597	71	29	20.6	
3	Empathy	2.95	0.711	59	41	29.1	2nd
4	Promptness	2.90	0.616	58	42	29.7	3rd

Table 6. The mean and standard deviation of the study sample responses about the patient satisfaction variable

	Items	Mean	Standard deviants	Mean relative weight	Relative importance	Response trend
1	I feel comfortable and reassured when dealing with the medical and nursing staff.	3.5	0.804	70	3	good
2	Provide timely treatment.	3.49	0.719	69.8	4	good
3	Meals are provided to hospitalized patients on time	2.95	0.91	59	14	middle
4	Patients feel a high level of medical and nursing care provided to him during his stay in the hospital.	3.07	0.724	61.4	10	middle
5	The patient can get the information he needs from the hospital.	3.42	0.753	68.4	5	good
6	The hospital has all the amenities that the patient needs from the corridors and their equipment.	2.85	0.706	57	15	middle
7	The patient feels the great care given by the nurse and their immediate response to it.	3.01	0.696	60.2	12	middle
8	The hospital medical staff seeks to reduce the patient’s health concerns.	3.17	0.812	63.4	7	middle

Table 6. The mean and standard deviation of the study sample responses about the patient satisfaction variable (continued)

Items		Mean	Standard deviants	Mean relative weight	Relative importance	Response trend
9	The hospital has specialized medical staff to suit the patients' condition, which creates an appropriate atmosphere for interaction.	4.06	0.85	81.2	1	good
10	The medical staff encourage the patient in the hospital to improve his health.	3.2	0.869	64	6	middle
11	The behavior of hospital staff is characterized by kindness and respect for the patient, starting from entering the hospital until leaving it.	3.06	0.887	61.2	11	middle
12	The hospital administration provides the required medical supplies.	3.15	0.807	63	8	middle
13	The cost of health services provided to patients is proportional to their financial situation.	3.12	0.814	62.4	9	middle
14	Other services are available for the patient lying in the hospital, including cooling, heating, electricity and water in all corridors.	2.95	0.874	59	13	middle
15	The existence of interactive relationships between doctors with appropriate specialties in terms of providing the necessary health services to the patient	3.88	0.745	77.6	2	good
total average		3.26	0.526			

4. HYPOTHESES TESTING

Multiple regression was used to determine the effect of the technical and functional quality of health services on patient satisfaction.

Hypothesis test: which states (there is a significant relationship between the two variables of technical and functional quality and patient satisfaction in hospitals studied from the patients' point of view).

To test this hypothesis, the analysis will be done according to the multiple linear regression model, as follows:

$$Y = a + \beta_1 (X_1) + \beta_2 (X_2)$$
$$Y = 0.399 + 0.236 (X_1) + 0.255 (X_2)$$

Table 7 shows that:

- The value of (F) calculated for the model is (90.602). It is greater than the tabular value (F) of (2.65) at a level of significance (0.05). Accordingly, we accept the hypothesis and this means **(there is a significant relationship between the variables of technical and functional quality and patient satisfaction in hospitals studied from the patients' point of view)**,
- with the level of significance (5 %), indicating a degree of confidence (95%). This result is consistent with the findings of the study (Rengkung et al., 2017).
- Through the value of the coefficient of determination (R^2) of (0.526), it becomes obvious that the technical and functional quality together is able to explain 52% of the changes that occur to (customer satisfaction), while the remaining 48% is dependent on other variables that are not included in the study model.
- It is evident through the value of the marginal slope coefficient of the technical quality variable of (0.236) that increasing the technical quality by one unit will lead to an increase in (customer satisfaction) by (23%).
- It is evident through the value of the marginal slope coefficient of the functional quality variable of (0.255) that increasing the job quality by one unit will lead to an increase in (customer satisfaction) by (25%) and as shown in Table 7 and Figure 2.

Table 7. Effect of technical and functional quality on patient satisfaction

Dependent variable	**Approach**	**Independent variables**	**(β) Marginal propensity**	**T test**	**Sig**	**F test**	**sig**	**Correlation coefficient (R)**	**Coefficient of determination (R^2)**
Patient satisfaction	<---	Technical quality	**0.236**	**3.702**	**0.000**	**90.602**	**0.000**	**0.725**	**0.526**
	<---	Functional quality	**0.255**	**3.544**	**0.000**				

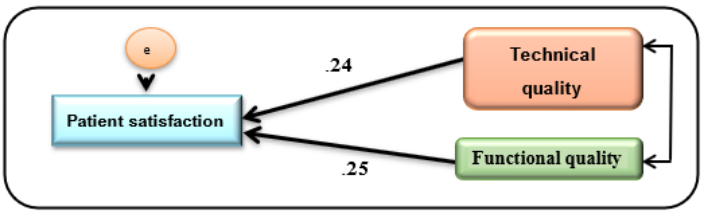

Figure 2. Technical and functional quality effect on patient satisfaction.

5. CONCLUSIONS AND FUTURE RESEARCH

The results showed a positive relationship between technical and functional quality and patient satisfaction. Technical and functional quality affects the achievement of patient satisfaction, which means that the hospitals of Medical City are concerned with technical and functional quality and work to improve and develop them. This leads to achieving patient satisfaction with the health services provided. The results indicated that Medical City hospitals include qualified and skilled doctors who take care of patients during the treatment period and that there are no deliberate errors during the provision of health services to them, as patients trust the expertise, skills and qualifications of the medical staff in hospitals, due to the accuracy of the dates of the services provided in the hospitals. The patients recieve personal attention from the medical staff in hospitals, depending on their condition. The laboratory service is provided over a period of (24) hours, in addition, the hospitals put guide panels in the corridors which facilitates the arrival of patients to the places required for them within their corridors. However, those hospitals suffer from poor availability of essential medicines needed by patients. Moreover, the administrative staffs in these hospitals are not distinguished by high experience, competence and credibility, they lack observance of the diet for patients with chronic diseases. These hospitals, also, lack the rapid services for emergency cases of patients through ambulances.

This study was conducted only in Medical City Hospitals in Baghdad, Iraq. The study relied on taking a random sample. The future researcher can expand the scope of the study by taking several government hospitals or conducting a comparative study between public and private sector hospitals.

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