

An analysis of healthcare quality sustainability in public hospitals

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Abstract

The current study aims to determine, from the perspective of the patients, whether public hospitals can sustainably provide high-quality healthcare services according to the Kingdom of Bahrain 2030 vision. The study adopts quantitative and survey approaches by designing a questionnaire based on the five quality dimensions of the Service Quality (SERVQUAL) model. The survey was carried out between September 2021 and January 2022 when the Corona pandemic's restrictions were released. The 470 responses received were estimated and analyzed via correlations and multiple regression techniques. The main findings show that there is a significant influence of healthcare service quality on the overall patient, which ensures that public hospitals under study could achieve sustainably high-quality healthcare services in line with the Kingdom of Bahrain 2030 vision. The study recommends that hospital administration should continue its commitment to providing medical services to patients promptly. Employees must obtain incentives and training courses, which might significantly impact their job satisfaction and retention.

Keywords: Healthcare; public hospitals; SERVQUAL model; sustainability.

1. INTRODUCTION

A sustainable healthcare system enhances, maintains, or restores health while minimizing negative effects on the environment and maximizing opportunities to improve and restore it for the benefit of the health and well-being of both present and future generations (World Health Organization, 2021). Unlike other service sectors, healthcare services normally cannot be phased out after a period. Certain basic services need to be maintained indefinitely to meet public needs. A health service is sustainable when operated by an organizational system with the long-term ability to mobilize and allocate sufficient and appropriate resources (manpower, technology, information, and finance) for activities that meet individual or public health needs (Olsen, 1998). This entails personnel and economic management are also very important in the sustainability of the health care system.

Healthcare Institutes include patient satisfaction as an important element of healthcare outcomes in defining the dimensions of quality. It mentioned that “quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge” (Pierrakos et al., 2015; Iyer et al., 2021).

Patient satisfaction has been the subject of scientific study since 1900. At the outset of contemporary medical science, the patient's illness or suffering was the primary focus. However, a novel concept that involves evaluating both the effectiveness of the treatment given and the outcome of the illness was first presented to the scientific community at the turn of the 20th century (Ryan et al., 2001).

The SERVQUAL—The Service Quality Questionnaire is a methodology and at the same time a tool for analysis, development, and measurement of service quality at the functional rather than technical level. Its creators emphasize that several factors are commonly important to all services and, most significantly, are crucial to determining quality. Parasuraman et al., (1985) defined the quality of service as the difference (gap) between the expected service and the perceived service, along the following five criteria: “(1) Tangibles: physical facilities, equipment, and appearance of personnel, (2) Reliability: ability to perform the service accurately and dependably, (3) Responsiveness: willingness to help customers and provide prompt service, (4) Assurance: employees’ knowledge, courtesy, and ability to convey trust and confidence, (5) Empathy: caring and individualized attention provided to customers” (Van et al. 2003; Shahin 2010).

SERVQUAL is the most widely used scale for assessing service quality, particularly in hospitals, therefore contributions have been made by different studies to evaluate patients’ expectations and perceptions regarding the quality of offered public health services (Aljunid, 1995; Gabbie, and O'Neill, 1996; Swan and Zwi, 1997; Parasuraman et al., 1988; Chassin et al., 1998; Kang et al., 2002; Taner and Antony, 2006; Arasli et al., 2008; Yousapronpaiboon and Johnson, 2013; Essiam, 2013; Mosadeghrad, 2014; Abdelgdir, 2015; Özlü and Uzun, 2015; Ajarmah et al., 2015; Devi 2016; Shan, 2016; Al-Damen, 2017, Goula et al., 2021; Carvalho and Rodrigues, 2022; Jonkisz et al., 2022; Saini et al., 2021).

The health care system in Bahrain started in 1960 when the government provided free health care to Bahraini citizens and subsidized for non-Bahrainis. The Ministry of Health (MOH) offers its services through 23 health centers distributed in the 5 governorates of the kingdom. MOH is dedicated to working as a unified governmental system to promote sustainability, competitiveness, and justice in the provision of health care services, which is in line with Bahrain's Economic Vision 2030. In addition to developing digital enterprises and paving the path for investments in the health sector, MOH adopted the Fourth Industrial Revolution's technologies, which are based on a variety of income sources and independence from fuel as a solitary source of supply (MOH, 2021).

Identifying patients' expectations and perceptions of the services offered is an essential element of rating, and it can be done by comparing the two dimensions. If the health services go above their expectations, they are regarded as great (Konuralp & Dayioğlu, 2022). A difference between the two does not necessarily indicate low-quality service, but rather that the patient's requirements have not been met, which leads to his/her dissatisfaction (Goula et al., 2021). Therefore, the current study's goal is to examine the sustainability of healthcare quality by assessing patient satisfaction in public hospitals in terms of the SERVQUAL framework's five quality dimensions (Nazir et al., 2023; Yeshineh et al., 2022).

1.1. Purpose of study

The current paper adds a contribution to the existing body of literature by examining how Bahrain's public hospitals are seen by their patients as providing sustainable service quality. The study's outcome may help healthcare institutions and providers overcome their limitations, enhancing their capacity to meet the sustainability of healthcare service standards, and improving their services to patient expectations (Feng et al., 2022; Cooper et al., 2021).

2. METHOD and MATERIALS

2.1. Data collection instrument

The current study adopts quantitative and survey techniques by designing a survey questionnaire based on the SERVQUAL model. The quantitative techniques include stepwise multiple regression, one-way ANOVA, and Pearson correlation coefficient.

The questionnaire involved three sections. Section one includes six questions related to personal information about age, gender, education, income level, nationality, and marital status. Section two includes information about the five dimensions of service quality which *Tangibles* dimension includes physical facilities, equipment, and personal appearance. *The reliability* dimension is related to the ability to perform the promised services at a dependable and accurate level. *The responsiveness* dimension means the willingness to help patients and provide prompt service. *The assurance* dimension includes knowledge and courtesy of employees and their ability to inspire patients' trust and confidence, and the *Empathy* dimension which related to caring, communicating, and understanding the patients. Section three has questions related to patient satisfaction.

2.2. Participants

The current study depends on the primary data obtained from the questionnaire responses of the chosen sample. The questionnaire was distributed to a sample of 500 outpatient clinics at two public hospitals in Bahrain during the period (Sep.2021- Jan.2022) to test the following hypothesis:

H01: There is no significant positive impact of the health quality dimensions on patients' satisfaction at public hospitals.

H1: The health quality dimensions have a positive and significant effect on patients' satisfaction at public hospitals.

Only 470 questionnaires are reviewed because there are 10 incomplete surveys and 20 questionnaires not received. The selected sample answered questions on a five-point Likert Scale ranging from one to five, where one indicates very poor, two means poor, three means acceptable, four indicates good, and five is very good (Claveria et al., 2017).

2.3. Analysis

The questionnaire included twenty-two questions distributed as follows: four questions for the Tangibility

dimension, five questions for the reliability dimension, four questions related to the Responsiveness dimension, five questions for the empathy dimension, and four questions for the Assurance dimension. We measure patient satisfaction through five questions. An interval class was adopted to analyze results as follows: low (1-2.5), medium (2.51-3.5), and high (3.51-5). The study used Cronbach's Alpha (Cronbach, 1951) to measure the questionnaire's reliability via computing and examining the consistency of each dimension under study (Cortina, 1993). Table 1 shows that the values of Alpha are high and range from 0.72 to 0.87, which means the items are highly correlated and consistent.

Table 1
Cronbach's alpha reliability test

Variables	Tangibility	Reliability	Responsiveness	Empathy	Assurance	Total	patient's satisfaction
No. of questions	4	5	4	5	4	22	5
Cronbach's Alpha	0.87	0.86	0.83	0.72	0.82	0.82	0.84

Source: calculated by author

Table 2 presents a descriptive study of study variables; the majority of the variables are reliable. Among the variables, Tangible has the lowest standard deviation. The platykurtic distribution indicates that six variables are not normal (or were negatively skewed). The responsiveness dimension, with a mean of (3.9), reliability, with a mean of (3.6), and assurance, with a mean of (3.9), followed by reliability with a mean of (3.6), and Assurance with a mean of (3.4). The measurement of overall patient satisfaction is (2.7).

Table 2
Statistical properties of the variables

Variables	Mean	Max.	Min.	S. D	Prob.	Skewness	Rank	Importance	Obs.
Tangible	3.2	3.4	2.8	1.1	0.000	-1.749	4	Medium	470
Reliability	3.6	3.9	3.2	1.3	0.000	-1.17	2	High	470
Responsiveness	3.9	4.1	3.6	1.2	0.013	-1.19	1	High	470
Assurance	3.4	3.8	3.1	2.3	0.010	-1.044	3	High	470
Empathy	3.0	3.7	2.2	2.1	0.015	-1.089	5	Medium	470
Patients' satisfaction	2.7	3.2	2.1	1.4	0.031	-2.107		Medium	470

Source: calculated by author

3. RESULTS

Table 3 shows the respondents' characteristics. They are quite diverse in terms of age, gender, education, income level, nationality, and marital status. The majority of responders are Bahraini and women, (76%) and (59%) respectively. Their ages are between 26 and 35, and they have a bachelor's degree. According to the income level question, 51% of respondents had low incomes below 250BD and 60% of them were single.

Table 3
Respondents' characteristics

Variables		Response frequency	Response percentage (%)
Gender	Male	193	41%
	Female	277	59%

	Total	470	100%
Age	18-25	85	18%
	26-35	357	76%
	36-50	19	4%
	Above 50	9	2%
Nationality	Bahraini	357	76%
	Non-Bahraini	113	24%
Marital status	Single	282	60%
	Married	131	28%
	Divorced	57	12%
Education	High School	184	39%
	BSc.	252	54%
	Postgraduate	24	5%
	Others	10	2%
Income level	Below 250BD	239	51%
	250- Below 500	113	24%
	500- Below1000	80	17%
	1000- Below2000	28	6%
	2000 and above	10	2%

Source: calculated by author

Table 4 displays the averages and standard deviations for the five sub-items of the five quality service dimensions under consideration, as well as the five items indicating total patient satisfaction, as follows:

- Patients' perspective feedback about the tangibles dimension shows that tangibles practices in the medium category. It has the fourth rank before the Empathy dimension with a mean (3.24) and standard deviation (1.14). The means of three of the questions are average. The first question related to "The hospital's medical tools are modern" has the highest mean (3.65) and importance. The second question concerning "waiting facilities for patients Attendances in good case" got the lowest mean (2.9) and importance. The results show that hospitals under study face challenges related to limited financial resources that negatively affect their investment in facilities.
- The second dimension is reliability measured by five questions. It is obvious that respondents have perceived reliability practice as a higher category, and it has the second rank after the Responsiveness dimension. The means most questions obtained from the sample are high, where the question related to "Patients feel confident when receiving medical treatment" has the highest mean which is (4.3), and the question concerning with "Staff provide services within time" has the lowest mean (3.3). The results show that despite hospitals showing special attention to the problems and queries of patients and Staff submitting documents and reports without error, there is a shortage in the staff and a heavy workload led to staff not providing services within time which affected the ability to scheduling at a time convenient to them.
- The assessment related to the responsiveness dimension shows that respondents have perceived responsiveness practice as a higher category, and it has the first rank with a mean (4.05) and standard deviation (1.16). The question related to "There is feedback instrument exist in a clear place" has the highest mean (4.8), while the "Doctors respond efficiently to any request of Patients" question has the lowest mean (3.4), results ensure that there is a shortage in the staff and heavy workload in the hospitals under study.
- The assurance dimension is measured by four questions, and it indicates that respondents have perceived assurance practice as a high practice category, and it has the third rank after reliability with a mean (3.65) and standard deviation (2.3). Table (4) shows that the fourth question "The patients trust nurses' expertise and skills" has the highest rank and mean which is (4.2), and the question "The patients feel secure in using hospital service" has the lowest mean (3.1). The results were expected due to the public hospitals in Bahrain characterized by highly trained and well-experienced staff from different countries, especially Egypt, India, and the Philippines. Moreover, the directors of these hospitals are trying to achieve the requirements to get the quality assurance certificate from international institutions.

- The empathy dimension was measured by five questions to assess the patient’s perspective to what extent the empathy dimension is implemented at the hospitals under study. It is obvious that respondents have perceived empathy practice as a medium practice category, and it has the fifth rank with a mean (3.15) and standard deviation (2.1). Overall means of empathy are average. The question related to “The working hours of the hospital are suitable to the patient” has the highest mean (4.2), where hospitals are working from 6 am till 6 pm for ordinary medical checks and 24 hours for emergency cases. The question concerning “The hospital prioritizes the interest of the patients” got the lowest mean (2.9), which means respondents feel that doctors do not give priority of interest to them. The respondents felt created due to the number of reviewers is high every day which puts pressure on medical staff and creates long lines in outpatient clinics which affects the provision of caring and individualized attention to outpatients.
- Section three includes five questions to measure overall patient satisfaction as the dependent variable. Respondents have perceived overall patient satisfaction practice as a medium category with a mean (of 2.8) and standard deviation (1.37). The means of three questions are low. While the question “I am satisfied with the attitude of doctors in hospital” has a high mean (3.6), the question “I am satisfied with waiting time in hospital” has a low mean (1.5). Due to the limited resources, heavy workload, and low motivation to satisfy patients; the overall patient satisfaction is medium.

We can infer from the results that patients believed the hospital's working hours were convenient for them. They trust the skills and knowledge of physicians and nurses, realizing that they will deliver records and reports without fault, as well as their friendly manner toward them, aware that they can provide feedback using certain devices, so they feel comfortable when receiving medical care. New healthcare technology is utilized in the hospital, and the staff provides considerable attention to the needs and inquiries of patients.

Regarding overall patient satisfaction, according to respondents, patients were only somewhat dissatisfied with the management, nursing, and medical care provided in hospitals. However, moderate findings should be assessed right away. According to respondents, overall satisfaction procedures fall within the middle range. Lack of resources, a heavy workload, and brain drain that can result in a decrease in patient need awareness are some potential causes of the myriad problems hospitals are experiencing. In general, the study's findings show that the hospitals under investigation provide outpatients with acceptable-quality healthcare services by making good use of their resources.

To test the study hypothesis; we adopt quantitative techniques that include stepwise multiple regression, one-way ANOVA, and Pearson correlation coefficient. Four predictor factors are shown to be relevant in explaining patient satisfaction in Table 5's regression results. Patient satisfaction was most significantly impacted by the responsiveness component (B3=0.67), then by the assurance, palpable, and reliability aspects.

The correlation factor (R) value demonstrates a strong relationship between research variables, while R2 indicates that 57% of the variation in patients' satisfaction was explained by the four variables. The study concludes that enhancing the four dimensions will improve patient satisfaction. The F-statistic result in the ANOVA table is 9.49, therefore the study rejects the null hypothesis and accepts the alternative hypothesis at the 5% level of significance. In other words, from the perspective of the patients, the five health quality dimensions have a positive and significant impact on overall patient satisfaction at public hospitals, assuring that the public hospitals under study could sustainably provide high-quality healthcare services in line with the Kingdom of Bahrain 2030 vision.

Table 4
Statistical properties of the dimension according to its items

Variables	Mean	S. D	Rank	Importance	Obs.
Tangible dimension	3.24	1.14		Medium	470

		1			
The hospital's medical tools are modern	3.65	1.32	1	High	470
waiting for facilities for patients Attendances in good case	2.9	0.92	4	Medium	470
Hospital Healthy environment	3.2	1.39	2	Medium	470
Hospital toilets are clean	3.1	1.65	3	Medium	470
Reliability dimension	3.72	1.31		High	470
Hospital shows special attention to the problems and queries of patients	3.6	0.87	3	High	470
Procedures and services are made correctly from the first time	3.4	1.56	4	Medium	470
Staff submit documents and reports without error	4.1	1.21	2	High	470
Staff provide services within the time	3.3	1.23	5	Medium	470
Patients feel confident when receiving medical treatment	4.3	0.93	1	High	470
Responsiveness dimension	4.05	1.16		High	470
patients' needs are promptly met by the staff	3.5	1.23	3	Medium	470
Patients are observed according to appointment	4.5	1.71	2	High	470
Doctors respond efficiently to any request from patients	3.4	0.63	4	Medium	470
There is feedback instrument exists in a clear place	4.8	0.95	1	High	470
Assurance dimension	3.65	2.32		High	470
The patients feel secure in using hospital service	3.1	2.91	4	Medium	470
The staff at hospital's attitude to patients is friendly	3.6	2.74	3	High	470
The patients trust the doctor's expertise and skills	3.9	3.1	2	High	470
The patients trust the nurse's expertise and skills	4.2	1.57	1	High	470
Empathy dimension	3.15	2.11		Medium	470
The medical care staff pays attention to each patient	3.4	1.09	2	Medium	470
The working hours of the hospital are suitable for the patient	4.2	2.34	1	High	470
Doctors and nurses are responding to patients' complaints	3.3	2.52	3	Medium	470
The hospital prioritizes the interest of the patients	2.9	3.1	5	Medium	470
The hospital considers the traditions prevailing in society	3.1	2.33	4	Medium	470
Overall Patients satisfaction	2.8	1.37		Medium	470
I am satisfied with the location of the hospital	2.3	1.05	4	Low	470
I am satisfied with the attitude of doctors in the hospital	3.6	2.10	1	High	470
I am satisfied with nursing in a hospital	3.2	0.76	2	Medium	470
I am satisfied with the medical care in the hospital	2.5	0.73	3	Low	470
I am satisfied with the waiting time in the hospital	1.5	1.8	5	Low	470

Source: calculated by author

Table 5
Model summary of five dimensions regression analysis

	B	Std. of Error	T. Stat.	Sig.	
Constant	1.23	0.28			
Tangible	0.36	0.105	3.41		0.001
Reliability	0.21	0.070	2.98		0.152
Responsiveness	0.67	0.134	4.97		0.001
Assurance	0.54	0.251	2.15		0.138
Empathy	0.31	0.18	1.96		0.215
R	0.754				
R ²	0.570				
S. E	0.931				
ANOVA	Sum of Squares	d.f	Means of Square	F	Sig.
Regression	13.21	5	2.64	9.49	0.001
Residual	45.7	164	0.278		
Total	58.91	169	0.348		

Source: calculated by author

4. DISCUSSION

The current study evaluates the overall patients' satisfaction in public hospitals, in terms of the five quality dimensions of the SERVQUAL framework, where it focuses on investigating the patient perception of the quality of services provided by public hospitals in Bahrain. The study revealed that outpatients in the hospitals under study receive acceptable and sustainable levels of healthcare service quality by using available resources. Patients' perspective feedback about the five dimensions revealed that the responsiveness dimension has the highest mean and first category, followed by reliability, Assurance, tangibles, and empathy.

The overall patient satisfaction respondents have perceived overall patient satisfaction practices as medium category, which means that patients were moderately satisfied with medical, nursing, and management services provided in the hospitals, however, moderate results should be evaluated soon. The possible reasons that hospitals under study are facing many challenges created by limited resources, heavy workload, and brain drainage that may lead to a shortening in the awareness of patients' needs.

5. CONCLUSION

The study's limitation stems from the fact that it only uses one model, the SERVQUAL model, to test its hypotheses. To do this, we chose a sample of outpatient clinics that visited two public hospitals under study between September 2021 and January 2022 to receive medical services. Additionally, we only used social media networks to distribute questionnaires and gather feedback.

We recommend that hospital administration in Bahrain should keep up their dedication to offering patients prompt access to medical care. Employees should also receive rewards and training that will increase their job satisfaction and retention. These factors could also help them improve their communication skills when it comes to dealing with patients and how quickly they respond to their needs, which will increase their empathy and sense of security. This will help also to satisfy the requirements of healthcare quality sustainability in public hospitals.

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