Evaluation of Service Quality From the Perspective of Inpatients and their Attendants

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Abstract:
   The purpose of this study was to determine the level of perceived service quality in the Algerian public hospital SAROUB AL KHATHIR in El Eulma (Setif) using the SERVPERF model. A purposive sample of 100 participants, including inpatients and attendants who were admitted to the hospital in 2022 was used. Data were collected using a questionnaire. T-test and ANOVA were calculated by SPSS.
   Findings of this study revealed that service quality was rated as moderate. No significant difference in perceptions of service quality between inpatients and attendants was found. There was no significant difference in respondents' perceptions based on gender, age, level of education and financial status. The only significant difference in service quality perceptions was based on the medical unit respondents were admitted to.
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(JEL) Classification: M300

1. Introduction:

Service quality plays an important role since it influences customer satisfaction and loyalty. Due to its importance, service quality has become one of the most investigated subjects in the context of services marketing (Byju & Srinivasulu, 2014)**.**

It is important to note that, unlike goods quality, which can be objectively measured using indicators such as durability and number of defects (Crosby, 1979; Garvin, 1984), specific characteristics of services (including healthcare services)

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such as intangibility, heterogeneity, inseparability, and perishability make healthcare service quality a 'unique' and 'abstract' concept that is difficult to define and measure (Zarei, 2015)**.**

Traditionally, healthcare quality was measured using objective criteria such as mortality and morbidity rates. Despite their importance, subjective assessments of healthcare services were neglected at that time (Danaher et al., 2007)**.** Many researchers, including Choi et al.(2005), have criticized the traditional approach, claiming that while health outcomes appear concrete, they are difficult to measure. In this case, several researchers have begun to pay more attention to a new approach that emphasizes assessing the quality of healthcare services from the perspective of patients.

Patients' opinions are regarded as crucial in evaluating the performance of healthcare service quality because patients are believed to provide accurate information (feedback) that truly reflects the performance of health institutions **(**Sanıl & Eminer, 2021)**.** In addition, their service quality assessments help service providers in identifying unmet patient needs as well as problems with care delivery (Abbasi-Moghaddam et al., 2019).

1.1. Research Problematic:

Our study aims to answer the following research problematic:

Using a SERVPERF scale, what is the level of perceived service quality at the Algerian public hospital SAROUB AL KHATHIR?

1.2. Sub-questions:

Other sub-questions appear in this study, which are:

1- Is there a difference in service quality perceptions between inpatients and their attendants?

2- Is there any relationship between respondents' perceptions of service quality and their sociodemographic characteristics?

3- Is there any relationship between respondents' perceptions of service quality and the medical unit they were admitted to?

1.3. Hypotheses:

To answer the research problematic, we proposed the following **'main hypothesis'**:

The Algerian public hospital SAROUB AL KHATHIR is perceived to have poor service quality.

To answer previous sub-questions, we proposed the following sub-hypotheses:

$H_{01:}$ There is no statistically significant difference in service quality perceptions between inpatients and attendants.

$H_{02:}$ There is no statistically significant difference between respondents' perceptions of service quality based on demographic variables such as gender, age, level of education, and financial status.

$H_{03:}$ There is no statistically significant difference in respondents' perceptions of service quality based on the medical unit they were admitted to.

1.4. Research Aims:

Our study aims to investigate the following points:

- The level of perceived service quality of the Algerian Public hospital SAROUB AL KHATHIR;
- To examine if perceptions of service quality vary between:
  Inpatients and attendants; based on respondents' sociodemographic characteristics; based on the medical unit.

2. Literature review:

2.1. Characteristics of healthcare services:

Healthcare services, despite sharing the same characteristics as other types of services in that they are intangible, simultaneous, heterogeneous, and perishable, differ from them. These services are the most complex, expensive, and widely used services (Berry & Bendapudi, 2007). In most cases, the feature that distinguishes the service in healthcare is the patient's "continuous" nature of participation throughout the entire process and even after services are completed (Myszewski & Sinha, 2019). In addition to this feature, other characteristics are noted in table (1).

Quality in healthcare services means different things to different stakeholders, including the government, doctors, medical/ technical staff, patients, and hospital administrators (Mosadeghrad, 2013). Because service quality refers to "perceived service quality", the literature on service quality has focused on

evaluating services from the customer's point of view (Panchapakesan, Rajendran, & L, 2009)**.**

According to Zeithaml (1988, P.03), perceived quality is defined as "a customer's judgment, or impression about an entity's overall excellence or superiority"**.** In the healthcare field, this judgment is frequently described as the gap between patients' or patients' attendants' perceptions of the services provided by a specific hospital and their expectations of that hospital's ability to provide such services (Aagja & Garg, 2010).

Table (01): Characteristics of Health care services

Characteristics	Brief definition
Healthcare is a need Service	A patient arrives suffering from illness, pain, anxiety, fear, and stress.
Lack of control	Patients do not have control, for example, they cannot enter and leave the hospital whenever they want.
surrender confidentiality	Patients hand over their privacy to clinicians.
Healthcare services are labor- and skill-intensive	Performance varies from one clinician to Another.
Made-to-order	Patients require a more holistic and customized services; these services must be tailored.
Collaboration	A patient's cooperation is essential for the success of the treatment both during the encounter (answering questions honestly) and afterwards (taking the prescribed medication).

Source: (Berry, 2007; Singh & Dixit, 2020; Pai & Chary, 2013).

According to Panchapakesan et al. (2010) inpatients are always accompanied by family members or friends (or at least one of them) by their own volition to provide necessary assistance to the patient for the entire duration of the hospital stay by staying in the same premises. Since patients are often in a state of physical or psychological discomfort (Duggirala, Rajendran, & R.N, 2008), it is often these attendants who are in a good position to judge the care provided (Panchapakesan et al.,2010). Healthcare service quality includes both technical

(clinical) and functional (non-clinical) quality (Alhassan, et al., 2015). The former refers to the providers' skills, the accuracy of practices and procedures, and medical examinations, whereas the latter is concerned with how services are delivered to customers (Zarei et al., 2012).

Healthcare services are professional-based services (Tan et al., 2019) that must be performed by qualified medical personnel. Evidence from the literature shows that patients find it difficult to evaluate healthcare services due to a lack of medical knowledge (Azizan & Mohamed, 2013)**.** They are frequently considered to have limited understanding of the technical aspects of healthcare services. As a result, they tend to focus more on functional characteristics, which include interpersonal and environmental components.

2.2. Measuring healthcare service quality:

Different models have been used to assess perceived service quality in the context of healthcare services. SERVEQUAL, which was developed by Parasuraman et al. (1985,1988), is one of these models. This model defines perceived service quality as the difference between customer perceptions and expectations.

This approach based on the expectations-performance comparison has been criticized by Cronin & Taylor (1992), who claimed that service quality is simply an attitude based on judging service performance. These researchers developed the SERVPERF model, which includes the following dimensions:

Tangibility - The appearance of physical facilities, equipment, appearance of personnel and communication materials.

 Reliability - The ability to perform the promised service dependably and accurately.

Responsiveness - The willingness to help patients and provide prompt health service.

Assurance: - Employees' knowledge and courtesy, as well as their ability to inspire trust and confidence.

Empathy - The caring, individualized attention the hospital provides to its patients.

3. Methodology:

3.1. Study Design and Instrument:

Perceived service quality perceived by inpatients and/ or their attendants was evaluated by administering a cross-sectional quantitative questionnaire to patients and/ or their attendants admitted to the public hospital SAROUB AL KHATHIR between November and December 2022. Our questionnaire was inspired by two questionnaires used to examine the quality of services provided in Algerian public hospitals from the patients' perspective (Benzidi & Belouafi, 2021) and (Kherouf et al., 2021) as well as the original SERVPERF, which was used to evaluate perceived service quality in healthcare services (Akdere et al., 2018). These three instruments revealed a high level of validity (0.979, 0.879, and 0.964 respectively). The original SERVPERF items were translated into Arabic.

The questionnaire was divided into two sections: the first contained five items about demographic and socioeconomic variables, and the second included 21 items about hospital service quality, including six items about tangibility, four items about responsiveness, three items about reliability, four items about assurance, and four about empathy. The items were assessed on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.2. Sample Technique:

The sampling design involves the following decision. The sample unit consisted of patients (and/ or their attendants) who were admitted to the Algerian public hospital SAROUB AL KHATHIR in El Eulma (Setif) between November and December 2022.

We were unable to get access to the patients lists due to confidentiality concerns; therefore, we selected our sample using a non-probability sampling technique. Purposive sampling method was applied to select the sample based on the following criteria:

Patients: Patients hospitalized in general surgery, pneumology, infectious diseases, and internal medicine units. Intensive care patients and those who were unconscious were excluded. Minors (those under the age of 18) were excluded to avoid any confusion that they do not understand the questionnaire.

Attendants: Minors were excluded. We selected only those individuals who accompanied the patients for the duration of their hospital stay (not visitors).

Initially, we collected a total of 114 questionnaires, we ended up by eliminating 14 of them which were uncompleted (9 from patients and 5 from attendants). Thus, the sample size is 100.

3.3. Data analysis:

Data were analyzed by SPSS 23 using Cronbach's alphas to test the reliability of the instrument, T-test, and ANOVA tests were used to compare service quality perceptions between inpatients and their attendants, and in terms of respondents 'demographic variables, and the medical unit they were admitted to. In order to know the level of perceived service quality at the hospital,

service quality was divided into three levels, as it is shown: Poor [1-2.33], Moderate]2.33-3.66], and Good]3.66-5]. These values were obtained in the following manner:

(5-1)/3 =1.33

1+1.33=2.33

1.33+2.33=3.66

3.66+1.33=5

3.4. Validity and reliability analysis:

We started with a Pilot study to check if the questionnaire was understandable. It was distributed to a group of 30 patients and/ or patients' attendants who were admitted to the public hospital SAROUB AL KHATIR. After the Pilot test, items related to evaluating the competency and skills of doctors and nurses were deleted since a number of respondents indicated that they did not have the necessary knowledge to judge these aspects of healthcare. The rest of the items have not been modified; we have simply given an example to the item number 5 to make it clearer.

Cronbach's Alpha was used to assess the instrument's reliability in this study, and it ranged from 0.707 to 0.866 for service quality dimensions and 0.929 for overall service quality, as shown in Table (3), indicating a sufficient level of reliability.

4. Results:

4.1. Demographics:

Table (2) presents descriptive statistics on the demographics of both inpatients and their attendants. (62%) of the 100 respondents were inpatients, while (38%) were

attendants. The findings revealed that (56%) of the respondents were male, (68%) were between the ages of 26 and 45 and (59%). In terms of education, (64%) of participants had completed secondary and high school. In terms of income distribution, the findings showed that (55%) of participants reported having a moderate income.

The findings on service quality dimensions indicated that the highest levels of perceived service quality were associated with hospital staff maintaining a clean and neat appearance (3.91± 0.889); the ease with which care facilities can be found due to hospital signage (3.85±0.989); patient trusting the medical staff (3.81± 1,051), and feeling safe in interacting with them (3.81± 1.161); maintenance of patient's confidentiality by hospital's employees (3.77± 1.004), the hospital's employees being polite (3.75±1.140) respectively as it is shown in table (3). On the other hand, perceptions of the hospital's tangibles, such as the hospital's having up-to-date equipment (1.81±1.203) and the cleanliness of the hospital's restrooms (2.56±1.395), were ranked as the lowest items.

Among the five perceived service quality constructs, tangibility had the lowest mean score (3.058±0.756) followed by reliability (3.481±0.871); responsiveness (3.494±0.969); empathy (3.54±0.979); and assurance (3.78±0.882). Overall, SERVPERF mean was calculated at (3.471± 0.758).

4.2. Test of hypotheses:

Main hypothesis: The Algerian public hospital SAROUB AL KHATHIR is perceived to have poor service quality.

From table (3) the mean value of overall service quality is 3.471, indicating that it falls into the Moderate level]2.33-3.66], so our hypothesis is rejected.

Variables		Frequency	Percentage%
Gender	Male	56	56%
	Female	44	44%
Total		100	100%
Age	18-25	12	12%
	26-35	38	38%
	36-45	30	30%
	46-55	11	11%

	56+	9	9%
Total		100	100%
Educational Level	Primary	7	7%
	Secondary	34	34%
	High school	30	30%
	University	29	29%
Total		100	100%
Financial status	Excellent	5	5%
	Good	26	26%
	Average	55	55%
	Low	14	14%
	Total	100	100%

Table (02): Demographics of Participants (n= 100)
Source: The table was developed by researchers using SPSS23 results.

Table (03): Means, standard deviations of items and dimensions of the instrument

Items	Mean	SD
Tangibility (α = 0.71)	**3.058**	**0.756**
1. The hospital has up to date medical equipment (Exp: MRI, Ultrasounds machines, CT scan)	1.81	1.203
2. The hospital staff maintains a clean and neat appearance.	3.91	0.889
3. It was easy to find care facilities (lab, doctor offices etc.) due to hospital signage	3.85	0.989
4. The hospital provides all the medicines that a patient needs	3.64	1.307
5. The hospital has facilities that are suitable and comfortable for both patients and their attendants (Exp, car park /cafeteria etc.).	2.70	1.403
6. The restrooms of the hospital are clean.	2.56	1.395
Responsiveness(α =0.839)	**3.494**	**0.969**

7. The medical staff informs patients when services will be performed	3.64	1.106
8. Hospital staff responds quickly to patients and attendants' Inquiries	3.65	1.158
9. Patients receive prompt service from the medical staff	3.36	1.251
10. To ensure that patients receive the quickest and easiest health services, hospital employees simplified work procedures as much as possible	3.35	1.184
Reliability ($\alpha = 0.707$)	**3.481**	**0.871**
11. The medical staff provides its services at the time it promises to do so	3,64	1.097
12. Nurses are committed to continuously monitoring patients' conditions	3.22	1.079
13. Most of the requested specialties are available at the Hospital	3.61	1.118
Assurance ($\alpha = 0.820$)	**3.78**	**0.882**
14. Patient feels safe in their interactions with the hospital's employees	3.81	1.161
15. Patient trusts the medical staff	3.81	1.051
16. Patient' confidentiality is maintained by hospital employees.	3.77	1.004
17. The hospital's employees are polite	3.75	1.14
Empathy ($\alpha = 0.866$)	**3.542**	**0.979**
18. The medical staff takes into consideration patients' psychological conditions	3.60	1.155
19. The healthcare service provider shows great understanding of patients' needs	3.39	1.163
20. The healthcare service provider interacts with the patient in a professional and humane manner.	3.74	1.079
21. The hospital's employees give patients personal attention	3.46	1.218
Overall Scale ($\alpha = 0.929$)	**3.471**	**0.758**

Source: The table was developed by researchers using SPSS23 results.

H_{01}: There is no statistically significant difference in service quality perceptions

between inpatients and attendants.

Table (04): Independent Samples Test

	N.	Mean	SD	Levene's Test		T-test		
				F	Sig	T	Sig	df
Patient	62	3.526	0.741	0.007	0.935	0.779	0.438	98
Attendant	38	3.404	0.792					

Source: The table was developed by researchers using SPSS23 results.

The independent sample Test was used to determine whether there is a significant difference in perceptions of service quality between both inpatients and their attendants. The Levene's test for equality of variance is 0.007 and the corresponding *p*-value is 0.935 which is higher than 0.05 (at 5% level of significance), we fail to reject the null hypothesis which states that the variances are equal.

Table (4) shows that our T statistic is 0.779 and the corresponding *p*-value is 0.438 which is greater than 0.05, indicating that we accept the null hypothesis, which states that there no significant difference between inpatients and their attendants' perceptions of service quality.

H$_{02}$: There is no statistically significant difference between respondents' perceptions of service quality based on demographic variables such as gender, age, level of education, and financial status.

Table (05) : Independent-Samples Test

Dimensions	Gender	N.	Mean	SD	Levene's Test		T-test		
					F	Sig	T	Sig	df
Tangibility	Male	56	3.241	0.769	0.135	0.714	2.427	0.017	98
	Female	44	2.871	0.739					
Responsive-Ness	Male	56	3.593	0.883	2.572	0.112	1.096	0.276	98
	Female	44	3.38	1.059					
Reliability	Male	56	3.541	0.812	1.782	0.185	0.667	0.506	98
	Female	44	3.424	0.946					
Assurance	Male	56	3.825	0.747	3.597	0.061	0.523	0.602	98
	Female	44	3.733	1.029					
Empathy	Male	56	3.647	0.894	2.561	0.113	1.156	0.25	98
	Female	44	3.42	1.067					
Service	Male	56	3.569	0.674	3.144	0.079	1.338	0.184	98

Quality(total)	Female	44	3.365	0.850					

Source: The table was developed by researchers using SPSS23 results.

Gender:

The independent sample Test was used to determine whether there is a significant difference in perceptions of service quality between male and female respondents. The *p*-values for the Levene's test for equality of variance are 0.714, 0.112, 0.185, 0.061, 0.113, and 0.079 for tangibility, responsiveness, reliability, assurance, empathy, and overall, respectively, which are greater than 0.05 (at 5% level of significance), indicating that the variances are equal between two groups.

Table (5) shows that the T values for responsiveness, reliability, assurance, and empathy are 1.096, 0.667, 0.523, and 1.156, respectively, while the *p*-values for these dimensions are 0.276, 0.506, 0.602, and 0.25, all of which are greater than 0.05, revealing that the null hypothesis is accepted, indicating that there is no significant difference between male and female perceptions of the previously mentioned dimensions.

The T value for tangibility is 2.427, and the *p*-value is 0.017, which is less than 0.05, indicating that the null hypothesis is rejected and we accept H_1 which states that male and female perceptions of the tangible dimension differ.

The total T value for overall service quality, on the other hand, is 1.338 and the *p*-value is 0.184, which is greater than 0.05, indicating that there is no significant difference between male and female perceptions of service quality.

One-way ANOVA test was used to determine whether there were significant differences in respondents' perceptions of overall service quality based on their age, level of education, financial status, and the medical unit they were admitted to. The results of table (6) are discussed as below:

Age:

The value of F is 0.640, and the corresponding *p*-value is 0.636 (which is greater than 0.05 alpha level). As a result, the null hypothesis is accepted which states that there is no significant difference in respondents' perceptions of overall service quality based on their age.

Level of education:

The value of F is 0.795, and the corresponding *p*-value of 0.500 (which is greater than 0.05 alpha level). As a result, the null hypothesis is accepted which states that

there is no significant difference in respondents' perceptions of overall service quality based on their level of education.

Financial status:

The value of F is 1.572, and the corresponding *p*-value of 0.201 (which is greater than 0.05 alpha level). As a result, the null hypothesis is accepted which states that there is no significant difference in respondents' perceptions of overall service quality based on their financial status.

H_{03}: There is no statistically significant difference in respondents' perceptions of service quality based on the medical unit they were admitted to.

The value of F is 3.673, and the corresponding *p*-value of 0.015 (which is less than 0.05 alpha level). As a result, the null hypothesis is rejected. H1 is accepted, stating that there is a significant difference in respondents' perceptions of service quality based on the medical service that they were admitted to.

Table (06): ANOVA

Variables		Sum of Squares	Df	Mean Square	F	Sig.
Age	Between Groups	1.498	4	0.375	0.640	0.636
	Within Groups	55.645	95	0.586		
	Total	57.143	99			
Educational level	Between Groups	1.385	3	0.462	0.795	0.500
	Within Groups	55.758	96	0.581		
	Total	57.143	99			
Financial Status	Between Groups	2.676	3	0.892	1.572	0.201
	Within Groups	54.467	96	0.567		
	Total	57.143	99			

Medical Unit	**Between Groups**	5.883	3	1.961	3.673	0.015
	Within Groups	51.260	96	0.534		
	Total	57.143	99			

Source: Prepared by researchers based on SPSS23 results.

5. Discussion:

In the current study, the public hospital's service quality is rated as moderate. Service quality is rarely evaluated as good or excellent in the context of public hospital research in general. These results are common and expected given that public hospitals suffer from insufficient hygiene, a shortage of medicines in the hospital pharmacy, poor diagnostics tests, and scans equipment, etc. All of the aspects listed are part of the tangibility dimension, which has received the lowest score compared to the remaining dimensions in our study. The least evaluated item is 'the hospital has up to date equipment'. This result is attributed to the fact that this hospital lacks more advanced equipment (MRI, Ultrasounds machines CT scan) and that patients are frequently referred to other public or private clinics for these diagnoses. Items linked to restroom hygiene and the availability of suitable and comfortable facilities were also scored lower.

Reliability, on the other hand, is the second lowest scoring dimension, followed by responsiveness, and empathy. In the case of public hospitals, doctors and nurses face increased workload, which may result in delays in providing medical services, insufficient attention to patients, etc.

The highest-scoring dimension in this study is assurance, with respondents expressing favorable feedback on its items including the maintenance of patient confidentiality, which represents a fundamental principle of medical ethics and, as a result, makes patients feel safe and trusting in their medical staff. In addition, while respondents frequently lack sufficient knowledge about technical aspects of care, they tend to trust doctors because they believe that they will decide what is best for them scientifically.

In this study, we included inpatient attendants' perceptions of service quality because these individuals are believed to be in a good position to evaluate the care delivered to patients. We believe that by staying in the same place with patients during the hospitalization period, attendants experience the environmental and interpersonal elements of the service quality in the same way patients do. In this situation, patients' and attendants' perceptions of service quality are the same, or they may differ slightly but not significantly.

In terms of the variation in service quality perceptions based on respondents' demographic characteristics, no differences were found based on respondents' age, educational level, and financial status. The only statistically significant difference was identified between male and female subgroups, and it was associated with perception scores assigned to the "tangibility" dimension. In this study, unlike a previous study conducted by Abbasi-Moghaddam et al. (2019), men score of tangibility dimension was higher. It could be explained by the fact that women are more judgmental about tangible elements (such as cleanliness, the appearance of the hospital staff, comfort, etc.,) than men.

The literature results did not agree on whether perceptions of service quality differ based on respondents' sociodemographic characteristics, including one conducted by Stanisław et al. (2018), who concluded that the impact of socio-demographic variables on patients' expectations and perceptions of service quality was neither clear nor statistically significant.

In this study, it was found that respondents' perceptions of service quality varied depending on the medical unit which they were admitted to. The difference in perception between the types of the medical service could be related to the following reasons:

In many cases, patient isolation is needed in an infectious diseases' unit, the atmosphere of that unit is characterized to be calm. Moreover, to avoid the transmission of viral infections, it maintains a high level of hygiene. In contrast, internal, surgical and pneumological which are disrupted units, where medical staff could face burnout which can affect the way they behave with inpatients and/or their attendants.

6. Conclusion:

The SERVPERF model was used in this study to assess the service quality of an Algerian public hospital from the perspective of inpatients and their attendants. We included inpatient attendants in our study because they are in a good position to evaluate the medical care provided as inpatients are usually in physical or psychological discomfort. According to our findings, inpatients and their attendants assess the service quality of the public hospital SAROUB AL KHATHIR as moderate.

There was not a significant difference in perceptions of service quality between inpatients and their attendants. We additionally found that there is no significant difference in respondents' perceptions of service quality based on gender, age, level of education, or financial status. The only significant difference in respondents' perceptions was based on the medical unit they were admitted to.

Recommendations:

Based on the findings of the study, we suggest the following points:

- As this hospital is the only one in the city of El Eulma, it is essential to provide it with advanced medical equipment like MRI, Ultrasounds machine, and CT scan;
- Improve the hospital's infrastructure by adding supplementary services (exp coffee shop) to help attendants during their stay;
- Patients should be educated about the importance of keeping hospital facilities clean, especially the restrooms, as they are a source of the transmission of infections;
- Providing training programs to hospital's employees on how to deal with patients and their attendants;
- Continuously assessing patients' and their attendants' perceptions of service quality to discover what does not operate well.

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