



## Level of satisfaction of users of a teaching hospital: the influence of the presence of students

Grau de satisfação dos usuários de um hospital universitário: a influência da presença de alunos  
Grado de satisfacción de los usuarios de un hospital universitario:  
la influencia de la presencia de alumnos

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### ABSTRACT

**Objective:** To evaluate the level of satisfaction of inpatients in a teaching hospital regarding the quality of the hospital service by comparing term and non-term times. **Method:** Cross-sectional study carried out in three inpatient units with users from 18 to 80 years old who stayed in the hospital for at least 72 hours. An instrument for sociodemographic characterization and the SERVQUAL scale were applied to measure the level of satisfaction. Data collection occurred in two periods: term and non-term times. **Results:** Three hundred and five users of the service of both genders, with an average age of 46.2 years, were interviewed. Concerning the dimensions that make up the SERVQUAL scale, empathy was mentioned as the one with which the users attended to during term time expressed the greatest dissatisfaction ( $p=0.01$ ). Regarding the service dimension, the level of satisfaction of the users was higher during term time ( $p=0.01$ ). Tangibles, reliability, and assurance did not show differences when comparing the two examined periods. **Conclusion:** The users identified higher empathy and better service during term time, but similar perceptions were not reported for assurance and reliability.

### DESCRIPTORS

Inpatients; Patient Satisfaction; Health Evaluation; Quality of Health Care; Quality Management.

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## INTRODUCTION

Patient satisfaction has become an important indicator for evaluating quality in healthcare services<sup>(1)</sup>, because it favors the identification of the users' perspective on the care they receive<sup>(2)</sup>. Consequently, the development of evaluation systems can be considered essential and seen as a relevant tool for healthcare management<sup>(3)</sup>.

"The first attempt to operationalize the user satisfaction construct was the development of a psychometric scale of quality dimensions entitled Service Quality (SERVQUAL)".

A study carried out in a private hospital in the state of São Paulo, Brazil, applied the SERVQUAL scale to 288 patients and identified that the attributes that caused greatest satisfaction belonged to the dimensions of reliability and assurance. The lowest levels of satisfaction were observed in the dimensions of empathy and responsiveness<sup>(4)</sup>.

Another investigation, performed in two public hospitals in a municipality in the interior of the state of Minas Gerais, Brazil, examining 228 surgical patients and observing only the tangibles domain of the SERVQUAL scale, showed that the clients were dissatisfied, that is, the service did not meet the participants' expectations regarding tangible objects<sup>(5)</sup>.

A study that applied the SERVQUAL instrument revealed that it was also suitable to evaluate the satisfaction of Family Health Strategy users, because it is made up of five comprehensive dimensions, covering from individual care to facilities and physical structure<sup>(6)</sup>.

However, when evaluating satisfaction, it is necessary to take into account that patient perception may be influenced by several factors, such as previous healthcare experiences and the patient's current health situation<sup>(7)</sup>.

According to some authors, "user satisfaction concerns the subjective perception that the person has of the received care. Additionally, it may be related to aspects pertaining to the material infrastructure of the services (existence of equipment, medication), amenities (ventilation, comfort), and users' representations of the health-illness process"<sup>(8)</sup>.

From the same perspective, some authors claim that individual characteristics, for instance age, gender, level of education, occupation, and previous hospitalizations, are factors that may impact the level of satisfaction of inpatients<sup>(9-10)</sup>.

"Few studies taking into consideration the interaction between students and patients and the possible influence of this relationship on the satisfaction of users with healthcare services were developed"<sup>(11)</sup>. The patients' level of satisfaction with the general and health teams was evaluated in a study in which "most users (61.3%) did not perceive the presence of students in the team. Among those who noticed it, there was a high level of satisfaction (98.1%) with their performance"<sup>(12)</sup>.

An investigation carried out in an educational institution identified that inpatients were significantly satisfied with the presence of students during the care provided to them<sup>(11)</sup>, whereas another study reported that the presence of students

in a health center did not influence patients' satisfaction with the service<sup>(13)</sup>.

Considering that the literature has shown that satisfied users tend to adhere to the prescribed treatment and keep using the healthcare services<sup>(14)</sup> and that a performance evaluation can impact decision-making, the objective of the present study was to analyze whether the presence of students steers actions toward improving the quality of the offered services, influencing users' level of satisfaction. Because there is a limited number of studies evaluating the level of satisfaction and an absence of investigations seeking to associate the level of satisfaction with the dimensions of the SERVQUAL scale regarding the participation of students in the care setting, the present study also aimed to assess the level of satisfaction of inpatients in a teaching hospital regarding the quality of the hospital service by comparing term and non-term times.

## METHOD

### STUDY TYPE

Exploratory cross-sectional study.

### POPULATION

The study was performed in a tertiary teaching hospital in the northeast region of Brazil. The population was all the adult inpatients staying in the medical and surgical units of the institution during the data collection period who had clinical conditions favorable enough to fill out the instruments. The inclusion criteria were as follows: being between 18 and 80 years old and staying in the hospital for at least 72 hours. Literacy was not considered a limiting factor for inclusion. Patients who were unable to answer the questions because of changes in their state of consciousness, disorientation in time and space, or unfavorable clinical conditions at the time of the interview were excluded.

### DATA COLLECTION

The adopted sampling plan was stratified sampling with proportional allocation by strata, with each stratum consisting of the combination of time (term or non-term) and the treatment unit of the teaching hospital, taking into account the demand for care in each period.

The SERVQUAL scale is structured in five dimensions<sup>(15)</sup>: reliability, tangibles, responsiveness, assurance, and empathy. Analysis of the results obtained for these dimensions showed that there is a set of key discrepancies or gaps, which are defined as the difference between patients' expectations and the performance level that was actually reached by the service<sup>(16)</sup>.

The five-gap model addresses the way patients and institutions evaluate service quality. Gap 1 refers to the discrepancy between clients' expectations and management's perception regarding these expectations; gap 2 is related to the difference between management's perception and the service quality specifications; gap 3 consists of the discrepancy between the service quality specifications and

what is effectively offered to clients; gap 4 indicates the difference between the service delivery, that is, what can effectively be offered, and the pledge disseminated by the media; and gap 5 is the discrepancy between the perceived service and the delivered service, established according to the four previous gaps<sup>(17)</sup>.

The SERVQUAL scale is made up of 44 questions about clients' opinions, of which 22 comprise expectations and 22 clients' judgment about the provided service. The statements in each section (expectation or judgment) are followed by a Likert scale, in which clients mark their level of agreement or disagreement on a five-point evaluation scale, with 1 corresponding to "I totally disagree" and 5 representing "I totally agree"<sup>(18)</sup>.

The application of the instrument was carried out in two steps. The first consisted of evaluating clients' expectations at the time they were admitted to the hospital. The second focused on their perceptions and occurred 72 hours after their admission. Subsequently, a comparison of the results of both groups was performed to evaluate the service quality<sup>(19)</sup>.

A coefficient was calculated by subtracting the ideal performance scores (expectations, or E) from the sum of the perceived performance scores (perceptions, or P), with the result of the operation being the gap. For instance, the total gap ranged from -4 (gap = P - E = 1 - 5 = -4) to 4 (gap = 5 - 1 = 4), with a mean value equal to 0.

Term time was defined as that during which there were students of the medical and nursing courses available to offer care to patients. Data collection was carried out sequentially, with the first three months corresponding to non-term time. Stability in the number of professionals in the hospital health staff was observed when comparing both periods. The Mann-Whitney test for independent samples was proposed to compare term and non-term times regarding the quantitative variables.

## DATA ANALYSIS AND TREATMENT

An analysis of covariance (ANCOVA) was used to verify the influence of the variables collection time, gender, age, level of education, and hospitalization history on the level of satisfaction of inpatients in the teaching hospital. This belongs to the generalized linear models' class and was applied to each dimension of the SERVQUAL scale and its corresponding gap. The data analysis was carried out with the SAS® 9 software.

## ETHICAL ASPECTS

Ethical principles were observed, in accordance with Resolution no. 466/12 of the Brazilian National Health Council, and the proposal was approved as per a consolidated report by the research ethics committee of the co-participant institution no. 36084/12. All the interviewed participants signed a free and informed consent form.

## RESULTS

Taking into account both term and non-term times, the sample of users interviewed at the teaching hospital was 305 people. Among them, 156 (51.1%) were women, 125 (41%) belonged to the 41–60 age group, and 177 (58.0%) stated having between five and ten years of formal education. Regarding the occupation variable, 165 participants (54.1%) did not develop any type of economic activity. Additionally, 178 (58.4%) had a common-law marriage, and 157 (51.5%) lived in the state capital.

The mean age of the 305 participants was 46.2 years, with a standard deviation of 15.9 years. The average time spent in formal education was 8.0 years, with a standard deviation of 4.8 years. Concerning previous hospital admissions, 174 (57.0%) said they had been admitted before, and 66 (21.7%) had a previous hospitalization in the studied institution.

When analyzing the variables that influenced users' level of satisfaction, expressed by the gap, regarding each of the studied dimensions, Table 1 shows that the tangibles gap was not impacted by the examined variables in the two periods.

**Table 1** – Analysis of covariance of the dependent variable tangibles gap according to the independent variables term and non-term times, gender, age, level of education, and hospitalization history for 305 inpatients admitted to the teaching hospital – Sergipe, SE, Brazil, 2017.

Variable	Coefficient	p-value	95% confidence interval		Effect of the variable p-value
<b>Time</b>					
Term	0.17	0.06	-0.01	0.34	0.06
Non-term	ref **				
<b>Gender</b>					
Female	-0.02	0.74	-0.17	0.12	0.74
Male	ref **				
<b>Age (years)</b>					
18 to 40	0.01	0.92	-0.20	0.22	
41 to 60	0.02	0.82	-0.18	0.23	0.97
61 or over	ref **				
<b>Level of education (years)</b>					
0 to 4	0.12	0.34	-0.13	0.38	
5 to 10	-0.04	0.72	-0.27	0.19	0.16
11 to 16	ref **				
<b>Hospitalization history</b>					
Previous hospitalization	-0.04	0.66	-0.22	0.14	0.66
Admission to the teaching hospital	ref **				

\* p<0.05; \*\* reference variable.

Regarding the reliability dimension, a dependence between the variable gender and the level of satisfaction with the delivered service was found. Women reported higher satisfaction with the service ( $p < 0.03$ ) (Table 2).

**Table 2** – Analysis of covariance of the dependent variable reliability gap according to the independent variables term and non-term times, gender, age, level of education, and hospitalization history for 305 inpatients admitted to the teaching hospital – Sergipe, SE, Brazil, 2017.

Variable	Coefficient	p-value	95% confidence interval		Effect of the variable p-value
<b>Time</b>					
Term	0.13				
Non-term	ref **	0.12	-0.03	0.29	0.12
<b>Gender</b>					
Female	0.15				
Male	ref **	0.03*	0.02	0.29	0.03*
<b>Age (years)</b>					
18 to 40	-0.02	0.87	-0.21	0.18	
41 to 60	0.08	0.43	-0.11	0.27	0.45
61 or over	ref **				
<b>Level of education (years)</b>					
0 to 4	-0.08	0.52	-0.32	0.16	
5 to 10	-0.17	0.12	-0.39	0.05	0.22
11 to 16	ref **				
<b>Hospitalization history</b>					
Previous hospitalization	0.11		-0.06	0.28	
Admission to the teaching hospital	ref **	0.20			0.20

\*  $p < 0.05$ ; \*\* reference variable.

Table 3 shows a dependence between the service dimension and the variables data collection period and gender ( $p < 0.01$ ). The users' level of satisfaction was higher during term time and among women.

Table 4 indicates the dependence between the variable level of education and the assurance dimension, more specifically among the inpatients who reported having from 0 to 4 years of education. The users from this stratum declared themselves more dissatisfied with the service in comparison with inpatients from other strata.

Analysis of covariance for the empathy gap with the independent variables demonstrated a dependence on data collection period only. The users attended to during term time declared themselves to be more dissatisfied in comparison with those who received care during non-term time, as shown in Table 5.

**Table 3** – Analysis of covariance of the dependent variable service gap according to the independent variables term and non-term times, gender, age, level of education, and hospitalization history for 305 inpatients admitted to the teaching hospital – Sergipe, SE, Brazil, 2017.

Variable	Coefficient	p-value	95% confidence interval		Effect of the variable p-value
<b>Time</b>					
Term	0.33				
Non-term	ref **	<0.01*	0.18	0.49	<0.01*
<b>Gender</b>					
Female	0.18				
Male	ref **	<0.01*	0.05	0.31	<0.01*
<b>Age (years)</b>					
18 to 40	-0.17	0.07	-0.36	0.02	
41 to 60	-0.06	0.50	-0.25	0.12	0.14
61 or over	ref **				
<b>Level of education (years)</b>					
0 to 4	0.09	0.47	-0.15	0.32	
5 to 10	0.09	0.37	-0.11	0.30	0.67
11 to 16	ref **				
<b>Hospitalization history</b>					
Previous hospitalization	0.09		-0.07	0.25	
Admission to the teaching hospital	ref **	0.29			0.29

\*  $p < 0.05$ ; \*\* reference variable.

**Table 4** – Analysis of covariance of the dependent variable assurance gap according to the independent variables term and non-term times, gender, age, level of education, and hospitalization history for 305 inpatients admitted to the teaching hospital – Sergipe, SE, Brazil, 2017.

Variable	Coefficient	p-value	95% confidence interval		Effect of the variable p-value
<b>Time</b>					
Term	0.00				
Non-term	ref **	0.99	-0.13	0.13	0.99
<b>Gender</b>					
Female	0.05				
Male	ref **	0.40	-0.06	0.16	0.40
<b>Age (years)</b>					
18 to 40	-0.04	0.59	-0.20	0.12	
41 to 60	-0.07	0.37	-0.22	0.08	0.67
61 or over	ref **				
<b>Level of education (years)</b>					
0 to 4	-0.26	<0.01*	-0.46	-0.07	
5 to 10	-0.16	0.08	-0.33	0.02	0.03*
11 to 16	ref **				
<b>Hospitalization history</b>					
Previous hospitalization	-0.01		-0.15	0.12	
Admission to the teaching hospital	ref **	0.85			0.85

\*  $p < 0.05$ ; \*\* reference variable.

**Table 5** – Analysis of covariance of the dependent variable empathy gap according to the independent variables term and non-term times, gender, age, level of education, and hospitalization history for 305 inpatients admitted to the teaching hospital – Sergipe, SE, Brazil, 2017.

Variable	Coefficient	p-value	95% confidence interval		Effect of the variable p-value
<b>Time</b>					
Term	-0.28	<0.01*	-0.46	-0.10	<0.01*
Non-term	ref **				
<b>Gender</b>					
Female	-0.03	0.65	-0.18	0.11	0.65
Male	ref **				
<b>Age (years)</b>					
18 to 40	-0.14	0.22	-0.35	0.08	0.42
41 to 60	-0.06	0.59	-0.27	0.15	
61 or over	ref **				
<b>Level of education (years)</b>					
0 to 4	0.01	0.92	-0.25	0.28	0.90
5 to 10	-0.03	0.83	-0.26	0.21	
11 to 16	ref **				
<b>Hospitalization history</b>					
Previous hospitalization	0.07	0.45	-0.11	0.25	0.45
Admission to the teaching hospital	ref **				

\* p<0.05; \*\* reference variable.

## DISCUSSION

The association of the gap results of the five dimensions for the two data collection periods indicated a statistically significant difference for the service and empathy dimensions only.

Regarding service, the inpatients were more satisfied during term time.

Considering that during this period there were resident physicians and students from several health courses in the institution, it is possible to infer that the users focused the evaluation of the service dimension on the care provided by these professionals.

It is possible that the hospital users did not feel adequately taken care of by the health professionals, especially during non-term time, which may have been expressed as a lack of interest in helping them, leading to a negative evaluation on this item.

It is believed that this perception by users may be related to the lower number of professionals available to meet the inpatients' needs during non-term time, given that the healthcare undergraduate students cooperate with the institution's staff in the direct care of the users and seek to fulfill their needs.

This assumption corroborates the findings of a study that identified that, among the “patients attended to by medical students, 74.4% considered that the procedures performed were excellent, in comparison with 17.9% of the patients attended to by hired physicians. There is a natural tendency that students have more time to carry out procedures than professionals who are responsible for the whole unit”<sup>(19)</sup>.

Professional performance can be assessed by users according to the guidance provided, as well as by the problem-solving potential of the conduct, with the users' general satisfaction relying on their relationship with the team that delivers care<sup>(20)</sup>.

A study carried out in a teaching hospital in the interior of the state of São Paulo, Brazil, identified a high level of satisfaction with the general team “taking into account the politeness, respect, attention, trust, and interest of the professionals”<sup>(12)</sup>. Another investigation, focusing on evaluating the quality of healthcare in the presence of medical students, reported a higher level of satisfaction, explaining that students, in general, perform a more thorough physical examination because they pay more attention to the procedures. Additionally, they spend more time guiding patients<sup>(19)</sup>.

Intangibility in healthcare services can be regarded as a determining factor in the difference between users' expectations and perceptions, given that the execution of a certain action is intrinsically related to the existence of a relationship between users and the service<sup>(21)</sup>.

The “(dis)satisfaction of patients with healthcare professionals who are under academic training may be a consequence of these professionals' prioritizing the development of their technical skills with the objective of offering the best care and undervaluing some aspects inherent to it, which often compromises patients' opinion about their performance”<sup>(22)</sup>.

Concerning the assurance dimension, which addresses workers' knowledge and politeness, as well as their ability to instill trust in the users of the teaching hospital, the insecurity expressed by inpatients attended to while the institution had more students was noteworthy. There was a higher level of satisfaction during non-term time because the users acknowledged the great technical and professional experience of the team. However, this dimension showed no statistical significance. The narratives of several inpatients who experienced feelings of anxiety and insecurity when treated by students stood out, specifically when the users were submitted to technical procedures, because of the possibility of errors that could harm their health. The trust people deposit in health services will be obtained “when users get to know and try out the services and relate them to their values and experiences, attributing them affinities and acceptance”<sup>(4)</sup>.

Regarding the empathy dimension, there was a higher level of satisfaction among users during non-term time. The main complaint recorded in term time was the lowered perception of the professionals concerning the specific needs of

each user, which emphasizes the difficulty these soon-to-be professionals may have working in a humanized way.

Consequently, the present study highlights the need to raise professionals' awareness on the importance of understanding that technical knowledge must be aligned with ethical, respectful, and dignified care, in addition to emphasizing the importance of users to institutions<sup>(2,3)</sup>.

One of the main limitations of the present study is the fact that it was carried out in a single health center, although it was an institution certified as an excellent hospital and healthcare reference in the region. Another aspect to be considered refers to performing evaluation studies focused on the level of satisfaction of patients who receive the service during data collection, which can cause their answers to change for fear of influencing the care delivered by the health team.

Another possible bias is that users of the Brazilian Unified Health System, mostly socially disadvantaged

clients, may feel satisfied simply for obtaining access to healthcare and consequently produce more positive evaluations, regardless of the quality of the service.

## CONCLUSION

It is concluded that the level of satisfaction of the users who received care at the teaching hospital was higher for the service dimension during term time and lower for the empathy dimension. The tangibles, reliability, and assurance domains showed no statistical differences when comparing the two periods. However, some users reported higher insecurity during term time. Satisfaction is a valuable feedback to promote a process of continuous improvement in health institutions. Multiple variables can influence the level of satisfaction, and the introduction of students in teaching health institutions should be considered in patients' quality service evaluation.

## RESUMO

**Objetivo:** Avaliar o grau de satisfação dos usuários internados em um Hospital Universitário quanto à qualidade do serviço hospitalar no período letivo *versus* período não letivo. **Método:** Estudo transversal desenvolvido em três unidades de internação com pacientes de 18 a 80 anos, que permaneceram internados por um período mínimo de 72 horas. Aplicaram-se um instrumento para a caracterização sociodemográfica da população e a escala para mensurar o grau de satisfação (SERVQUAL). A coleta de dados ocorreu em dois momentos distintos, caracterizados como período letivo e período não letivo. **Resultados:** Foram entrevistados 305 usuários do serviço, de ambos os sexos, com média de idade de 46,2 anos. Em relação às dimensões que compõem a escala SERVQUAL, a empatia foi referida como a que os usuários atendidos no período letivo se demonstraram mais insatisfeitos ( $p=0,01$ ). Quanto à dimensão atendimento, o grau de satisfação dos usuários foi maior no período letivo ( $p=0,01$ ). No tocante à tangibilidade, confiabilidade e segurança não houve diferença entre os dois períodos. **Conclusão:** Os usuários identificam uma melhor empatia e atendimento durante o período letivo, porém tal percepção não se refletiu na segurança e confiabilidade em relação ao serviço.

## DESCRITORES

Pacientes Internados; Satisfação do Paciente; Avaliação em Saúde; Qualidade da Assistência à Saúde; Gestão da Qualidade.

## RESUMEN

**Objetivo:** Evaluar el grado de satisfacción de los usuarios hospitalizados en un Hospital Universitario en cuanto a la calidad del servicio hospitalario en el período lectivo *versus* período no lectivo. **Método:** Estudio transversal desarrollado en tres unidades de estancia hospitalaria con paciente de 18 a 80 años, que permanecieron hospitalizados por un período mínimo de 72 horas. Se aplicaron un instrumento para la caracterización sociodemográfica de la población y la escala para medir el grado de satisfacción (SERVQUAL). La recolección de datos ocurrió en dos momentos distintos, caracterizados como período lectivo y período no lectivo. **Resultados:** Fueron entrevistados 305 usuarios del servicio, de ambos sexos, con promedio de edad de 46,2 años. Con relación a las dimensiones que componen la escala SERVQUAL, la empatía fue referida como la que los usuarios atendidos en el período lectivo se demostraron más insatisfechos ( $p=0,01$ ). En cuanto a la dimensión de la atención, el grado de satisfacción de los usuarios fue mayor en el período lectivo ( $p=0,01$ ). En lo que se refiere a la tangibilidad, confiabilidad y seguridad no hubo diferencia entre ambos períodos. **Conclusión:** Los usuarios identifican una mejor empatía y atención durante el período lectivo, sin embargo dicha percepción no se reflejó en la seguridad y confiabilidad con relación al servicio.

## DESCRIPTORES

Pacientes Internos; Satisfacción del Paciente; Evaluación en Salud; Calidad de la Atención de Salud; Gestión de la Calidad.

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