

Assessing Quality of In-Patient Care and Patients's Expectations Using A SERVQUAL Approach in A Tertiary Care Hospital in India

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ABSTRACT

Background: Patient satisfaction is a key indicator of healthcare service quality and has implications for the growth and success of healthcare organizations. However, there is often a gap between patients' expectations and perceptions of service quality, which can vary depending on various sociodemographic factors. This study aimed to assess the expectations, perceptions and service quality gap in a tertiary care hospital using SERVQUAL model.

Materials and Methods: A cross-sectional study was conducted among 120 adult inpatients using a semi-structured questionnaire based on the five dimensions of the SERVQUAL model. The quality gap was calculated as the difference between perception and expectation scores.

Results: The study found a significant negative quality gap across all five dimensions, with the largest gaps observed in reliability and responsiveness. The study also revealed that gender, age, and education influenced patients' perception of service quality, while type of specialty, residence, monthly income, and occupation did not have a significant effect.

Conclusion: The study highlighted the need for improving the service quality in the tertiary care hospital, especially in terms of reliability and responsiveness. The study also suggested that healthcare managers and providers should consider the diverse expectations and needs of patients based on their sociodemographic characteristics.

Keywords: SERVQUAL, Service quality, Perception, Dimension

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INTRODUCTION

Quality is a crucial factor for the survival and success of any organization in a competitive healthcare market and patient satisfaction has become a significant burden to healthcare organizations. Patient satisfaction directly impacts the growth, success, and longevity of healthcare organizations. In fact, this influence is gaining even greater importance as organizations try to predict their future trajectory.¹ As taxpayers invest more in healthcare, their expectations for the quality of services provided by hospitals and other healthcare organizations naturally rise. This growing emphasis on quality assurance and promotion reflects the undeniable link between healthcare services and human lives. Recognizing this crucial connection and improving the quality of healthcare becomes not just desirable but fundamental, leading to an increased demand for effective quality control and management systems.²

In healthcare, the concept of quality often refers to the degree to which services effectively meet the individual needs and expectations of patients, ensuring compatibility between what is provided and what is desired. This patient centred approach emphasizes understanding individual needs and preferences, fostering open communication, and involving patients in decision-making processes.^{3,4} Mere focus on improving service without considering patient feedback won't guarantee improvements in quality. To ensure effectiveness and address true needs, active seeking and incorporation of patient perspectives is crucial.⁵

Healthcare quality encompasses two aspects: technical and functional. As patients often lack expertise to judge technical aspects, functional aspect akin to patient experience serves as a primary indicator of overall quality.⁶ Accurate and reliable patient identification and treatment procedures are key foundations for technical expertise in healthcare. In contrast, patient experience that is, how effectively these services are delivered, hinges on non-clinical aspects like communication, coordination, and patient respect.⁶ When aiming for successful patient outcomes, healthcare professionals should also aim to meet patients' needs and expectations beyond the technical aspects. Thus, patient's views expressed both directly and indirectly, is crucial for evaluating the effectiveness of healthcare services.⁷

In a dynamic healthcare landscape, patient expectations are constantly shaped by their prior experiences and evolving perceptions. Therefore, healthcare managers must consider these dynamic factors when evaluating whether patient expectations are being met.⁸ A concerning gap often exists between what patients truly need and what healthcare managers perceive those needs to be, based on their interpretation of patient feedback. This disconnect can lead to a decline in the quality of services provided.⁹ This can be attributed to a lack of shared understanding between patients and healthcare managers. Without

accurate information about patient needs and expectations, managers struggle to prioritize improvements, ultimately failing to meet those expectations and creating gaps in the quality of care delivered. Effectively recognizing these deficits will facilitate prioritizing and strategic resource allocation.¹⁰

Among the different methods to estimate healthcare service quality, SERVQUAL is one of the best and most used models in this regard. Having been reviewed and refined many times in the past and can be summarized into 5 dimensions namely, reliability, responsiveness, assurance, empathy and tangibility.^{11,12} SERVQUAL provides an insight into services received by the patient and makes a comparison with their ideal expectations. Parasurman et al believes that the quality of services is related to a customer's expectations before and during purchase and their perceived quality after purchasing said service.¹² This model is also referred to as the gap analyser model and is the strongest tool to assess quality of services.^{13,14} Therefore, this study aims to determine the different dimensions of service quality being provided in a tertiary care hospital in Chengalpattu, evaluating service quality from the patients' perspective.

The study conducted to assess the participant's expectations and perceptions of healthcare services, to determine the gap in healthcare service quality and to assess factors affecting a participant's perceived healthcare service quality

METHODOLOGY

A cross-sectional study was conducted in Inpatient wards of a tertiary care hospital in Chengalpattu, from October 2023 to January 2024. Adults aged 18 years and above who were admitted in the inpatient wards were included in the study. Patients with severe cognitive, visual and hearing impairments and not willing to give consent were excluded from the study. Using overall service quality index of perception of 39% as measured by Saha S et al¹⁵, sample size was calculated using 95% confidence interval with an allowable error of 10% while accounting for a non-response rate of 10%. Using the formula, $n = Z^2 * p * q / d^2$, final sample size of 100 was derived. A sampling frame was obtained by means of a list of patients admitted to all the inpatient wards at the time of data collection, wherein the treatment modality was categorized as predominantly medical or surgical. Simple random sampling by means of lot method was used to sample the participants.

Data Collection Tool & Procedure: Data was collected by a Pre-validated Interviewer-administered semi-structured questionnaire which consists of two parts. The first part contains the sociodemographic details such as age, gender, highest level of education, monthly household income, place of residence, occupation. The second part comprised of the 5 dimensions of the SERVQUAL questionnaire, i.e. Relia-

bility, Responsiveness, Assurance, Empathy and Tangibles for a total of 21 items, expressed on a 5-point Likert scale.^{16,17} Sociodemographic details and expectation scores were collected within 24 hours of admission from selected patients followed by perception scores, which was collected at the time of discharge.

Data Analysis: Data was entered into MS Excel and analysed using IBM SPSS version 26. Continuous variables were reported using both measures of central tendency (mean and median) and dispersion (standard deviation and interquartile range). Categorical variables were expressed as frequencies and percentages. Wilcoxon signed rank test was used to assess the differences between Perception and Expectation. Mann-Whitney U test and Kruskal-Wallis one-way analysis of variance was used to assess variances across different demographic variables.

Ethical consideration: Ethical clearance was obtained from Intuitional Ethics Committee (Approval letter no: 8428/IEC/2023 dated 27/7/2023). Informed consent was obtained from all participants. Confidentiality and anonymity were maintained for all participants.

RESULTS

In this study, 134 patients were approached to participate, and 120 agreed, resulting in a response rate of 89.55%. The collected data showed good internal consistency, with Cronbach's Alpha values of 0.824 and 0.974 for expectations and perceptions of service quality, respectively. Nearly half of the participants (46.7%) were between the ages of 18 and 34, with the majority being male (60%) and married

(76.7%). Socioeconomically, almost half (48.3%) belonged to the lower class, while another half (46.7%) were employed in the private sector. Additional details regarding demographics can be found in Table-1. Notably, over half (51.7%, n=62) of the patients were admitted under a medical specialty.

Table-1: Sociodemographic characteristics of participants (N=120)

Participant characteristic	Participants (%)
Gender	
Male	72 (60)
Female	48 (40)
Age	
18 to 34 years	56 (46.7)
35 to 49 years	23 (19.2)
50 to 64 years	18 (15)
Above 65 years	23 (19.2)
Educational status	
Highschool or lower	50 (41.7)
Diploma or Graduate	50 (41.7)
Postgraduate	20 (16.7)
Marital status	
Married	92 (76.7)
Single	28 (23.3)
Residence	
Urban	95 (79.2)
Rural	25 (20.8)
Monthly Income	
Lower class	58 (48.3)
Middle class	41 (34.2)
Upper class	21 (17.5)
Occupation	
Unemployed	23 (19.2)
Government service	11 (9.2)
Private sector	56 (46.7)
Self-employed	30 (25)

Table 2: Expectations, Perceptions and Gap Analysis

Dimension/Item	Expectation (E)				Perception (P)				Gap mean (P-E)
	M	SD	MD	IQR	M	SD	MD	IQR	
R1 Healthcare services performed on time	4.65	0.479	5	1	3.75	0.981	4	1	-0.9
R2 Staff's interest to solve problems	4.68	0.467	5	1	3.95	0.915	4	1	-0.73
R3 Staff protect patient confidentiality	4.45	0.659	5	1	3.9	0.991	4	2	-0.55
R4 Staff confident in providing services	4.72	0.453	5	1	4.04	0.873	4	1	-0.68
R5 Records and other documents kept accurately	4.89	0.312	5	0	4.24	1.029	4	1	-0.65
RS1 Staff called when necessary	4.85	0.359	5	0	4.26	1	4	1	-0.59
RS2 Prompt service from employees	4.76	0.43	5	0	4.12	0.954	4	1	-0.64
RS3 Staff are willing to service	4.88	0.322	5	0	4.10	0.965	4	1	-0.78
RS4 Service time declared exactly by staff	4.76	0.580	5	0	4.03	0.983	4	2	-0.73
A1 Staff behaviour is reassuring	4.84	0.367	5	0	4.18	0.993	4	1	-0.66
A2 Staff are adequately knowledgeable for patients	4.9	0.301	5	0	4.02	1.004	4	1	-0.88
A3 Staff is polite	4.74	0.44	5	1	4.13	1.02	4	1	-0.61
A4 Staff willing to protect patient's rights	4.54	0.500	5	1	3.98	1.029	4	1	-0.56
E1 Staff cares for patients individually	4.78	0.568	5	0	4.13	1.042	4	1	-0.65
E2 Working schedule is convenient for patients	4.66	0.476	5	1	4.06	0.973	4	1	-0.6
E3 Staff understanding to patient's personal requests	4.87	0.341	5	0	4.08	0.822	4	1	-0.79
E4 Services provided according to patient's interest	4.68	0.61	5	1	4.08	0.881	4	1	-0.6
E5 Staff attends to all patients equally	4.78	0.419	5	0	4.26	0.921	4	1	-0.52
T1 Modern equipment and facilities	4.77	0.425	5	0	4.06	0.91	4	1	-0.71
T2 Physical conditions, signs, symbols and artefacts are appealing	4.75	0.435	5	1	4.1	1.016	4	1	-0.65
T3 Staff are well dressed	4.38	0.624	4	1	4.36	0.915	5	1	-0.02

R-Reliability, RS-Responsiveness, A-Assurance, E-Empathy, T-Tangibles, M-Mean, SD-Standard deviation, MD-Median, IQR-Interquartile range

Table-3: Wilcoxon Signed Rank Test of aggregated means

Dimension	Expectation (E)				Perception (P)				Gap (P-E)	Z value	P value
	M	SD	MD	IQR	M	SD	MD	IQR			
Reliability	4.67	0.298	4.6	0.6	3.97	0.78	4.1	1	-0.7	-7.86	<0.001
Responsiveness	4.81	0.273	5	0.25	4.12	0.891	4.25	1	-0.69	-7.654	<0.001
Assurance	4.75	0.264	4.75	0.5	4.07	0.926	4.25	1	-0.68	-7.297	<0.001
Empathy	4.75	0.307	4.8	0.4	4.11	0.824	4.2	0.8	-0.64	-7.332	<0.001
Tangibles	4.63	0.38	4.67	0.67	4.17	0.857	4.33	0.67	-0.46	-4.887	<0.001

M-Mean, SD-Standard deviation, MD-Median, IQR-Interquartile range, significance taken at <0.05

Table-4: Mann-Whitney U test of demographic variables and perception

Dimension (Perception)	Gender		Marital status		Residence		Speciality	
	(male/female)		(Married/single)		(Urban/Rural)		(Medical/Surgical)	
	U value	P value	U value	P value	U value	P value	U value	P value
Reliability	1467	0.16	1249	0.808	1044	0.351	1775	0.903
Responsiveness	1276	0.014 ^a	1247	0.797	1051	0.371	1668	0.489
Assurance	1588.5	0.45	874.5	0.01 ^b	937.5	0.103	1767.5	0.871
Empathy	1529.5	0.279	1263	0.875	946.5	0.113	1616.5	0.332
Tangibles	1379.5	0.056	1180.5	0.495	1043.5	0.342	1603.5	0.297

a-Mean ranks of male and female participants were 66.78 and 51.08 respectively. b-Mean ranks among married and single were 64.99 and 45.73 respectively

Table 5: Kruskal-Wallis test of demographic variables and perception

Dimension	Age		Education		Monthly Income		Occupation	
	H value	P value	H value	P value	H value	P value	H value	P value
Reliability	11.781	0.008 ^a	1.701	0.427	0.507	0.776	3.065	0.382
Responsiveness	15.451	0.001 ^b	3.271	0.195	2.292	0.318	5.915	0.116
Assurance	1.781	0.619	3.325	0.19	3.183	0.204	9.002	0.029 ^e
Empathy	3.649	0.302	6.927	0.031 ^c	1.574	0.455	9.428	0.024 ^f
Tangibles	8.281	0.041	10.339	0.006 ^d	0.856	0.652	6.846	0.077

a,b,c,d,e,f-Post-hoc test Bonferroni done for significance level <0.05

Table-2 summarizes the average scores (means) and associated variations (standard deviations) for individual items within each of the five main dimensions: Reliability, Responsiveness, Assurance, Empathy, and Tangibles. Among all the items, "healthcare services performed on time" and "staff are adequately knowledgeable for patients" exhibited the most significant service quality gaps (negative values indicate a gap between expectations and perceptions), where the gaps were found to be -0.9 and -0.88, respectively. Furthermore, a statistical test (Wilcoxon signed-rank test) confirmed a substantial decrease in participants' perceived service quality compared to their expectations across all five dimensions (Table-3). The most significant declines were observed in reliability (Z=-7.860, p<0.001) and responsiveness (Z=-7.654, p<0.001). This suggests that participants placed greater importance on these aspects of hospital staff performance compared to others. Interestingly, no participant indicated any service element as unimportant. Notably, the "Tangibles" dimension, encompassing factors like staff appearance and equipment, received the highest average score (Median - 4.33). This suggests a general level of satisfaction with these tangible aspects of healthcare service delivery.

To investigate the influence of various factors on perception scores, Mann-Whitney and Kruskal-

Wallis tests were conducted (Table-4 and Table-5). Neither the type of medical specialty nor the participants' residence significantly impacted their perception scores. Interestingly, married participants rated the assurance dimension higher compared to their unmarried counterparts (U=874.5, p=0.01). Additionally, males placed greater emphasis on responsiveness compared to females (U=1276, p=0.014).

Kruskal-Wallis revealed a significant influence of age group on perceptions of service quality across two dimensions: Reliability, Responsiveness and Tangibles (Table-5). Further analysis using the Dunn-Bonferroni method showed that 50 to 64 years group scored lower when compared to 18 to 34 years (Rank gap=31.718, p=0.004) for Reliability dimension. Similar differences were present among the 50 to 64 years/18 to 34 years groups (Rank gap=33.246, p=0.002) and 50 to 64 years/35 to 49 years (Rank gap=37.530, p=0.003) groups for responsiveness dimension. However, post-hoc tests for tangibles dimension did not reveal any significant differences between individual age groups.

Educational level also played a role in shaping perceptions, where high school or lower group scored significantly lower than diploma or graduate group (Rank gap=-17.980, p=0.026), highlighting a higher level of satisfaction among the higher educated

group. A similar effect involving the same groups (Rank gap=-18.140, $p=0.023$) was noted for tangibles dimension wherein, higher levels of satisfaction with physical equipment and facilities was seen among the higher educated group. Notably, a slight decrease in perception scores was observed even within the diploma or graduate group compared to the post-graduate group for the Tangibles dimension (Rank gap=24.070, $p=0.023$).

While initial analysis indicated some statistically significant differences in perception scores based on monthly income and occupation (Table-5), further investigation using post-hoc tests failed to reveal any specific group differences. Interestingly, participants employed in government services consistently provided slightly lower scores compared to other groups, although these differences were not statistically significant.

DISCUSSION

The principal findings from our study showed a significant gap in all five dimensions of healthcare service quality. The highest quality gap was seen among reliability and responsiveness dimensions, whereas the lowest gap was observed for tangibles. Such a stark contrast reflects patients' view for a service to be fulfilled by an employee in a dependable, accurate and prompt manner. Tangibles having the lowest quality gap, showcases a comparatively better satisfaction with the hospital's facilities and personnel appearance. This is partially complemented by Jonkisz, A et al¹⁸ where the largest gaps in healthcare service quality was found in reliability and tangibles. A study conducted by Aghamolaei T et al¹⁹ had demonstrated a higher expectation score for responsiveness and assurance dimensions, complementing our findings. Zarei A et al²⁰ showed a higher perception score among tangibles, but differed from our study in expectations. However, the finding on tangibles should be interpreted with caution, considering the significant heterogeneity in infrastructure and resource availability across different healthcare settings in India.

Our findings regarding the influence of gender on responsiveness, particularly the higher satisfaction reported by males, similar to a study by Al-Borie HM et al²¹. This highlights the need to consider factors beyond basic demographic characteristics or influence of cultural factors, leading to higher tolerance for delays or communication styles. Interestingly, our analysis did not reveal any statistically significant variations in service quality perception based on the type of specialty the patients received care from. This implies that, in our specific context, patients generally held similar expectations and assessments of service quality regardless of the specialty they interacted with. These findings contrast with Lee D et al²² and Pekkaya M et al¹⁷ where variations in how patients who received different treatment types

evaluated various service quality dimensions, led to potentially varied expectations and priorities. Investigating the specific service attributes patients prioritize within distinct specialties could provide valuable insights for tailored service delivery strategies that cater to diverse patient expectations and needs.

Higher satisfaction with service quality was seen among younger age groups as compared to older age groups as evidenced by a study done by Singh P et al²³. Similarly, higher satisfaction was seen among groups with higher literacy than lower literacy groups. This apparent contrast with existing literature²⁴ could be attributed to a paradigm shift in healthcare outlook among the younger population. This may also highlight a preference for informal and open communication approach from healthcare providers and managers. No significant variations were seen among income groups and occupation.

A major strength is the use of a validated SERVQUAL questionnaire to measure patient expectations and perceptions of healthcare service quality in a tertiary care hospital. The study also employed a robust sampling method and achieved a high response rate. Furthermore, the study explored the influence of various sociodemographic factors on service quality perception, providing valuable insights for healthcare managers and providers.

LIMITATIONS

The study was conducted in a single hospital setting, which may not reflect the service quality of other hospitals in different regions or contexts. The study relied on self-reported data from patients, which may be subject to recall bias, social desirability bias, or satisfaction bias.

CONCLUSION

The study found a significant gap between patients' expectations and perceptions of service quality across all five dimensions of the SERVQUAL model, while the largest gaps were observed in reliability and responsiveness. The study also revealed that some sociodemographic factors, such as gender, age, and education, influenced patients' perception of service quality. Future research could address some of the limitations by conducting a multi-site study and using objective measures of service quality. Additional factors such as cultural values, personal preferences, type of patient service and previous experiences could be taken into account.

REFERENCES

1. Rivers PA, Glover SH. Health care competition, strategic mission, and patient satisfaction: research model and proposi-

- tions. *Journal of health organization and management*. 2008 Oct 31;22(6):627-41.
2. Harrison A. Structural change in hospitals: the implications for research. *Journal of Health Services Research & Policy*. 1996 Jan;1(1):44-50.
 3. Wong E, Mavondo F, Fisher J. Patient feedback to improve quality of patient-centred care in public hospitals: a systematic review of the evidence. *BMC health services research*. 2020 Dec;20:1-7.
 4. Sadigh SM: Service quality in hospitals: more favourable than you might think. *Manag ServQual* 2003, 13(3):197-206.
 5. Kumah E, Osei-Kesse F, Anaba C. Understanding and using patient experience feedback to improve health care quality: systematic review and framework development. *Journal of Patient-Centered Research and Reviews*. 2017;4(1):24.
 6. Raposo ML, Alves HM, Duarte PA. Dimensions of service quality and satisfaction in healthcare: a patient's satisfaction index. *Service Business*. 2009 Mar;3:85-100.
 7. Wolf JA, Niederhauser V, Marshburn D, LaVela SL. Reexamining "Defining Patient Experience": the human experience in healthcare. *Patient Experience Journal*. 2021;8(1):16-29.
 8. El-Haddad C, Hegazi I, Hu W. Understanding patient expectations of health care: a qualitative study. *Journal of patient experience*. 2020 Dec;7(6):1724-31.
 9. A'aqoulah A, Kuyini AB, Albalas S. Exploring the gap between patients' expectations and perceptions of healthcare service quality. *Patient preference and adherence*. 2022 May 23:1295-305.
 10. Greene SM, Tuzzio L, Cherkin D. A framework for making patient-centered care front and center. *The Permanente Journal*. 2012;16(3):49.
 11. Parasuraman A, Zeithaml VA, Berry L: A Conceptual model of service quality and its implications for future research. *J Mark* 1985, 49:41-50.
 12. Parasuraman A, Zeithaml VA, Berry LL: SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality. *J Retail* 1988, 64(1):12-40.
 13. Berry LL, Parasuraman A, Zeithaml VA: Ten Lessons for Improving Service Quality. *Marketing Science Institute Report*; 1993:93-104.
 14. Arora P, Narula S. Linkages between service quality, customer satisfaction and customer loyalty: A literature review. *IUP Journal of Marketing Management*. 2018 Nov 1;17(4):30.
 15. Saha S, Bhattacharya J. Analyzing the blood bank service quality from Indian blood donors' perspective: An empirical evidence. *Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine*. 2019 Jan;44(1):58.
 16. Jonkisz A, Karniej P, Krasowska D. SERVQUAL method as an "old new" tool for improving the quality of medical services: A literature review. *International journal of environmental research and public health*. 2021 Oct 13;18(20):10758.
 17. Pekkaya M, Pulat İmamoğlu Ö, Koca H. Evaluation of healthcare service quality via Servqual scale: An application on a hospital. *International Journal of Healthcare Management*. 2019 Oct 2;12(4):340-7.
 18. Jonkisz A, Karniej P, Krasowska D. The servqual method as an assessment tool of the quality of medical services in selected asian countries. *International journal of environmental research and public health*. 2022 Jun 26;19(13):7831.
 19. Aghamolaei T, Eftekhari TE, Rafati S, Kahnouji K, Ahangari S, Shahrzad ME, Kahnouji A, Hoseini SH. Service quality assessment of a referral hospital in Southern Iran with SERVQUAL technique: patients' perspective. *BMC health services research*. 2014 Dec;14:1-5.
 20. Zarei A, Arab M, Froushani AR, Rashidian A, Ghazi Tabatabaei SM. Service quality of private hospitals: The Iranian Patients' perspective. *BMC health services research*. 2012 Dec;12:1-7.
 21. Al-Borie HM, Sheikh Damanhour AM. Patients' satisfaction of service quality in Saudi hospitals: a SERVQUAL analysis. *International journal of health care quality assurance*. 2013 Jan 4;26(1):20-30.
 22. Lee D, Kim KK. Assessing healthcare service quality: a comparative study of patient treatment types. *International Journal of Quality Innovation*. 2017 Dec;3(1):1-5.
 23. Singh P, Sidhu AS. Measuring Patient's Expectations and Realizations Using SERVQUAL: A Review of Oncology Services in Punjab, India. *Asian Pacific Journal of Cancer Prevention: APJCP*. 2023;24(10):3327.
 24. Ferreira DC, Vieira I, Pedro MI, Caldas P, Varela M. Patient Satisfaction with Healthcare Services and the Techniques Used for its Assessment: A Systematic Literature Review and a Bibliometric Analysis. *InHealthcare* 2023 Feb 21 (Vol. 11, No. 5, p. 639). MDPI.