

Patient Perceptions of Healthcare Service Quality in Private Hospitals in Vellore District: An Empirical approach

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Abstract

Healthcare service quality has become a crucial determinant of patient satisfaction and hospital competitiveness. This study examines patients' perceptions of healthcare service quality in selected private hospitals in Vellore District using the five dimensions of the SERVQUAL model: tangibility, reliability, responsiveness, assurance, and empathy. A quantitative cross-sectional research design was adopted, and data were collected from 190 patients through a structured questionnaire. The collected data were analysed using measurement model validation and Structural Equation Modelling to assess the relationship between service quality dimensions and overall patient satisfaction. The findings reveal that reliability, empathy, responsiveness, and assurance have a significant positive influence on patient satisfaction, with assurance emerging as the strongest predictor. However, tangibility does not demonstrate a significant impact on patient satisfaction. The study highlights that patients place greater importance on dependable services, trust, safety, prompt assistance, and personalized care rather than physical facilities alone. The findings provide valuable implications for private hospital administrators to improve patient-centred service delivery, enhance satisfaction, and strengthen long-term competitiveness.

Keywords: Healthcare Service Quality; Patient Satisfaction; SERVQUAL ; Private Hospitals;

1 Introduction

Service quality has emerged as a critical parameter in performance evaluation and a primary strategic differentiator for sustaining a competitive advantage in the global service sector (Kalaja et al., 2016; Mosadeghrad, 2014). While the concept of quality itself has been a subject of intense debate due to a lack of consensus on a single definition (Endeshaw, 2020), early quality management pioneers offered varied conceptualizations. Crosby defined quality strictly as conformance to specifications (Kalaja et al., 2016), whereas Deming, Feigenbaum, and Ishikawa conceptualized quality as products and services that satisfy customers in accordance with their needs and expectations. Juran synthesized these perspectives by incorporating both conformance to specifications and customer satisfaction simultaneously. In the services marketing literature, service quality is



widely recognized as an elusive, subjective, and multi-dimensional construct (Murti et al., 2013), defined primarily by the degree and direction of the discrepancy between consumer expectations and actual perceptions of performance

In modern medicine, there is a profound paradigm shift towards recognizing the patient's voice and incorporating their perceptions into healthcare reform and quality of life assessments. Healthcare service quality (HCSQ) is defined as the outpatient's or inpatient's judgment of whether the characteristics and features of the delivered services meet or exceed their needs and expectations (Al-Damen, 2017). Donabedian famously defined HCSQ as "the application of medical science and technology in a manner that maximizes its benefit to health without correspondingly increasing the risk" (Lee, 2017), while Leebov et al. characterized it simply as "doing the right thing right the first time". Patients do not evaluate healthcare solely on clinical outcomes; rather, they assess the entire experience of care beyond technical competence, evaluating non-clinical service elements that they personally value

Patient satisfaction serves as a critical indicator of healthcare quality, significantly influencing treatment adherence, patient loyalty, and long-term provider sustainability (Venkatesh et al., 2023; Yeilada & Direktouml, 2010). As healthcare administrators face the persistent challenge of enhancing service delivery while managing costs, prioritizing patient-centered assessment measures has become essential for maintaining competitive advantage (Sundram et al., 2022; Swathi et al., 2023). In the context of Vellore district, the rapid proliferation of private healthcare providers necessitates a rigorous evaluation of service quality to bridge the gap between institutional delivery and patient-centered expectations (Alrubaiie & Alkaa'ida, 2011). Consequently, this study aims to explore the specific dimensions of service quality as perceived by patients within this region, investigating how these evaluations ultimately influence their overall satisfaction (Hasan & Karim, 2023). By analyzing these perceptions, this research seeks to provide evidence-based insights that enable hospital managers to refine service elements and align institutional investments with the actual needs of an increasingly informed consumer base (Nguyen et al., 2021; Panchapakesan et al., 2009). Furthermore, this investigation contributes to the literature by identifying which components of hospital care are most vital for patients who often prioritize safety and trustworthiness over clinical technicality (K & Kodikal, 2021). The findings will offer strategic recommendations for administrators to enhance patient-centered outcomes, thereby fostering institutional competitiveness in a market where excellence is a core differentiator (Neupane & Devkota, 2017).

2 Literature Review

The conceptualization of healthcare service quality often relies on the SERVQUAL model, which emphasizes the discrepancy between patient expectations and their perceptions of service performance (Setyaningsih & Widagdo, 2023). Healthcare service quality plays a significant role in determining patient satisfaction, loyalty, and overall hospital performance. The SERVQUAL model developed by Parasuraman et al. (1988) identifies five major dimensions of service quality: tangibility, reliability, responsiveness, assurance, and empathy, which are widely used to evaluate patients' perceptions of healthcare services.

Tangibility and Patient Satisfaction

Tangibility is related to the physical characteristics of health care services. This include the hospital building and its cleanliness, the medical equipment, the appearance of the health care workers, the waiting areas and the physical environment in general. Healthcare services are highly intangible, thus patients rely on observable cues to judge service quality. A beautifully kept hospital environment gives trust to patients and impacts their sense of professionalism and standards of care. Studies have shown that modern facilities, state-of-the-art medical technology, clean environments, and patient-friendly amenities all play a role in creating a favourable patient experience. Physical facilities and hospital environment affect patients' views of healthcare quality and satisfaction (Andaleeb, 2001). Likewise, Suki and Suki (2017) found that tangibility is a strong predictor of perceived healthcare service quality as patients correlate the better infrastructure with better treatment delivery. Private hospital patients generally anticipate premium services and tangible features play a vital part in determining satisfaction levels. Therefore, it is hypothesised that H1: Tangibility has a good effect on total patient satisfaction

Reliability and Patient Satisfaction

Reliability is the ability of healthcare providers to deliver the promised services in an accurate, consistent and dependable manner. Reliability in healthcare is defined as correct diagnosis, prompt treatment, proper documentation, adherence to medical commitments, and consistent provision of services. The reliability of healthcare performance has a great impact on the trust of patients, as errors or delays may directly affect the outcome of the patient. Reliability has been regarded as one of the most significant elements of service quality by Parasuraman et al. (1988). Pakdil and Harwood (2005) found that reliability has a major influence on patient ratings of healthcare services. Patients who see hospitals as reliable and consistent tend to express higher levels of satisfaction and loyalty to healthcare providers.

. Hence it is hypothesized that

H2: Reliability positively influences overall patient satisfaction

Responsiveness and Patient Satisfaction

Responsiveness is the desire and capacity of health care providers to respond to patients in a timely way and to offer timely treatments. It comprises rapid attendance to patient needs, less waiting time, availability of doctors and nurses, quick communication and excellent complaint handling. The delay and poor communication in healthcare settings often leads to patient discontent. Andaleeb (2001) pointed out that responsiveness is a crucial factor to patient satisfaction as patients appreciate health professionals that are willing to help and respond well to their concerns . Mostafa (2005) also observed that responsiveness had a beneficial impact on perceived healthcare quality and patient satisfaction. The ability to perform services efficiently and provide prompt attention are key considerations in private hospitals in differentiating themselves and enhancing the patient experience.

Based on the above discussions it is concluded that

H3: Responsiveness positively influences overall patient satisfaction

Assurance and Patient Satisfaction

Assurance is the knowledge, skill, professionalism and trustworthiness of the health care workers. It encompasses doctors' experience, staff confidence, communication skills, confidentiality and the capacity to generate a sense of safety among patients. Healthcare decisions are rife with ambiguity and risk, so people want confidence and trust in healthcare professionals. Parasuraman et al. (1988) highlighted assurance as one of the important components of service quality since it can lessen the worry of the patients and boost their confidence in healthcare services. Aagja and Garg (2010) found assurance to have a substantial effect on patient perceptions and satisfaction with hospital services. Private hospitals that have professional standards and good communication systems are more likely to earn the trust and happiness of patients. As a result, it is proposed that

H4: Assurance positively influences overall patient satisfaction.

Empathy and Patient Satisfaction

Empathy is the degree to which patients are given particular attention, understanding and emotional support. Healthcare is not only about medical therapy, it is also about compassion, respect and personal attention from the healthcare provider." When communicating with empathy, patients feel valued and their whole experience of health care improves. Bowers, Swan & Koehler (1994) noted that the interpersonal interactions and caring attitudes of health care professionals are an important factor in patient's assessment of service quality. Also, Lee and Kim (2017) observed that empathy has a high positive correlation with patient satisfaction, as patients respect healthcare personnel that understand their emotional and personal requirements. Therefore, it is hypothesized that

H5: Empathy positively influences overall patient satisfaction

3 Methodology

This study employs a quantitative, cross-sectional research design to systematically examine patient perceptions of service quality within the private hospital sector of the Vellore district. A descriptive design was considered appropriate because the study seeks to describe patients' perceptions of different dimensions of healthcare service quality, while the cross-sectional approach enabled the collection of data from respondents at a single point in time. Similar cross-sectional approaches have been employed in healthcare service-quality research using the SERVQUAL framework. The population of the study comprised patients who had received healthcare services from selected private hospitals in Vellore District. A total of 190 valid responses were considered for the empirical analysis. The respondents were selected based on their experience of receiving healthcare services from private hospitals, enabling them to provide informed perceptions of the quality of services received and their overall satisfaction. To ensure a representative sample, a multi-stage stratified random sampling technique was utilized to select participants from various inpatient and outpatient departments across prominent private medical institutions (Zarei et al., 2012). The study mainly depended on primary data acquired from the respondents through a structured questionnaire from the

patients of selected private hospitals in Vellore District. A questionnaire was devised to collect demographic details of respondents, their judgements about quality of healthcare services and overall patient satisfaction. Participation was voluntary and respondents were told of the goal of the study before they answered. This study uses patient perceptions as the basis for evaluating quality of healthcare service and this is similar with past studies on healthcare service quality.

The questionnaire was made up of three basic sections. The first phase gathered the demographic and socio-economic characteristics of respondents. The second phase measured the quality of healthcare service by five dimensions of SERVQUAL model. The third section evaluated Overall Patient Satisfaction. The study measures the service quality using the five established aspects of the SERVQUAL model, tangibility, reliability, responsiveness, assurance, and empathy, adapted to the specific operational setting of private healthcare in Vellore (Arukutty, 2018). The 20 items were measured on a five-point Likert scale. Following established psychometric conventions, the mean score within each category will be categorised to identify specific service gaps with lower values suggesting a higher need for strategic intervention (A'aqoulah et al., 2021). Items evaluating Overall Patient Satisfaction were borrowed from Al-Damen (2017). Al-Damen has created a model of health care service quality based on the modified SERVQUAL and studied its association with overall patient satisfaction in the hospital setting. The items measuring the five SERVQUAL dimensions were adopted from Alumran et al. (2021). They investigated patients' opinions of healthcare service quality through the SERVQUAL dimensional model, and compared service-quality perceptions of public and private hospitals.

4 Results & Discussion

The results of the study on Patient Perceptions of Healthcare Service Quality in Private Hospitals in Vellore District are presented based on the data collected from the respondents. The analysis was done in three main stages. The demographic and socio-economic profile of the respondents was first described using percentage analysis. Second, a validity analysis was conducted to determine the appropriateness and measurement quality of the research constructs. Finally, Structural Equation Modelling was used to investigate the association between the aspects of healthcare service quality and patient perceptions. The results of these studies provide an empirical foundation for the understanding of factors affecting patients' perceptions of healthcare service quality in private hospitals in Vellore District.

Respondent profile

The demographic profile of the 190 respondents indicates that 59.47% were male and 40.53% were female. In terms of age, the largest group was 25–34 years (36.32%), followed by those below 25 years (24.21%) and 35–44 years (21.58%). Regarding marital status, 57.37% were married, while 42.63% were unmarried. In terms of education, postgraduates constituted the largest group (42.11%), followed by undergraduates (31.58%). With respect to monthly income, the highest proportion of respondents earned ₹20,001–₹40,000 (30.53%), followed by those earning ₹40,001–₹60,000 (26.32%). Overall, the respondents represented a diverse demographic profile, providing an appropriate basis for further analysis of the study variables.

Measurement Model Validation

Table 1 shows the results of the construct validity test of the measuring model used to investigate patient perception of healthcare service quality and patient satisfaction. The construct validity was tested by the indicator loadings, the composite reliability and the average variance extracted (AVE). In reflective measurement models, indicator loadings indicate the extent to which the individual observed variables represent the respective latent constructs, and C.R. is a measure of the internal consistency of the indicators. An AVE score of 0.50 or higher suggests that a construct explains at least half of the variance in its indicators and so gives evidence of convergent validity (Fornell & Larcker, 1981; Sarstedt et al., 2022). The factor loadings of the indicators ranged from 0.641 to 0.975 (Table 1) which indicates a satisfactory link between the observable indicators and the latent constructs. The individual loadings are below 0.70 but are above 0.60 and supported by acceptable construct-level reliability and validity scores. The C.R. scores varied from 0.863 to 0.956, over the minimum acceptable threshold of 0.70, suggesting adequate internal consistency among the indicators. Modern SEM guidelines deem reliability values in the range of about 0.70 to 0.95 as acceptable, however values close to or over 0.95 should be checked for potential indication redundancy (Hair et al., 2022; Sarstedt et al., 2022).

The AVE values vary from 0.567 to 0.844 which are all consistently over the suggested threshold of 0.50. This shows that over 50% of the variance in each indicator is explained by the latent construct, which is sufficient proof of convergent validity (Fornell & Larcker, 1981). Specifically, the C.R. for Overall Patient Satisfaction was 0.886 with an AVE of 0.567; for Tangibles, it was 0.930 and 0.770, respectively; for Reliability, it was 0.956 and 0.844; for Empathy, it was 0.925 and 0.756; for Responsiveness, it was 0.877 and 0.640; and for Assurance, it was 0.863 and 0.617. This means that all six items have acceptable levels of internal consistency and convergent validity, and hence, are kept for further investigation of structural models.

Table 1 Construct validity

Indicators	Latent Variable	Loadings	C.R.	AVE
	Overall Patient Satisfaction			
Ops1	Overall, I am satisfied with the hospital's location.	.877	0.886	0.567
Ops2	Overall, I am satisfied with the treatment at the hospital	.837		
Ops3	Overall, I am satisfied with medical care at the hospital	.706		
Ops4	Overall, I am satisfied with the nursing care at the hospital	.754		
Ops5	Overall, I am satisfied with the hospital management	.641		
Ops6	I would recommend the hospital to others	.674		
	Tangibles			
Tan1	The hospital has modern-looking equipment	.931	0.930	0.770
Tan2	The physical facilities in the hospital are visually appealing	.905		

Tan3	Personnel in the hospital are neat in appearance	.809		
Tan4	Materials associated with the service are visually appealing	.859		
	Reliability			
REL1	When the hospital promises to do something by a certain time it does so	.975	0.956	0.844
REL2	When you have a problem, the hospital shows a sincere interest in solving it	.954		
REL3	The hospital gets things right the first time	.838		
REL6	The hospital insists on error-free records	.902		
	Empathy			
Emp1	The hospital gives you individual attention	.821	0.925	0.756
Emp2	The hospital has operating hours convenient to all its patients	.833		
Emp3	The hospital has your best interests at heart	.971		
Emp4	The personnel of the hospital understand your specific needs	.845		
	Responsiveness			
Res1	The personnel in the hospital tell you exactly when services will be performed	.742	0.877	0.640
Res2	Personnel in the hospital gives you prompt service	.805		
Res3	Personnel in the hospital are always willing to help you	.816		
Res4	Personnel in the hospital are never too busy to respond to your requests	.835		
	Assurance			
Ass1	The behaviour of personnel in the hospital instils confidence in you	.677	0.863	0.617
Ass2	You feel safe in your dealings with the hospital	.962		
Ass3	Personnel in the hospital are consistently courteous with you	.776		
Ass4	Personnel in the hospital have the knowledge to answer your questions	.694		

Table 2 presents the results of the discriminant validity assessment for the constructs included in the study. Discriminant validity establishes whether a latent construct is empirically distinct from other constructs in the measurement model. Following the Fornell–Larcker criterion, the square root of the AVE for each construct should be greater than its correlations with the other constructs (Fornell & Larcker, 1981). As recommended by Hair et al. (2022), adequate discriminant validity indicates that a construct captures phenomena that are sufficiently different from those represented by other constructs in the model.

The diagonal values are square root of the AVE and off-diagonal values are the correlation between the constructs (see Table 2). The square root of AVE values is Responsiveness 0.800, Patient Satisfaction 0.753, Tangibles 0.877, Reliability 0.919, Empathy 0.870, and Assurance 0.785. In each case the diagonal value is larger than the matching inter-construct correlations.

Therefore, the findings give sufficient evidence that the constructs are empirically different from each other.

Table 2 Discriminant validity

	Responsiveness	Patient Satisfaction	Tangibles	Reliability	Empathy	Assurance
Responsiveness	0.800					
Patient Satisfaction	0.316	0.753				
Tangibles	0.456	0.242	0.877			
Reliability	0.345	0.501	0.374	0.919		
Empathy	0.338	0.469	0.417	0.650	0.870	
Assurance	0.353	0.426	0.344	0.476	0.473	0.785

Structural Model and Hypotheses Testing

Figure 1 shows the structural model testing the effect of healthcare service quality dimensions namely tangibles, reliability, empathy, responsiveness and assurance on patient satisfaction. The path coefficients, standard errors, t-statistics and p-values were used to examine the structural correlations. Table 3 shows the outcomes of the hypothesis testing. The data reveal that Tangibles had non-significant effect on patient satisfaction ($\beta = -0.049$, S.E. = 0.049, $t = -1.007$, $p = 0.314$). p -value > 0.05 which means that the association is statistically not significant. Thus, the notion that tangibles significantly impact patient satisfaction is not substantiated. In contrast, Reliability has a positive and statistically significant impact on patient satisfaction ($\beta = 0.210$, S.E. = 0.050, $t = 4.226$, $p < 0.001$). This means that the capacity of the hospital to deliver reliable, accurate and error free services plays a large part in the pleasure of the patients.

Hence, the hypothesis concerning the positive influence of reliability on patient satisfaction is supported. Similarly, Empathy has a positive and significant influence on patient satisfaction ($\beta = 0.180$, S.E. = 0.062, $t = 2.920$, $p = 0.004$). This finding suggests that individual attention, convenient operating hours, understanding patients' specific needs, and demonstrating concern for patients contribute significantly to satisfaction. Therefore, the hypothesis related to empathy is supported. The results further show that Responsiveness has a positive and statistically significant relationship with patient satisfaction ($\beta = 0.161$, S.E. = 0.077, $t = 2.084$, $p = 0.037$). This indicates that prompt service, willingness to assist patients, and timely communication are important contributors to patient satisfaction. Thus, the hypothesis relating responsiveness to patient satisfaction is supported. Finally, Assurance demonstrates a positive and statistically significant effect on patient satisfaction ($\beta = 0.222$, S.E. = 0.069, $t = 3.244$, $p = 0.001$). This suggests that patients' confidence, sense of safety, courtesy of hospital personnel, and employees' knowledge significantly enhance patient satisfaction. Hence, the hypothesis concerning assurance is supported. These findings highlight the importance of dependable service delivery, personalized patient attention, prompt assistance, and confidence-inspiring hospital personnel in enhancing patients' overall satisfaction.

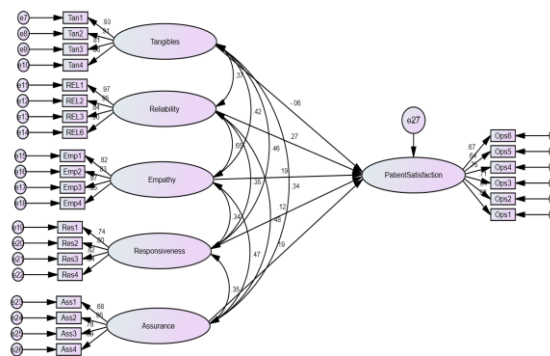


Figure 1 Structural Model

Table 3 Results of hypothesis testing

Path			Path Coefficients	S.E.	t- statistics.	P
Patient Satisfaction	<---	Tangibles	-.049	.049	-1.007	.314
Patient Satisfaction	<---	Reliability	.210	.050	4.226	***
Patient Satisfaction	<---	Empathy	.180	.062	2.920	.004
Patient Satisfaction	<---	Responsiveness	.161	.077	2.084	.037
Patient Satisfaction	<---	Assurance	.222	.069	3.244	.001

Note: t-values for two-tailed tests * $p < 0.05$, ** $p < 0.01$

5 Conclusion

The current study analysed the patients' views of healthcare service quality in selected private hospitals in Vellore District based on the five aspects of the SERVQUAL model-tangibles, dependability, responsiveness, assurance and empathy and also assessed their impact on overall patient satisfaction. Data collected from 190 respondents were used to demonstrate that the measuring model had a sufficient reliability, convergent validity, and discriminant validity. The findings thus validate the appropriateness of selected constructs for the evaluation of patient perceived healthcare service quality in the setting of private hospital. The results of the structural model indicate that reliability, empathy, responsiveness, and assurance have positive and statistically significant effects on patient satisfaction. Among these qualities assurance has the most impact on satisfaction followed by the reliability, empathy and responsiveness. It demonstrates that patients highly value feeling secure, having pleasant and competent help, getting dependable and mistake-free services and being handled with personalised care and concern

These findings emphasize that patient satisfaction depends not only on the technical delivery of medical care but also on the confidence, trust, communication, and interpersonal support experienced throughout the healthcare process. In contrast, tangibles did not have a statistically significant effect on patient satisfaction. Although modern equipment, attractive facilities, neat personnel, and visually appealing service materials may contribute to the overall hospital experience, the findings suggest that these physical attributes alone are insufficient to determine patients' satisfaction. Patients may consider tangible facilities as basic expectations,

while their satisfaction is more strongly shaped by the reliability of services, the responsiveness of employees, the assurance provided by hospital personnel, and the extent to which their individual needs are understood. This finding highlights the importance of prioritizing relational and process-oriented aspects of healthcare delivery rather than focusing exclusively on physical infrastructure. The findings have important managerial implications for private hospitals in Vellore District. Hospital administrators should strengthen systems that ensure accurate records, error-free procedures, timely service delivery, and dependable fulfilment of commitments. Continuous training should also be provided to doctors, nurses, administrative staff, and other service personnel to improve communication, courtesy, empathy, problem-solving ability, and patient guidance. In addition, hospitals should establish mechanisms for collecting and responding to patient feedback, monitoring waiting times, communicating service schedules clearly, and addressing complaints promptly. Such initiatives can improve patient confidence and create a more consistent patient-centred service experience. The study also contributes to healthcare service-quality research by providing empirical evidence from the private hospital sector in Vellore District, a context that has received comparatively limited attention. It demonstrates that the SERVQUAL dimensions do not contribute equally to patient satisfaction and that their influence should be examined within the specific social, economic, and institutional context of the healthcare market. The results support the view that private hospitals can achieve stronger patient satisfaction and competitive positioning by combining clinical and operational reliability with assurance, responsiveness, and empathetic care.

However, the results should be interpreted taking into account the limitations of the study. The study was cross-sectional and utilised data from 190 respondents from chosen private hospitals and so the findings may not be generalisable to all hospitals, patient categories and areas. The study used self-reported perceptions; thus patients' replies may potentially have been affected by contemporaneous experiences, expectations or personal situations. Future research may include larger samples, longitudinal studies and comparative studies between public and private hospitals. Future study may further investigate the mediating roles of trust, perceived value, and patient loyalty. The impact of digital healthcare services, waiting time, affordability, clinical results, and demographic disparities on patient satisfaction may also be examined. To summarise, the study found that the happiness of patients in private hospitals in Vellore District is determined mostly by reliable service delivery, confidence and safety, personalised attention and timely help and not by physical facilities alone. The private hospitals that are seeing a continuous improvement in these dimensions are more likely to reinforce patient happiness, trust, recommendations and institutional sustainability in the long run.

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