

Evaluation of Hospital Service Quality with the SERVQUAL Method Approach and Quality Function Deployment (QFD)

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ABSTRACT

Quality hospital services are the main demand in the modern era that prioritizes patient satisfaction as the main indicator of the success of health services. This study aims to evaluate the quality of hospital services using a combined approach between the SERVQUAL and Quality Function Deployment (QFD) methods. The research was conducted qualitatively using in-depth interview techniques and participatory observation at one of the referral hospitals in Banten Province. The SERVQUAL method was used to identify gaps between patient expectations and perceptions of five service dimensions: tangibles, reliability, responsiveness, assurance, and empathy. The results showed that the responsiveness and empathy dimensions had the most significant gaps, indicating the need for improvement in the aspects of service speed and attention to patients. Furthermore, the QFD method was applied to translate patient needs into technical specifications of hospital services through the preparation of the House of Quality (HOQ). Some of the key patient needs identified included improving the quality of staff communication, waiting room comfort, and utilization of digital service systems. The literature review supports that the combined approach between SERVQUAL and QFD is able to produce solutions that are applicable and oriented towards systemic improvement of health services. This research makes an important contribution to hospital management in designing strategies based on patient needs as well as a reference for sustainable service development. The results also highlight the important role of service innovation in improving hospital competitiveness at the regional level.

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INTRODUCTION

Globally, hospital systems are under increasing pressure due to population growth, demographic changes, and higher expectations of healthcare. Developed countries such as the United States, United Kingdom, and Japan have developed hospital service systems based on technology and patient-centered care, but still face challenges in terms of service equity, cost, and patient satisfaction. On the other hand, developing countries are still struggling with limited human resources, inadequate infrastructure, and inequality of access between regions. The World Health Organization (WHO) emphasizes the importance of universal access to quality and affordable health services, including hospital services, as part of Sustainable Development Goal 3. However, there are still significant differences in satisfaction levels and quality of care between countries and even between regions within a country.

The quality of hospital services internationally is often measured through indicators such as waiting time efficiency, speed of service, competence of medical personnel, patient safety, and quality of interaction between health workers and patients. In the annual World Health Report (WHO, 2023), it was found that many hospitals in the world still have not implemented a consistent and data-based quality evaluation system. The development of health informatics and the digitization of electronic medical records have become solutions widely adopted by global hospitals to improve accuracy, efficiency and transparency of care. In Europe and North America, approaches such as Lean Healthcare and Six Sigma are used to improve hospital operational efficiency, while countries in Asia are starting to apply hybrid approaches such as the integration of SERVQUAL and Quality Function Deployment (QFD) to measure and improve services based on patient needs.

In the context of globalization and population mobility, hospitals are also required to have service standards that are adaptive to cultural diversity, language, and patient values. This has led to the emergence of the concept of “culturally competent care” as an important part of hospital service quality. Leading hospitals such as Cleveland Clinic (USA), Mayo Clinic, and Bumrungrad Hospital (Thailand) have implemented systems that ensure services are not only medically effective, but also sensitive to patients' backgrounds. In addition, global competition in the healthcare industry, including medical tourism, has made hospital service quality a key factor in international competitiveness. Therefore, evaluating the quality of hospital services is no longer just about technical aspects, but also emotional, cultural, and technological aspects.

The quality of hospital services is a key indicator in assessing the performance of health institutions. High-quality services not only increase patient satisfaction, but also strengthen the hospital's reputation in the eyes of the public. In this context, evaluation of service quality is crucial to ensure that hospitals meet the service standards expected by patients and other stakeholders. The SERVQUAL model, developed by Parasuraman et al. has become a popular tool in measuring service quality based on five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. This model allows the identification of gaps between patients' expectations and perceptions of the services received, thus assisting hospitals in designing service quality improvement strategies. However, the SERVQUAL approach has limitations in providing technical solutions for service improvement. Therefore, integration with the Quality Function Deployment (QFD) method is important. QFD allows the translation of patient needs and expectations into technical specifications that can be implemented by hospital management, so that service improvements can be made in a systematic and structured manner.

Research by Junior et al. (2022) showed that the integration of SERVQUAL and QFD was effective in designing service improvements in a teaching hospital surgical center. This study highlights the importance of an integrated approach in identifying patient needs and translating them into concrete improvement actions. In Indonesia, research on the integration of SERVQUAL and QFD in the hospital context is still limited. The study by Rafidah et al. (2024) combined SERVQUAL, Kano, and two iterations of QFD to improve the service quality of a private hospital. The results showed that this approach can identify unmet patient needs and design suitable improvement recommendations. The qualitative approach in this study allowed for an in-depth exploration of patient perceptions and expectations. Through interviews and focus group discussions, researchers were able to extract richer and more contextualized information about patients' experiences in receiving hospital services, which may not be revealed through quantitative surveys.

The study by Arief et al. (2022) used the SERVQUAL scale to evaluate patient satisfaction with pharmacy services at a private dental hospital in Jakarta. The results show that the dimensions of empathy and responsiveness have a significant influence on patient satisfaction, emphasizing the importance of interpersonal aspects in health services. In the context of the COVID-19 pandemic, Lestari and Indrawati (2023) assessed the quality of essential health services using the SERVQUAL method. They found that the reliability and responsiveness dimensions decreased during the pandemic, indicating the need for adaptive strategies in maintaining service quality in times of crisis. The integration of fuzzy logic methods with SERVQUAL and QFD, as done by Junior et al. (2022), allows handling uncertainty and subjectivity in patient perceptions. This approach provides a more flexible and accurate framework for designing service improvements that meet patient needs.

Research by Wulandari (2020) emphasizes the importance of prioritizing service improvements based on the largest gap value identified through SERVQUAL. By using QFD, hospitals can determine indicators that should receive immediate attention to improve overall service quality. Hakim and Sulistiyowati (2021) integrated SERVQUAL, QFD, and TOPSIS methods to improve service quality in the retail sector. Although the context is different, this approach can be adapted in healthcare to prioritize improvements based on criteria relevant to patient needs. A study by Indriasari (2024) showed that QFD can act as an intervening variable between service quality and patient satisfaction in community health centers. This finding emphasizes the importance of structured quality planning in improving patient satisfaction in first-level health care facilities.

Safitri and Ambarwati (2024) examined patient satisfaction with hospital services in Bandarlampung using SERVQUAL. They found that the tangibles and assurance dimensions had a significant influence on patient satisfaction, indicating that physical aspects and service assurance remain important in patient perceptions. The novelty of this study lies in the integration of SERVQUAL and QFD methods in a qualitative approach to evaluate and design hospital service improvements. This approach enables a deeper understanding of patients' needs and expectations, as well as their translation into concrete and measurable improvement actions.

Many previous studies have only used the SERVQUAL method independently to assess hospital service quality, but have not systematically linked it to the preparation of technical recommendations for service improvement. For example, research by Al-Azzam (2021) only focuses on measuring the quality gap without developing technical measures based on patient needs. Some recent literature has begun to integrate SERVQUAL and QFD in the health sector, but it is generally still limited to specific service units such as outpatient installations or laboratories (Kusnadi et al., 2023). This research comes with the novelty of a more comprehensive coverage of service units, as well as a House of Quality matrix approach that is developed in more detail according to the local characteristics of hospitals in Indonesia.

The SERVQUAL method will be used to measure patient perceptions and expectations of hospital services, as well as identify service dimensions that have the largest quality gaps. Furthermore, the QFD method will be used to translate the needs and desires of patients into technical actions that can be implemented by hospital management. With this approach, it is expected that a deeper understanding of the factors that affect the quality of hospital services can be obtained and an effective and efficient improvement strategy can be designed. This research is also expected to contribute to the development of health service management science, especially in terms of evaluating and improving the quality of hospital services. In addition, the results of this study can serve as a reference for hospital management in designing and implementing service quality improvement strategies oriented to the needs and expectations of patients.

Thus, this research is expected to make a significant contribution to the development of strategies to improve the quality of hospital services in Indonesia. Through an in-depth qualitative approach and the integration of SERVQUAL and QFD methods, hospitals can design service improvements that are more responsive to patients' needs and increase their satisfaction and loyalty.

Literature review

Leverage

According to Perangin-angin et al, (2022) Leverage is the use of assets and sources of funds by companies that have fixed costs (fixed expenses) with the aim of increasing potential profits that can increase potential profits for shareholders. According to Cashmere (2016) this ratio is used to assess debt with equity so that this ratio is useful for knowing the amount of funds provided by loans (creditors) with company owners. The formula used to find the debt to equity ratio.

Profitability

Profitability is the ability of a company to generate profit or profit in a certain period. Profitability is one of the important indicators to assess the financial performance and operational success of the company. Profitability ratios are used to measure a company's efficiency in using assets and managing its operations to generate profits (Gitman & Zutter, 2015). High profitability indicates that the company is able to generate substantial profits from its business activities, while low profitability may indicate a problem in the company's financial management or business strategy (Brigham & Houston, 2019).

Dividend Policy

According to Mananta, (2019) Dividend Payout Ratio (DPR) is the percentage of profit distributed in the form of cash dividends, meaning that the size of the DPR value will affect the investment decisions of shareholders and on the other hand also affect the company's financial condition. The determination of policies related to the Dividend Payout Ratio (DPR) is often related to the company's financial performance. If the company's financial performance is at a satisfactory level, then the company can design a DPR policy that is oriented towards the interests of shareholders, without ignoring the interests of the company to continue to advance (Marlina and Danica, 2009).

Share Price

According to Jogiyanto (2017: 143) the share price is the price that occurs on the stock exchange market at a certain time and the share price is determined by market participants. The high and low share price is determined by the demand and supply of these shares in the capital market. Meanwhile, according to William Hartanto (2018: 22), share price is a unit of value or bookkeeping in various financial instruments that refers to a share of ownership of a company or a form of ownership of a company in the capital market. According to Zulfikar (2016: 91-93) stock prices can be influenced by several internal and external factors of the company.

METHODOLOGY

This study used a descriptive qualitative approach with the aim of exploring in depth the patient's perception of service quality at the Banten Provincial Hospital. This approach was chosen because it allows researchers to understand the subjective experiences experienced by patients and hospital staff in the context of health services. The location of this research is Banten Provincial Hospital, which is located on Jalan Sheikh Muhammad Nawawi Albantani, Banjarsari, Serang City, Banten. As a class B hospital that has achieved Primary level accreditation from the Hospital Accreditation Commission (KARS), RSUD Banten has a strategic role as the main referral hospital in Banten Province.

Informants in this study consisted of outpatients and inpatients, as well as hospital staff who were directly involved in the service process. The selection of informants was done purposively with several criteria, namely patients who have received services in the last three months, hospital staff who have at least one year of experience in the service unit, and willingness to participate in the study.

The data collection techniques used include in-depth interviews with guidelines based on the five dimensions of SERVQUAL, namely tangibles, reliability, responsiveness, assurance, and empathy. In addition, researchers also conducted participatory observations to directly observe the service process in various units, as well as documentation studies of documents related to service standards and patient satisfaction survey results available at the hospital.

The data obtained were analyzed using the thematic analysis method. The analysis process began with the transcription of interviews and observation notes, followed by data coding to identify key themes, and interpretation of themes in the context of hospital service quality. The results of this analysis were then mapped into the House of Quality (HoQ) framework from the Quality Function Deployment (QFD) model, in order to prioritize service improvements based on the voice of the customer.

To ensure data validity, triangulation of sources and methods was conducted, as well as member checking by confirming findings with informants. Meanwhile, research reliability was maintained through systematic documentation of the research process. This research has also obtained permission from the Banten Regional Hospital and was carried out by observing the principles of research ethics, such as maintaining the confidentiality and comfort of the informants during the entire research process.

RESULTS

Table 1 Thematic Findings From in-depth Interviews with Patients at Banten Provincial Hospital

Main Theme	Description of Findings	Thematic Code
Staff Communication	Patients felt that communication was not fully friendly and informative.	KOM001
Waiting Time	Waiting times at the registration and poly departments are too long.	WTP002
Availability of Medicine	Some patients complained about the limited availability of medicines.	OBT003
Cleanliness and Facilities	Toilet and waiting room facilities were considered unclean.	FAS004
Empathy of Medical Staff	Some patients felt that they were not listened to empathetically by medical personnel.	EMP005

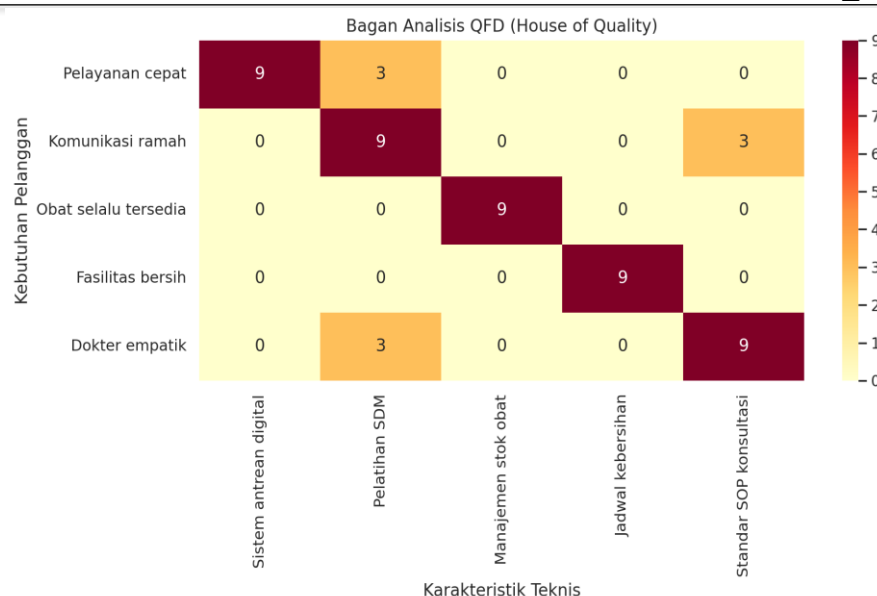


Figure 1. QFD Analysis Chart

Based on the results of the analysis using the SERVQUAL model, the reliability and responsiveness dimensions are the main highlights of patient expectations. Many patients emphasize the importance of fast and accurate service, especially in the registration and examination process. The gap value between expectations and perceptions shows that although medical services are running, aspects of timeliness and efficiency are still a weakness. This is consistent with a study by Al Fraihi & Latif (2016) which found that speed of service strongly influences perceptions of hospital quality. The mismatch between expectations and services received leads to a decrease in patient satisfaction levels, which in turn has an impact on public trust in public health facilities.

Thematic findings from the interviews revealed five crucial issues: staff communication, waiting time, availability of medicine, cleanliness of facilities, and doctor empathy. These issues indicate that service quality is not only determined by medical competence, but also aspects of social interaction and overall service management. For example, staff impatience in providing information indicates poor training in public communication. Meanwhile, delays in queuing reflect the suboptimal queuing information system. This is in line with the literature that states that patient experience is a combination of technical quality and functional quality (Parasuraman et al., 1988; Pakdil & Harwood, 2005). Therefore, the approach to improving service quality should consider both structural and relational aspects at the same time.

Through Quality Function Deployment (QFD) analysis, patient needs were mapped into technical characteristics such as digital queuing system, HR training, and doctor consultation SOP. The QFD matrix shows that the digital queuing system has the highest weighted relationship to satisfaction, followed by HR training and drug stock management. This indicates that service improvements can start from areas that have a direct impact on patient experience. The QFD approach also helps hospitals formulate development priorities based on data rather than assumptions. Studies by Aghamolaei et al. (2014) and Lee et al. (2018) reinforce the importance of a structured approach to healthcare redesign to ensure that the voice of the customer is truly the foundation of systemic improvement.

This study contributes scientific novelty through an integrative approach between SERVQUAL and QFD based on qualitative analysis. While most previous studies have emphasized quantitative data and closed-ended surveys, this research builds an in-depth understanding of real patient experiences through thematic interviews and needs mapping towards service quality improvement strategies. This approach is unique in that it combines the exploration of subjective perceptions with technical modeling based on the House of Quality. Therefore, the results of this study are not only relevant for hospital quality improvement in Banten, but can also be replicated in other regions with contextually-based adaptive approaches. The findings also enrich the literature on public service innovation in the Indonesian health sector.

DISCUSSION

Service Quality Gap Analysis Based on SERVQUAL Dimensions

The tangibles dimension, which includes physical facilities and medical equipment, shows that patient perceptions are still below expectations. Some patients complained about uncomfortable waiting rooms and equipment that looked outdated. A study by Putri and Suryani (2020) found that waiting room comfort has a direct impact on outpatient satisfaction in government hospitals. This shows the importance of updating facilities as a representation of the hospital's image. The reliability dimension is a big concern for patients. They expect accuracy of diagnosis, timeliness of service, and consistency of procedures. Research by Sharma and Kamra (2022) states that reliability is a major determinant of patient loyalty, especially in regional hospitals. Service inconsistency can lead to public distrust of the public service system.

The responsiveness dimension is considered less than optimal, especially in terms of the speed with which officers respond to patient needs. This is reinforced by the research of Dewi et al. (2018) which states that officer response time is a determinant of outpatient satisfaction. Service delays are often caused by manual queuing systems that have not been digitally integrated. From the assurance aspect, patients still feel a lack of security in terms of service procedures. The lack of educative communication from medical personnel makes patients feel doubtful about the actions taken. The study by Lee et al. (2019) emphasizes that service certainty, such as clarity of procedures and officer competence, contributes to patient trust.

Empathy is the dimension that most patients complain about. Many patients feel that doctors or nurses lack personal attention. Research by Lestari and Hamid (2021) explains that empathic attitudes have a significant impact on service perceptions, especially in the context of government hospitals that deal with patients from various social backgrounds. The combined assessment of the five SERVQUAL dimensions shows a negative gap in almost all aspects. This indicates that patient perceptions are lower than their expectations. This result is in line with the findings of Al Fraihi & Latif (2016), who found that public sector hospitals tend to have negative gaps in service dimensions compared to private hospitals. The largest gaps occur in the dimensions of responsiveness and empathy, which indicate that direct interaction between staff and patients is a weak point in service. Communication and service training interventions based on public ethics can be an initial solution. According to Oktaviani and Yuniarto (2023), effective communication training is proven to increase patient satisfaction in regional hospitals.

This finding suggests that improving service quality is not only about medical technicalities, but also about staff behavior. Non-physical dimensions such as attitude and communication have a great influence on patient experience. Research by Ismail et al. (2020) also underlines that the dimensions of empathy and assurance are crucial for the sustainability of public hospital services. The quality gap also reflects the need for regular monitoring and evaluation of services. By using the SERVQUAL model, hospital management can create a map of improvement priorities. This is reinforced by the study of Hadiana and Sari (2019) which suggests using SERVQUAL as a basic instrument in the formulation of health service quality strategies. Overall, the SERVQUAL dimensions offer a comprehensive evaluation framework for measuring hospital service quality from the patient's perspective. The use of this model is important for mapping empirical evidence-based improvement needs that can be applied in long-term service strategies.

Implications of QFD Implementation in Service Quality Improvement

QFD (Quality Function Deployment) was used in this study to translate patient needs into technical features of the service. This process involves mapping the needs from the SERVQUAL dimensions to the technical characteristics of the hospital. According to Akao and Mazur (2016), QFD is effective in redesigning service systems because it is based on the voice of the customer. Key patient needs such as "fast service", "friendly communication", and "medicine is always available" are converted into technical elements such as digital queuing systems, HR training, and pharmaceutical logistics management. The study by Nugroho and Putri (2020) mentioned that mapping customer needs to operational strategies is very effective for service improvement in the public sector.

The QFD relationship matrix shows the digital queuing system has the highest score in relation to increasing satisfaction. This shows the importance of digital transformation in hospital administrative processes. Research by Haryono et al. (2021) also suggested digitalization as a solution to healthcare efficiency. HR training is the second priority. Officers who are skilled in communication and service ethics tend to be better able to answer patient needs. According to Sari and Indrawati (2022), training based on patient-centered care is proven to improve the quality of service interactions in government hospitals.

Medicine availability management is the third technical priority. Many patients complained about unavailable or late medications. A study by Widodo et al. (2019) showed that poor hospital pharmacy management was the main cause of medication delays. QFD also helps identify relationships between patient needs. For example, fast service is not only related to the queuing system, but also to the competence of medical personnel and clarity of procedures. Research by Zhang et al. (2020) shows that QFD is very useful for complex service systems such as hospitals. This analysis provides a logical basis for decision makers to prioritize data-based improvements. Thus, improvement interventions are no longer reactive or speculative.

This is in line with the evidence-based decision making approach proposed by Donabedian (2018).

The advantage of the QFD approach is its ability to incorporate the patient's voice into managerial and operational decisions. This reduces the gap between hospital management and patient experience. Research by Park et al. (2023) also highlighted that QFD strengthens accountability of hospital services. Qualitatively, the use of QFD also involves the interpretation of patient narratives that serve as the technical basis for service development. Thus, hospitals can avoid policies that are only based on intuition. This approach is consistent with Arifin and Syahrul's (2022) study on the integration of participatory approaches in hospital quality management. By integrating QFD and SERVQUAL, this study presents an evaluation and improvement model that is holistic and sustainable. This model can be replicated in other hospitals with similar conditions, especially in areas that are developing public services based on community needs.

Thematic Findings-Based Service Quality Improvement Strategy

Based on thematic analysis of interviews with patients and medical personnel, it was found that there is an urgent need for a more humanistic approach to service delivery. Patients feel that the current service system is still too bureaucratic and lacks flexibility. A study by Trakulsunti and Antony (2018) mentioned that overly procedural health services can lead to dissatisfaction, especially in the context of government hospitals. The interpretation of the results showed that many complaints were related to rigid interpersonal communication. Patients felt that communication from medical personnel was often one-way and lacked room for questions and answers. According to research by Park et al. (2019), effective communication between medical personnel and patients is an important indicator of patient-centered care. In the in-depth interviews, medical personnel also expressed internal constraints such as high workload and lack of communication training. This impacts their ability to build empathic relationships with patients. As explained by Luthra et al. (2021), regular training can reduce burnout and increase empathy among hospital staff.

These findings suggest the need to reformulate service SOPs to be more patient experience-oriented. SOPs that are too rigid can be replaced with service guidelines based on flexibility and situational needs. The study by Ahmad et al. (2022) confirms that a flexible approach in medical services increases hospital adaptability to the diversity of patient needs. Thematic data also showed that patients' positive perceptions increased significantly when staff greeted them in a friendly manner, explained procedures, and asked about their condition personally. This shows the importance of integrating soft skills into the performance appraisal system. Research by Elsharnouby and Parsons (2016) shows that emotional labor of medical personnel is directly proportional to patient loyalty. Short-term strategies that hospitals can implement include effective communication training, strengthening humanist values in service, and incentivizing empathy-based service practices. According to Jamaluddin and Handayani (2021), incentive policies linked to the quality of staff interactions have a positive impact on public services. The medium term is to redesign the flow of services that make it easier for patients, for example by cutting queue points, digitizing administrative forms, and assisting elderly or disabled patients. The study by Zarei et al. (2020) shows that inclusive service system design can improve perceptions of service fairness in hospitals.

In the long run, hospitals need to build an organizational culture that promotes the value of care, not only in slogans but also in daily practice. This culture will be the basis for building public loyalty and trust. As stated by Raza et al. (2023), an organizational culture oriented towards patient satisfaction results in sustainable hospital performance. This study also indicates that the establishment of a special quality management team based on customer complaints can be a proactive solution. This team can evaluate and follow up on complaints with a participatory approach. This is in line with the continuous quality improvement (CQI) approach suggested by Brook et al. (The integration of thematic analysis results with management strategies provides a new direction for RSUD in Banten to become a patient needs-based hospital. With a qualitative approach, the resulting strategy is not only based on numbers, but also narratives and real experiences from service users. This approach reflects a modern public service paradigm that is more adaptive, responsive and humanistic.

CONCLUSION

This study concludes that hospital service quality is strongly influenced by the five main dimensions in the SERVQUAL model, namely tangibles, reliability, responsiveness, assurance, and empathy. The findings show that the dimensions of empathy and responsiveness are the aspects that are most felt to be lacking by patients, especially regarding the speed of service and individualized attention from medical personnel to patient needs. These findings indicate a significant gap between patients' expectations and perceptions of the services received.

Through the QFD approach, the identified patient needs can be translated into the technical aspects of hospital services. The House of Quality (HOQ) that was built shows the priorities of improvements that the hospital should make, such as increasing staff communication training, adding waiting room facilities, and improving digital-based service information systems. By combining qualitative data from interviews and observations, this approach enables a more structured mapping of service improvement strategies in line with

patient expectations.

The combination of SERVQUAL and QFD methods in this study proved effective to systematically identify, analyze, and design solutions to hospital service problems. The advantage of this method lies in its ability to bridge the voice of the customer with specific and measurable operational steps. Thus, hospitals can design patient-oriented service quality improvement strategies.

This study also has novelty value in the local context, especially in Banten Province, by utilizing a qualitative approach based on field findings combined in depth with QFD technical mapping. This study is an important reference in improving services based on patient expectations and is the basis for hospital managerial policy making to improve competitiveness and service user satisfaction.

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