JOURNAL OF CULTURAL ANALYSIS AND SOCIAL CHANGE

Journal of Cultural Analysis and Social Change,
2025, 10(3), 1157-1169
ISSN: 2589-1316

Service Quality Model Outpatient in State Hospital Based on Community Satisfaction Index and Healthqual Using Interpretative Structural Modeling

Herni Justiana Astuti[1*], Suryo Budi Santoso[2], Retno Dwiyanti[3]

[1,2,3] *Universitas Muhammadiyah Purwokerto, INDONESIA*

***Corresponding Author:** herni99@gmail.com

Citation: Astuti, H. J., Santoso, S. B., & Dwiyanti, R. (2025). Service Quality Model Outpatient in State Hospital Based on Community Satisfaction Index and Healthqual Using Interpretative Structural Modeling. *Journal of Cultural Analysis and Social Change*, *10*(3), 1157–1169. https://doi.org/10.64753/jcasc.v10i3.2571

Published: November 29, 2025

ABSTRACT

Public hospitals must continuously improve service quality to meet patient expectations while maintaining public accountability. However, existing service quality models such as SERVQUAL and the Community Satisfaction Index (CSI) are not fully capable of capturing the complex and sensitive nature of healthcare experiences, where patients interact under physical and emotional stress. This study aims to develop an integrated service quality model for state hospitals by combining the CSI and HealthQual frameworks through the Interpretative Structural Modeling (ISM) approach. Data were collected from experts in marketing, hospital management, and healthcare services across four districts to identify and structure the key determinants of service quality. The findings reveal five major dimensions empathy, physical evidence, security, reliability, and outcome improvement comprising twenty-seven indicators. Among these, employee politeness, detailed explanation to patients, medical equipment safety, and diagnostic accuracy are identified as the most critical factors influencing patient satisfaction. This integrated model offers a systematic framework for policymakers and hospital managers to enhance patient-centered care, strengthen diagnostic reliability, and improve overall service accountability within public healthcare organizations.

Keywords: Service Quality; Public Hospital, Community Satisfaction Index, HealthQual, Interpretive Structural Modeling.

INTRODUCTION

Ensuring equitable access and high-quality healthcare services has become a global priority aligned with the United Nations' Sustainable Development Goals (SDG 3: Good Health and Well-being). In recent years, the focus has shifted from merely providing healthcare access toward improving the quality and accountability of health service delivery, particularly in public hospitals that serve as the backbone of national healthcare systems. Citizens have a basic right to health care (Singh, 2024 & Opele & Adepoju, 2024). The government as a public service organization has the characteristics of public accountability (Panagiotopoulos, 2023), where every citizen has the right to evaluate the quality of services received (Biau et al., 2021). However, it cannot be denied that public sector services still have many obstacles, especially in terms of service quality (Purcărea et al., 2014).

The services delivered are less able to interpret what consumers expect so gaps arise. The main key to overcoming service gaps is through comprehensive service design. Servqual has been widely applied in various contexts to measure consumer performance and expectations (Boakye et al., 2020; KhanMohammadi et al., 2023; Sony et al., 2023). However, some researchers have concluded that the service quality put forward by (Dam & Dam, 2021) is not suitable for certain businesses. Patients as consumers have unique characteristics that consumers in other businesses do not have because they come for treatment under pressure and feel discomfort due to the disease they suffer from and are under stress (H. J. Astuti & Nagase, 2014).

Copyright © 2025 by Author/s. This is an open access article distributed under the Creative Commons Attribution License which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

In Indonesia, the government emphasizes public service accountability through the Regulation of the Ministry of Administrative and Bureaucratic Reform (Permenpan-RB No. 14/2017), which mandates the measurement of public satisfaction as a performance indicator for government agencies, including hospitals (H. Astuti et al., 2022). However, this approach often adopts a generalized perspective of public service delivery such as licensing or administrative services without considering the emotional, psychological, and clinical complexities inherent in healthcare contexts (Kim et al., 2021)

Conventional service quality models such as SERVQUAL (Parasuraman et al., 1988) have been widely applied across industries to measure gaps between service expectations and perceptions (Boakye et al., 2020; Sony et al., 2023). Nevertheless, healthcare differs fundamentally from other services because patients engage with providers in conditions of vulnerability, anxiety, and trust dependence (H. J. Astuti & Nagase, 2014). Meanwhile, the Community Satisfaction Index (CSI), though effective for assessing public service performance, fails to address the process-oriented and outcome-based dimensions critical in hospital settings. These limitations highlight the need for an integrated approach that combines the citizen-centered accountability of CSI and the patient-centered clinical experience of HealthQual (Estiri & Dahooie, 2023; Lee, 2017)

To address these multidimensional factors, this study employs the Interpretative Structural Modeling (ISM) approach, which allows experts to identify, structure, and prioritize interrelated indicators influencing healthcare service quality. ISM is particularly suitable for complex decision systems like hospital management because it integrates both expert judgment and system-level interdependencies (Yin et al., 2024). The dimensions of measuring service quality specifically for the health sector have been put forward by (Lee, 2017), that there are two aspects of service measurement, namely process (empathy, physical evidence, safety, and efficiency) and results (degree of service improvement). The Healthqual Model (Lee, 2017) is an integrated model for measuring healthcare satisfaction based on the patient's view, the hospital's view, and the accreditation agency's perspective.

Therefore, this study aims to develop an integrated model of service quality for public hospitals by combining the Community Satisfaction Index (CSI) and HealthQual frameworks using the ISM method. The findings are expected to provide both theoretical contributions by extending the application of service quality theory into the public healthcare context and practical implications for policymakers and hospital administrators to design patient-centered and accountable healthcare systems.

LITERATURE REVIEW

Service Quality in Public Health Context

Service quality has long been recognized as a multidimensional construct that reflects the gap between service expectations and actual performance (Parasuraman et al., 1988). In healthcare, this concept extends beyond tangible delivery and includes psychological, emotional, and ethical dimensions that shape patient experiences (Chauhan et al., 2023; Sony et al., 2023; Goodrich & Lazenby, 2023). Public hospitals, as government-managed institutions, face the dual challenge of providing high-quality medical services while ensuring accountability, equity, and transparency (Panagiotopoulos, 2023), Consequently, measuring service quality in this context requires an integrated framework that captures both administrative performance and patient-centered outcomes.

The Community Satisfaction Index (CSI)

A Community Satisfaction Survey must be conducted by public service providers at least once a year. Public service delivery entities participate in the Community Satisfaction Survey, which employs preset survey procedures and metrics. The Community Satisfaction Survey results must be made public by public service providers. The Minister for Administrative Reform and Bureaucratic Reform receives the results of the Public Satisfaction Survey. Operators are expected to assess the Public Service Units.

Data and information regarding the degree of community satisfaction derived from quantitative and qualitative assessments of people's perceptions of receiving services from public service providers by contrasting needs and expectations is known as the Community Satisfaction Index (H. Astuti et al., 2022). The elements in the public satisfacti on survey consist of 9 elements, namely (1) Requirements, (2) Systems, Mechanisms and Procedures, (3) Completion Time, (4) Costs/Tariffs, (5) Product Specifications of Service Types, (6) Implementer Competence, (7) Implementer Behavior, (8) Handling of Complaints, Suggestions and Input, and (9) Facilities and infrastructure (Astuti et al., 2022).

The CSI provides a macro-level evaluation of service performance by focusing on accessibility, timeliness, fairness, and responsiveness attributes relevant to public service accountability (Astuti et al., 2022). However, it does not sufficiently address the clinical and interpersonal dimensions inherent in healthcare services, where quality perception is influenced by trust, empathy, and the competence of medical professionals (Kim et al., 2021).

 © 2025 by Author/s

Therefore, while CSI is valuable for assessing overall satisfaction with public services, it requires complementary models to capture the unique dynamics of hospital service encounters. While CSI provides a governance-oriented evaluation of service quality, it lacks attention to clinical processes and patient experiences that are central to hospital performance.

The HealthQual Model and Integration Rationale

The HEALTHQUAL scale has the best psychometric qualities in terms of construct validity and content, indicating that it is a reliable and useful tool for gauging user satisfaction. Healthqual conducted (Lee, 2017), has 2 dimensions, namely process and results. The process dimension consists of empathy (7 indicators), physical evidence (5 indicators), Safety (4 indicators), and Efficiency (4 indicators), while the outcome dimension is the level of improvement of care service (6 indicators).

HealthQual, introduced by (Lee, 2017), extends the SERVQUAL framework by integrating both process and outcome dimensions in healthcare. The process dimension comprises empathy, physical environment, safety, and efficiency, while the outcome dimension reflects the degree of health improvement experienced by patients. Recent studies (KhanMohammadi et al., 2023; Sony et al., 2023) reaffirm that HealthQual captures patient-perceived quality more accurately than traditional SERVQUAL scales because it includes the clinical and safety aspects crucial in hospital contexts. Nevertheless, HealthQual does not fully incorporate public accountability indicators such as transparency, complaint handling, and service accessibility, which are essential for state hospitals.

Thus, integrating the CSI's governance-oriented dimensions with HealthQual's clinical focus can generate a more holistic measurement model for healthcare quality in public hospitals. This integration allows the evaluation of both service delivery processes (patient experience, empathy, safety) and governance outcomes (responsiveness, fairness, and accountability). The application of the Interpretative Structural Modeling (ISM) approach enables the exploration of interrelationships among these dimensions to determine which elements have the strongest influence on perceived healthcare quality (Yin et al., 2024).

Based on the synthesis of previous studies, this research conceptualizes healthcare service quality as a function of both patient-centered process factors and governance-based outcome factors. The integrated CSI HealthQual framework (Figure 1) is developed to identify critical indicators that influence overall service quality in state hospitals, analyzed using the ISM approach to reveal the hierarchical structure and interdependencies among variables.

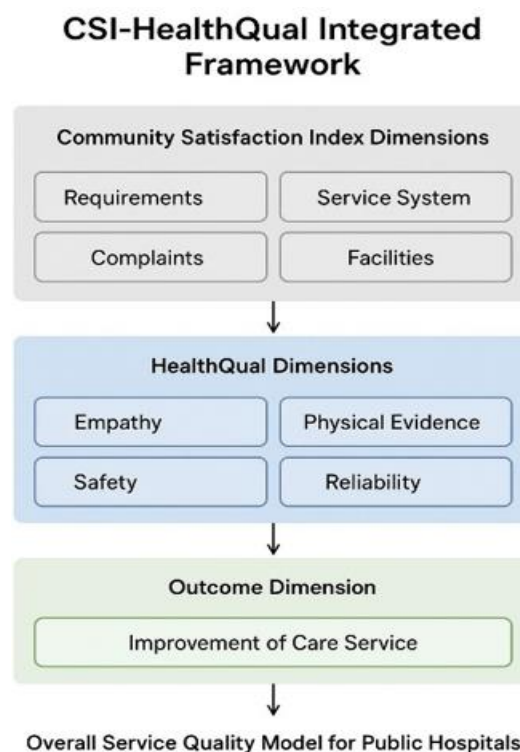

Figure 1. CSIH ealthQual Integrated Framework.

This conceptual framework illustrates the integration of the Community Satisfaction Index (CSI) and HealthQual models to assess the quality of public hospital services. The upper layer represents the governance-based dimensions derived from the CSI, including requirements, service systems, complaint handling, and facilities.

These elements reflect the accountability and accessibility aspects of public service delivery. The middle layer represents process-based factors from the HealthQual model empathy, physical evidence, safety, and reliability which capture the interpersonal and operational dynamics of healthcare services. The final layer, the outcome dimension, reflects the level of improvement in care services and overall patient satisfaction. Together, these layers form an integrated structure analyzed through Interpretative Structural Modeling (ISM) to determine the interrelationships and priorities among the dimensions of healthcare service quality in state hospitals.

METHOD

Data Collection Sources and Methods

The primary data used in this study was obtained from interviews with experts and practitioners.

Overview of Interpretative Structural Modeling Method (ISM)

J. Warfield introduced ISM in 1973. Warfield defined ISM as a computer-assisted learning process that enables individuals or groups to develop complex relationship maps between the various elements involved in complex situations (Yin et al., 2024). The SM technique aids in giving a system's intricate interactions between its component's structure and direction. Since the judgment of the study's chosen group determines if and how the variables are connected, the ISM is interpretative. Although this tool can be used alone, its primary purpose is to facilitate group learning (Bhattacharya & Momaya, 2009). ISM has 8 stages in analysis:

(1) Determine the elements that are pertinent to the problem or issues, in this case the enablers. The literature review served as the basis for their inclusion.
(2) Create a reciprocal relationship between the enablers that will determine which enabler pairings are studied.
(3) Create an enablers' structural self-interaction matrix (SSIM), which shows their paired relationship.
(4) Utilizing the SSIM, create a reachability matrix and verify its transitivity. A fundamental tenet of ISM is the transitivity of the contextual relation, which holds that if element A is related to B and B is related to C, then A must also be related to C.

Finding the enablers that have the biggest impact on a construction company's growth is the primary goal of applying the ISM technique. Four experts two from the construction business and two from academia were consulted in order to create a relationship matrix. The four symbols listed below have been used to analyze these enablers in the development of the SSIM:

V = Enabler i will help achieve enabler j
A = Enabler j will be achieved if i is achieved
X = Both enablers will help achieve each other
O = Both enablers are unrelated to each other

Finally, a digit 1 is substituted for V, A, and X, and a digit 0 (zero) is substituted for O in order to transform the SSIM into the binary reachability matrix with the dependence and enabling power. The following guidelines govern how 1s and 0s are swapped out.

(5) The reachability matrix is divided into various levels.
   a. If the (i,j) entry in the SSIM is V, the (i,j) entry in the reachability matrix becomes 1 and the (j,i) entry becomes 0.
   b. If the (i,j) entry in the SSIM is A, the (i,j) entry in the reachability matrix becomes 0 and the (j,i) entry becomes 1.
   c. If the (i,j) entry in the SSIM is X, the (i,j) entry in the reachability matrix becomes 1 and the (j,i) entry also becomes 1.
   d. If the (i,j) entry in the SSIM is O, the (i,j) entry in the reachability matrix becomes 0 and the (j,i) entry also becomes 0
(6) Create a directed graph using the reachability matrix's relationships as a guide, then eliminate any transitive linkages. The decision was made to further categorize the enablers according to their dependencies and driving strengths. These obstacles have also been divided into four groups: autonomous, dependent, linkage, and independent barriers, based on the driving power and the dependence on **MICMAC** (matrix of cross impact multiplications applied to classification).

   Enablers in this study are classified into four groups:
   a. Autonomous Variables (Quadrant I), namely for variables that do not have high influence or high dependency,
   b. Dependent Variables (Quadrant II), which are dependent variables that have low influence and high dependency,

 © 2025 by Author/s

c. Linkage Variables (Quadrant III): These variables have high influence and high dependency, and
d. Independent Variables (Quadrant IV): These enablers have high influence and low dependency.

(7) Transform the resulting graph into an ISM by substituting statements for enabling nodes.
(8) Examine the ISM model for conceptual inconsistencies and make the required adjustments.

RESULT

Measuring satisfaction by finding service quality instruments at advanced health facilities by conducting Focus Group Discussions (FGDs) between decision makers at the RSUD and District Health Office and guided by marketing experts. Respondents amounted to 9 (nine) people, questionnaires distributed to respondents in it, and literature studies related to the problems faced in compiling service quality specifically for government-owned Regional General Hospitals.

Based on FGDs, the results of 5 dimensions, namely empathy, physical evidence, security, reliability and level of care service improvement into 27 indicators. The 5 dimensions are analyzed through the ISM process as shown in Table 1.

The next step is to create a MICMAC (matrix of cross impact multiplications applied to classification) chart. The ISM results were further analyzed using MICMAC to classify the variables based on their driving and dependence power. The following figures (Figures 1–5) illustrate the distribution of variables for each dimension according to the four quadrants (Autonomous, Dependent, Linkage, and Independent).

Based on figure 1, empathy does not have Autonomous and Dependent variables, while in the Linkage quadrant, enables that have high influence power as well as high dependence are obtained in enable E3 (Listening to patient complaints), E4 (Understanding and considering the patient's situation), E5 (A sense of closeness and friendliness), E6 (Hospitals know what patients want), and E7 (Hospitals understand patient problems as empathy). In quadrant IV, having high influencing power and low dependence is found in E1 (Polite attitude of employees) and E2 (Explaining the details).

© 2025 by Author/s

Table 1. ISM Process.

Elements and sub-elements	**Structural Self Interaction Matrix (SSIM)**								**ISM VAXO Processing Results**							
PROCESS DIMENSION																
Empathy	E1	E2	E3	E4	E5	E6	E7		E1	E2	E3	E4	E5	E6	E7	
E1: Employee courtesy		O	O	O	V	V	O		1	0	0	0	1	1	0	E1
E2: Explaining the details			O	O	V	O	O		0	1	0	0	1	0	0	E2
E3: Listening to patient complaints				X	A	O	A		0	0	1	1	0	0	0	E3
E4: Understanding and considering the patient's situation					V	X	V		0	0	1	1	1	1	1	E4
E5: Sense of closeness and friendliness						V	O		0	0	1	0	1	1	0	E5
E6: The hospital knows what the patient wants							O		0	0	0	1	0	1	0	E6
E7: The hospital understands the patient's problems as empathy									0	0	1	0	0	0	1	E7
Physical Evidence	E1	E2	E3	E4	E5				E1	E2	E3	E4	E5			
E1: Security of owned medical equipment and technology		O	O	V	O				1	0	0	1	0			E1
E2: Security of medical staff with advanced knowledge and skills			O	O	O				0	1	0	0	0			E2
E3: Comfort level of the facility				O	O				0	0	1	0	0			E3
E4: Neatness of staff uniforms					O				0	0	0	1	0			E4
E5: Overall cleanliness of the hospital									0	0	0	0	1			E5
Security	E1	E2	E3	E4					E1	E2	E3	E4				
E1: Efforts to provide a comfortable and safe environment for patients		O	V	V					1	0	1	1				E1
E2: The degree to which the patient feels that the doctor made the correct diagnosis			V	V					0	1	1	1				E2
E3: The degree to which the nurse feels that the nurse is performing the treatment correctly				A					0	0	1	0				E3
E4: Degree of confidence in medical ability									0	0	1	1				E4
Reliability	E1	E2	E3	E4	E5				E1	E2	E3	E4	E5			
E1: Level of confidence in medical skills		O	O	O	O				1	0	0	0	0			E1
E2: Service Requirements			O	O	O				0	1	0	0	0			E2
E3: Service Completion Time				O	O				0	0	1	0	0			E3
E4: Product Specifications Type of Service					A				0	0	0	1	0			E4
E5: Handling of Complaints, Suggestions and Service Feedback									0	0	0	1	1			E5
	OUTCOME DIMENSION															
Level Of Care Service Improvement	E1	E2	E3	E4	E5	E6			E1	E2	E3	E4	E5	E6		
E1: Appropriateness of treatment services provided		V	O	O	V	O			1	1	0	0	1	0		E1
E2: Recognition and best treatment efforts made by medical personnel			O	O	A	O			0	1	0	0	0	0		E2

© 2025 by Author/s

E3: Improvement of health conditions as a result of efforts and treatment carried out by medical personnel				O	O	O			0	0	1	0	0	0		E3
E4: Improvement of the patient's condition after using the hospital's care					A	O			0	0	0	1	0	0		E4
E5: Explanation to patients to prevent related diseases						O			0	1	0	1	1	0		E5
E6: Improvement of health condition as a result of efforts and treatment made by medical personnel									0	0	0	0	0	1		E6

© 2025 by Author/s

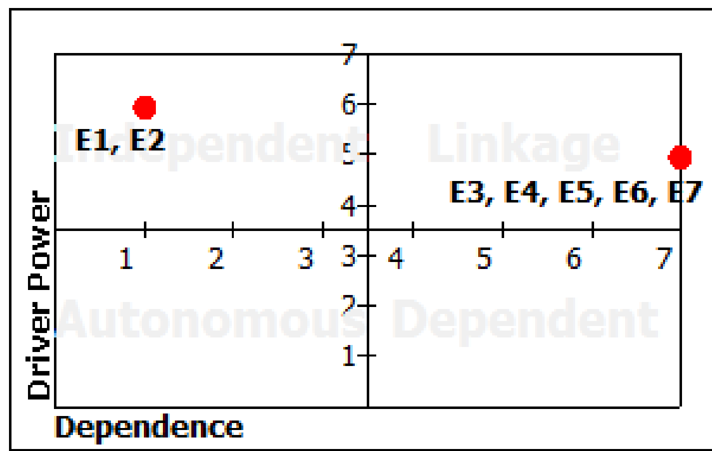

Figure 1. MICMAC diagram of the Empathy element.

These results indicate that interpersonal behavior and communication skills are the most influential drivers of patient satisfaction in public hospitals, emphasizing the importance of human interaction quality beyond technical performance.

Based on the MICMAC quadrant analysis in Figure 2, it is obtained that physical evidence in all enables is in Autonomous (variables that do not have high influence power or high dependence), namely E1 (Security of medical equipment and technology owned), E2 (Security of medical staff with advanced knowledge and skills), E3 (Facility comfort level), E4 (Neatness of employee uniforms), and E5 (Overall hospital cleanliness).

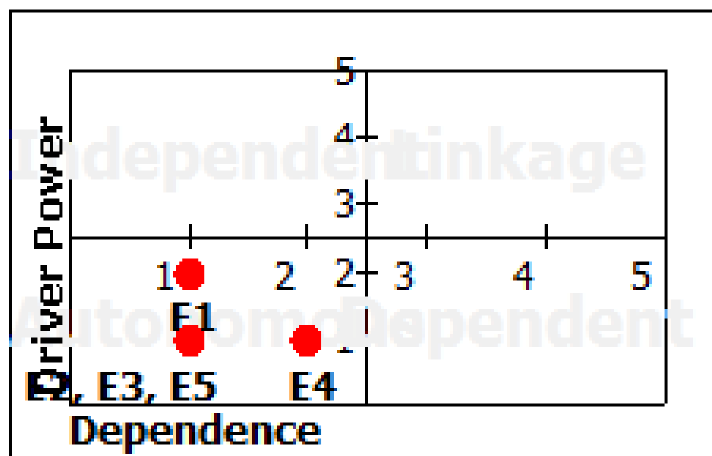

Figure 2. MICMAC diagram of physical evidence.

The results show that tangible aspects of service such as equipment safety, facility comfort, and cleanliness serve as stabilizing elements that support hospital credibility. Although these variables have moderate influence, they are crucial in reinforcing the perceived reliability of healthcare services.

Based on the MICMAC quadrant analysis on figure 3, it is found that security is in quadrant II (has low influencing power and high dependence), namely in sub-elements E3 (The degree of feeling that the nurse is doing the treatment correctly) and E4 (The level of confidence in medical abilities) and quadrant IV (has high influencing power and low dependence), namely in E1 (Efforts to provide a comfortable and safe environment for patients) and E2 (The level of patient feelings that the doctor is correct in making a diagnosis).

 © 2025 by Author/s

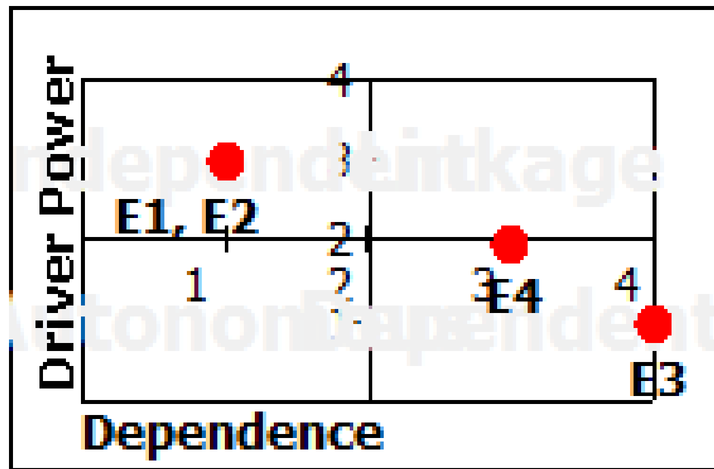

Figure 3. MICMAC diagram of security.

The security dimension demonstrates that patient safety and diagnostic accuracy function as key linkage variables connecting technical competence with patient trust. This implies that the perception of being treated safely and correctly strengthens both clinical outcomes and overall service quality.

Based on the MICMAC quadrant analysis on figure 4, it is found that the reliability of all enables is in Autonomous (variables that do not have high influence or high dependence), namely E1 (Level of confidence in medical abilities), E2 (Service Requirements), E3 (Service Requirements), E4 (Product Specifications Type of Service), and E5 (Handling Complaints, Suggestions and Service Feedback).

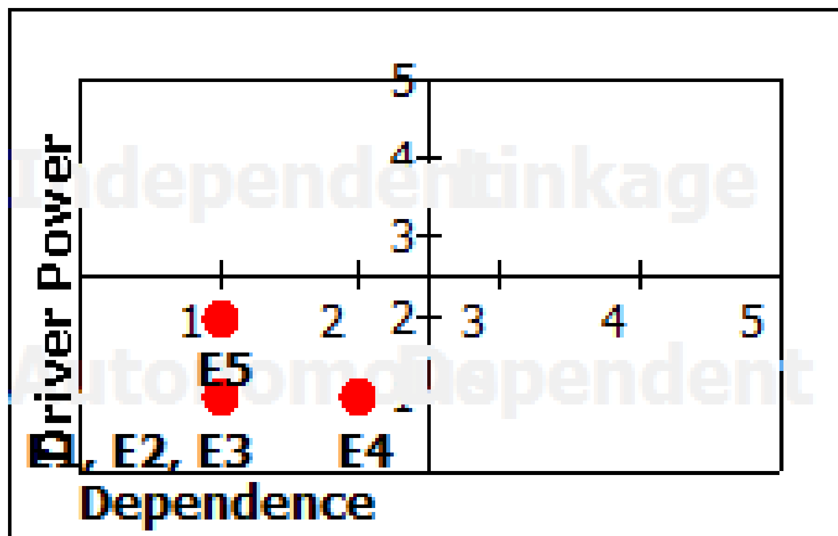

Figure 4. MICMAC diagram of reliability.

The reliability factors, including complaint handling and service procedures, are classified as dependent variables. This finding indicates that reliability is an outcome of effective internal processes and communication, reflecting the hospital's responsiveness to patient input and service consistency.

Based on the MICMAC quadrant analysis on figure 5, it is found that the level of improvement of health services is in quadrant 1 for E2 (Recognition and best treatment efforts made by medical personnel), E3 (Improvement of health conditions as a result of efforts and treatment made by medical personnel), E4 (Improvement of patient conditions after using this hospital treatment), E5 (Explanation to patients to prevent related diseases) and E6 (Improvement of health conditions as a result of efforts and treatment made by medical personnel) and in quadrant 4 for E1 (Conformity of care services provided).

© 2025 by Author/s

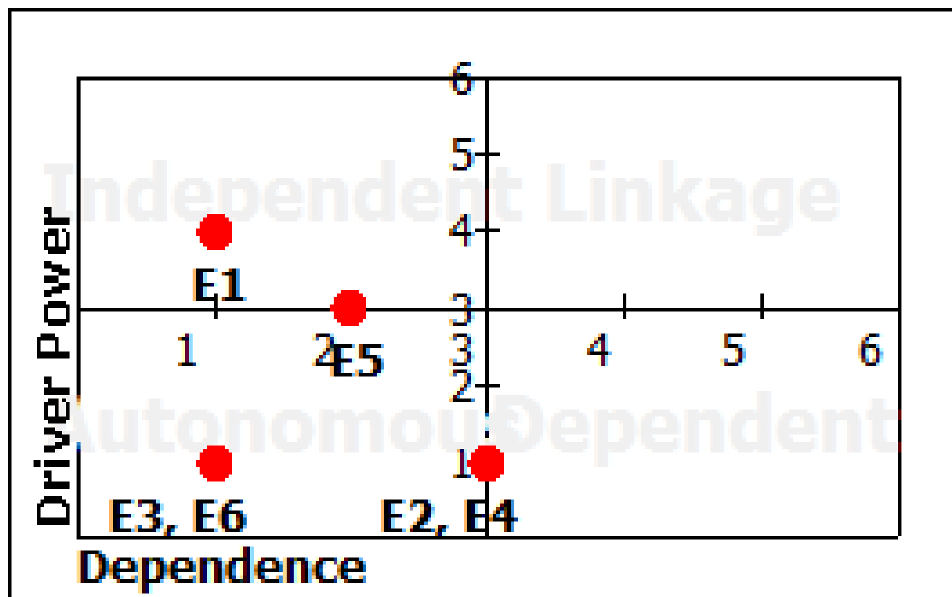

Figure 5. MICMAC Diagram of the Level of Health Service Improvement.

The outcome indicators, such as appropriateness of care and health improvement, act as independent results that summarize the effectiveness of the entire healthcare service process. They represent the ultimate goal of hospital performance, linking process quality with measurable patient recovery.

Overall, the ISM MICMAC analysis reveals that empathy and outcome improvement dimensions possess the strongest driving power in shaping healthcare service quality. These findings underline the necessity of strengthening both interpersonal and clinical dimensions to achieve holistic service excellence in state hospitals.

DISCUSSION

Based on the results of the study using the Interpretive Structural Modeling (ISM) method on the elements of empathy in hospitals, the results show that the most important element is the polite attitude of employees (Liu et al., 2023) and explaining the details. The results of this study are relevant to research conducted by (Athuman & Tibategeza, 2021) in hospitals in Nyamagana Municipality, Tanzania, examining politeness strategies used by health care providers during interactions with patients (Ajayi & Kilani, 2024). These strategies include the use of inclusive language, greetings, and expressions of concern, which help reduce tension and foster a more cooperative environment between service providers and patients (Athuman & Tibategeza, 2021). (Aryanti & Hartanti, 2021) study also shows that when health workers use indirect speech acts or polite requests, they can avoid confrontational situations that may arise from direct orders or criticism.

The next sub-element is detailed explanation. Detailed explanation allows patients to understand their medical condition (Sawhney et al., 2023), treatment options, and the health care process they will undergo. This understanding is important for informed consent and active participation in their care. The results of this study are supported by research from (Steinwachs & Hughes, 2011) showing that when health care providers take the time to clearly explain procedures and diagnoses (Ullah et al., 2024), patients are more likely to comply with treatment plans and follow medical advice. On the other hand, research from the (WHO, 2023) also explains that there is a direct correlation between communication quality and patient satisfaction scores (Goodrich & Lazenby, 2023). Hospitals that prioritize detailed explanations often report higher patient satisfaction ratings, which can affect funding and resource allocation in SHOs.

In the Physical Evidence element based on the results of the analysis, it was found that the safety of medical equipment and technology owned is a top priority to improve the quality of state healthcare organization services in hospitals. The results of this study are relevant to (Ellwood, 1972) study which states that ensuring that medical equipment meets strict safety standards is essential to protect patients during their care (Ellwood, 2005). A similar thing was also expressed that ensuring the safety of medical equipment is essential to prevent unwanted incidents during patient care, as well as factors such as inadequate preventive maintenance, lack of training, budget constraints, and staff shortages support the need to develop patient safety support tools, because all of these factors increase the likelihood of unintentional errors during patient care (Valle et al., 2024).

Then, in the security element, it was found that the main priorities were 1) efforts to provide a comfortable and safe environment for patients and 2) the level of patient feeling that the doctor made the correct diagnosis. The results of this study are relevant to research by (Peristiowati, 2023) conducted at Madiun Hospital which

 © 2025 by Author/s

identified that environmental factors have a significant impact on patient safety. Key elements such as communication, distractions, and overall environmental conditions were found to influence patient safety outcomes. The study emphasized that improving these conditions is essential to improving the quality of care provided to patients, which ultimately leads to a safer healthcare environment. Ellwood added that patients who feel comfortable with their environment tend to report positive experiences with their care. This includes aspects such as room cleanliness, noise levels, and the availability of privacy during treatment (Ellwood, 2005).

The next priority is the level of patient feeling that the doctor made the correct diagnosis. This is supported by research from (Breitbart et al., 2020) which focused on the use of Clinical Decision Support Systems (CDSS) showing that patients who received a diagnosis supported by this system reported higher levels of satisfaction compared to those who received standard consultations. Specifically, 65% of patients in the CDSS group felt their diagnosis was correct, which was positively correlated with their overall satisfaction with the consultation process. On the other hand, research using the SERVQUAL model has identified several dimensions of service quality such as reliability, responsiveness, and empathy that significantly influence patient perceptions of the quality of care. Among them, reliability (the ability to provide an accurate diagnosis consistently) has been shown to have a strong positive correlation with patient satisfaction scores (Breitbart et al., 2020; Kalaja & Krasniqi, 2022).

The next element is the reliability element with the priority of its sub-elements being the handling of complaints, suggestions and service input. (Mirzoev & Kane, 2018) and the Aged Care Quality and Safety Commission (Ombudsman, 2009) explain that a well-structured complaint management system allows patients to voice their concerns about the quality of care, staff interactions, and accessibility of services. This feedback is important to identify areas for improvement and ensure that patient expectations are met. Effective complaint management involves a systematic approach that includes collecting, analyzing, and responding to patient feedback. This process not only addresses individual complaints but also identifies systemic problems in health services (Mirzoev & Kane, 2018). For example, hospitals that actively analyze complaint data can implement targeted quality improvement initiatives, leading to improved service delivery (Mirzoev & Kane, 2018; S. Phabmixay et al., 2021).

Finally, in the element of the level of improvement of care services, it was found that the sub-element that was the main priority was the appropriateness of the care services provided. The results of this study are relevant to the research of Whitman & Davis (Whitman & Davis, 2008) conducted in Alabama, which revealed that hospitals must adjust their services to meet the needs of increasingly diverse demographics. This adjustment is important to reduce disparities in access and utilization of health services, which ultimately leads to higher quality care (Whitman & Davis, 2008). Research from Ellwood (Ellwood, 2005) also stated that hospitals that prioritize appropriate care protocols experience lower readmission rates and better patient recovery times.

CONCLUSIONS

Based on the Interpretative Structural Modeling (ISM) analysis, this study concludes that the quality of healthcare services in government-owned regional general hospitals can be explained through two major dimensions process and outcome which consist of five core elements: empathy, physical evidence, security, reliability, and the level of improvement of care services. These five elements encompass twenty-seven specific indicators that together reflect the multidimensional nature of public hospital service quality.

The results show that among these dimensions, empathy emerges as the most influential driver of service quality. The most critical indicators include employee politeness and the ability to provide clear, detailed explanations to patients. These findings highlight that interpersonal communication and emotional sensitivity are fundamental in shaping patient satisfaction. The physical evidence dimension, particularly the safety of medical equipment and technology, is also a top priority as it enhances patient confidence and institutional credibility.

Furthermore, the security dimension reveals two key priorities: creating a safe and comfortable environment for patients and ensuring that doctors make accurate diagnoses. These factors strengthen patient trust and directly influence perceived service reliability. In the reliability dimension, the handling of complaints, suggestions, and service feedback is identified as a crucial dependent element that reflects how effectively hospitals respond to patient needs and maintain accountability. Finally, within the outcome dimension, the most important indicator is the appropriateness of care services provided, which represents the goal of hospital performance and patient recovery. Overall, the integrated CSI HealthQual model demonstrates that improving empathy, ensuring safety, maintaining diagnostic accuracy, managing patient feedback effectively, and aligning care outcomes with patient expectations are essential strategies for enhancing healthcare service quality in public hospitals.

© 2025 by Author/s

ACKNOWLEDGMENTS

The authors would like to thank the respondents. Thanks, are also given to the Ministry of Education and Culture, Research and Technology for funding the Scientific Research Grant. The authors would like to thank the helpful comments from two anonymous reviewers.

REFERENCES

Ajayi, O. B., & Kilani, S. O. (2024). Communication in Healthcare Discourse: A Cultural and Linguistic Exploration of Exchanges between Healthcare Practitioners and Patients among Jukuns of Nigeria. *Studies in Media, Journalism and Communications*, *2*(1), 40–47.

Aryanti, F. L., & Hartanti, L. P. (2021). Revealing Politeness Through Illocutionary Act Approach in World Health Organization Staffâ€™ s Responses at Corona Virus Press Briefing. *IDEAS: Journal on English Language Teaching and Learning, Linguistics and Literature*, *9*(1).

Astuti, H. J., & Nagase, K. (2014). Patient loyalty to health care organizations: Strengthening and weakening (satisfaction and provider switching). *Journal of Medical Marketing*. https://doi.org/10.1177/1745790415578311

Astuti, H., Santoso, S., Al-Hajj, B., & Bangkit, S. (2022). Public Service Community Satisfaction Survey And Evaluation: A State Health Center Perspective. *Proceedings of the 3rd International Conference of Business, Accounting, and Economics, ICBAE 2022, 10-11 August 2022, Purwokerto, Central Java, Indonesia*.

Athuman, M. I., & Tibategeza, E. R. (2021). Politeness Strategies in Health Care Providers and Patients' Communication. *Sumerianz Journal of Education, Linguistics and Literature*, *4*(1), 2617–1732.

Bhattacharya, S., & Momaya, K. (2009). Interpretive structural modeling of growth enablers in construction companies. *Singapore Management Review*, *31*(1), 73–97.

Biau, S., Bonnet, E., Dagenais, C., De Allegri, M., Traoré, Z., Ouedraogo, A. W., Sow, A., Dubois-Nguyen, K., & Ridde, V. (2021). Using information and communication technologies to engage citizens in health system governance in Burkina Faso: protocol for action research. *JMIR Research Protocols*, *10*(11), e28780.

Boakye, K. G., Natesan, P., & Prybutok, V. R. (2020). A correlated uniqueness model of service quality measurement among users of cloud-based service platforms. *Journal of Retailing and Consumer Services*, *55*, 102098.

Breitbart, E. W., Choudhury, K., Andersen, A. D., Bunde, H., Breitbart, M., Sideri, A. M., Fengler, S., & Zibert, J. R. (2020). Improved patient satisfaction and diagnostic accuracy in skin diseases with a Visual Clinical Decision Support System—A feasibility study with general practitioners. *PloS One*, *15*(7), e0235410.

Chauhan, V., Science, C., & Limbad, S. (2023). Service Quality Assessment Of Government & Private Hospitals Using Extended Healthqual. *International Journal Of Creative Research Thoughts*, *11*(8).

Dam, S. M., & Dam, T. C. (2021). Relationships between Service Quality, Brand Image, Customer Satisfaction, and Customer Loyalty. *Journal of Asian Finance, Economics and Business*, *8*(3), 585–593. https://doi.org/10.13106/jafeb.2021.vol8.no3.0585

Ellwood, P. M. (1972). Models for organizing health services and implications of legislative proposals. *The Milbank Memorial Fund Quarterly*, *50*(4), 73–101.

Ellwood, P. M. (2005). Models for Organizing Health Services and Implications of Legislative Proposals. *The Milbank Quarterly*, *83*(4).

Estiri, M., & Dahooie, J. H. (2023). *Providing a Framework for Evaluating the Quality of Health Care Services Using the HealthQual Model and Multi-Attribute Decision-Making Under Imperfect Knowledge of Data*. *34*(1), 85–120. https://doi.org/10.15388/23-INFOR512

Goodrich, G. W., & Lazenby, J. M. (2023). Elements of patient satisfaction: an integrative review. *Nursing Open*, *10*(3), 1258–1269.

Kalaja, R., & Krasniqi, M. (2022). Patient satisfaction with quality of care in public hospitals in Albania. *Frontiers in Public Health*, *10*, 925681.

KhanMohammadi, E., Talaie, H., & Azizi, M. (2023). A healthcare service quality assessment model using a fuzzy best–worst method with application to hospitals with in-patient services. *Healthcare Analytics*, *4*, 100241.

Kim, H., Lee, S., Kwon, H., & Kim, E. (2021). Design and implementation of a personal health record platform based on patient-consent blockchain technology. *KSII Transactions on Internet and Information Systems (TIIS)*, *15*(12), 4400–4419.

Lee, D. (2017). HEALTHQUAL: a multi-item scale for assessing healthcare service quality. *Service Business*, *11*, 491–516.

Liu, Y., Cherian, J., Ahmad, N., Han, H., de Vicente-Lama, M., & Ariza-Montes, A. (2023). Internal corporate social responsibility and employee burnout: an employee management perspective from the healthcare sector.

© 2025 by Author/s

Psychology Research and Behavior Management, 283–302.

Mirzoev, T., & Kane, S. (2018). Key strategies to improve systems for managing patient complaints within health facilities–what can we learn from the existing literature? *Global Health Action*, *11*(1), 1458938.

Ombudsman, C. (2009). Better Practice Guide to Complaint Handling. *Canberra, Australia*.

Opele, J. K., & Adepoju, K. O. (2024). Validation of the Donabedian Model of Health Service Quality in Selected States in Nigeria. *Nigerian Journal of Clinical Practice*, *27*(2), 167–173.

Panagiotopoulos, Φ. I. (2023). Corporate Social Responsibility Initiatives and Programs in the Health System of Greece due to the Pandemic of COVID-19. In *Corporate Social Responsibility in the Health Sector: CSR and COVID-19 in Global Health Service Institutions* (pp. 93–110). Springer.

Parasuraman, A., Zeithaml, V. A., & Berry, L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *1988*, *64*(1), 12–40.

Peristiowati, Y. (2023). Factors Affecting Patient Safety in Working at the Madiun Hospital (RSUD Madiun). *STRADA: Jurnal Ilmiah Kesehatan*, *12*(1), 78–86.

Purcărea, V. L., Coculescu, B. I., & Coculescu, E. C. (2014). The concept of marketing in the public-private partnership in the medical system in Romania. *Journal of Medicine and Life*, *7*(Spec Iss 3), 20.

S. Phabmixay, C., Rodríguez-Escudero, A. I., & Rodríguez-Pinto, J. (2021). Benefits from the standardisation of the complaint management system. *Total Quality Management & Business Excellence*, *32*(7–8), 737–757.

Sawhney, R., Malik, A., Sharma, S., & Narayan, V. (2023). A comparative assessment of artificial intelligence models used for early prediction and evaluation of chronic kidney disease. *Decision Analytics Journal*, *6*, 100169.

Singh, B. (2024). Restoring Consumer Privacy and Healthcare Delivery: Effectiveness of Blockchain Technology. In *Fintech, and Blockchains Trends in The Financial Sector* (pp. 75–83). Bentham Science Publishers.

Sony, M., Antony, J., & McDermott, O. (2023). The impact of healthcare 4.0 on the healthcare service quality: a systematic literature review. *Hospital Topics*, *101*(4), 288–304.

Steinwachs, D. M., & Hughes, R. G. (2011). Health services research: scope and significance. *National Library of Medicine*.

Ullah, E., Parwani, A., Baig, M. M., & Singh, R. (2024). Challenges and barriers of using large language models (LLM) such as ChatGPT for diagnostic medicine with a focus on digital pathology–a recent scoping review. *Diagnostic Pathology*, *19*(1), 43.

Valle, R., Cribas, G., & Ramírez, A. L. (2024). Adverse Event Management Tool for Hospitals: A Game-Changer for Patient Safety. *Journal of Biomimetics, Biomaterials and Biomedical Engineering*, *66*, 93–104.

Whitman, M. V, & Davis, J. A. (2008). Cultural and linguistic competence in healthcare: the case of Alabama general hospitals. *Journal of Healthcare Management*, *53*(1).

WHO. (2023). *World health statistics 2023: Monitoring health for the SDGs, sustainable development goals*. World Health Organization.

Yin, Z., Zhang, Z., & Ren, T. (2024). Beyond surface: Chinese youth's digital reading motivation explored via laddering and the interpretative structural modeling method (ISM). *Library & Information Science Research*, *46*(3), 101314.

© 2025 by Author/s