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Enhancing Hospital Service Quality Through Strategic and Operational Excellence Focused on Patient Satisfaction: The Case of Indonesia

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ABSTRACT

Introduction: Hospitals, functioning both as public service institutions and business entities, must prioritize patient satisfaction to ensure the sustainability of their services. This study explores the relationships among operational strategy, operational competence, quality culture, and service quality, as well as their combined impact on patient satisfaction in Indonesian hospitals.
Methods: This study employed a quantitative approach using a survey method. Data were collected from 300 respondents, comprising medical and non-medical staff, across four hospitals in Jambi Province. Structural Equation Modeling (SEM) was utilized for data analysis, enabling an in-depth examination of both direct and indirect relationships among the variables.
Results: The findings revealed that operational strategy and operational competence significantly influenced quality culture and service quality. Additionally, quality culture and service quality collectively impacted patient satisfaction, highlighting the critical roles of these factors in enhancing hospital performance. Notably, service quality had the strongest direct effect on patient satisfaction, while quality culture contributed to sustaining these improvements over time.
Conclusions: These findings underscore the essential role of strategic alignment and operational excellence in achieving higher levels of patient satisfaction. The study provides valuable insights for hospital management and policymakers in developing countries, advocating for the integration of strategic planning and competency development to enhance healthcare delivery systems and improve patient outcomes.

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INTRODUCTION

In addition to functioning as public service institutions that fulfill humanitarian missions, hospitals also operate as business entities that must consider patient satisfaction as a crucial factor for the sustainability of their services. In this context, patient satisfaction serves as a key indicator of a hospital's success, encompassing both the fulfilment of medical needs and the overall patient experience (1). emphasizes that improving patient satisfaction not only enhances trust in healthcare services but also strengthens the hospital's business competitiveness. Furthermore, a study highlights that the adoption of innovations such as business process reengineering in the healthcare sector contributes to operational efficiency, reduced waiting times, and improved patient satisfaction (2). This perspective underscores the role of hospitals as strategic healthcare providers that are adaptive to market needs while maintaining their social objectives.

Theoretically, patient satisfaction, as an indicator of customer satisfaction, is influenced by a culture of quality and the quality of services provided. A culture of quality that prioritizes organizational values in supporting best practices and consistent service management plays a significant role in fostering patient trust and comfort (3). Additionally, service quality, which includes dimensions such as reliability, empathy, and responsiveness, has been shown to directly affect levels of patient satisfaction (4,5) According, the quality of interaction and services that are responsive to patient needs can significantly enhance the overall patient experience. Therefore, the synergy between a strong quality culture and high-quality services is a critical strategy for improving patient satisfaction in a competitive hospital environment (6).

Effective operational strategies and superior operational competencies are essential in shaping an organization's culture of quality and service quality. Proper operational strategies not only enable the efficient utilization of resources but also ensure that every operational aspect supports the achievement of overarching quality objectives (7). Notes that the integration of quality strategies into corporate culture significantly influences customers' perceived service quality (6). Additionally, operational competencies, encompassing managerial skills and capabilities, directly contribute to the successful implementation of quality strategies at the operational level (8). Thus, the combination of well-directed operational strategies and solid operational competencies forms the foundation for creating an exceptional culture of quality in the service sector, including healthcare services.

At the national level, Indonesia, as a developing country, has 2,985 hospitals, comprising public and private hospitals, along with more than 10,205 Community Health Centers (PUSKESMAS). One province that has shown notable growth in hospital development is Jambi. The development of healthcare facilities in this region is driven by the need for health services that support local community productivity. These statistics underscore the importance of advancing healthcare services to improve public health quality and national productivity. According Indonesia's healthcare infrastructure continues to be strengthened to reduce dependency on foreign healthcare services and to address national morbidity rates (9). By focusing on the provision of primary and specialist care, the development of hospitals in Indonesia represents a strategic effort to enhance the national health index.

This study aims to analyze the relationship between operational strategies, operational competencies, quality culture, and service quality, as well as their overall impact on patient satisfaction in Indonesia as a developing country (10,11). In this context, operational strategies and competencies are viewed as key factors in shaping an organization's quality culture, which in turn influences patients' perceptions and levels of service quality (6,12,13). The selection of Indonesia as the research site is based on the critical need for healthcare development in developing countries to improve quality of life and societal productivity. Accordingly, this research is expected to provide empirical insights that are valuable for policymakers and hospital management in optimizing strategies and operations to enhance patient satisfaction and strengthen the national healthcare system overall.

METHOD

Research Type

This study employed a quantitative survey approach to systematically collect data from a large number of respondents within a relatively short time frame. The survey design enabled the researchers to gain quantitative insights into the relationships between operational strategy, operational competence, quality culture, service quality, and patient satisfaction.

Population and Sample

The population consisted of 1,035 employees across four hospitals in Jambi Province: Rapha Theresia Hospital, Baiturahim Hospital, Arafah Hospital, and Mitra Hospital. The sample size was determined using Slovin's formula with a 5% margin of error, resulting in a calculated size of 289 respondents. To facilitate data collection and analysis, the sample size was rounded to 300 respondents, selected using a proportional random sampling method. This ensured representation from both healthcare personnel (doctors, nurses, and other medical staff) and non-healthcare personnel (administrative, operational, and technical staff) proportionally across the four hospitals.

Research Location

The study was conducted in four hospitals in Jambi Province, representing a diverse organizational context for exploring the relationships between operational strategies and service outcomes.

Instrumentation or Tools

The primary research instrument was a validated questionnaire, designed with multiple sections comprising closed-ended questions. These questions utilized a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) to measure the following variables: operational strategy, operational competence, quality culture, service quality, and patient satisfaction. Prior to data collection, the instrument underwent rigorous validity and reliability testing to ensure it met the required standards for data quality and measurement precision.

Variable Measurement

The key variables in this study were measured as follows: 1) Operational Strategy: Measured using four dimensions—capacity, supply network, process technology, and development and organization (14). 2) Operational Competence: Measured using six dimensions—operational improvement, operational innovation, operational customization, operational cooperation, operational responsiveness, and operational reconfiguration (15–18). 3) Quality Culture: Measured using eight dimensions—leadership commitment, stakeholder participation, customer focus, systemic perspective, continuous improvement, positive approach, sense of pride, and well-being (19). 4) Service Quality: Measured using seven dimensions—effectiveness, safety, patient-centeredness, timeliness, efficiency, equity, and integration (20–24). 5) Patient Satisfaction: Measured using seven dimensions—interpersonal approach, accessibility, financial aspects, efficacy, continuity, physical environment, and availability (25–28).

Data Collection Procedures

The quantitative data collection was conducted through structured questionnaires, distributed to respondents in all four hospitals. The survey process was completed within one month and included instructions and consent forms for participants. Data collection procedures ensured confidentiality and ethical adherence throughout the process.

Data Analysis

The data were analyzed using the **Structural Equation Model (SEM)** to examine the relationships between operational strategy, operational competence, quality culture, service quality, and patient satisfaction. The relationships among variables were represented by the following equations:

$\eta_1 = Y_1\xi_1 + Y_2\xi_2 + \zeta_1$
$\eta_2 = Y_1\xi_1 + Y_2\xi_2 + \zeta_2$
$\eta_3 = Y_3\eta_1 + Y_4\eta_2 + \zeta_3$

The influence of operational strategy and operational competence on quality culture is expressed as:
$BK=\beta 1SO+\beta 2KO+\varepsilon 1BK = \beta_1SO + \beta_2KO + \varepsilon_1BK=\beta 1SO+\beta 2KO+\varepsilon 1$
Where:
$\boldsymbol{\eta_1}$: Quality Culture = Y_3
$\boldsymbol{\eta_2}$: Service Quality = Y_4
$\mathbf{Y_1}$: Operational Strategy
$\mathbf{Y_2}$: Operational Competence

RESULTS

Measurement Model

Variable X1 (Operational Strategy):

The indicators for this variable show the following loading factor values:

X1.1 = 0.8099
X1.2 = 0.8613
X1.3 = 0.8173
X1.4 = 0.8344

All loading factors exceed the threshold of 0.7, indicating a strong contribution of these indicators in measuring Operational Strategy. Among these, X1.2 has the highest loading factor (0.8613), making it the most representative indicator of Operational Strategy.

Variable X2 (Operational Competence):

The indicators for this variable have the following loading factor values:

X2.1 = 0.8144
X2.2 = 0.8384
X2.3 = 0.7210
X2.4 = 0.8502

Similarly, all indicators for X2 are valid, with X2.4 showing the highest contribution (loading factor = 0.8502). This highlights the significance of X2.4 in representing Operational Competence.

Variable Y1 (Quality Culture):

The indicators for this variable exhibit loading factors exceeding 0.7 across all items (Y1.1 to Y1.8). Among these, Y1.3 recorded the highest value (0.8309), emphasizing its importance in representing Quality Culture.

Variable Z (Patient Satisfaction):

The indicators for this variable display loading factors as follow:

All indicators (Z.1 to Z.7) exceed 0.7, with Z.5 achieving the highest value (0.7744). This suggests that Z.5 is the most dominant element influencing Patient Satisfaction.

Variable Y2 (Service Quality):

The indicators for this variable show loading factors exceeding 0.7 across all items (Y2.1 to Y2.7), with Y2.6 having the highest loading factor (0.7797). This highlights the significance of Y2.6 in representing Service Quality.

Structural Model

The structural model demonstrates the relationships between variables in the context of hospital services, analysed through the following substructures:

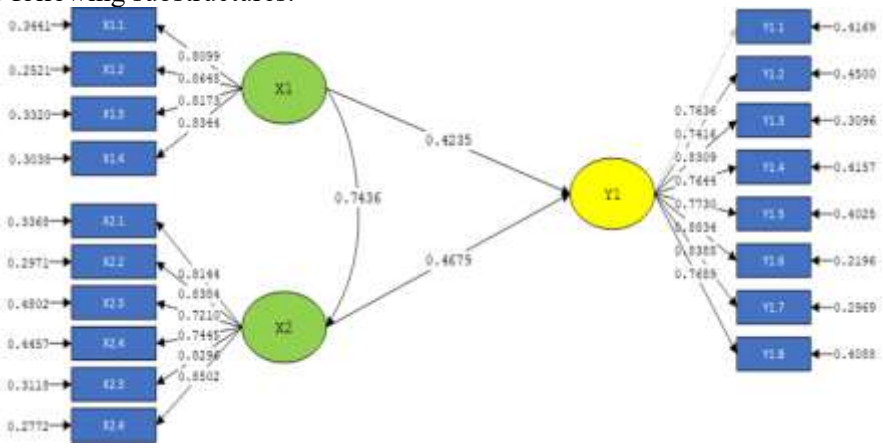

Figure 1. Substructure 1 of the Research Model

Substructure 1:

Effect of X1 (Operational Strategy) on Y1 (Quality Culture):

Path coefficient = 0.4235

Operational Strategy has a positive and significant impact on Quality Culture. This suggests that effective operational planning contributes to fostering a quality-oriented organizational culture.

Effect of X2 (Operational Competence) on Y1 (Quality Culture):

Path coefficient = 0.4679

Operational Competence also significantly influences Quality Culture. Competence among staff and medical personnel plays a crucial role in building a quality-focused work culture.

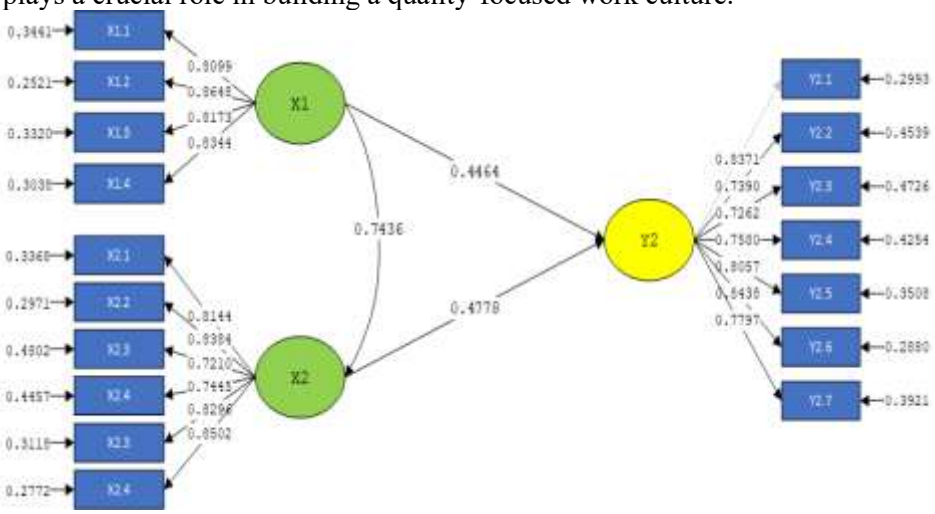

Figure 2. Substructure 2 of the Research Model

Substructure 2:

Effect of X1 (Operational Strategy) on Y2 (Service Quality):

Path coefficient = 0.4464

Operational Strategy directly influences Service Quality. Strong operational strategies improve the efficiency and effectiveness of services.

Effect of X2 (Operational Competence) on Y2 (Service Quality):

Path coefficient = 0.4778

Operational Competence also directly affects Service Quality, indicating that competent medical personnel deliver superior services.

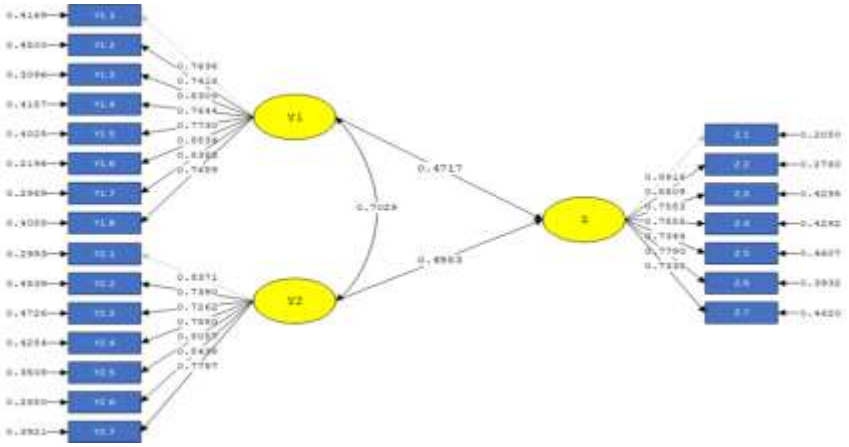

Figure 3. Substructure 3 of the Research Model

Substructure 3:

Effect of Y1 (Quality Culture) on Z (Patient Satisfaction):

Path coefficient = 0.4717

Quality Culture directly impacts Patient Satisfaction. A strong quality-oriented organizational culture enhances the patient experience in hospitals.

Effect of Y2 (Service Quality) on Z (Patient Satisfaction):

Path coefficient = 0.4983

Service Quality significantly influences Patient Satisfaction. High levels of satisfaction enhance patients' perceptions of overall service quality in hospitals.

Table 1. Direct and Indirect Effects Across All Substructures Research Model

Direct and Indirect Effects of Operational Strategy and Operational Competence on Quality Culture						
	Path Coefficient	Direct Effect	Effect Through			Total
			Operational Strategy	Operational Competence	Total Indirect Effect	
Operational Strategy	0,4235	17,93%		14,74%	14,74%	32,67%
Operational Competence	0,4679	21,90%	14,74%		14,74%	36,63%
Total		39,83%	14,74%	14,74%	29,47%	69,30%
Direct and Indirect Effects of Operational Strategy and Operational Competence on Hospital Service Quality						
	Path Coefficient	Direct Effect	Effect Through			Total
			Operational Strategy	Operational Competence	Total Indirect Effect	
Operational Strategy	0,4464	19,93%		15,86%	15,86%	35,79%
Operational Competence	0,4778	22,83%	15,86%		15,86%	38,70%
Total		42,76%	15,86%	15,86%	31,72%	74,48%
Direct and Indirect Effects of Quality Culture and Hospital Service Quality on Patient Satisfaction						
	Path Coefficient	Direct Effect	Influence Through			Total
			Operational Strategy	Operational Competence	Total Indirect Effect	
Quality Culture	0,4717	22,25%		17,22%	17,22%	39,47%
Service Quality	0,4983	24,83%	17,22%		17,22%	42,05%
Total		47,08%	17,22%	17,22%	34,45%	81,52%

DISCUSSION

The Role of Operational Strategy and Competence in Shaping Quality Culture

This study highlights the fundamental role of operational strategy and operational competence in fostering a strong quality culture within hospitals. The findings demonstrate that operational competence (X2) has a greater direct effect (21.90%) on quality culture (Y1) compared to operational strategy (X1) (17.93%), indicating that hospitals with highly skilled and competent staff are better positioned to build and sustain a culture focused on continuous quality improvement. This is in line with previous research which emphasizes that competency development is essential for institutionalizing quality practices and increasing organizational resilience in a dynamic health care environment. (29).

Furthermore, both operational strategy and competence contribute significantly to quality culture through indirect pathways, each accounting for 14.74% of the effect. This results in total impacts of 32.67% for operational strategy and 36.63% for operational competence. These results align with Deming's (2022) theory, which posits that a culture of quality is best developed through a combination of strategic alignment and operational efficiency (30).

Likewise, several studies highlight that while strategy provides the structural foundation, competencies ensure effective implementation of quality initiatives (6,31–33).

In the context of hospitals in developing countries like Indonesia, these findings hold critical implications. Healthcare institutions often struggle with resource constraints and inefficiencies, making it imperative to integrate competency-based training programs and strategic frameworks that reinforce a quality-driven culture (7). Additionally, organizations with a strong cultural foundation are more adaptive to change, which is important in the rapidly evolving healthcare sector (34–36).

Operational Drivers of Service Quality

The efficiency and effectiveness of healthcare services are heavily influenced by both operational strategy and competence. The direct effects of operational strategy (X1) and operational competence (X2) on service quality (Y2) were found to be 19.93% and 22.83%, respectively, underscoring the pivotal role of these elements in shaping the patient experience. This is consistent with Farooq et al. (2024), who argued that operational efficiency is a key determinant of service excellence, particularly in healthcare institutions striving to optimize patient-centered care (37).

Beyond their direct contributions, operational strategy and competence also impact service quality indirectly through quality culture (Y1), each contributing 15.86%. This results in total effects of 35.79% for operational strategy and 38.70% for operational competence. These findings support Parasuraman et al. (2022), who assert that service quality is a multidimensional construct influenced by both institutional culture and operational execution (38). Similarly, Berry and Bendapudi (2007) argue that achieving high service quality requires a synergistic integration of leadership strategy and frontline competencies (39).

From a managerial perspective, healthcare administrators must prioritize investments in staff development, process optimization, and evidence-based decision-making to enhance service quality (40–42). Additionally, research by Fottler et al. (2014) suggests that hospitals with clearly defined operational strategies experience lower error rates, improved patient throughput, and higher satisfaction levels (43).

Quality Culture, Service Quality, and Their Impact on Patient Satisfaction

Patient satisfaction is a fundamental indicator of hospital performance, directly influenced by quality culture and service quality. The findings reveal that service quality (24.83%) exerts a slightly stronger direct effect on patient satisfaction (Z) compared to quality culture (22.25%). This suggests that while fostering a strong quality culture is essential, the tangible aspects of service delivery—such as efficiency, responsiveness, and reliability—play an even more critical role in shaping patient perceptions. Several studies emphasize that the highest patient satisfaction occurs when healthcare organizations consistently provide services that exceed expectations (6,13,31).

Additionally, both quality culture and service quality exert indirect effects on patient satisfaction, each contributing 17.22% through operational dimensions. Their combined total effects—39.47% for quality culture and 42.05% for service quality—highlight the interconnected nature of cultural and service-oriented improvements. This finding is in line with several previous studies, which argue that patient trust and loyalty are strengthened when service quality is embedded in a culture of continuous improvement (6,12,13,31).

The importance of service quality in shaping patient satisfaction is further reinforced by Donabedian (2023), whose healthcare quality framework emphasizes the interplay between structural, process, and outcome factors. Additionally, research by Lee and Kim (2024) shows that hospitals with well-defined service quality models achieve superior patient satisfaction scores and reduced complaint rates (44).

For developing nations, ensuring high patient satisfaction requires systemic improvements at multiple levels. According to WHO (2023), healthcare institutions must integrate patient-centered care models that align with operational excellence frameworks (45). This includes adopting digital health solutions, optimizing resource allocation, and enhancing staff training programs to improve service responsiveness and quality consistency.

Implications for Healthcare Management in Developing Countries

The findings of this study hold critical implications for healthcare management in developing nations like Indonesia, emphasizing the substantial impact of operational strategy, competence, quality culture, and service quality on patient satisfaction. To enhance healthcare delivery, hospital administrators and policymakers must

prioritize comprehensive quality enhancement initiatives that address workforce development, process optimization, technology adoption, and policy frameworks. Investing in workforce development through capacity-building initiatives is essential for strengthening operational competence, as organizations that focus on upskilling healthcare professionals tend to experience higher service quality and adaptability (46).

Moreover, implementing lean healthcare principles, such as process standardization and waste reduction, can significantly enhance service efficiency, improve patient flow, and reduce service delays (47). Additionally, the adoption of technology-driven quality enhancement mechanisms, including digital health solutions like electronic medical records (EMRs) and AI-driven diagnostics, plays a crucial role in reducing medical errors and improving care coordination (48). Equally important is the establishment of robust policy frameworks to institutionalize a quality-driven culture, where governments must implement national healthcare quality standards aligned with global best practices to ensure consistency across diverse hospital settings (49).

This study underscores the crucial role of operational strategy and competence in shaping quality culture, service quality, and ultimately, patient satisfaction. The findings highlight the need for hospitals in developing countries to adopt a holistic approach to quality management by integrating strategic planning, competency development, and patient-centered service delivery. A sustainable healthcare improvement model must consider the interplay of these factors to drive long-term institutional success and enhance patient outcomes. Future research should explore tailored interventions that optimize these relationships in different healthcare settings, particularly in resource-constrained environments, ensuring that quality improvements are both scalable and adaptable to evolving healthcare demands.

CONCLUSION

This study highlights the crucial role of operational strategy and competence in shaping quality culture and service quality, ultimately enhancing patient satisfaction in hospitals in developing countries like Indonesia. Effective strategies and competencies optimize resource use and adaptability, fostering continuous quality improvement. A strong quality culture enhances service reliability, empathy, and efficiency, directly improving patient experiences. Both quality culture and service quality influence patient satisfaction by ensuring timely and effective care while building trust and loyalty. In developing nations, strategic investments in healthcare infrastructure, staff training, and resource optimization are essential for improving standards and public health outcomes. Integrating these elements into healthcare planning enables hospitals to achieve higher patient satisfaction and align with national health goals.

AUTHOR'S CONTRIBUTION STATEMENT

All authors contributed significantly to this study. R.I.S. was responsible for conceptualization, study design, data collection, analysis, and manuscript writing. I.S. supervised the research, refined the methodology, and critically reviewed the manuscript. J.S. contributed to the literature review, data validation, and statistical analysis. H.J. assisted in data acquisition, results interpretation, and manuscript editing. M.S. oversaw the overall project administration, secured funding, and provided final approval for the manuscript. All authors have read and approved the final version of the manuscript.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest. There are no financial or personal relationships with entities that could have influenced the research outcomes. This declaration ensures the credibility and objectivity of the study.

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The authors confirm that no specific funding was received for this research. The study was conducted independently, ensuring unbiased and impartial outcomes.

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