

The Effect of Healthcare Facilities on Outpatient Satisfaction Mediated by Service Quality at Dr. La Palaloi Hospital in Maros

Ambo Upe

Universitas Megarezky, Indonesia
Email: amboupeintang@gmail.com

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Abstract

Patient satisfaction is an important indicator of hospital performance amid increasing expectations for patient-centered care. However, evidence remains limited regarding whether healthcare facilities directly improve patient satisfaction or exert their effects through service quality in hospital settings. This study examined the effects of healthcare facilities on outpatient satisfaction and the mediating role of service quality at Dr. La Palaloi Hospital in Maros. A quantitative cross-sectional design was employed, involving 91 outpatients from February to May 2026. Data were collected using a five-point Likert-scale questionnaire measuring healthcare facilities, SERVQUAL dimensions, and patient satisfaction. The mediation model was analyzed using partial least squares structural equation modeling (PLS-SEM) with SmartPLS 4.0. Healthcare facilities had a positive and significant effect on service quality ($\beta = 0.707$; $t = 13.682$; $p < 0.001$), while service quality had a positive and significant effect on patient satisfaction ($\beta = 0.739$; $t = 7.770$; $p < 0.001$). Healthcare facilities had no significant direct effect on patient satisfaction ($\beta = 0.033$; $t = 0.305$; $p = 0.760$), indicating full mediation by service quality. The model explained 51.4% of the variance in service quality and 58.0% of the variance in patient satisfaction, with predictive relevance ($Q^2 = 0.796$). These findings indicate that healthcare facilities enhance outpatient satisfaction when they are effectively translated into reliable, responsive, assuring, empathetic, and tangible service delivery. Hospital management should therefore prioritize the quality of service interactions while maintaining adequate healthcare facilities as an essential foundation for patient care.

INTRODUCTION

The global healthcare paradigm has shifted from provider-oriented to patient-centered care, positioning patient satisfaction as a primary benchmark of hospital performance. Patient satisfaction reflects the quality of services, communication, and the physical environment of hospitals and has been shown to vary across countries and regions (Liu et al., 2023; Hung et al., 2025; Liu et al., 2021). This shift has been driven by increasing public health literacy and easier access to digital information, making modern patients more critical in evaluating healthcare services and more likely to switch providers when their expectations are not met.

In Indonesia, the implementation of the National Health Insurance (Jaminan Kesehatan Nasional [JKN]) program through BPJS Kesehatan provides participants with greater flexibility in choosing healthcare facilities. Consequently, both public and private hospitals are

increasingly required to compete for patient trust. Public satisfaction surveys of public services indicate that the healthcare sector continues to face challenges related to staff responsiveness, facility comfort, and service timeliness (Ministry of State Apparatus Empowerment and Bureaucratic Reform, 2023). In this context, patient satisfaction is an important determinant of institutional loyalty and sustainability, as satisfied patients are more likely to make repeat visits and recommend services to others, thereby contributing to the hospital's reputation and market share (Bjertnaes et al., 2011; Othman & Kadasah, 2025).

The increase in the number of hospitals in Indonesia, from 2,813 facilities in 2018 to approximately 3,168 in early 2024, has further encouraged a shift in service orientation from institutional needs toward patient needs (Ministry of Health of the Republic of Indonesia, 2019, 2024). This development has also shifted healthcare delivery from doctor-centered care toward patient-centered care, in which patients are actively involved throughout the consultation process and in the evaluation of treatment outcomes, while clinician–patient communication is expected to be two-way and empathetic (A'aqoulah et al., 2022; Edinson et al., 2025; Kiş et al., 2025). To remain competitive, hospitals must maintain consistent service quality across all patient touchpoints, ranging from the reliability of healthcare personnel to the comfort and adequacy of physical facilities (Beheshtinia et al., 2025; Fatima et al., 2018). Service quality that meets or exceeds patient expectations can strengthen patient trust while simultaneously building a positive institutional image (Karume et al., 2025; Phonthanukitithaworn et al., 2020; Zeithaml & Bitner, 2018).

South Sulawesi Province, particularly Maros Regency, continues to face challenges related to the equitable distribution and improvement of healthcare services. Data from the Maros Regency Government (2023) recorded 56,289 outpatient visits, of which 36,946 involved participants in the Health Indonesia Card (Kartu Indonesia Sehat [KIS])/JKN program, indicating the community's high dependence on social health insurance schemes and the substantial service burden borne by referral hospitals such as Dr. La Palaloi Hospital in Maros (Maros Regency Government, 2023). As a Class C public hospital with Regional Public Service Agency (Badan Layanan Umum Daerah [BLUD]) status, Dr. La Palaloi Hospital has made several investments in healthcare facilities, including a 128-slice computed tomography (CT) scanner, a pediatric intensive care unit (PICU), and VIP rooms, as part of its efforts to expand specialist medical services. These investments essentially strengthen the tangible aspects of healthcare delivery, which, according to Brady and Cronin, contribute to patients' initial perceptions of service quality before developing into a more comprehensive evaluation of satisfaction (Brady & Cronin, 2001; Labiba et al., 2025).

Previous literature has confirmed that elements of the healthcare marketing mix, including physical evidence, contribute to inpatient satisfaction and loyalty (Prinanti et al., 2024; Mutia & Pujianto, 2022; Pitaloka & Harianto, 2025). However, their effects on patient trust have not always been consistent and may be better explained through service quality and institutional image (Nurnajamuddin et al., 2024; Muhardi et al., 2023). Other studies have also confirmed the importance of transparency and professional involvement in strengthening patient satisfaction and trust (Rama et al., 2025).

Theoretically, service quality in healthcare is commonly explained using the SERVQUAL model, which comprises five dimensions: reliability, tangibles, responsiveness, assurance, and empathy, and evaluates the gap between patients' expectations and perceptions

of service performance (Parasuraman et al., 1988, 1994). Clean, well-organized, and modern physical facilities can improve patients' perceptions of service quality while reducing stress during treatment (Zeithaml & Bitner, 2018; Kotler & Keller, 2016). Meanwhile, patient satisfaction is generally understood as the outcome of a post-consumption evaluation in which perceived service performance is compared with prior expectations through the process of expectation disconfirmation (Oliver, 2014; Ware et al., 1983). Patient safety is also an integral component of healthcare facility quality, as the World Health Organization (WHO) emphasizes that a safe and hygienic environment is a prerequisite for the delivery of safety-oriented healthcare services (World Health Organization, 2020). Recent systematic reviews have likewise confirmed associations among service quality, facility-related dimensions, and patient satisfaction across various clinical settings (Hutabarat, 2025).

Although research on healthcare facilities, service quality, and patient satisfaction is extensive, most previous studies have examined healthcare facilities and service quality as parallel predictors of satisfaction rather than formally assessing service quality as a mediating variable within a path-analysis framework. In addition, much of the empirical evidence from Indonesia has been derived from private hospitals or hospitals located in large urban areas, which differ in terms of facilities, resources, and patient characteristics from Class C regional hospitals, where a substantial proportion of patients are JKN/KIS participants. This gap highlights the urgency of the present study, which seeks to comprehensively determine whether the effect of healthcare facilities on outpatient satisfaction occurs directly or indirectly through service quality in the context of Dr. La Palaloi Hospital in Maros.

This study offers novelty in terms of its research setting, respondent characteristics, and the application of a partial least squares structural equation modeling (PLS-SEM)-based path-analysis approach, which has not been widely applied in regional hospitals with comparable characteristics. Theoretically, this study contributes to the healthcare service management literature by providing further evidence regarding the mediating mechanism of service quality. Practically, the findings are expected to provide a basis for hospital management in determining priorities for resource allocation between the development of healthcare facilities and the enhancement of service interaction quality.

Based on the preceding discussion, this study proposes four hypotheses: H1: Healthcare facilities have a positive effect on service quality. H2: Service quality has a positive effect on patient satisfaction. H3: Healthcare facilities have a positive effect on patient satisfaction. H4: Service quality mediates the effect of healthcare facilities on patient satisfaction.

RESEARCH METHODS

This study employed an explanatory quantitative approach to examine the causal relationships among healthcare facilities (X), service quality (Z), and patient satisfaction (Y). Hypotheses were tested using path analysis with partial least squares structural equation modeling (PLS-SEM) in SmartPLS version 4.0 (Harris & Gleason, 2022).

The study was conducted at Dr. La Palaloi Hospital, Maros Regency, South Sulawesi, from February to May 2026. The study population consisted of all outpatients who received services at the hospital during the study period. The sample size was determined using the Slovin formula with a 10% margin of error based on an estimated average population of 1,000

patients per month, resulting in 91 respondents (Santoso, 2023). Respondents were selected using accidental sampling. The inclusion criteria were patients who had received outpatient services at least three times, were at least 17 years old, were able to communicate effectively, and were willing to complete the research questionnaire (Turner, 2020; Mweshi & Sakyi, 2020).

Data were collected using a closed-ended questionnaire with a five-point Likert scale (Sugiyono, 2017). Healthcare facilities (X) were measured based on the availability and adequacy of medical equipment, waiting-room comfort, environmental cleanliness, and accessibility of facilities (Andaleeb, 2001; Zaim et al., 2010). Service quality (Z) was measured using the five SERVQUAL dimensions: reliability, responsiveness, assurance, empathy, and tangibles (Parasuraman et al., 1988, 1994). Patient satisfaction (Y) was measured based on satisfaction with healthcare personnel, service processes, facilities, and overall services (Oliver, 2014; Ware et al., 1983). Primary data were obtained directly from respondents through questionnaire distribution (Mazhar, 2021), while secondary data were obtained from relevant institutional documents and reports (Boslaugh, 2007).

Data analysis was conducted in two stages. First, the measurement model (outer model) was evaluated using convergent validity, with outer loadings ≥ 0.70 and average variance extracted (AVE) ≥ 0.50 , and internal consistency reliability, with composite reliability ≥ 0.70 and Cronbach's alpha ≥ 0.60 . Second, the structural model (inner model) was evaluated using the coefficient of determination (R^2), predictive relevance (Q^2), and path coefficient significance. Hypothesis testing was performed using bootstrapping, with statistical significance determined at $t > 1.96$ and $p < 0.05$. The mediating role of service quality was assessed using the specific indirect effect of healthcare facilities on patient satisfaction through service quality. Full mediation was identified when the indirect effect was significant and the direct effect was not significant, whereas partial mediation was identified when both the direct and indirect effects were significant (Suleiman & Abdulkadir, 2022; Frichi et al., 2020).

RESULTS AND DISCUSSION

Respondent Characteristics

The total number of respondents analyzed was 91 outpatients who had met the study criteria. Characteristics of respondents based on gender, age, and frequency of visits are presented in Table 1.

Table 1. Characteristics of Respondents (n = 91)

Features	Category	n	%
Gender	Male	43	47,25
	Women	48	52,75
Age	< 30 years old	27	29,67
	30–39 years old	36	39,56
	≥ 40 years old	28	30,77
Frequency of Visits	3–5 times	63	69,23

Features	Category	n	%
	> 5 times	28	30,77

Source: Primary data processed (2026)

The majority of respondents were female (52.75%), were in the productive age group of 30–39 years (39.56%), and had made 3–5 visits (69.23%). This composition shows that respondents have sufficient experience to objectively assess the facilities, service quality, and satisfaction felt while undergoing outpatient services.

Evaluation of Measurement Models (Outer Model)

The convergent validity test showed that all indicators in the three constructs (health facilities, service quality, and patient satisfaction) had an outer loading value above 0.70, thus meeting the convergent validity criteria. The results of the reliability and validity evaluation of the constructs are summarized in Table 2.

Table 2. Summary of Construct Validity and Reliability Test Results

Variabel	Outer Loading	AVE	Composite Reliability	Cronbach's Alpha	Remarks
Health Facilities	> 0,70	> 0,50	> 0,70	> 0,60	Valid & Reliable
Quality of Service	> 0,70	> 0.50	> 0.70	> 0,60	Valid & Reliable
Patient Satisfaction	> 0.70	> 0,50	> 0,70	> 0,60	Valid & Reliable

Source: Primary data processed using SmartPLS 4.0 (2026)

The entire construct met the criteria of $AVE \geq 0.50$, composite reliability ≥ 0.70 , and Cronbach's alpha ≥ 0.60 , indicating that the research instrument had convergent validity and good internal consistency.

Evaluation of Structural Models (Inner Model)

The R-Square value indicates that the quality of service is explained by the healthcare facility by 51.4%, while patient satisfaction is explained by the healthcare facility and the quality of service is 58.0% (Table 3). The Q-Square value of 0.796 (> 0) indicates that the model has good predictive relevance.

Table 3. R-Square and Q-Square Values

Variable endogenous	R-Square	Category
Quality of Service	0,514	Moderate
Patient Satisfaction	0,580	Moderate–Strong

$Q^2 = 0.796$ (predictive relevance is good). Source: Primary data processed using SmartPLS 4.0 (2026)

Hypothesis Testing

Hypothesis testing was carried out through a bootstrapping procedure with the criteria of t-statistic significance > 1.96 and p-value < 0.05 . The results of the path coefficient test are presented in Table 4.

Table 4. Hypothesis Test Results (Path Coefficient)

Hipotesis	Intervariable Relationships	b	t-statistic	p-value	Verdict
H1	Health Facilities → Service Quality	0,707	13,682	0,000	Accepted
H2	Quality of Service → Patient Satisfaction	0,739	7,770	0,000	Accepted
H3	Health Facilities → Patient Satisfaction	0,033	0,305	0,760	Rejected
H4	Facilities → Quality → Satisfaction (indirect)	signifikan	–	< 0.05	Accepted (Full Mediation)

Source: Primary data processed using SmartPLS 4.0 (2026)

The results showed that health facilities had a positive and significant effect on service quality (H1 accepted), and service quality had a positive and significant effect on patient satisfaction (H2 accepted). On the other hand, the direct influence of health facilities on patient satisfaction was not significant (H3 was rejected). Because the direct path of facilities→satisfaction was not significant while the path of facilities→quality and quality→satisfaction were equally significant, the quality of service was stated to fully mediate the influence of health facilities on patient satisfaction (H4 accepted). In other words, the influence of health facilities on outpatient satisfaction fully occurred through improving the quality of service.

The Influence of Health Facilities on Service Quality

A path coefficient of 0.707 ($t=13.68$; $p<0.001$) indicates that healthcare facilities have a strong and significant influence on the quality of service perceived by patients. These findings are in line with the tangibles dimension in the SERVQUAL model, which places the condition of physical facilities as one of the main determinants of service quality perception (Parasuraman et al., 1988, 1994), as well as with Brady and Cronin's view that physical evidence forms the initial foundation of quality evaluation before evolving into a comprehensive assessment (Brady & Cronin, 2001). Complete and well-maintained facilities allow medical personnel to work more accurately and responsively, thereby strengthening the dimensions of reliability and responsiveness in service quality. These results are consistent with the findings of Hutabarat in a systematic review of hospital dental clinic services (Hutabarat, 2025) and Labiba et al. in hemodialysis patients (Labiba et al., 2025), both of which show a real contribution of facilities to the perception of service quality. In the context of dr. La Palaloi Hospital as a class C hospital with BLUD status, these findings confirm that investment in facilities—such as the procurement of diagnostic tools and the arrangement of waiting rooms—is a strategic step that directly increases the perception of service quality, in line with Kotler and Keller's idea that the physical environment functions as physical evidence that strengthens customer trust in the services provided (Kotler & Keller, 2016).

The Effect of Service Quality on Patient Satisfaction

The quality of service was shown to have a positive and significant effect on patient satisfaction ($\beta=0.739$; $t=7.77$; $p<0.001$), with greater influence than the influence of facilities on service quality. These findings are in line with the theory of disconfirmation of expectations which states that satisfaction is formed from a comparison between actual service performance and patient expectations (Oliver, 2014; Ware et al., 1983). When the dimensions of reliability, responsiveness, assurance, and empathy are met, patients tend to judge that the services received meet or exceed their expectations. These results are consistent with the study of Fatima et al. who found quality of service as the main determinant of satisfaction and loyalty of hospital patients (Fatima et al., 2018), and Karume et al. who confirmed the SERVQUAL gap as a strong predictor of satisfaction in Kenyan healthcare facilities (Karume et al., 2025). Similar findings were also reported in the PLS-SEM study at a public hospital in Katsina, Nigeria, which confirmed the dominant role of service quality over physical aspects (Suleiman & Abdulkadir, 2022). Managerially, these results indicate that investment in training of medical personnel, strengthening interpersonal communication, and digitizing administrative processes has the potential to have a greater impact on patient satisfaction than investment in facilities alone.

The Direct Influence of Health Facilities on Patient Satisfaction

In contrast to the previous two pathways, the direct influence of health facilities on patient satisfaction was not statistically significant ($\beta=0.033$; $t=0.305$; $p=0.760$). This finding is interesting because intuitively good facilities are often assumed to directly increase satisfaction. One relevant explanation is that the concept of hygiene factor in the theory of two motivational factors of facilities can be seen as a basic requirement that prevents dissatisfaction when it is not available, but its mere existence does not necessarily create satisfaction. This explanation is consistent with the view that the standards of hospital facilities are relatively uniform following regulations, so that variations in the perception of facilities between patients tend to be small and are no longer the main differentiating factor in forming satisfaction (Othman & Kadasah, 2025). This result is also different from the findings of Andaleeb and Zaim et al. who reported the direct influence of facilities on patient satisfaction in the context of other hospitals (Andaleeb, 2001; Zaim et al., 2010), showing that the strength of the facility-satisfaction relationship is contextual and can differ between healthcare settings, depending on the extent to which the quality of service interaction acts as a bridge. In other words, at dr. La Palaloi Hospital, the influence of facilities on satisfaction is fully channeled through the experience of service interactions, not through physical perception alone.

The Role of Service Quality Mediation

The H1–H3 outcome pattern above the facility→quality and quality→satisfaction pathways is significant, while the direct pathway of facilities→satisfaction is insignificant indicating that service quality plays a role as a full mediator in the relationship between health facilities and outpatient satisfaction. This means that health facilities do not directly affect patient satisfaction, but rather through an improvement in the quality of service felt by patients during the service process. These findings reinforce the health care management literature that emphasizes that the facility–satisfaction relationship is indirect and mediated by the interpersonal service dimension (Fatima et al., 2018; Karume et al., 2025; Hutabarat, 2025). Theoretically, these findings expand the application of the SERVQUAL model by emphasizing

that the tangibles dimension functions as an antecedent of service quality, not an independent predictor of satisfaction. In practical terms, these findings provide a strategic message for the management of dr. La Palaloi Maros Hospital: strengthening facilities remains important as an operational foundation, but real improvement in patient satisfaction depends on how well the facility is converted into quality of service through reliability, responsiveness, assurance, empathy, and personal interaction of health workers with patients.

CONCLUSION

This study yielded four main findings. First, healthcare facilities had a positive and significant effect on service quality ($\beta = 0.707$; $p < 0.001$), indicating that improvements in healthcare facilities significantly enhanced patients' perceptions of service quality. Second, service quality had a positive and significant effect on patient satisfaction ($\beta = 0.739$; $p < 0.001$) and emerged as the primary determinant of outpatient satisfaction. Third, healthcare facilities did not have a significant direct effect on patient satisfaction ($\beta = 0.033$; $p = 0.760$), indicating that facilities functioned as a basic prerequisite rather than as the primary differentiating factor of satisfaction. Fourth, service quality fully mediated the effect of healthcare facilities on patient satisfaction. Therefore, strategies to improve patient satisfaction should prioritize strengthening the quality of service interactions rather than focusing solely on the physical development of healthcare facilities.

Theoretically, this study strengthens the SERVQUAL framework by demonstrating that healthcare facilities, particularly tangible aspects, function as antecedents of perceived service quality and indirectly influence patient satisfaction through service quality. These findings enrich the healthcare service management literature, particularly in the context of regional hospitals serving participants in the National Health Insurance (Jaminan Kesehatan Nasional [JKN]) program. Practically and managerially, the findings suggest that hospital management should prioritize improvements in service quality, optimize healthcare facilities as supporting components rather than as the ultimate objective of service delivery, strengthen the implementation of patient-centered care, and conduct periodic evaluations of patient satisfaction as part of continuous quality improvement.

This study had several limitations. It was conducted at a single hospital, which limited the generalizability of the findings; it examined only three primary variables, namely healthcare facilities, service quality, and patient satisfaction; and it relied on subjective, self-reported, cross-sectional questionnaire data. Future studies should incorporate additional variables, such as patient trust, hospital image, and patient loyalty; include multiple hospitals to enhance the generalizability of the findings; apply mixed-methods approaches incorporating in-depth interviews; employ longitudinal designs to capture changes in patient satisfaction over time; and examine additional service-related factors, such as the availability and punctuality of healthcare personnel and specialist physicians.

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