THE MEDIATING ROLE OF CUSTOMER SATISFACTION IN THE RELATIONSHIP BETWEEN SERVICE QUALITY, PERCEIVED VALUE, AND CUSTOMER LOYALTY AMONG PATIENTS AT LEONA GENERAL HOSPITAL, KUPANG

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Abstract

This study focuses on patient loyalty at Leona General Hospital in Kupang. It investigates whether service quality and perceived value shape that loyalty by way of patient satisfaction, which acts as the mediating variable. To test the causal relationships among the four constructs, it adopts a quantitative, cross-sectional design. Data came from 200 respondents who completed a closed-ended Likert-scale questionnaire. They were recruited through non-probability purposive sampling and had to be at least 17 years old, willing to complete the instrument, and finished with their treatment. Data analysis was performed with PLS-SEM using SmartPLS. The measurement (outer) model was evaluated before the structural (inner) model, and a bootstrapping procedure then tested the significance of each hypothesized path. The findings indicate that satisfaction has a significant influence on loyalty, and that both service quality and perceived value strongly predict satisfaction. Neither service quality nor perceived value affects loyalty directly; their influence operates only indirectly through satisfaction, which serves as the mediating variable. The model explains a large share of the variance in satisfaction and loyalty, confirming satisfaction as the key mediator in building patient loyalty.

Keywords: Service Quality, Perceived Value, Customer Satisfaction, Customer Loyalty

INTRODUCTION

Hospital managers in Indonesia increasingly have to ensure that patients remain satisfied and loyal, as this has become a central part of running a modern hospital. Intensifying competition among healthcare providers requires hospitals to deliver not only high-quality clinical services but also meaningful healthcare experiences that create value for patients. High-quality healthcare delivery and enhanced perceived value are key to fostering patient satisfaction and long-term retention in competitive medical environments. The SERVQUAL dimensions provide the foundation for understanding how superior service quality contributes to patient satisfaction. Together with perceived value, that satisfaction ultimately builds loyalty (Akob et al., 2021; Chang et al., 2013). The importance of these factors has become even more evident in the post-pandemic era, during which public expectations of healthcare services have changed significantly.

Indonesian hospitals frequently struggle to maintain elevate patient satisfaction and institutional loyalty. Service quality affects satisfaction directly, but it reaches loyalty only through a sequence of perceived value and satisfaction, according to findings from private hospitals in Makassar (Akob et al. 2021). Accordingly, both service quality and perceived value emerge as critical determinants.

As a general hospital, Leona General Hospital, Kupang, faces increasing pressure to improve service quality amid intensifying competition within the healthcare sector. Patients no longer evaluate healthcare services solely based on the success of medical treatment. Patient loyalty is also shaped by several determinants, such as service quality, perceived value, satisfaction, trust, and commitment (Zhou et al., 2017). In practice, patients may express concerns regarding delayed responses from nursing staff, limited access to clear information, and facilities that do not fully support their comfort during treatment, and complaints about unprofessional service by hospital staff have also been reported in Indonesian hospitals (Akob et al., 2021). Consequently, some patients may perceive that the value of the services obtained, understood as the balance between benefits received and costs borne, is not proportional to the time, financial cost, and effort they invest in obtaining healthcare services (Akob et al., 2021). These concerns center on how services are delivered. They make it worthwhile to examine two factors at Leona General Hospital in Kupang, namely service quality and perceived value. The question is how each of them relates to patient satisfaction and loyalty. Therefore, this study offers empirical insights to help hospital management implement strategic service improvements that drive patient satisfaction and build lasting loyalty.

Based on a compilation of 353 publicly available Google Maps reviews of Leona General Hospital, Kupang, collected on 30 December 2025 and covering reviews posted since 2020, service-related comments included concerns about long queues and slow nursing responses. The collated review data offer a contextual basis for investigating how service quality, perceived value, patient satisfaction, and patient loyalty are related at the hospital.

The main contribution of this study is contextual in that it examines the relationships between service quality, perceived value, satisfaction, and loyalty in a regional general hospital in Kupang, East Nusa Tenggara, a setting that differs from private hospitals in Makassar Akob et al. (2021) and hospitals in Taiwan and Turkey (Huang et al., 2021; Eris, 2022) examined in previous studies. As a result, this research expands the current healthcare management literature by delivering empirical evidence from a regional hospital in eastern

Indonesia. Through commitment, and with trust reinforcing the link, perceived value leads to greater patient loyalty Huang et al., (2021). A separate line of evidence shows that satisfaction mediates both loyalty and treatment compliance in healthcare settings AlOmari & Hamid, (2022). Previous studies also indicate that many hospitals have not yet fully optimized both service quality and value perceptions. Thus, some patients remain hesitant to revisit or recommend a hospital despite being generally satisfied with the services received. This condition highlights the need for further empirical research examining the interaction among patient satisfaction, care quality, and perceived worth as key antecedents of patient loyalty across Indonesian hospitals (Kitapci et al., 2014).

Existing healthcare studies on patient loyalty have centered on a limited set of determinants, chiefly service quality and patient satisfaction, which recur most frequently. However, evidence on how these variables relate in hospitals in eastern Indonesia remains limited. Although Akob et al. (2021) included perceived value in their model, their evidence comes from private hospitals in Makassar, whereas Gde and Sukawati (2021), for instance, mainly investigated the associations among the latent constructs of service quality, brand image, patient satisfaction, and patient loyalty, without treating perceived value as a central variable in their structural models. In contrast, research addressing perceived value and patient loyalty, such as studies by Huang et al. (2021) in Taiwan and Eris (2022) in Turkey, was conducted outside the Indonesian setting. Moreover, existing findings are inconsistent Nguyen et al. (2021) and Fatonah (2019) report a direct effect of service quality on loyalty, whereas Akob et al. (2021) find that it operates only through perceived value and satisfaction. It therefore remains unclear whether service quality and perceived value shape loyalty directly or only through satisfaction, and whether this pattern holds in a regional hospital in eastern Indonesia such as Leona General Hospital, Kupang. This literature gap highlights the importance of empirically examining the relationships among these factors to better clarify the key mechanisms shaping patient loyalty at Leona General Hospital, Kupang.

This research evaluates how care quality and value perceptions drive patient satisfaction and loyalty at Kupang's Leona General Hospital. It also explores patient satisfaction as a key mediator across these variables.

From a theoretical perspective, this study clarifies the mediating role that patient satisfaction plays in connecting service quality and perceived value with patient loyalty in a general hospital. From a practical standpoint, it offers hospital managers empirical evidence for steering service improvement strategies and building patient loyalty through stronger service experiences and higher perceived value.

Five core sections make up the remainder of this paper. The introduction presents the background, research problems, gaps, goals, significance, and overall structure. Next comes a review of the literature, which lays out the theory and prior studies on service quality, value, satisfaction, and loyalty. After that, the research design, instrument, data collection, and analysis procedures are explained in the method section. Empirical results and their discussion follow in the fourth section. Recommendations for future research, along with the study’s limitations and its theoretical and practical contributions, are set out in the closing section, which also restates the main conclusions.

REVIEW OF LITERATURE

In the reality of human life, the factors that make patients feel satisfied with and loyal to healthcare providers are, to a large extent, the quality of its service and the value patients perceive. Under the SERVQUAL model, service quality measures a hospital's ongoing effort to meet or exceed patient expectations across five essential dimensions. As demonstrated by Akob et al. (2021), higher service quality raises patient satisfaction and, indirectly through perceived value and satisfaction, patient loyalty. Consequently, patients experiencing high-caliber, responsive care are more inclined to reuse hospital services and offer positive referrals. Maintaining consistent service quality is also important for building patient trust and confidence.

In addition to service quality, perceived value represents another essential determinant of patient loyalty. Patients weigh the benefits of healthcare services against the money, time, and effort they spend, and the resulting overall judgment is what perceived value means. Eris (2022) reported that perceived value influences both patient satisfaction and patient loyalty, and that loyalty depends on satisfaction. Perceived value also encompasses, for instance, the accessibility of healthcare facilities, cost transparency, administrative efficiency, and the comfort of the treatment experience.

Aligned with Expectancy Disconfirmation Theory (Oliver, 1980), patient satisfaction arises when actual care meets or exceeds initial patient expectations. Consequently, delivering care that matches or surpasses these benchmarks significantly strengthens patient satisfaction and sustainable, long-term patient loyalty (AlOmari & Hamid, 2022). Under this framework, patient loyalty represents a behavioral result of high satisfaction and value reflected in patients' commitment to revisit the facility, recommend it to others, and maintain a positive impression even during minor service delays or errors.

RESEARCH METHOD

This research uses a quantitative causal design. It tests whether service quality and perceived value shape patient loyalty at Leona General Hospital in Kupang, and whether patient satisfaction mediates that relationship. Using a cross-sectional survey design, empirical data were collected at a single time point administered to patients upon completing their treatment. Using a purposive sampling strategy, eligible participants were identified in accordance with predefined eligibility criteria, specifically comprising individuals aged 17 years and above, fully discharged or done with their care process, and willing to participate voluntarily. The research framework incorporated 15 measurement indicators. To satisfy the recommended subject-to-variable ratio (Hair et al., 2021), a minimum sample of 150 was required; however, 200 responses were targeted to enhance the statistical power of the multivariate analysis. Primary data were collected directly using a structured, 5-point Likert scale.

Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS software was applied to analyze structural relationships between latent constructs. This approach allows concurrent testing of direct and indirect (mediating) paths without relying on strict distributional assumptions. Additionally, PLS-SEM is highly effective for predictive modeling and theory development in structural research Hair et al., (2021).

Model evaluation had two stages. The first covered the measurement model, and the second covered the structural model. Within the first stage, convergent validity was

confirmed by outer loadings above 0.70 and AVE values above 0.50, meaning each construct captures more than half of its indicators' variance Hair et al., (2021). Discriminant validity was then verified with the Fornell-Larcker criterion and cross-loadings, since the square root of every construct's AVE was larger than its correlations with the other constructs Hair et al., (2021). Cross-loading results further verified that every indicator loaded most strongly on its target latent construct, ensuring clear separation between model variables Hair et al., (2021).

To verify discriminant validitythe analysis examined the Fornell-Larcker criterion together with cross-loadings across indicators. Under the Fornell-Larcker assessment, the square root of every construct's AVE needed to be higher than its inter-construct correlations with other variables Hair et al., (2021). Additionally, each survey item loaded most strongly on its designated variable compared to alternative constructs. These results demonstrate that the measurement items accurately reflect their respective constructs while maintaining sufficient empirical distinction across the model Hair et al., (2021).

Structural model evaluation depended on a series of core benchmarks. Initially, R-square values measured the explanatory power of exogenous factors over target constructs, interpreted as substantial (0.75), moderate (0.50), or weak (0.25) (Hair et al., 2021). Subsequently, F-square effect sizes were evaluated to determine the strength of individual structural paths using benchmark values of 0.02 (small), 0.15 (medium), and 0.35 (large) Hair et al., (2021). To evaluate predictive capacity, the Stone-Geisser Q^2 statistic was calculated, where any value greater than zero indicates satisfactory predictive relevance (Hair et al., 2021). Finally, bootstrapping was conducted to test the research hypotheses, accepting paths as statistically significant at $p<0.05$ Hair et al., (2021).

Research Hypothesis

Effect of Service Quality on Patient Satisfaction

Patient satisfaction in healthcare services is largely determined by service quality, which is widely seen as a key influencing factor. Healthcare quality is evidenced by a facility's success in steadily addressing patient expectations across SERVQUAL's five dimensions. Akob et al. (2021) indicated that higher service quality directly fosters increased levels of patient satisfaction, as superior healthcare delivery generates favorable perceptions of patients' experiences during treatment. Supported by previous research in developing nations, this result confirms that service quality positively impacts patient satisfaction in hospital services both public and private healthcare facilities (Nguyen et al., 2021). From a theoretical perspective, patients exhibit a higher propensity to perceive valued when they receive high-quality services and adequate attention from healthcare providers. As a result, their comprehensive satisfaction with delivered healthcare services is projected to rise significantly Akob et al. (2021). In the context of Leona General Hospital, Kupang, the implementation of comprehensive service standards is anticipated to boost overall patient satisfaction while strengthening patients' long-term relationships with the hospital.

H1. Service quality has a significant effect on patient satisfaction.

Effect of Perceived Value on Patient Satisfaction

Perceived value represents patients' subjective assessment regarding whether the utility derived from medical care is proportional to the attendant financial expenditure, temporal investment, and physical exertion they expend. At Leona General Hospital, Kupang, perceived value may be shaped by factors such as the accessibility of healthcare facilities,

transparency of costs, the caliber of interpersonal exchanges with medical staff, alongside patient comfort levels throughout therapeutic procedures. Eris (2022) suggested that greater perceived value across functional, emotional, and social dimensions contributes to higher patient satisfaction. The study also highlighted perceived value as an important factor in creating positive healthcare experiences, as it allows patients to assess whether provided services satisfy or exceed patient expectations. Similarly, Baía and Baptista (2020) reported that perceived value significantly contributes to patient satisfaction, particularly amid growing competition within the healthcare sector. When patients perceive that a hospital offers greater value than alternative healthcare providers through service innovation, responsive care, or patient-centered programs, they exhibit higher likelihood to feel satisfied and develop stronger loyalty toward the institution. Improving medical service quality alone is not enough for hospitals. They should also create superior value, since this strengthens how patients perceive the hospital and how satisfied they are.

H2. Perceived value has a significant effect on patient satisfaction.

Effect of Service Quality on Patient Loyalty

Patients who perceive quality favorably also experience greater value and satisfaction, and through these two experiences service quality strengthens patient loyalty indirectly Akob et al. (2021). This agrees with prior healthcare research, which consistently links service quality to patient retention. In contrast, Nguyen et al. (2021) established that service quality directly influences inpatient loyalty while concurrently driving patient satisfaction and perceived value, emphasizing medical staff competence and service consistency as pivotal elements. Among patients of BPJS hospitals in Central Java, service quality was found to influence patient loyalty significantly and directly Fatonah (2019). Similarly, Vimla and Taneja (2021) affirmed that service quality serves as a major determinant of patient loyalty through both direct pathways and indirect mechanisms mediated by satisfaction.

H3. Service quality has a significant effect on patient loyalty.

Effect of Perceived Value on Patient Loyalty

Perceived value refers to how patients weigh the benefits of their healthcare against the effort, time, and money spent. Research highlights a strong connection between perceived value and long-term patient loyalty. Eris (2022) reported that higher perceived value is associated with greater patient loyalty. Similarly, Huang et al. (2021) found in Taiwan that perceived value fosters patient loyalty through commitment, with trust strengthening this pathway. Harmen et al. (2020) further noted that functional, emotional, and social dimensions of value positively influence both satisfaction and loyalty through direct and indirect pathways. As Zahra et al. (2022) concluded in their comprehensive review, enhancing perceived value remains one of the most effective strategies for hospitals seeking to build lasting patient relationships.

H4. Perceived value has a significant effect on patient loyalty.

Effect of Patient Satisfaction on Patient Loyalty

Multiple studies confirm that patient satisfaction strongly drives long-term healthcare loyalty. Liu et al. (2021) showed that satisfaction directly boosts loyalty, mediated by trust in medical providers. Zhang et al. (2022) conducted their study in primary care settings. The authors found that satisfaction serves as the link through which quality and value perceptions are translated into patient loyalty. In an Indonesian hospital context, Najmuddin and Tan

(2024) likewise established a significant positive effect of satisfaction on loyalty, proving that focusing on patient satisfaction secures repeat visits and positive recommendations.

H5. Patient satisfaction has a significant effect on patient loyalty.

The Mediating Role of Patient Satisfaction in the Relationship Between Service Quality and Patient Loyalty

This study positions patient loyalty stems from service quality, with patient satisfaction acting as the crucial link at Leona General Hospital in Kupang. From a theoretical standpoint, delivering top-quality care such as prompt attention, courteous staff, clear explanations, and clean facilities naturally elevates patient satisfaction. Once satisfied, patients which greatly increases patient retention and word-of-mouth recommendations. This indirect pathway is consistent with Nguyen et al. (2021), whose findings indicate that quality improvements strengthen loyalty mainly by first increasing satisfaction and perceived value. Similarly, Vimla and Taneja (2021) emphasized patient satisfaction as the chief mediator bridge between quality perception and retention, confirming that service quality leads to stronger loyalty when patients are thoroughly satisfied.

H6. Patient satisfaction significantly mediates the relationship between service quality and patient loyalty.

The Mediating Role of Patient Satisfaction in the Relationship Between Perceived Value and Patient Loyalty

Researchers have frequently examined how perceived value impacts patient loyalty considering patient satisfaction as an intervening factor. Eris (2022) examined how perceived value relates to patient outcomes. The study found that higher perceived value goes together with greater satisfaction as well as greater loyalty. When patients consider the benefits obtained from healthcare services to be greater than the financial expenses, time, and effort required, they tend to report higher satisfaction and demonstrate a stronger commitment to sustaining a long-term relationship with the healthcare institution. Similarly, Huang et al. (2021) found that perceived value contributes to patient loyalty through commitment, with trust strengthening this pathway. Patient satisfaction was shown to carry the effect of perceived value on loyalty indirectly Akob et al. (2021). Across various healthcare settings, perceived value was likewise found to shape patient loyalty consistently, with satisfaction and trust commonly acting as the key mediators that connect it to loyal behavioral intentions Zahra et al. (2022). Drawing upon the driven by the underlying theory and prior evidence, this study proposes that, in the context of Leona General Hospital, Kupang, perceived value positively influences patient satisfaction, which subsequently strengthens patient loyalty.

H7. Patient satisfaction significantly mediates the relationship between perceived value and patient loyalty.

Research Model

This study's conceptual model investigates the direct and indirect mechanisms through which care quality and value perceptions drive patient retention, highlighting patient satisfaction as a central mediator. By examining all four variables simultaneously, the model provides a thorough understanding of what drives patient satisfaction alongside sustained, long-term retention among patients at Leona General Hospital, Kupang.

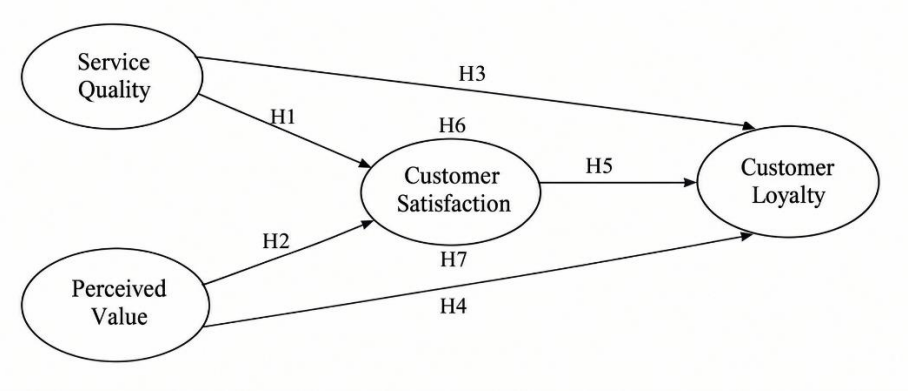


Figure 2.
Conceptual Framework

RESULTS AND DISCUSSION

Respondent Profile

A total of 200 respondents participated in this study, all of whom fulfilled the established sampling criteria. The respondents were classified according to several demographic characteristics, including gender, age, occupation, place of residence, marital status, type of hospital visit, frequency of hospital visits, and previous treatment history at Leona General Hospital, Kupang.

Based on gender, female respondents accounted for the majority of the sample, representing 80.0%, while male respondents comprised the remaining 20.0%. Regarding participant demographics, respondents aged 21 to 30 constituted the largest cohort (36.5%), followed by those aged 31-40 (18.5%), 51-60 (13.5%), over 60 (12.5%), under 20 (11.0%), and 41-50 (8.0%).

With respect to marital status, most respondents were married (52.5%), followed by unmarried respondents (46.0%) and those who were divorced or separated (1.5%). Based on the type of hospital visit, most respondents were inpatients (56.0%), followed by outpatients (39.0%) and hospital visitors (5.0%).

The occupational profile indicated that private-sector employees constituted the largest group of respondents (24.0%), followed by homemakers (16.5%). The remaining respondents were students, civil servants, military personnel, police officers, self-employed workers, farmers or fishermen, and individuals with other occupations.

Most respondents resided in Kupang (88.0%), whereas the remaining 12.0% lived outside the city. With respect to healthcare service utilization, the largest cohort of participants reported visiting Leona General Hospital, Kupang, two to three times during the previous year (44.0%). Regarding treatment history, 69.5% of the respondents indicated that they had previously received inpatient care at the hospital.

Overall, the respondent profile indicates that female respondents aged 21–30 made up the majority, married, residing in Kupang, employed as private-sector workers or homemakers,

admitted as inpatients, had visited the hospital two to three times during the previous year, and had previously received treatment at Leona General Hospital, Kupang.

Table 1
Outer Loading

Constructs and Measurement Items	Factor Loading	α	CR	AVE
Service Quality		0.938	0.954	0.806
This hospital's facilities are very modern	0.775			
This hospital fulfills its commitments to patients	0.899			
The interaction between nurses and patients is positive	0.933			
Nurses are always ready to handle patients' problems	0.942			
Nurses are always ready to solve patients' problems	0.929			
Perceived Value		0.948	0.963	0.865
I believe this hospital provides medical services of the best quality, in line with my expectations as a patient	0.915			
I feel emotionally comfortable while receiving treatment at this hospital	0.937			
I feel emotionally calmer while receiving treatment at this hospital	0.936			
The services at this hospital improve my social environment's positive perception of me	0.933			
Customer Satisfaction		0.953	0.966	0.876
My overall feeling toward this hospital is very satisfying	0.932			
My choice of this hospital was the right choice	0.944			
This hospital meets my expectations	0.938			
Compared to other hospitals, I am happier with this hospital	0.929			
Customer Loyalty		0.975	0.987	0.975
I will recommend this hospital to my acquaintances	0.987			
I will speak positively about this hospital to others	0.988			

Table 1 outlines the outer model results, displaying factor loadings, All constructs met Hair et al.'s (2021) reliability standards, achieving Cronbach's alpha and CR values above 0.70 alongside acceptable AVE levels. Because all constructs comfortably exceeded this 0.70 benchmark across both indicators, the measurement instrument demonstrates high reliability and internal consistency.

The subsequent phase of the outer model evaluation involved assessing convergent validity through factor loadings and Average Variance Extracted (AVE). Per Hair et al. (2021), indicator loadings above 0.70 and AVE values over 0.50 verify that a construct explains more than half of its items' variance. The results in Table 1 show that every indicator surpassed the 0.70 benchmark, with the majority recording loadings above 0.90. Consequently, the measurement items exhibit strong convergent validity and effectively capture their target variables.

In detail, the service quality construct was assessed through five indicators, with factor loadings ranging from 0.775 to 0.942 and an AVE of 0.806. The perceived value construct consisted of four indicators, which recorded factor loadings between 0.915 and 0.937 and an AVE of 0.865. Similarly, the patient satisfaction construct was measured using four indicators, yielding factor loading values from 0.929 to 0.944 and an AVE of 0.876. Meanwhile, patient loyalty was represented by two indicators, with factor loadings of 0.987 and 0.988 and an AVE of 0.975, representing the highest values among the constructs examined. These results demonstrate that both indicators provide a highly accurate representation of the patient loyalty construct. Having met all convergent validity and reliability criteria, the measurement model proved sufficiently robust to proceed to structural model analysis (Hair et al., 2021).

Table 2
Fornell-Larcker

	Customer Loyalty	Customer Satisfaction	Perceived Value	Service Quality
Customer Loyalty	0.988			
Customer Satisfaction	0.705	0.936		
Perceived Value	0.673	0.881	0.930	
Service Quality	0.674	0.860	0.896	0.898

Table 2 reports the Fornell-Larcker test of discriminant validity. For each construct, the square root of the AVE was compared with its correlations with every other variable. In all cases the square root was larger, which confirms that the constructs are empirically distinct. This, the measurement instrument meets all discriminant validity requirements specified by Hair et al. (2021).

Compared with patient satisfaction, perceived value, and service quality, the indicators of patient loyalty relate more closely to their own construct, as shown by loyalty having the highest diagonal value in the matrix. While the inter-construct correlations among the constructs were positive and relatively strong, they remained within the acceptable range, confirming that the constructs are conceptually related while maintaining sufficient discriminant validity. In particular, patient satisfaction showed relatively strong correlations

with both service quality and perceived value, reflecting their theoretical relationships without compromising construct distinctiveness. Overall, the Fornell-Larcker assessment confirms that no substantial overlap exists among the constructs, demonstrating that each latent construct measures a conceptually distinct variable within the proposed research model.

Table 3
Cross Loading

	Customer Loyalty	Customer Satisfaction	Perceived Value	Service Quality
CL 1	0.987	0.687	0.649	0.647
CL 2	0.988	0.705	0.679	0.683
CS 1	0.713	0.932	0.814	0.796
CS 2	0.639	0.944	0.808	0.779
CS 3	0.670	0.938	0.865	0.860
CS 4	0.612	0.929	0.806	0.781
PV 1	0.710	0.809	0.915	0.806
PV 2	0.591	0.824	0.937	0.837
PV 3	0.595	0.825	0.936	0.850
PV 4	0.602	0.817	0.933	0.841
SQ 1	0.751	0.672	0.654	0.775
SQ 2	0.532	0.763	0.789	0.899
SQ 3	0.603	0.802	0.857	0.933
SQ 4	0.577	0.817	0.863	0.942
SQ 5	0.550	0.799	0.846	0.929

The cross-loading evaluation for all measurement indicators is presented in Table 3. This test assesses whether each indicator reflects its intended variable more strongly than other constructs in the model (Hair et al., 2021). The results show that all items loaded highest on their assigned construct, showing no major cross-loading issues. Each item captures its designated latent construct accurately and distinctly, so the measurement model meets the discriminant validity standards that are required (Hair et al., 2021).

Table 4
Multicollinearity test VIF

	VIF
Service Quality → Customer Satisfaction	5.061
Service Quality → Customer Loyalty	5.724

Perceived Value → Customer Satisfaction	5.061
Perceived Value → Customer Loyalty	6.616
Customer Satisfaction → Customer Loyalty	5.036

Table 4 reports the VIF values used to evaluate whether multicollinearity was present among the constructs. This diagnostic checks whether excessive correlation among predictor constructs could distort the structural estimations. Following Ghozali (2018), VIF scores below 10 demonstrate that multicollinearity is minimal, with all VIF values in Table 4 fell safely below this cutoff, the model is free from problematic collinearity. This confirms that the predictor variables contribute independent variance to the endogenous constructs, allowing for a stable and confident interpretation of the structural path coefficients (Ghozali, 2018).

Table 5
R Square

	R-square	R-square adjusted
Customer Loyalty	0.516	0.509
Customer Satisfaction	0.801	0.799

Results for the endogenous variables coefficients of determination (R^2) are shown in Table 5. The structural model achieved an R^2 of 0.516 for patient loyalty, indicating a moderate ability to explain changes in loyalty behaviors. Meanwhile, the R^2 score of 0.801 for patient satisfaction demonstrates substantial explanatory power, capturing a major portion of the variance in patient satisfaction. Furthermore, the close alignment between R^2 and adjusted R^2 values highlights the model's structural stability and confirms that the results are not inflated by the number of predictors. Together, these results verify that the proposed model provides a solid and reliable explanation of the target constructs.

Table 6
F Square

	Customer Loyalty	Customer Satisfaction	Perceived Value	Service Quality
Customer Loyalty				
Customer Satisfaction	0.078			
Perceived Value	0.004	0.307		
Service Quality	0.015	0.131		

The f^2 effect size results in Table 6 highlight the differing contribution levels among the model's structural paths. The effect sizes on loyalty were small for both service quality and perceived value when tested as direct predictors. On satisfaction, by contrast, perceived value had a moderate effect and service quality a smaller one. In the structural model, patient satisfaction serves as the central mediating link, because service quality and perceived value affect patient loyalty largely through indirect paths instead of direct ones.

Table 7
Hypothesis Testing Results

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Service Quality → Customer Satisfaction	0.363	0.363	0.093	3.921	0.000
Perceived Value → Customer Satisfaction	0.556	0.555	0.101	5.498	0.000
Service Quality → Customer Loyalty	0.203	0.194	0.167	1.216	0.224
Perceived Value → Customer Loyalty	0.108	0.088	0.179	0.602	0.547
Customer Satisfaction → Customer Loyalty	0.435	0.459	0.138	3.142	0.002
Service Quality → Customer Satisfaction → Customer Loyalty	0.158	0.164	0.059	2.687	0.007
Perceived Value → Customer Satisfaction → Customer Loyalty	0.242	0.259	0.105	2.312	0.021

Table 7 summarizes the outcomes of the hypothesis tests, which were generated through bootstrapping in SmartPLS. A significance threshold of 0.05 was applied to decide which hypotheses were supported, in accordance with the criteria set out by Hair et al. (2021). Service quality demonstrated a statistically significant positive association with patient satisfaction (β = 0.363, p = 0.000), supporting H1. Furthermore, perceived value exerted a substantial, positive, and statistically significant impact on patient satisfaction (β= 0.556, p = 0.000), which supports H2.

Evaluating the direct relationships reveals that neither service quality nor perceived value directly drives patient loyalty. Specifically, the path coefficient linking service quality to patient loyalty did not achieve statistical significance (β= 0.203, p = 0.224), so H3 is not supported. Likewise, perceived value shows no direct effect on patient loyalty (β= 0.108, p = 0.547), resulting in the rejection of H4. In contrast, patient satisfaction significantly and positively impacts patient loyalty (β= 0.435, p = 0.002), providing solid support for H5.
The indirect mediation findings underscore the pivotal role played by patient satisfaction in driving patient retention. First, patient satisfaction significantly mediates service quality's impact on patient loyalty (β= 0.158, p = 0.007), supporting H6. The second indirect path runs

from perceived value to patient loyalty through patient satisfaction. This mediating effect is significant (β = 0.242, p = 0.021), so H7 is confirmed. The results point to one central mechanism. Service quality and perceived value do not affect patient loyalty directly. Their influence is built through patient satisfaction, which must be achieved first (Hair et al., 2021).

Table 8
Q square

	Q²predict
Customer Loyalty	0.471
Customer Satisfaction	0.795

The Stone Geisser Q^2 statistics reported in Table 8 assess the model's ability to predict the target constructs patient satisfaction and patient loyalty. Because all computed Q^2 scores exceeded zero, the structural framework fulfills the requirements for predictive relevance. Specifically, patient satisfaction achieved a high Q^2 a coefficient of 0.795, indicating that service quality and perceived value jointly have strong predictive power. Meanwhile, patient loyalty recorded a Q^2 value of 0.471, demonstrating solid predictive relevance. These results highlight the model's structural integrity and reinforce the vital mediating function of patient satisfaction in converting service perceptions into loyalty.

Discussion

The PLS-SEM analysis reveals that service quality significantly boosts patient satisfaction (β= 0.363, p = 0.000), demonstrating that hospital improvements directly translate into higher patient satisfaction. These results support the findings of Akob et al. (2021) and Nguyen et al. (2021), who both observed a positive link between healthcare service quality and patient satisfaction. Theoretically, when patients experience professional care, clear communication, and well-maintained facilities, they feel valued and well-cared-for, which naturally raises their satisfaction levels (Akob et al., 2021). At Leona General Hospital, Kupang, service quality dimensions, including reliable service procedures, responsiveness, healthcare professionals' empathy, assurance, and adequate physical facilities, represent important factors in shaping patient satisfaction. Accordingly, hospital management should continuously enhance service quality as a primary strategy to boost patient satisfaction.

The results also demonstrate that perceived value significantly boosts patient satisfaction (β = 0.556, p = 0.000), confirming H2. In fact, perceived value was identified as the primary direct determinant of patient satisfaction in this study. This finding directly aligns with Eris (2022), who highlighted that patient satisfaction naturally rises when healthcare services deliver meaningful functional benefits, emotional comfort, and positive social value. Similarly, Baía and Baptista (2020) reported that perceived value makes a significant contribution to patient satisfaction, particularly in increasingly competitive healthcare environments. Akob et al. (2021) likewise reported a substantial positive effect of perceived value on patient satisfaction (β = 0.503), comparable to the present result. In the context of

Leona General Hospital, Kupang, patients' perceived value may be enhanced through transparent medical costs, accessible healthcare services, efficient administrative procedures, comfortable facilities, and effective provider patient communication. These findings suggest that perceived value primarily contributes to the development of patient satisfaction before subsequently influencing patient loyalty.

Results show no statistically significant direct link among service quality and patient loyalty ($\beta = 0.203$, $p = 0.224$), meaning H3 is not supported. This finding diverges from Nguyen et al. (2021) and Fatonah (2019), who established direct paths linking service quality to patient loyalty, but is consistent with Akob et al. (2021), whose model showed that service quality influences loyalty only indirectly, through perceived value and patient satisfaction. For Leona General Hospital in Kupang, these results demonstrate that service excellence does not automatically guarantee patient retention. Rather, loyalty in regional healthcare settings is shaped through intermediary mechanisms like patient satisfaction, as well as practical external factors including hospital proximity, clinical urgency, family recommendations, and physician availability.

Empirical findings demonstrate that perceived value lacks a direct, significant influence on patient loyalty ($\beta = 0.108$, $p = 0.547$), which means H4 is unsupported. This outcome contrasts with Eris (2022), who reported that perceived value affects patient loyalty, and with Akob et al. (2021), who found a significant direct effect of perceived value on loyalty ($\beta = 0.555$). It also differs from Huang et al. (2021), who found that perceived value fosters loyalty through commitment, with trust strengthening this pathway. Within Leona General Hospital, however, perceived value alone does not directly motivate patients to return. Instead, value perceptions must be transformed into positive emotional state and high satisfaction levels before they can successfully cultivate patient loyalty. The difference in findings suggests that, at Leona General Hospital, Kupang, patients' perceptions of value alone may not be sufficient to directly establish patient loyalty. Instead, loyalty may also depend on psychological and emotional factors, including feelings of safety, trust, and overall satisfaction with healthcare services, in addition to patients' evaluations of the value they receive. Consequently, patients may perceive healthcare services as valuable without necessarily developing loyalty if their overall level of satisfaction has not been adequately established.

The statistically non-significant direct effects linking service quality and perceived value as antecedents to patient loyalty, contrasted with their strong indirect pathways, proves that patient satisfaction operates as the central mediating mechanism in this study. These results mirror findings by Mohammed et al. (2022), who showed demonstrating that service quality influences patient loyalty exclusively via the indirect, mediating mechanism of patient satisfaction. Likewise, Layardi et al. (2026) demonstrated that perceived value impacts customer loyalty via an indirect path mediated by satisfaction rather than a direct one. For hospital administrators at Leona General Hospital, Kupang, this underscores that

quality and value interventions will not automatically retain patients unless they successfully raise overall patient satisfaction levels first.

The analysis confirms confirming that patient satisfaction exerts a direct, positive, and statistically significant effect on patient loyalty (β = 0.435, p = 0.002), proving that satisfaction is a critical determinant of patient retention at Leona General Hospital. This finding accords with Liu et al. (2021), who emphasized that higher satisfaction fosters long-term provider-patient relationships, and Zhang et al. (2022), who highlighted satisfaction as the cornerstone of healthcare loyalty. Furthermore, Najmuddin and Tan (2024) demonstrated indicating that satisfied patients demonstrate a significantly higher likelihood of repatronage and positive word-of-mouth recommendations for hospital services. Theoretically, this indicates that loyalty does not occur automatically after receiving care; instead, it is cultivated when patients experience high satisfaction across professional interactions, facility environment, communication clarity, and operational efficiency.

The indirect mediation results confirm that patient satisfaction significantly mediates the link between service quality and patient loyalty (β = 0.158, p = 0.007), supporting H6. This demonstrates that higher service quality strengthens patient loyalty by first raising patient satisfaction. These findings align with Akob et al. (2021), Nguyen et al. (2021), and Vimla and Taneja (2021), all of whom identified service quality as a fundamental driver of loyalty that works through intermediate satisfaction. For Leona General Hospital, Kupang, this mechanism explains why service quality showed no direct effect on loyalty. In practice, high-quality care creates patient retention only when it successfully makes patients feel satisfied with their overall treatment.

The indirect mediation findings also establish that patient satisfaction significantly mediates the link between perceived value and patient loyalty (β = 0.242, p = 0.021), confirming H7. This confirms that perceived value fosters loyalty indirectly via heightened patient satisfaction. These results align with Akob et al. (2021), who found that perceived value influences loyalty indirectly through patient satisfaction (β = 0.145), and with Eris (2022), who found that loyalty depends on patient satisfaction. Huang et al. (2021) identified a related pathway in which perceived value fosters loyalty through commitment, although they did not examine satisfaction. For hospital leadership at Leona General Hospital, Kupang, this clarifies that offering strong value alone is insufficient; that value must actively translate into satisfied patients to achieve patient retention. Furthermore, Zahra et al. (2022) concluded that perceived value consistently influences patient loyalty across various healthcare settings, while patient satisfaction frequently functions as the primary mechanism linking perceived value to loyal behavioral intentions. Therefore, in the context of Leona General Hospital, Kupang, initiatives aimed at enhancing patients' perceived value, such as improving cost transparency, simplifying service procedures, and increasing service efficiency, are likely to strengthen patient loyalty when they first drive higher patient satisfaction.

CONCLUSION

The results show that, at Leona General Hospital in Kupang, patient satisfaction is significantly and positively influenced by both service quality and perceived value. Satisfaction was in turn modeled as the mediator connecting these two variables to patient loyalty. Consequently, improving healthcare service quality and ensuring patients feel they

receive strong functional, emotional, and financial value are key to increasing overall patient satisfaction.

The findings further highlight that patient satisfaction significantly and positively drives patient loyalty. In contrast, neither service quality nor perceived value directly impacted patient loyalty. This demonstrates that high service quality and strong perceived value cannot directly create patient loyalty on their own. Rather, loyalty is built when service quality and perceived value successfully translate into overall patient satisfaction.

Mediation analysis using bootstrapping procedures validates that patient satisfaction operates as a statistically significant intervening mediator in both structural paths from service quality to patient loyalty and from perceived value to patient loyalty. Quality and perceived value lead to patient loyalty chiefly by way of satisfaction, as these findings demonstrate. Neither service quality nor perceived value directly affected patient loyalty to a statistically significant degree. Both, however, influenced loyalty significantly through satisfaction, which means the model reflects full mediation.

Practically, the findings suggest that strategies to strengthen patient loyalty at Leona General Hospital, Kupang, should prioritize enhancing patient satisfaction through continuous improvements in service quality and the creation of greater perceived value. Initiatives such as improving the responsiveness of healthcare professionals, providing clear and accurate information, enhancing the comfort of hospital facilities, and delivering healthcare services that meet patients' expectations are expected to increase patient satisfaction alongside, consequently, build enduring patient loyalty.

Several limitations warrant consideration when interpreting these results. First, the study focused solely on a single facility Leona General Hospital, Kupang limiting the applicability of these findings to broader healthcare environments context-specific healthcare environments to other hospitals or regions. Second, the cross-sectional survey design provides a snapshot in time, preventing the assessment of how patient attitudes and behaviors evolve over time. Third, the structural model examined only four variables: the core constructs of service quality, perceived value, patient satisfaction, and patient loyalty. Future research can build upon this work by surveying multiple hospitals with different administrative structures, applying longitudinal designs, and integrating additional variables such as brand image, patient trust, engagement, and switching costs to yield a more comprehensive view of patient loyalty drivers.

REFERENCES

Akob, M., Yantahin, M., Ilyas, G. B., Hala, Y., & Putra, A. H. P. K. (2021). Element of Marketing: SERVQUAL Toward Patient Loyalty in the Private Hospital Sector. *Journal of Asian Finance, Economics and Business*, *8*(1), 419–430. https://doi.org/10.13106/jafeb.2021.vol8.no1.419

AlOmari, F., & Hamid, A. B. A. (2022). Strategies to improve patient loyalty and medication adherence in Syrian healthcare setting: The mediating role of patient satisfaction. *PLOS ONE*, *17*(11), e0272057. https://doi.org/10.1371/JOURNAL.PONE.0272057

Baía, A., & Baptista, T. (2020). Impact of *Service quality* on Patient Satisfaction: In a Public Hospital in Cap Vert. *European Journal of Business and Management Www.Iiste.Org ISSN*, *12*(27). https://doi.org/10.7176/EJBM/12-27-01

Chang, C. S., Chen, S. Y., & Lan, Y. T. (2013). *Service quality*, trust, and patient satisfaction in interpersonal-based medical service encounters. *BMC Health Services Research 2013 13:1*, *13*(1), 22-. https://doi.org/10.1186/1472-6963-13-22

Eris, H. (2022). The relationship among perceived value, patient loyalty and patient satisfaction in the hospitals. *International Journal of Health Sciences*, *6*(S7), 5376–5391. https://doi.org/10.53730/IJHS.V6NS7.13251

Fatonah, S. (2019). *The Role of Mediation of Customer Satisfaction in Service quality Relationship on Hospital Patient Loyalty in Indonesia*.

Gde, T., & Sukawati, R. (2021). Hospital Brand Image, *Service quality*, and Patient Satisfaction in Pandemic Situation. *JMMR (Jurnal Medicoeticolegal Dan Manajemen Rumah Sakit)*, *10*(2), 103–118. https://doi.org/10.18196/JMMR.V10I2.12230

Ghozali, I. (2018). *Aplikasi analisis multivariate dengan program IBM SPSS 25 edisi ke-9*. http://slims.umn.ac.id/index.php?p=show_detail&id=19545

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R*. Springer International Publishing. https://doi.org/10.1007/978-3-030-80519-7

Harmen, E. L., Semiarty, R., & Lita, R. P. (2020). Model Keterkaitan Persepsi Nilai, Citra Merek, Kepuasan dan Loyalitas Pelanggan Rumah Sakit. *Jurnal Manajemen Dan Kewirausahaan*, *8*(2), 216–225. https://doi.org/10.26905/JMDK.V8I2.5094

Huang, I. C., Du, P. L., Lin, L. S., Liu, T. Y., Lin, T. F., & Huang, W. C. (2021). The Effect of Perceived Value, Trust, and Commitment on Patient Loyalty in Taiwan. *Inquiry (United States)*, *58*. https://doi.org/10.1177/00469580211007217

Kitapci, O., Akdogan, C., & Dortyol, İ. T. (2014). The Impact of *Service quality* Dimensions on Patient Satisfaction, Repurchase Intentions and Word-of-Mouth Communication in the Public Healthcare Industry. *Procedia - Social and Behavioral Sciences*, *148*, 161–169. https://doi.org/10.1016/J.SBSPRO.2014.07.030

Layardi, A. Z., Ebuziyya, M., & Ramadhan, A. (2026). The Influence of Electronic Service ….. 9166 The Influence of Electronic Service Quality and Perceived Value on Customer Loyalty of Vidio.com in Pontianak City Through Satisfaction as an Intervening Variable In *Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE)* (Vol. 9, Number 1).

Liu, S., Li, G., Liu, N., & Hongwei, W. (2021). The Impact of Patient Satisfaction on Patient Loyalty with the Mediating Effect of Patient Trust. *Inquiry (United States)*, *58*. https://doi.org/10.1177/00469580211007221;WGROUP:STRING:PUBLICATION

Mohammed, Z. M., Haji, S. L., & Qadar, A. N. (2022). The Mediation Effect of Customer Satisfaction on The Relationship Between Service Marketing Mix, Service Orientation, and The *Service quality* and Customer Loyalty: *Polytechnic Journal of Humanities and Social Sciences*, *3*(2), 155–163. https://doi.org/10.25156/ptjhss.v3n2y2022.pp155-163

Najmuddin, M. D., & Tan, P. H. P. (2024). The Antecedents of Satisfaction and Its Impact on Loyalty in Inpatient Care: A Study at XYZ Hospital CIREBON). *EKUITAS (Jurnal Ekonomi Dan Keuangan)*, *8*(1), 85–104. https://doi.org/10.24034/J25485024.Y2024.V8.I1.5954

Nguyen, N. X., Tran, K., & Nguyen, T. A. (2021). Impact of *service quality* on in-patients' satisfaction, perceived value, and customer loyalty: A mixed-methods study from a developing country. *Patient Preference and Adherence*, *15*, 2523–2538. https://doi.org/10.2147/PPA.S333586

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. In *Journal of Marketing Research* (Vol. 17).

Vimla, V., & Taneja, U. (2021). Brand image to loyalty through perceived *service quality* and patient satisfaction: A conceptual framework. *Health Services Management Research*, *34*(4), 250–257. https://doi.org/10.1177/0951484820962303

Zahra, S. A., Farida, N., & Arso, S. P. (2022). Perceived Value and Trust Towards Patient Loyalty: A Literature Review. *Medical Technology and Public Health Journal*, *6*(1), 39–50. https://doi.org/10.33086/MTPHJ.V6I1.3214

Zhang, L., Zhang, Q., Li, X., Shao, W., Ma, J., Zhang, R., Zhou, A., & Li, J. (2022). The effect of patient perceived involvement on patient loyalty in primary care: The mediating role of patient satisfaction and the moderating role of the family doctor contract service. *The International Journal of Health Planning and Management*, *37*(2), 734–754. https://doi.org/10.1002/hpm.3355

Zhou, W. J., Wan, Q. Q., Liu, C. Y., Feng, X. L., & Shang, S. M. (2017). Determinants of patient loyalty to healthcare providers: An integrative review. *International Journal for Quality in Health Care*, *29*(4), 442–449. https://doi.org/10.1093/INTQHC/MZX058