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Analysis of the Influence of Service Quality and Trust on Patient Loyalty in Diabetic Wound Care Services: A Case Study at Rumat

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Abstract

Diabetic wound care represents a long-term, high-risk service that requires continuous patient engagement to prevent severe complications such as infection and amputation. RUMAT, a diabetic wound care provider in Indonesia, faces a substantial challenge: a significant mismatch between a large market potential and its market share, compounded by a 37.91% patient dropout rate before treatment completion, predominantly after the third visit. This study analyzed the influence of service quality and trust on patient satisfaction, and the subsequent effect of satisfaction on patient loyalty, to inform patient retention strategies. Primary data were collected via a five-point Likert questionnaire from 134 active or former RUMAT patients, with a minimum of two visits, in the Jabodetabek and Bandung areas, selected through purposive sampling. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS, evaluating both measurement and structural models through path coefficients, R^2, effect size, and mediation analysis. All five proposed hypotheses were supported. Service Quality strongly influenced Satisfaction ($\beta = 0.672$; $f^2 = 0.485$), while Trust had a smaller, yet significant, effect ($\beta = 0.282$; $f^2 = 0.085$). Satisfaction significantly influenced Loyalty ($\beta = 0.435$), fully mediating the effects of both Service Quality and Trust, whose direct paths to Loyalty were insignificant. The model explained 88.6% of the variance in Satisfaction and 77.5% of the variance in Loyalty, with a Goodness of Fit of 0.8114, indicating strong model fit. These findings provide an empirical basis for RUMAT to prioritize service quality improvements, enhance transparency, and implement targeted dropout-prevention strategies.

INTRODUCTION

Diabetes mellitus has emerged as one of the most formidable global public health challenges of the twenty-first century, with its prevalence escalating at an unprecedented rate across all socioeconomic strata. According to the International Diabetes Federation (IDF) Diabetes Atlas (11th edition), approximately 589 million adults worldwide were living with diabetes in 2024, representing 11.1% of the global adult population, a figure projected to surge to 853 million individuals, or 13.0% of the adult population, by 2050s. Of even greater concern, the IDF highlights that roughly 42.8% of adults with diabetes globally remain undiagnosed, significantly predisposing them to delayed medical intervention and the subsequent development of severe, life-threatening complications. This epidemiological trajectory not only compromises individual quality of life but also imposes an immense and growing burden on healthcare systems, particularly in low- and middle-income countries where resources for

early detection and chronic disease management are severely constrained (Heymann et al., 2015; Minja et al., 2022).

Indonesia mirrors and, in some respects, exacerbates this global trend, presenting a national diabetes profile that is equally alarming. In 2024, Indonesia ranked fifth globally in the number of adults living with diabetes, with an estimated 20.4 million cases, and ranked third worldwide in undiagnosed diabetes cases, with approximately 14.95 million adults, or 73.2% of the diabetic population, unaware of their condition. This extraordinarily high proportion of undiagnosed cases directly contributes to an estimated 131,644 diabetes-related deaths in Indonesia, primarily attributable to advanced complications resulting from delayed diagnosis and treatment. Among the various complications, diabetic foot ulcers and chronic diabetic wounds represent one of the most debilitating and difficult-to-manage conditions, with data from the Basic Health Research (Riskesdas) indicating that approximately 15% of individuals with diabetes in Indonesia experience wound-related complications that significantly diminish quality of life and elevate the risks of infection, lower-limb amputation, prolonged disability, and premature mortality. With an estimated 2.9 million individuals currently suffering from diabetic wounds, Indonesia constitutes a vast and expanding market for diabetic wound care services; however, the effectiveness of these services is critically contingent upon continuity of care and sustained patient engagement throughout the protracted treatment journey.

RUMAT, operating under PT Rumah Perawatan Indonesia since 2010, stands as a distinguished provider of diabetic wound care services, distinguished by its specialized service focus, continuous care model, and an extensive network comprising 152 clinic units complemented by comprehensive home care services spanning the Indonesian archipelago. Despite serving 42,623 patients by the end of 2024, this figure represents merely 1.46% of Indonesia's estimated diabetic wound care market, indicating a paradoxically low market penetration rate in the face of substantial market potential. More critically, internal company data reveals that 37.91% of patients discontinue treatment before wound resolution, with the majority of attrition occurring after the third visit, signifying a concerningly high dropout rate at the nascent stages of the treatment trajectory. This phenomenon is further compounded by the demographic profile of patients, predominantly aged between 40 and 70 years, wherein treatment adherence frequently poses a formidable challenge due to factors such as forgetfulness, non-compliance with prescribed protocols, and difficulties in comprehending complex medical information.

Previous scholarly inquiries have extensively investigated the interrelationships among service quality, trust, satisfaction, and loyalty across various healthcare contexts. Purnamaningsih (2024) demonstrated that perceived service quality and patient satisfaction serve as essential determinants of patient loyalty in hospital settings, although trust did not exert a significant direct influence on loyalty. Similarly, research conducted at a military hospital by the Indonesian Army Health Center (2025) revealed that service quality, innovation strategies, and communication competence positively influence patient loyalty, with trust functioning as a mediating variable in the service quality-loyalty nexus. In the specific domain of diabetic wound care, Ramadhanti et al. (2025) at RUMAT Malang highlighted the critical role of family support in promoting patient compliance, finding that 76.25% of respondents with adequate family support demonstrated adherence to diabetic wound care protocols.

Qualitative studies in podiatry clinics have similarly found that patients experience greater confidence in their treatment when they trust their podiatrist, a trust cultivated through consistency of healthcare providers and rigorous hygiene standards. Furthermore, research on outpatient services at Eka Hospital by Kelana et al. (2025) established that service quality is closely associated with patient satisfaction, which subsequently drives loyalty, though this study did not specifically address the long-term care context characterized by high dropout risks. Sahil et al. (2025) at Rumah Sakit Islam Siaga Al Munawwarah further found that service quality was the most dominant variable influencing patient loyalty (POR = 10.271), suggesting the necessity of integrating spiritual values into healthcare quality improvement initiatives. Despite these valuable contributions, a conspicuous research gap persists in the empirical understanding of the mediating mechanisms through which service quality and trust influence loyalty, particularly within the specialized, long-term care context of diabetic wound management.

While prior studies have furnished foundational insights, several critical research gaps remain unaddressed, particularly concerning the specific context of diabetic wound care services in Indonesia. First, most existing investigations have been conducted in general hospital settings or primary care facilities, whose service characteristics, patient profiles, and care trajectories differ substantially from those of specialized, long-term wound care providers. Second, the unique nature of diabetic wound care, characterized by repeated visits, extended treatment duration, elevated medical risk, and substantial emotional involvement of patients and their families, necessitates a context-specific analytical framework that cannot be adequately extrapolated from general healthcare studies. Third, the alarming 37.91% patient dropout rate observed at RUMAT, predominantly concentrated after the third visit, represents a phenomenon that conventional loyalty frameworks, which typically assume continued service utilization, do not adequately explain or address. Fourth, existing studies have yielded inconsistent findings regarding the mediating role of satisfaction; while some research has identified satisfaction as a partial mediator, others have found direct effects that challenge the comprehensiveness of satisfaction as the primary mechanism linking quality and trust to loyalty. This inconsistency underscores the need for a more rigorous empirical examination within a context that fully captures the complexities of long-term diabetic wound care. Fifth, the methodological treatment of satisfaction as a reflective construct in previous research may have obscured the nuanced, multidimensional nature of patient satisfaction, which, as a composite evaluative summary, is more appropriately specified as a formative construct comprising distinct experiential dimensions. These gaps collectively establish the imperative for an empirical investigation specifically tailored to the diabetic wound care context.

The urgency of this research is underscored by the profound clinical, economic, and social consequences of unmanaged diabetic wounds, which can culminate in irreversible disability, amputation, and mortality, exacting a devastating toll on patients, families, and the broader healthcare system. With Indonesia confronting a rapidly escalating diabetes epidemic coupled with an exceptionally high proportion of undiagnosed cases, the demand for effective, accessible, and continuous diabetic wound care services is poised to escalate dramatically in the coming years. Without a systematic empirical understanding of the factors that drive patient loyalty and treatment adherence, providers such as RUMAT will continue to grapple with persistently low market penetration and alarmingly high dropout rates, ultimately failing to

serve a substantial proportion of the population in urgent need of specialized care. This research is therefore both timely and necessary, as it addresses a pressing business problem with direct implications for patient outcomes and healthcare sustainability. From an academic perspective, this study fills a conspicuous lacuna in the literature by extending the application of the SERVQUAL framework and relationship marketing theories to a specialized, long-term healthcare setting within a developing country context, an area that has received scant empirical attention to date.

The novelty of this research is threefold, encompassing contextual, methodological, and substantive dimensions that collectively distinguish it from previous investigations. Contextually, this study is among the first to systematically integrate service quality, trust, satisfaction, and loyalty within the specific domain of diabetic wound care services in Indonesia, a context characterized by high medical risk, extended treatment duration, and significant patient dropout. Methodologically, this research employs Partial Least Squares Structural Equation Modeling (PLS-SEM) with satisfaction specified as a formative construct, a theoretically appropriate approach that captures the multidimensional evaluative nature of patient satisfaction as a composite of distinct experiential components, thereby addressing the discriminant validity issues that have plagued previous studies employing reflective specifications. Substantively, this study proposes and empirically tests a full mediation model wherein satisfaction completely mediates the effects of both service quality and trust on loyalty, a proposition that, if confirmed, would offer unique insights into the mechanisms through which healthcare providers can effectively convert quality perceptions and trust into sustained behavioral loyalty. This stands in contrast to the partial mediation or direct effect findings reported in many previous healthcare studies and would significantly refine theoretical understanding of the loyalty formation process in long-term care settings. Additionally, the study's focus on addressing the specific business challenge of patient dropout provides a practical orientation that enhances its applied relevance and potential for immediate managerial impact.

In alignment with the identified research gaps and urgency, this study addresses two primary research questions: (1) how do service quality and trust influence patient satisfaction in diabetic wound care services, and (2) how does satisfaction influence patient loyalty in diabetic wound care services. Correspondingly, the objectives of this research are to analyze the influence of service quality and trust on patient satisfaction and to analyze the influence of satisfaction on patient loyalty within the context of diabetic wound care at RUMAT. The theoretical contribution of this study lies in extending and refining the application of established service marketing theories—specifically the SERVQUAL model and commitment-trust theory—to a specialized, long-term healthcare context that has received limited empirical scrutiny. By positioning satisfaction as a full mediator, this research also contributes to the ongoing theoretical discourse on the mechanisms underlying loyalty formation in credence-based services. The practical contributions are equally significant, providing RUMAT's management with empirically grounded evidence to formulate targeted business solutions, including the prioritization of specific service quality dimensions, the institutionalization of transparent communication practices, and the implementation of proactive, early-warning dropout prevention programs. Ultimately, by addressing the critical factors that influence patient loyalty and treatment adherence, this research aims to contribute to improved clinical

outcomes and enhanced sustainability of diabetic wound care services in Indonesia, thereby addressing a pressing public health need.

METHOD

Research Design

This study followed a four-stage quantitative research design. The first stage identified the business issue faced by RUMAT, namely low market penetration relative to a large market potential for diabetic wound care services, together with a high rate of patients discontinuing treatment before recovery (37.91%, mostly after the third visit), from which research questions and objectives were formulated. The second stage reviewed relevant theories and previous research, including the SERVQUAL model of service quality (Parasuraman et al., 1988), trust models (Mayer et al., 1995; Hall et al., 2001), and the concepts of satisfaction and loyalty (Oliver, 1980, 1999), leading to the conceptual framework and hypotheses. The third stage involved developing a questionnaire instrument based on the operationalized variables and collecting data from RUMAT patients meeting the research criteria; the collected data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The fourth stage used the results of the data analysis to identify the most dominant factors influencing patient loyalty and to formulate business solutions and implementation recommendations aimed at increasing patient retention and sustainable service utilization. The stages of the research design are summarized in Table 1.

Table 1. Research Design Stages

Stage	Description
1	Problem identification: formulation of the business issue (low market penetration and 37.91% patient dropout rate) and the research questions and objectives.
2	Literature review: review of service quality, trust, satisfaction, and loyalty theories; development of the conceptual framework and hypotheses.
3	Data collection and methodology: questionnaire development, purposive sampling of RUMAT patients, and analysis using PLS-SEM.
4	Analysis and solution formulation: identification of dominant factors influencing loyalty and formulation of business solutions and implementation recommendations.

Source: Author's analysis, 2026.

Data Collection

This study used primary data obtained directly from respondents through a structured questionnaire, chosen because the primary objective was to measure patient perceptions of service quality, trust, satisfaction, and loyalty based on their actual experience during diabetic wound care at RUMAT.

Population, Sample, and Sampling Technique

The population of this study comprised all patients who had used diabetic wound care services at RUMAT, encompassing diverse characteristics and backgrounds. The sample was selected using purposive sampling, a non-probability sampling technique appropriate when researchers require respondents with specific characteristics relevant to the research objectives (Sekaran & Bougie, 2016); Hair et al. (2019) note that PLS-SEM does not require probability sampling as long as the sample is conceptually relevant and of adequate size. Respondents were

required to have undergone at least two visits to RUMAT's diabetic wound care service (since evaluations of service quality and satisfaction are post-consumption; Parasuraman et al., 1988; Oliver, 1980), to be at least 18 years old, and to be willing to complete the questionnaire voluntarily.

The minimum sample size was determined using statistical power analysis in G*Power 3.1.9.7, following the recommendation of Hair et al. (2017) for PLS-SEM, based on a significance level (α) of 0.05, statistical power ($1 - \beta$) of 0.80, a medium effect size ($f^2 = 0.15$; Cohen, 1988, 1992), and two predictors (reflecting the most complex point of the model, where Customer Satisfaction is predicted by Service Quality and Trust). This calculation yielded a minimum required sample size of 68 respondents. Considering empirical precedents from comparable healthcare studies, which used samples exceeding 100 respondents to capture the complexity of patient perceptions more stably (Fatima et al., 2018; Hidayat et al., 2016), and to increase estimation precision and anticipate invalid responses, the researcher targeted 134 respondents, all of whom were active or former patients of RUMAT diabetic wound care services located in the Jabodetabek area (Jakarta, Bogor, Depok, Tangerang, Bekasi) and Bandung, representing RUMAT's two primary operational clusters.

Research Instrument and Operationalization of Variables

The data collection instrument was a structured questionnaire developed based on the operationalization of the variables formulated in the literature review, with all items adapted from previously validated research instruments and adjusted to the context of diabetic wound care services. The questionnaire used a five-point Likert scale (1 = strongly disagree to 5 = strongly agree), enabling respondents to express their level of agreement with each statement. Service quality, being a reflective construct, was measured through ten items across five SERVQUAL dimensions (Table 3). Customer Satisfaction, specified as a formative construct, was measured through four dimensions reflecting distinct evaluative components of the care experience (Table 4). Trust was measured through five items across five dimensions (Table 5), and Patient Loyalty through five items across five dimensions integrating Oliver's (1999) attitudinal stages with the behavioral consequences framework of Zeithaml et al. (1996) (Table 6).

Table 2. Operationalization of the Service Quality Variable

Dimension	Indicator	Questionnaire Item
Tangibles	Facility condition	The wound care facilities at RUMAT are clean and comfortable.
Tangibles	Equipment adequacy	The medical equipment used appears modern and adequate.
Reliability	Service consistency	The wound care services I receive are consistently provided as scheduled.
Reliability	Accuracy of treatment	The wound care procedures are performed accurately according to my condition.
Responsiveness	Service promptness	RUMAT's medical staff respond promptly to my needs.
Responsiveness	Willingness to help	Nurses are willing and quick to assist when I experience complaints.

Dimension	Indicator	Questionnaire Item
Assurance	Sense of safety	I feel safe while undergoing wound care treatment at RUMAT.
Assurance	Staff competence	RUMAT's nurses appear professional and competent.
Empathy	Personal attention	Nurses provide sincere personal attention to my condition.
Empathy	Understanding patient needs	Nurses understand my needs and concerns.

Source: Parasuraman et al. (1988); Dagger et al. (2007); Andaleeb (2001); Khan et al. (2024).

Table 3. Operationalization of the Customer Satisfaction Variable (Formative)

Dimension	Indicator	Questionnaire Item
Interpersonal Evaluation	Satisfaction with staff interaction	I am satisfied with how the medical staff treat me during the wound care process.
Technical Outcome Evaluation	Satisfaction with treatment outcome	I am satisfied with the progress of my wound healing.
Process Evaluation	Satisfaction with care process	I am satisfied with the overall wound care process at RUMAT.
Overall Satisfaction	Overall evaluation	Overall, I am satisfied with the diabetic wound care services provided by RUMAT.

Source: Batbaatar et al. (2017); Alrubaiee & Alkaa'ida (2011); Oliver (1999).

Table 4. Operationalization of the Trust Variable

Dimension	Indicator	Questionnaire Item
Ability	Medical staff competence	I believe that RUMAT's nurses have good professional competence.
Benevolence	Benevolent intention	I believe that RUMAT genuinely cares about my health.
Integrity	Honesty	RUMAT's nurses are always honest in explaining my wound condition.
Fidelity	Patient-oriented interest	RUMAT's medical staff prioritizes patients' best interests.
Confidentiality	Data confidentiality	I trust that my medical data are kept confidential.

Source: Mayer et al. (1995); Hall et al. (2001).

Table 5. Operationalization of the Patient Loyalty Variable

Dimension	Indicator	Questionnaire Item
Cognitive Loyalty	Rational preference	I choose RUMAT because of the quality of its services.
Affective Loyalty	Emotional attachment	I feel comfortable and emotionally attached to RUMAT.
Behavioral Loyalty	Repurchase intention	I intend to continue receiving diabetic wound care services at RUMAT.
Behavioral Loyalty	Recommendation intention	I am willing to recommend RUMAT to others.
Behavioral Loyalty	Resistance to competitors	I am not easily tempted to switch to other healthcare service providers.

Source: Oliver (1999); Dick & Basu (1994); Zeithaml et al. (1996).

Data Analysis

Data were analyzed using a quantitative approach through Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software. PLS-SEM was selected because the research objectives are predictive, involve latent variables measured with multiple indicators, and require testing the role of a mediating variable. The analysis proceeded through three stages. First, descriptive analysis characterized the demographic profile of respondents (age, gender, and visit frequency) through frequency and percentage distributions. Second, the measurement (outer) model was evaluated: for the reflective constructs (Service Quality, Trust, and Patient Loyalty), convergent validity was assessed through outer loadings (> 0.70) and Average Variance Extracted (AVE > 0.50), internal consistency through Cronbach's Alpha (> 0.60) and Composite Reliability (> 0.70), and discriminant validity through the Heterotrait-Monotrait Ratio (HTMT < 0.90); for the formative construct (Customer Satisfaction), collinearity was assessed through the Variance Inflation Factor (VIF < 5), and indicator significance and relevance through bootstrapped outer weights, with indicators retained if the outer loading exceeded 0.50 and was supported by theoretical justification (Hair et al., 2017). Third, the structural (inner) model was evaluated through the coefficient of determination (R^2), path coefficients (β), bootstrapped significance testing (hypotheses accepted at $p < 0.05$), and mediation analysis of the specific indirect effects of Service Quality and Trust on Patient Loyalty through Customer Satisfaction.

RESULTS AND DISCUSSION

Respondent Profile

Data were collected from 134 respondents who were active or former patients of RUMAT's diabetic wound care services in the Jabodetabek and Bandung areas. The demographic profile of the respondents is presented in Table 6, revealing several noteworthy characteristics that contextualize the subsequent analyses. Respondents were predominantly male (51.49%), with the largest age group falling within the 51–60 years range (38.81%), followed by patients over 60 years of age (22.39%). This demographic distribution is consistent with the epidemiological literature indicating higher prevalence of diabetic wound complications among middle-aged to elderly populations, reflecting the natural history of diabetes mellitus where microvascular and macrovascular complications typically manifest after prolonged disease duration.

Table 6. Respondent Demographic Profile (N = 134)

Demographic Category	Frequency (N)	Percentage (%)
Gender		
Male	69	51.49
Female	65	48.51
Age Group		
18 – 30 years	8	5.97
31 – 40 years	15	11.19
41 – 50 years	29	21.64

Demographic Category	Frequency (N)	Percentage (%)
51 – 60 years	52	38.81
> 60 years	30	22.39
Visit Frequency		
2 – 3 visits	21	15.67
4 – 6 visits	10	7.46
More than 6 visits	103	76.87
Total	**134**	**100.00**

Source: Primary Data, 2026.

The predominance of older adults in the sample also underscores the clinical reality that diabetic wounds disproportionately affect individuals with long-standing diabetes, comorbid conditions, and age-related physiological changes that impair wound healing capacity. Notably, 76.87% of respondents had made more than six visits, indicating that the majority possessed substantial service experience to provide valid, nuanced evaluations of service quality, trust, satisfaction, and loyalty. This high frequency of repeat visits among the sample is an important contextual factor, suggesting that the respondents represent a segment of patients who have demonstrated initial loyalty and commitment to RUMAT's services, despite the broader organizational challenge of a 37.91% patient dropout rate. The demographic profile aligns with studies conducted at other RUMAT branches, which have similarly focused on patients with chronic wound care needs and identified comparable age and gender distributions.

Measurement Model Evaluation

Measurement model evaluation was conducted to assess the reliability and validity of the reflective constructs (Service Quality, Trust, and Patient Loyalty). Indicator reliability was examined through outer loadings, for which the acceptable threshold is 0.70, while internal consistency and convergent validity were assessed through Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE), summarized in Table 7.

Table 7. Measurement Model: Construct Reliability and Validity (Reflective Constructs)

Construct	Items	Cronbach's α	Composite Reliability	AVE
Service Quality	10	0.965	0.967	0.762
Trust	5	0.947	0.948	0.824
Customer Satisfaction	4	N/A (formative)	N/A (formative)	N/A (formative)
Patient Loyalty	5	0.911	0.914	0.738
Threshold		**> 0.60**	**> 0.70**	**> 0.50**

Source: Primary Data, processed using SmartPLS 4.0, 2026.

All three reflectively measured constructs exceed the recommended thresholds: Cronbach's Alpha ranges from 0.911 to 0.965 (excellent internal consistency), Composite Reliability from 0.914 to 0.967 (strong construct reliability), and AVE from 0.738 to 0.824

(adequate convergent validity). Customer Satisfaction, being formatively specified, was instead evaluated through outer weights and VIF (Table 10). Outer loadings for all reflective indicators, presented in Table 8, range from 0.716 to 0.935, all exceeding the 0.70 threshold (Hair et al., 2017).

Table 8. Outer Model Loadings of Reflective Indicators

Construct	Item	Indicator	Dimension	Loading
Service Quality	SQ1	Facility condition	Tangibles	0.716
	SQ2	Equipment adequacy	Tangibles	**0.927**
	SQ3	Service consistency	Reliability	0.841
	SQ4	Accuracy of treatment	Reliability	0.865
	SQ5	Service promptness	Responsiveness	0.911
	SQ6	Willingness to help	Responsiveness	0.859
	SQ7	Sense of safety	Assurance	0.892
	SQ8	Staff competence	Assurance	0.875
	SQ9	Personal attention	Empathy	**0.924**
	SQ10	Understanding patient needs	Empathy	**0.927**
Trust	TR1	Medical staff competence	Ability	0.897
	TR2	Benevolent intention	Benevolence	0.919
	TR3	Honesty	Integrity	**0.935**
	TR4	Patient-oriented interest	Fidelity	0.916
	TR5	Data confidentiality	Confidentiality	0.872
Patient Loyalty	LY1	Rational preference	Cognitive	0.885
	LY2	Emotional attachment	Affective	0.875
	LY3	Repurchase intention	Conative	0.807
	LY4	Recommendation intention	Advocacy	0.846
	LY5	Resistance to competitors	Resistance	0.881

Source: Primary Data, processed using SmartPLS 4.0, 2026.

The highest loadings are observed for TR3 (0.935 – honest explanation of wound condition), followed by SQ2 and SQ10 (0.927 each – equipment adequacy and understanding of patient concerns) and SQ9 (0.924 – genuine attention). These findings indicate that patients particularly value equipment quality, transparency, and empathetic understanding from RUMAT's nursing staff.

Table 9. Formative Construct Assessment: Customer Satisfaction

Indicator	Outer Weight	t-statistic	p-value	VIF	Outer Loading
CS1 (Interpersonal)	0.389	5.364	0.000	3.767	0.921
CS2 (Process)	0.205	2.680	0.007	4.248	0.925
CS3 (Outcome)	0.154	2.259	0.024	3.839	0.918

Indicator	Outer Weight	t-statistic	p-value	VIF	Outer Loading
CS4 (Overall)	0.326	3.409	0.001	5.158	0.943

Source: Primary Data, processed using SmartPLS 4.0, 2026.

All Customer Satisfaction indicators show statistically significant outer weights ($p < 0.05$), ranging from 0.154 (CS3) to 0.389 (CS1); CS1 (interpersonal satisfaction) contributes most strongly to overall satisfaction, followed by CS4 (overall evaluation). VIF values are within the acceptable range for three indicators, with CS4 slightly exceeding the conservative threshold of 5 (VIF = 5.158) but remaining below the more lenient threshold of 10, and is retained given its theoretical importance as a global evaluative indicator of satisfaction.

Table 10. Discriminant Validity: Heterotrait-Monotrait Ratio (HTMT)

	Patient Loyalty	Service Quality	Trust
Patient Loyalty			
Service Quality	0.912		
Trust	0.915	0.979	

Source: Primary Data, processed using SmartPLS 4.0, 2026.

The Loyalty–Service Quality (0.912) and Loyalty–Trust (0.915) pairs are slightly above the conservative HTMT threshold of 0.90, while the Service Quality–Trust pair shows an HTMT of 0.979, well above the threshold (Henseler et al., 2015), reflecting the conceptual overlap between service quality and trust in healthcare, where perceptions of provider quality and competence are closely intertwined (Mayer et al., 1995). In the initial, fully reflective specification, HTMT values involving Customer Satisfaction also exceeded the recommended threshold (Service Quality–Satisfaction = 0.975; Trust–Satisfaction = 0.962), indicating that satisfaction could not be empirically distinguished from its antecedents when modeled reflectively. To address this discriminant-validity issue while retaining all theoretically important constructs, Customer Satisfaction was respecified as a formative construct, consistent with its theoretical nature as a composite evaluative summary formed by distinct experience dimensions (Oliver, 1997; Aharony & Strasser, 1993) rather than a unidimensional attitude reflected by interchangeable indicators. The remaining Service Quality–Trust overlap (0.979) is retained and acknowledged as reflecting the conceptual intertwining of quality and trust perceptions in healthcare settings (Mayer et al., 1995).

Structural Model Evaluation and Hypothesis Testing

After confirming that the measurement model meets reliability and validity criteria, the structural model was evaluated to test the five hypotheses. The path coefficient (β) indicates the strength and direction of influence among constructs, while bootstrapped t-statistics and p-values determine statistical significance; indirect effects were evaluated through bias-corrected 95% confidence intervals. The complete results are summarized in Table 11.

Table 11. Structural Model: Path Coefficients, Indirect Effects, and Hypothesis Testing

H#	Relationship	β / Indirect Effect	t-stat / 95% CI	p-value	Decision
H1	Service Quality → Satisfaction	0.672	6.828	<0.001	Accepted
H2	Trust → Satisfaction	0.282	2.754	0.006	Accepted
H3	Satisfaction → Loyalty	0.435	2.730	0.006	Accepted
H4	Service Quality → Satisfaction → Loyalty (indirect)	0.292	[0.010, 0.524]	0.016	Accepted
H5	Trust → Satisfaction → Loyalty (indirect)	0.123	[0.004, 0.252]	0.047	Accepted
	Service Quality → Loyalty (direct)	0.188	0.872	0.383	Not significant
	Trust → Loyalty (direct)	0.279	1.480	0.139	Not significant

Source: Primary Data, processed using SmartPLS 4.0, 2026.

The relationship between Service Quality and Satisfaction is the strongest in the model (β = 0.672, t = 6.828, p < 0.001), indicating that Service Quality is the primary driver of patient satisfaction at RUMAT: every one-unit increase in Service Quality perception is associated with a 0.672-unit increase in Customer Satisfaction. Within the Service Quality construct, the highest-loading indicators are equipment adequacy (SQ2), understanding of patient concerns (SQ10), and genuine attention (SQ9), indicating that patients in diabetic wound care particularly value modern equipment and empathetic, understanding care from nursing staff. This finding is consistent with Fatima et al. (2018), who similarly found service quality to be the primary driver of patient satisfaction in private healthcare settings; the comparatively strong path coefficient observed here may reflect the specialized, high-risk nature of diabetic wound care, where patients are especially sensitive to every aspect of service delivery.

The relationship between Trust and Satisfaction is positive and statistically significant (β = 0.282, t = 2.754, p = 0.006), but substantially weaker than Service Quality, approximately half its magnitude, suggesting that patients in this context prioritize clinical competence and reliable service delivery over interpersonal trust factors. Within the Trust construct, honest explanation of wound condition (TR3, loading = 0.935) is the single highest-loading item in the entire model, indicating that transparent, honest communication about the patient's wound status is the most important trust factor, likely reflecting patients' concern about complications and their desire for clear, honest information about their condition and prognosis. This finding parallels Hidayat et al. (2016), who reported trust as a significant positive antecedent of satisfaction in a credence-based banking context, suggesting that trust operates as a supporting rather than dominant driver of satisfaction across different service industries.

The relationship between Satisfaction and Patient Loyalty is positive and significant (β = 0.435, t = 2.730, p = 0.006), the second strongest relationship in the model, confirming satisfaction as a critical bridge between quality perceptions and behavioral loyalty. Notably, the direct paths from Service Quality to Loyalty (β = 0.188, p = 0.383) and from Trust to Loyalty (β = 0.279, p = 0.139) are not statistically significant, while both indirect paths through Satisfaction are significant (Service Quality: indirect effect = 0.292, p = 0.016; Trust: indirect

effect = 0.123, p = 0.047). This indicates that Customer Satisfaction fully mediates the effect of both Service Quality and Trust on Patient Loyalty. This mediation pattern is consistent with Fatima et al. (2018), who confirmed satisfaction as the key mediating mechanism between service quality and loyalty in healthcare, and with Hidayat et al. (2016), who similarly found satisfaction to be the central bridge between quality, trust, and loyalty in credence-based services, reinforcing the position that behavioral loyalty in long-term service relationships is built through emotional satisfaction experiences rather than quality or trust perceptions alone.

Model Explanatory Power, Fit, and Effect Size

Table 12. Coefficient of Determination (R^2) and Model Fit

Measure	Value	Benchmark	Interpretation
R^2 Customer Satisfaction	0.886	–	Explains 88.6% of variance
R^2 Patient Loyalty	0.775	–	Explains 77.5% of variance
SRMR	0.043	< 0.08	Excellent fit
NFI	0.840	> 0.80	Excellent fit
GoF (Goodness of Fit)	0.8114	> 0.36 (large)	Exceptional

Source: Primary Data, processed using SmartPLS 4.0, 2026.

The R^2 of 0.886 for Customer Satisfaction indicates that Service Quality and Trust together explain 88.6% of the variance in patient satisfaction, and the R^2 of 0.775 for Patient Loyalty indicates that 77.5% of loyalty variance is explained by the model, with the remaining 22.5% attributable to factors outside the model, such as pricing, clinic accessibility, and referral patterns. The GoF index of 0.8114 far exceeds the 0.36 threshold for a large effect, indicating exceptional overall model performance.

Table 13. Effect Size (f^2)

Relationship	f^2 Value	Magnitude	Implication
Service Quality → Satisfaction	0.485	Very large	Priority #1
Trust → Satisfaction	0.085	Small	Supporting factor
Satisfaction → Loyalty	0.096	Small	Critical bridge
Service Quality → Loyalty (direct)	0.013	Small	Mostly mediated
Trust → Loyalty (direct)	0.039	Small	Mostly mediated

Source: Primary Data, processed using SmartPLS 4.0, 2026.

Service Quality shows a very large effect size on Customer Satisfaction ($f^2 = 0.485$), substantially exceeding the 0.35 threshold for a large effect (Cohen, 1988), confirming that Service Quality is the dominant factor and should receive the highest priority in improvement initiatives, while Trust and the remaining relationships show small effect sizes, indicating that their influence, while statistically significant, is comparatively modest and largely channeled through the mediating role of Satisfaction. All five hypotheses proposed in this study are

therefore empirically supported: Service Quality is the dominant driver of satisfaction, Customer Satisfaction is the critical bridge to loyalty, Trust plays a supporting role, and the mediation analysis confirms that satisfaction is the key mechanism converting both quality and trust perceptions into behavioral loyalty.

Managerial Implications

Building directly on the empirical findings, four integrated managerial initiatives are identified as priorities for RUMAT in addressing its core business issue, the 37.91% patient dropout rate, each grounded in the specific leverage points identified by the path coefficients, effect sizes, and item loadings, and consistent with established service-marketing and healthcare literature: empathetic communication and interpersonal-quality improvement (Dagger et al., 2007; Brady & Cronin, 2001), structured patient engagement and follow-up to support treatment adherence (Naidu, 2009), transparency and visible service assurance (Parasuraman et al., 1988), and relationship-based dropout prevention grounded in commitment-trust theory (Morgan & Hunt, 1994). These priorities are summarized in Table 14.

Table 14. Summary of Priority Managerial Implications

Priority Area	Empirical Basis	Key Focus
Service quality excellence	$\beta = 0.672$ (strongest path); $f^2 = 0.485$ (very large)	Strengthen empathy, equipment quality, assurance, responsiveness, and reliability of care, the dimensions most valued by patients (SQ2, SQ9, SQ10).
Customer satisfaction management	$\beta = 0.435$ (Satisfaction → Loyalty); full mediation of Service Quality's effect on Loyalty	Systematically monitor and manage interpersonal, process, outcome, and overall satisfaction throughout the care journey.
Transparency and trust-building	TR3 highest loading in the model (0.935)	Institutionalize honest, transparent explanation of wound condition and prognosis as a standard clinical communication practice.
Targeted dropout prevention	37.91% dropout rate, concentrated after the third visit	Introduce proactive early-warning identification of at-risk patients and structured follow-up to sustain engagement through to recovery.

Source: Author's analysis based on primary data, 2026.

CONCLUSION

This study concluded that Service Quality and Trust significantly influence Patient Satisfaction, which serves as the key mechanism affecting Patient Loyalty in RUMAT's diabetic wound care services. Based on PLS-SEM analysis of 134 respondents, all proposed hypotheses were supported, with Service Quality being the strongest factor influencing satisfaction ($\beta = 0.672$), followed by Trust ($\beta = 0.282$). Together, these variables explain 88.6% of the variation in patient satisfaction, while satisfaction explains 77.5% of patient loyalty. The findings show that patients highly value adequate medical equipment, empathetic nursing care, and transparent communication, with honest explanations of wound conditions being the strongest indicator of trust. Customer Satisfaction fully mediates the relationship between Service Quality, Trust, and Patient Loyalty, indicating that loyalty is developed through

positive service experiences and emotional satisfaction rather than direct service perceptions alone. To address RUMAT's patient dropout challenge, management should focus on improving service quality, strengthening communication practices, monitoring patient satisfaction, and implementing early dropout prevention programs, particularly after the third visit. Future research should use longitudinal designs, broader samples, objective patient behavior data, and additional factors such as pricing, accessibility, and referral patterns to provide deeper insights into patient loyalty formation. These strategies can help RUMAT improve patient retention, clinical outcomes, and sustainable growth in diabetic wound care services.

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