

Service Quality and Patient Loyalty: Roles of Satisfaction and Customer Relationship Management

Article History:

Accepted: 21 August 2026

Revised: 6 October 2026

Published: 14 October 2026

Ayi Sanego^{1*}, Jason Merari Peranginangin², Lucia Vita Inandha Dewi³

Keywords:

*Customer Relationship Management;
Generalized Structured Component
Analysis;*

Patient Loyalty;

Patient Satisfaction;

Service Quality

Service quality is a key factor in enhancing patient satisfaction and loyalty toward hospital pharmacy services. In addition, the implementation of Customer Relationship Management (CRM) plays a role in building long-term relationships between patients and hospitals. This study aims to analyze the effect of service quality on patient loyalty at the Pharmacy Department of X Hospital in Surakarta, with patient satisfaction and the implementation of CRM serving as mediating variables. The study employed a quantitative design with a cross-sectional approach. A total of 240 respondents were selected using purposive sampling. Data were collected via a questionnaire that had passed validity and reliability tests, then analyzed using Generalized Structured Component Analysis (GSCA) based on estimated values and 95% Confidence Intervals (CI). The results of the study indicate that service quality has a positive effect on patient loyalty (estimate = 0.272; 95% CI = 0.085–0.413) and patient satisfaction (estimate = 0.213; 95% CI = 0.083–0.389), and hurts CRM implementation (estimate = -0.135; 95% CI = -0.309 to -0.018). CRM (estimate = 0.200; 95% CI = 0.102–0.336) and patient satisfaction (estimate = 0.212; 95% CI = 0.055–0.348) have a positive effect on patient loyalty. Then, the mediation analysis revealed that patient satisfaction and Customer Relationship Management (CRM) did not mediate the relationship between service quality and patient loyalty, as all indirect effects had confidence intervals that included zero. Therefore, service quality exerted a direct contribution to patient loyalty.



Copyright: © 2023 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Hospitals are healthcare institutions that are expected to provide high-quality, safe, effective, and patient-centered care. One unit that plays a crucial role in supporting the quality of hospital care is the pharmacy department. Pharmacy services are no longer drug-oriented but have evolved into patient-centered services; thus, the success of these services is measured not only by the accuracy of medication dispensing but also by the ability of pharmacy staff to

build good relationships with patients [7]. In practice, medication management in hospitals is a vital component of the pharmaceutical care system, encompassing the processes of planning, procurement, storage, distribution, and the effective and efficient use of medications [16].

Service quality is a patient's perception of a service provider's ability to meet or exceed their

^{1,2,3} Master's Program in Pharmacy, Faculty of Pharmacy, Setia Budi University, Surakarta

Email: u322410608@mhs.setiabudi.ac.id

expectations. The SERVQUAL model explains that service quality is shaped by five main dimensions: tangibles, reliability, responsiveness, assurance, and empathy [12]. In pharmaceutical services, the application of these five dimensions influences patient satisfaction through the provision of services that are fast, accurate, safe, communicative, and oriented toward patient needs. Research indicates that improved service quality is associated with increased patient satisfaction [12], trust in healthcare providers, and patients' willingness to return to the same healthcare service [18].

Patient loyalty is a key indicator [21] of the success of healthcare services; it reflects patients' tendency to maintain a relationship with healthcare providers, return for follow-up visits or reuse services, and recommend those services to others [12]. Patient loyalty holds strategic value for hospitals because it is linked to the sustainability of the relationship between patients and healthcare providers. In the context of healthcare, patient loyalty is influenced by various factors, particularly service quality, patient satisfaction, trust, and the patient's experience while receiving care [7]. Additionally, positive experiences with the service and word-of-mouth recommendations can encourage patients to continue using the service and recommend it to others [11].

In addition to service quality, hospitals also need to develop Customer Relationship Management (CRM) strategies to build long-term relationships with patients. CRM is a strategic approach that integrates service processes, communication, information technology, and patient data management to enhance the value patients perceive and maintain their loyalty [22]. In the context of healthcare, CRM implementation is realized not only through the use of technology but also through effective communication, complaint handling, patient education, and continuous follow-up care. Optimal CRM implementation is believed to enhance the patient experience, strengthen trust, and foster long-term loyalty [1].

Various studies have shown that service quality has a positive impact on patient satisfaction and loyalty. According to [21], the implementation of CRM contributes to increased patient loyalty in hospitals. Research by Solehudin [18] also indicates that service quality and patient satisfaction are factors that significantly influence patient loyalty. However, other studies indicate that the relationship between service quality, patient satisfaction, CRM, and patient loyalty still yields mixed findings, particularly regarding the roles of patient satisfaction and CRM as mediating variables. These differing results suggest that a research gap remains that requires further investigation, especially regarding hospital pharmacy services.

Based on a preliminary study at the Pharmacy Department of X Hospital in Surakarta, the number of outpatient visits reached approximately 600 patients during the observation period, indicating a high level of utilization of pharmacy services. This situation calls for the provision of high-quality pharmaceutical services, supported by the effective implementation of CRM to enhance patient satisfaction and maintain patient loyalty. To date, research that simultaneously analyzes the influence of service quality on patient loyalty, with patient satisfaction and CRM as mediating variables in hospital pharmaceutical services, remains limited.

Based on the above discussion, this study aims to analyze the effect of service quality on patient loyalty, with patient satisfaction and the implementation of CRM as mediating variables, at the Pharmacy Department of X Hospital in Surakarta. The results of this study are expected to provide empirical evidence regarding the factors that influence patient loyalty and to serve as a basis for the hospital in formulating strategies to improve the quality of pharmaceutical services that are oriented toward patient needs.

Results and Discussion

Respondent Characteristics

A total of 240 outpatients participated in this study. All respondents completed the questionnaire and met the predetermined inclusion criteria. The respondents were patients who received pharmaceutical services at the Pharmacy Department of X Hospital in Surakarta. The characteristics collected from the respondents included respondent status (outpatient), age (years), gender, and visit history. These characteristics helped provide an overview of the quality of pharmaceutical services and offered a general profile of the study population.

Table 1. Characteristics Respondent

Respondent Characteristics	Frequency (n)	Percentage (%)
Respondent Status		
Outpatient	240	100.0
Age (years)		
30–40	35	14.6
41–50	32	13.3
51–60	82	34.2
61–70	41	17.1
71–80	50	20.8
Gender		
Male	109	45.4
Female	131	54.6
Visit History		
≤ 6 months	42	17.5
≥ 6 months	198	82.5
Total	240	100.0

Based on Table 1, all 240 respondents (100%) were outpatients from various clinics at Hospital X in Surakarta. The respondent characteristics presented in Table 1 were limited to respondent status, age, gender, and visit history; therefore, occupation and educational level were not included in the description because these variables were not collected or presented in the table. The selection of outpatients was consistent with the study objective of evaluating patients' perceptions of service quality, patient loyalty, patient satisfaction, and CRM implementation in hospital pharmacy services.

Rather than assuming that outpatients interact more frequently with healthcare professionals than inpatients, this study focused on outpatients because they directly receive pharmaceutical services through prescription dispensing, medication information, and counselling [22]. Previous research in Indonesian outpatient settings has shown that the quality of pharmacist-patient interactions, including information provision, resolution of medication-related questions, personal attention, and time devoted to patients, is relevant to patient satisfaction and service experience [22].

In this study, patients who had visited the hospital, particularly the pharmacy, more or less than 6 months prior were likely to be familiar with the pharmacy service process, wait times, communication with pharmacy staff, and medication information. Experiences during hospital visits, particularly at the pharmacy, can influence how patients evaluate service quality and satisfaction, and can shape patient loyalty and perceptions of CRM, especially through repeated interactions and the continuity of the patient-provider relationship [15]. Empirical evidence from outpatient healthcare studies indicates that the frequency of service utilization is associated with patient satisfaction and the intention to continue using healthcare services, which increases satisfaction with return visits [8]. However, visit history was analyzed only as a respondent characteristic and was not included as a variable in the study.

Measurement Model Evaluation

The evaluation of the measurement model aims to assess indicators of variables that cannot be measured directly. In the GSCA analysis, the measurement model was evaluated based on loading values and 95% confidence intervals (95% CI). An indicator was considered significant if its loading value fell outside the 95% confidence interval around zero. Overall, the measurement model meets the psychometric standards used in the study; therefore, the instrument is deemed appropriate for measuring the structural relationships between service quality, CRM, patient satisfaction, and patient loyalty.

Table 2. Measurement Model for Service Quality Variables

Dimension	Indicator	Estimate	SE	95% CI	Interpretation
Tangibles (X1.1)	Pharmacy facilities at Ibu Fatmawati Soekarno Regional General Hospital are always clean and well maintained.	0.488	0.105	0.273–0.669	Significant
	The pharmacy waiting area is comfortable, quiet, and safe.	0.651	0.063	0.508–0.757	Significant
	Pharmacy staff wear neat uniforms.	0.573	0.083	0.401–0.694	Significant
Reliability (X1.2)	Waiting time for medication services is relatively fast.	0.579	0.068	0.407–0.694	Significant
	Pharmacy services are consistently delivered according to patient needs.	0.179	0.143	–0.100–0.434	Not significant
Responsiveness (X1.3)	Pharmacy staff provide the information I need.	–0.260	0.089	–0.409– –0.080	Significant (negative)
	Pharmacy staff is willing to assist patients whenever needed.	0.506	0.069	0.341–0.633	Significant
	Pharmacy staff explains medication procedures clearly and understandably.	–0.314	0.106	–0.455– –0.061	Significant (negative)
Assurance (X1.4)	Pharmacy staff possess adequate knowledge and skills.	0.087	0.147	–0.196–0.333	Not significant
	Pharmacy staff are polite, courteous, and professional in providing services.	0.371	0.118	0.086–0.569	Significant
Empathy (X1.5)	Pharmacy staff always greet patients before providing services.	0.516	0.105	0.273–0.677	Significant
	Pharmacy staff provide services according to patients' needs.	0.474	0.103	0.298–0.656	Significant
	Pharmacy staff allocate sufficient time to communicate with patients.	0.273	0.116	–0.036–0.437	Not significant

Table 2 shows the distribution of service quality indicators across the five SERVQUAL dimensions: tangibles (X_1), reliability (X_2), responsiveness (X_3), assurance (X_4), and empathy (X_5). The average score for the five service quality indicators was 3.22, falling into the high category. The highest average score was for dimension $X_{2,3}$; these results indicate that patients have rated the hospital's services as sufficiently reliable in meeting their care needs. This suggests that service procedures have been carried out in accordance with applicable operational standards. This is consistent with the [6] study, which states that service reliability is one of the key factors that enhance hospital patient satisfaction. Furthermore, [13] also explains that consistent and accurate service increases patient trust, thereby fostering patient loyalty, and the lowest score was for $X_{5,2}$; these results indicate that patients have felt the

attention and care provided by healthcare workers, particularly pharmacy staff at the pharmacy department of X Hospital in Surakarta. However, the indicator with the lowest score suggests that there is still room to improve the provision of more personalized care. According to the SERVQUAL theory, empathy is the ability of staff to give individual attention to patients, understand their needs, and demonstrate care throughout the service process. In pharmaceutical services, empathy is reflected through good communication, patience in providing medication education, and the ability to understand patients' conditions. This is also supported by a study [16], which states that service quality that emphasizes attention to patients can increase patient satisfaction and loyalty through positive service experiences.

This indicates that the majority of respondents agree that the pharmaceutical services

provided at the Pharmacy Department of X Hospital in Surakarta have been functioning well. This reflects that pharmacy staff are considered capable of providing professional, courteous, and responsive service, supported by adequate facilities. This is important because service quality is one of the key indicators in creating a positive patient experience while receiving healthcare services [10].

Based on Table 3, the results of the patient loyalty variable model analysis show that all indicators of the patient loyalty variable have positive loadings and 95% confidence intervals that do not cross zero; therefore, all indicators are considered

significant in reflecting the construct of patient loyalty. The loadings ranged from 0.302 to 0.692. The indicator with the highest loading was Y2.1 (0.692), while the lowest was Y1.3 (0.302). This indicates that the retention dimension (the patient's desire to continue using the hospital's services) plays a more dominant role in shaping patient loyalty compared to the other dimensions. Although all indicators are significant, several indicators in the "repeat purchase" dimension, specifically Y1.2 and Y1.3, have relatively low loading values, meaning their contribution to the formation of patient loyalty is not as strong as that of indicators in the "retention" and "recommendation" dimensions.

Table 3. Measurement of the Patient Loyalty Variable Model

Dimension	Indicator	Estimate	SE	95% CI	Interpretation
Repeat Visit Intention	I always seek treatment at Ibu Fatmawati Soekarno Regional General Hospital whenever I am ill.	0.582	0.054	0.469–0.668	Significant
	I prefer Ibu Fatmawati Soekarno Regional General Hospital over other hospitals providing similar services.	0.394	0.071	0.071–0.225	Significant
	I choose this hospital as my first option when experiencing health problems.	0.302	0.083	0.083–0.128	Significant
Recommendation	I tell others about my treatment experience at this hospital.	0.692	0.040	0.597–0.769	Significant
	I recommend this hospital to family and friends.	0.689	0.048	0.578–0.771	Significant
	I encourage others who need healthcare services to visit this hospital.	0.588	0.060	0.461–0.688	Significant
Preference for the Hospital	I prefer to receive treatment and medication at this hospital.	0.655	0.043	0.582–0.742	Significant
	I intend to remain a patient at this hospital.	0.495	0.064	0.375–0.621	Significant
	I will continue choosing this hospital for my future healthcare needs.	0.682	0.045	0.587–0.760	Significant

Table 4. Measurement Model for the Patient Satisfaction Variable

Indicator	Estimate	SE	95% CI	Interpretation
I am satisfied with the information provided by pharmacists regarding my medications.	0.576	0.065	0.436–0.673	Significant
I am satisfied with the pharmacy facilities (waiting area).	0.678	0.048	0.577–0.751	Significant
I am satisfied with the waiting time for pharmacy services.	0.769	0.029	0.715–0.817	Significant
I am satisfied with the consistency of pharmacy services across visits.	0.491	0.069	0.357–0.604	Significant
I am satisfied with the friendliness of pharmacy staff.	0.688	0.045	0.580–0.778	Significant
Pharmacy staff are always available when needed.	0.491	0.072	0.331–0.611	Significant
Pharmacy staff are experienced in providing pharmaceutical care.	0.535	0.066	0.381–0.635	Significant

Based on Table 4, the measurement results show that all patient satisfaction indicators have 95% confidence intervals above zero, indicating that all indicators are significant in representing the construct of patient satisfaction. The loading values range from 0.491 to 0.769, with indicator M1.3 having the highest loading value (0.769), while M1.4 and M1.6 have the lowest loading values (0.491). Overall, these

results indicate that the patient satisfaction indicators have effectively captured the construct. The dominance of indicator M1.3 suggests that the aspect measured by this indicator is the most decisive component of patient satisfaction. Meanwhile, indicators with lower loadings still contribute to the construct, although their influence is relatively weaker compared to the other indicators.

Table 5. Measurement of the Customer Relationship Management (CRM) Variable Model

Dimension	Indicator	Estimate	SE	95% CI	Interpretation
Communication and Information	Pharmacists provide comprehensive information regarding medication dosage and administration.	0.457	0.119	0.190–0.659	Significant
	Pharmacists verify my understanding before leaving the pharmacy.	0.448	0.105	0.195–0.620	Significant
	The medication dispensing process is faster because my patient information is stored properly.	0.371	0.110	0.151–0.558	Significant
Follow-up (Relationship Management)	Pharmacists identify my health condition before providing services.	0.167	0.198	–0.191–0.509	Not significant
	Pharmacy staff evaluates the quality of services provided.	0.294	0.218	–0.174–0.654	Not significant
Responsiveness to Patient Complaints	Pharmacists provide direct medication counseling without unnecessary delays.	0.755	0.056	0.631–0.823	Significant
	Pharmacy staff respond promptly whenever I require assistance.	0.722	0.087	0.440–0.815	Significant

Based on Table 5 (Model Measurement Results), the CRM implementation variables have varying loading values, ranging from 0.167 to 0.755. Most indicators have confidence intervals that do not cross zero and are therefore significant; however, two indicators, M2.2.1 and M2.2.2, are not significant because their confidence intervals cross zero. The indicators with the highest loading values are M2.3.1 (0.755) and M2.3.2 (0.722), indicating that the collaborative CRM dimension is the strongest in representing CRM implementation in pharmacy departments. Conversely, the analytical CRM dimension has the weakest contribution because neither of its indicators is significant. These results indicate that CRM implementation in hospitals is reflected more through direct interaction and communication with patients than through the use of patient data to support decision-making or service personalization.

Table 6. Model Goodness of FIT

FIT	AFIT	GFI	SRMR
0.252	0.245	0.891	0.069

The research model was able to explain 25.2% of the total variance in the construct under study, according to the findings of the model evaluation using GSCA, which produced a FIT value of 0.252. An AFIT value of 0.245 was found after accounting for model complexity, suggesting that the model's capacity to explain data variance stayed largely constant. The model fits the empirical data well, as indicated by the Goodness of Fit Index (GFI) value of 0.891, which is near 1. Furthermore, the model's residuals are comparatively modest, and it may be classified as having a good fit because the Standardized Root Mean Square Residual (SRMR) value of 0.069 is below the 0.08 threshold. Overall, the

goodness-of-fit evaluation findings demonstrate that the research model satisfies the testing.

The results in Table 6 show that service quality has a positive effect on patient loyalty (estimate = 0.272; 95% CI = 0.085–0.413) and patient satisfaction (estimate = 0.213; 95% CI = 0.083–0.389), as well as a negative effect on CRM implementation (estimate = -0.135; 95% CI = -0.309 to -0.018). CRM (estimate = 0.200; 95% CI = 0.102–0.336) and patient

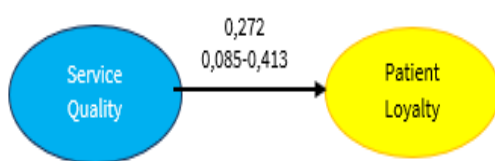
satisfaction (estimate = 0.212; 95% CI = 0.055–0.348) have a positive effect on patient loyalty. Furthermore, the mediation analysis indicated that patient satisfaction and CRM did not act as mediating variables in the relationship between service quality and patient loyalty, as all indirect effects had confidence intervals that crossed zero. Therefore, improvements in service quality contribute more directly to patient loyalty

Table 7. Hypothesis Testing Results

Hypothesis	Relationship	Estimate / t-value	95% CI/p-value	Decision
H1	Service Quality → Patient Loyalty	0.272	0.085–0.413	Significant
H2	Service Quality → Patient Satisfaction	0.213	0.083–0.389	Significant
H3	Service Quality → CRM	-0.135	-0.309–(-0.018)	Significant (Negative Effect)
H4	Service Quality → Patient Satisfaction → Patient Loyalty	t = 0.34	p = 0.74	Not significant
H5	Service Quality → CRM → Patient Loyalty	t = 1.29	p = 0.20	Not significant
H6	Service Quality → CRM → Patient Satisfaction → Patient Loyalty	t = 0.27	p = 0.78	Not significant

Discussion of Hypothesis Testing Results

H₁ : The Effect of Service Quality on Patient Loyalty



The results of the analysis show that service quality has a positive and significant effect on patient loyalty, with an estimate of 0.272 (95% CI 0.085–0.413); since the entire confidence interval lies above zero, H₁ is accepted. This indicates that the better the quality of service patients receive at the Pharmacy Department of Hospital X in Surakarta, the higher their loyalty to return and use the hospital's services. This is consistent with [11] theory, which explains that when service meets or even exceeds patient expectations, a positive attitude is formed that fosters

loyalty. These findings are supported by [15], who noted that service quality, including service accuracy, speed, staff friendliness, and the ability to meet patient needs, positively influences outpatient loyalty by increasing trust and encouraging patients to return to the hospital. In other words, the higher patients' perceptions of service quality, the greater their tendency to become loyal.

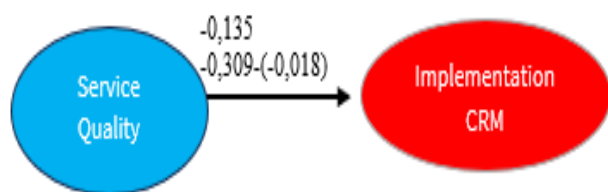
H₂ : The Effect of Service Quality on Patient Satisfaction



The results of the analysis show that service quality has a positive and significant effect on patient

satisfaction (estimate = 0.213, 95% CI = 0.083–0.389), indicating that this effect is significant. Thus, the hypothesis stating that service quality affects patient satisfaction is accepted. These results indicate that the better the quality of service provided by the Pharmacy Department at Hospital X in Surakarta, the higher the level of satisfaction experienced by patients. This is consistent with [10] theory, which states that customer satisfaction is achieved when service performance meets or exceeds customer expectations. In the context of pharmaceutical services, patients will be satisfied if they receive services that are fast, accurate, safe, and friendly, supported by clear and easy-to-understand medication information. This aligns with the [4] study, which found that improving service quality, particularly regarding service speed, staff friendliness, and the accuracy of medication dispensing, can enhance patients' positive perceptions of pharmaceutical services. Research by Rizal [16] suggests that the better staff are at providing prompt service, instilling a sense of safety, and offering adequate service facilities, the higher the level of patient satisfaction.

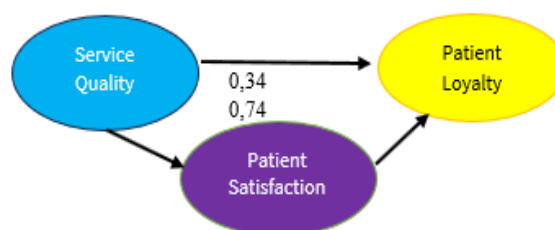
H₃ : The Effect of Service Quality on Implementation CRM



The results of the study indicate that service quality influences the implementation of CRM, with an estimate of -0.135, an SE of 0.079, and a 95% confidence interval (CI) ranging from -0.309 to -0.018. Based on the GSCA [19] results, the 95% confidence interval does not cross the zero line; therefore, the relationship is deemed significant, even though the direction of the effect is negative. These findings highlight the need to distinguish between the concepts of service quality and CRM. Service quality describes patients' perceptions of the quality of care they receive, whereas CRM is a broader approach to

managing an organization's relationships and interactions with patients, including information management, communication, interactions, and efforts to maintain ongoing relationships with patients. According to [21], the implementation of CRM is not only related to service quality but also encompasses the management of relationships and communication between healthcare organizations and patients. This means that the negative results in this study cannot be directly interpreted to mean that the better the service quality, the worse the hospital is at implementing CRM.

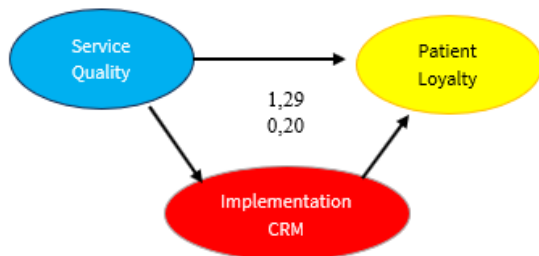
H₄ : The Effect of Service Quality on Patient Loyalty Mediated by Patient Satisfaction



The results of the analysis show that the indirect effect of service quality on patient loyalty through patient satisfaction has a t-value of 0.34 and a p-value of 0.74; since the t-value is less than 1.96 and the p-value is greater than 0.05, this indicates that patient satisfaction does not mediate the effect of service quality on patient loyalty. Thus, the hypothesis stating that patient satisfaction mediates the relationship between service quality and patient loyalty is rejected. According to [10], loyalty is a stage that follows satisfaction; however, loyalty is influenced not only by satisfaction but also by trust, commitment, perceived value, and the overall customer experience. Therefore, even if patients are satisfied with the pharmacy's services, that satisfaction may not be strong enough to foster loyalty if other factors are more dominant. The findings of [12] indicate that customer loyalty is influenced more by trust and commitment than by satisfaction alone. These results are consistent with those of [7], who explain that customer satisfaction does not necessarily lead to loyalty if customers have

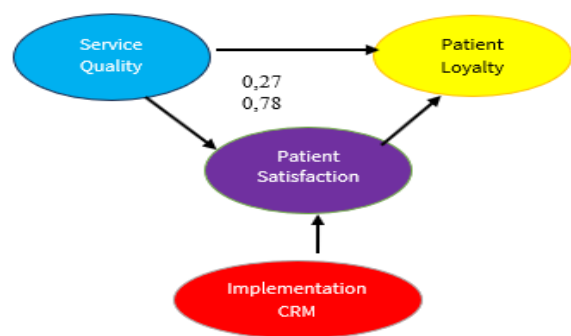
many alternative service providers or face low switching costs.

H₅ : The Influence of Service Quality on Patient Loyalty Mediated by CRM Implementation



The analysis results show that the indirect effect of service quality on patient loyalty through the implementation of CRM yielded a t-value of 1.29 and a p-value of 0.20. Since $T < 1.96$ and the $p\text{-value} > 0.05$, this indicates that the implementation of CRM has not yet been able to mediate the relationship between service quality and patient loyalty. Thus, the hypothesis stating that CRM mediates the effect of service quality on patient loyalty is rejected. The results of this study show that although service quality is related to the implementation of CRM, this relationship is not yet strong enough to produce a significant indirect effect on patient loyalty. In other words, changes in CRM implementation related to service quality have not yet been able to transmit this effect to the point of fostering patient loyalty. Consequently, the implementation of CRM in this study cannot yet be positioned as a mediating mechanism between service quality and patient loyalty. Testing for indirect effects must indeed be conducted separately because the significance of the relationship between the independent variable and the mediator does not automatically indicate the presence of mediation in the relationship between the independent and dependent variables [14].

H₆ : The Influence of Service Quality on Patient Loyalty Mediated by CRM Implementation and Patient Satisfaction



The results of the analysis show that the indirect effect of service quality on patient loyalty through the implementation of CRM and patient satisfaction, in that order, has a t-value of 0.27 and a p-value of 0.78. A t-value < 1.96 and a p-value > 0.05 indicate that this chain mediation is not statistically significant. Thus, the hypothesis stating that the sequential application of CRM and patient satisfaction mediates the effect of service quality on patient loyalty is rejected. The research results show that this chain mechanism has not been statistically proven. This means that the service quality perceived by patients has not demonstrated a strong enough effect to be transmitted through the implementation of CRM, subsequently increasing patient satisfaction, and ultimately resulting in patient loyalty. The lack of significance in the indirect effect does not imply that CRM or patient satisfaction is unimportant in healthcare; rather, it indicates that these two variables, acting sequentially, have not been proven to serve as a bridging mechanism between service quality and patient loyalty in this research model. Substantively, this situation may occur because patients can develop loyalty based on their direct service experiences without necessarily going through the sequential mechanisms of customer relationships and satisfaction [3].

Conclusion

Service quality has a positive impact on patient loyalty and satisfaction, while negatively affecting the implementation of Customer Relationship Management (CRM). Furthermore, patient satisfaction and CRM positively influence patient loyalty. However, neither patient satisfaction nor CRM has been proven to mediate the relationship

between service quality and patient loyalty. Therefore, efforts to enhance patient loyalty should focus on improving service quality and strengthening CRM implementation to be more oriented toward long-term relationships with patients.

Materials and Methods

Research Design, Setting, and Subjects

This study employed a quantitative analytical observational design with a cross-sectional approach. The study was conducted at the Pharmacy Department of X Hospital in Surakarta, from April 6 to June 10, 2026. The study population consisted of all outpatients receiving pharmaceutical services at the hospital pharmacy unit. A total of 240 respondents were selected using purposive sampling based on predetermined inclusion and exclusion criteria. The study received ethical clearance from the Health Research Ethics Committee of Universitas Kusuma Husada Surakarta under approval number 3398/UKH.L02/EC/IV/2026.

Instrument Validity and Reliability

The research instrument was a questionnaire utilizing a four-point Likert scale, comprising the variables of service quality (13 indicators), patient loyalty (9 indicators), patient satisfaction (7 indicators), and CRM implementation (7 indicators). All instruments underwent content validity testing (Content Validity Index) by experts before their use in the study, and all indicators met the previously established criteria for validity and reliability (a questionnaire item is considered valid if $r_{\text{calculated}} > r_{\text{table}}$ ($r_{\text{calculated}} = 30$ respondents, and r_{table} at a significance level of $\alpha = 0.05 = 0.3.61$), and a variable is considered reliable if it yields a Cronbach's Alpha (α) value > 0.60).

Data Analysis

Data analysis was conducted using Generalized Structured Component Analysis (GSCA).

The measurement model was evaluated based on estimated values and 95% confidence intervals (CI). The structural model was evaluated using goodness-of-fit. Hypothesis testing results were considered significant if the confidence interval did not include zero.

Reference

1. Akdere, M., Top, M., & Tekingündüz, S. (2020). Examining patient perceptions of service quality in Turkish hospitals: The SERVPERF model. *Total Quality Management & Business Excellence*, 31(3–4), 342–352. <https://doi.org/10.1080/14783363.2018.1427501>
2. Andini, M. D. F., Agusta, H. F., & Yuliastuti, F. (2021). Tingkat kepuasan pasien umum rawat jalan Instalasi Farmasi Rumah Sakit Lestari Raharja Kota Magelang. *Borobudur Pharmacy Review*, 1(2). <https://doi.org/10.31603/bphr.v1i2.4878>
3. Dianti. 2020. *Pengaruh mutu pelayanan terhadap kepuasan pasien rumah sakit*. Jurnal Administrasi Kesehatan Indonesia, 8(2), 95–103.
4. Halim, F., & Wahyoedi, S. 2025. Pengaruh kualitas pelayanan dan fasilitas rumah sakit terhadap loyalitas pasien rawat jalan dengan kepuasan pasien sebagai variabel mediasi di Rumah Sakit ASM. *Jurnal Ilmu Manajemen Terapan*, 6(6), 357–373. <https://doi.org/10.38035/jimt.v6i6.6212>
5. Herawati, R. H., Yantih, N., & Amyulianthy, R. 2025. Pengaruh kualitas pelayanan, ketersediaan obat, dan fasilitas terhadap kepuasan yang berdampak pada loyalitas pasien di instalasi farmasi rawat jalan Rumah Sakit X Kota Bekasi. *PENDIPA Journal of Science Education*, 9(3), 682–687. <https://doi.org/10.33369/pendipa.9.3.682-687>
6. Jaya, E. A., Soelasih, Y., & Lembana, D. A. A. (2025). The influence of service quality and opportunism on patient loyalty mediated by trust. *Journal of Business Studies and Management Review*, 8(2). <https://doi.org/10.22437/jbsmr.v8i2.42674>
7. Kelana, H., Widyarini, M., & Widjaja, D. (2025). The quality of insurance and non-insurance patient services and their effect on loyalty mediated by patient satisfaction. *JMMR (Jurnal Medicoeticolegal dan Manajemen Rumah Sakit)*, 14(3). <https://doi.org/10.18196/jmmr.v14i3.658>

8. Kementerian Kesehatan Republik Indonesia. (2016). *Peraturan Menteri Kesehatan Republik Indonesia Nomor 72 Tahun 2016 tentang Standar Pelayanan Kefarmasian di Rumah Sakit*. Jakarta: Kementerian Kesehatan RI.
9. Kristanti, M. S., Ismandani, R. S., & Utarini, A. 2025. Eksplorasi pengalaman pasien dan keluarga terhadap kualitas pelayanan tenaga kesehatan di ruang *Intensive Cardiovascular Care Unit* (ICVCU) RSUD Dr. Moewardi Surakarta. *Jurnal Manajemen Pelayanan Kesehatan*, 27(3), 86–91. <https://doi.org/10.22146/jmpk.v27i3.14528>
10. Marisya, R. O., Pasinringi, S. A., Indahwati, A. A. S., Rivai, F., Hamzah, H. A., & Balqis. (2024). The impact of service quality on patient loyalty mediated by patient satisfaction: A study at Beriman Hospital, Balikpapan City. *Frontiers in Health Informatics*, 13(3), 9940–9950.
11. Monica E, Dharmmesta BS, Syahlani SP. (2017). Correlation Analysis Between the Service Quality, Customer Satisfaction, and Customer Loyalty of Viva Generik Pharmacy in Semarang. *Jurnal Farmasi Sains dan Komunitas*. 14(2):86–92. DOI: 10.24071/jpsc.142569.
12. Parmana, A. D., Paramarta, V., & Nurina, Y. I. (2024). Factors affecting patient satisfaction and patient loyalty in hospitals: Systematic literature review. *International Islamic Medical Journal*, 6(2), 54–63. <https://doi.org/10.33086/iimj.v6i2.6535>
13. Pribadi, P., Kristina, S. A., Syahlani, S. P., & Satibi. (2021). Building patient loyalty in pharmacy service: A comprehensive model. *Indonesian Journal of Pharmacy*, 32(2), 241–250. https://www.researchgate.net/publication/352821800_Building_Patient_Loyalty_in_Pharmacy_Service_A_Comprehensive_Model
14. Primantana, Y. A., & Dwiastuti, R. 2025. *The effect of service quality on outpatient patient loyalty at Ludira Husada Tama Hospital Yogyakarta*. *Jurnal Farmasi & Sains Indonesia*, 8(2), 92–99. <https://doi.org/10.52216/jfsi.vol8no2p92-99>
15. Rizal, R., Suardi, M., & Yuliharsi. 2017. *Impact of service quality and patient satisfaction of BPJS participants as the mediation to patient loyalty*. *Jurnal Sains Farmasi & Klinis*, 3(2), 108–114. <https://doi.org/10.29208/jsfk.2017.3.2.112>
16. Satibi. (2022). *Manajemen Obat di Rumah Sakit*. Edisi ke-6. Yogyakarta: Gadjah Mada University Press.
17. Solehudin, S., & Syabanasyah, I. (2023). Pengaruh kualitas pelayanan dan kepuasan terhadap loyalitas pasien. *DIAGNOSA: Jurnal Ilmu Kesehatan dan Keperawatan*, 1(3), 242–254. <https://doi.org/10.59581/diagnosa-widyakarya.v1i3.1071>
18. Solimun. 2012. *Generalized Structured Component Analysis (GSCA) dan Structural Equation Modeling*. Malang: Universitas Brawijaya, Modul Pelatihan GSCA.
19. Sumarni, R. A., Caherunnisa AR., Eka P., & Rahayu. (2025). Pengaruh *Customer Relationship Management (CRM)* Terhadap *Relationship Quality (RQ)* Di RSUD Abdul Wahab Sjahranie. <https://ejournal.undip.ac.id/index.php/jmki/article/view/76986/29775>
20. Suasnawa, I. G., & Gorda, A. A. N. E. S. (2017). Pengaruh pelayanan prima dan *Customer Relationship Management* terhadap loyalitas pasien yang dimediasi oleh kepuasan dan kepercayaan. *Jurnal Manajemen dan Bisnis*, 14(1), 56–74. <https://doi.org/10.38043/jmb.v14i1.332>
21. Suryadini, S., & Sriyono. (2024). Patient satisfaction: IT, CRM, facilities, price impact in hospital setting. *Academia Open*, 9(1). <https://doi.org/10.21070/acopen.9.2024.5653>
22. Vioneery, Deoni, Dirhan, & Wahyu, H. (2025). Sosialisasi Pemberantasan Dan Penanggulangan Sebagai Sarana Pencegahan Kasus Kegawatan Demam Berdarah. *Jurnal Pengabdian Masyarakat Sunan Giri*. <https://jurnalfarmasidankesehatan.ac.id/index.php/abdikes/article/view/749/201>