Malque Health

RESEARCH ARTICLE
Published Online: July 6, 2026
https://doi.org/10.31893/health.2026018

The analysis of service quality, patient satisfaction, and patient loyalty in a police resort primary healthcare clinic: A mixed-methods study

Melisa Anastasia Pranoto[a] | Erdianto Setya Wardhana[b] | Islamy Rahma Hutami[c] ✉ | Kusuma Arbianti[b]

[a]Master Program of Dental Sciences (Dental Community), Faculty of Dentistry, Universitas Islam Sultan Agung, Semarang, Central Java, Indonesia.
[b]Department of Dental Public Health, Faculty of Dentistry, Universitas Islam Sultan Agung, Semarang, Central Java, Indonesia.
[c]Department of Orthodontics, Faculty of Dentistry, Universitas Islam Sultan Agung, Semarang, Central Java, Indonesia.

Abstract Service quality (servqual) and patient satisfaction are recognized as key determinants of patient loyalty in healthcare. In Indonesia, the healthcare sector has experienced rapid growth in recent years, leading to increasingly intense competition among healthcare providers, including hospitals, public health centers, and private clinics. At the same time, rising levels of public education and health awareness have made patients more discerning in their choice of healthcare providers, with greater expectations for accessible, responsive, safe, and high-quality services. In this increasingly competitive environment, understanding the factors that influence patient loyalty is essential for maintaining servqual and ensuring long-term patient retention. Therefore, this study aimed to analyze the effects of servqual and patient satisfaction on patient loyalty in a primary healthcare clinic. This analytical observational study employed a concurrent embedded mixed-methods approach with a cross-sectional design involving 78 patients attending the primary healthcare clinic of a police resort. Quantitative data were collected using validated questionnaires and analyzed using multiple linear regression, while qualitative data were obtained through interviews and observations to provide contextual explanations and deepen the interpretation of the quantitative findings. The respondent characteristics showed that more than half of the respondents were female. The majority were aged 17–24 years, held a bachelor's degree, and were employed as police officers. Among the five servqual dimensions, tangibles, empathy, reliability, responsiveness, and assurance were all rated as very good. Most respondents reported high levels of patient satisfaction, although a small proportion indicated moderate satisfaction. Similarly, patient loyalty was rated as very good. Partial regression analysis further demonstrated that patient satisfaction had a significant positive effect on patient loyalty, thereby supporting the study hypothesis. The qualitative findings complemented the quantitative results by revealing that patients perceived the clinic services as professional, responsive, communicative, and satisfactory. Participants also identified several areas requiring improvement, including waiting times, referral procedures, and the availability of medical equipment, providing practical insights beyond the statistical associations. In conclusion, servqual and patient satisfaction significantly influence patient loyalty at the Health Clinic. Improving healthcare servqual and maintaining patient satisfaction may further strengthen patient loyalty toward the clinic.

Keywords: servqual, patient experience, primary care, patient-centered care

1. Introduction

The healthcare sector in Indonesia has experienced rapid growth in recent years, resulting in increasingly intense competition among healthcare providers, including hospitals, public health centers, and private clinics (Sofiaturrohmah & Kasman, 2025; Wulandari et al., 2021). Along with the increasing level of public education and health awareness, patients are becoming more selective in choosing healthcare services and tend to expect services that are accessible, responsive, safe, and of high quality (Noviyani & Viwattanakulvanid, 2025). In healthcare organizations, service quality (servqual) has become an important strategic factor because it strongly influences patient perceptions, satisfaction, trust, and loyalty Healthcare providers that fail to meet patient expectations may experience decreased patient visits and reduced competitiveness (Noviyani & Viwattanakulvanid, 2025; Wulandari et al., 2021).

According to the theory proposed by Parasuraman et al. (1988), servqual consists of five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. These dimensions are widely used to evaluate healthcare services because they reflect both the technical and interpersonal aspects of patient care (Parasuraman et al., 1988). High-quality healthcare services can improve patient satisfaction, which is defined as the degree to which healthcare services meet or exceed patient

 Received: June 2, 2026 | Accepted: July 4, 2026

expectations (Batbaatar et al., 2015). Patient satisfaction is considered an important indicator of healthcare quality because satisfied patients are more likely to comply with treatment, revisit healthcare facilities, and recommend services to others (Batbaatar et al., 2017).

Patient loyalty refers to a patient's commitment to continue using healthcare services consistently and to recommend the healthcare provider to others despite the presence of alternative healthcare facilities (Amin & Nasharuddin, 2013). Previous studies have shown that servqual and patient satisfaction are important predictors of patient loyalty in healthcare settings (Amin & Nasharuddin, 2013; Caruana, 2002). High-quality healthcare services contribute to greater patient satisfaction, which subsequently increases patients' intention to revisit healthcare facilities and recommend them to others. Specifically, when patients perceive healthcare services as reliable, responsive, empathetic, and trustworthy, they are more likely to develop long-term loyalty toward the healthcare provider (Caruana, 2002; Harriet et al., 2024; Liu et al., 2021). Therefore, healthcare organizations should continuously improve servqual to maintain patient satisfaction, strengthen patient trust, and foster long-term patient loyalty (Liu et al., 2021; Sholeh & Chalidyanto, 2021).

In healthcare organizations, fluctuations or declines in patient visits may indicate challenges in maintaining patient loyalty and sustained utilization of healthcare services (Sholeh & Chalidyanto, 2021). Such declines may reflect unmet patient expectations and suboptimal healthcare experiences. Patient experience is a critical determinant of loyalty because it influences patients' willingness to revisit healthcare facilities and engage in positive word-of-mouth communication. Conversely, negative experiences may reduce patient loyalty and healthcare utilization (Alfian et al., 2026; Rifa & Bernarto, 2023; Zeithaml et al., 1996).

Although previous studies have established significant associations between servqual, patient satisfaction, and patient loyalty using quantitative methods alone (Lee, 2017; Otani et al., 2009; Shabbir et al., 2016), these approaches provide limited insight into the contextual factors underlying patients' perceptions and experiences. Statistical analyses can identify the magnitude and direction of these relationships but cannot fully explain why patients perceive healthcare services positively or negatively or identify specific aspects of service delivery that influence their loyalty. A mixed-methods approach was therefore employed to address this gap by integrating qualitative evidence with quantitative findings (Doyle et al., 2016; Palinkas et al., 2011; Robinson, 2007). The qualitative component provided a deeper understanding of patients' experiences, expectations, and suggestions for service improvement, thereby complementing the statistical results and generating more comprehensive and actionable evidence for healthcare quality improvement. Considering the importance of servqual and patient satisfaction in strengthening patient loyalty, it is necessary to evaluate these factors comprehensively within healthcare services. Therefore, this study aimed to analyze the influence of servqual and patient satisfaction on patient loyalty at the healthcare clinic.

2. Materials and Methods

2.1. Research design

This study employed a non-experimental analytic observational design using a concurrent embedded mixed-methods approach with a cross-sectional design. Mixed-methods research integrates quantitative and qualitative data within a single study to provide a more comprehensive understanding of the research problem (Creswell et al., 2004). In the present study, quantitative and qualitative data were collected simultaneously; however, the quantitative component served as the primary method, while the qualitative component was embedded to provide contextual insights and enrich the interpretation of the quantitative findings. Quantitative data were collected through structured questionnaires and analyzed using descriptive and inferential statistical methods to examine the relationships among servqual, patient satisfaction, and patient loyalty. Meanwhile, qualitative data were obtained through semi-structured interviews and field observations to explore participants' experiences and perceptions of healthcare services. The qualitative data were coded and organized into themes and categories (Creswell et al., 2004). Integration of the quantitative and qualitative findings occurred during the interpretation stage, allowing the qualitative findings to explain, complement, and strengthen the quantitative results, thereby providing a more comprehensive understanding of the factors influencing patient loyalty (Creswell et al., 2004; Palinkas et al., 2011).

2.2. Population and sample

The population consisted of all patients (Social Health Insurance participants) at the Pratama Clinic of the Semarang City Police Resort who had used services at least twice at the clinic. Slovin formula was used to determine the sample that were used in this research (Anugraheni et al., 2023).

$$n = N / 1 + Ne^2$$

n = Sample size
N = Total population
e = Margin of error (sampling error tolerance); in this study, e = 0.1 (10%).

The Slovin formula provides two commonly used levels of error tolerance:

e = 10% (0.1) for studies with a relatively large population.
e = 20% (0.2) for studies with a relatively small population.

The Slovin formula is commonly used to estimate the minimum required sample size when the population size is known and when limited information is available regarding population variability. The required sample size is determined based on the total population and the selected margin of error, making it a practical approach for survey research involving large populations (Mukti, 2025).

Because the study population consisted of 345 Social Health Insurance participants attending a Police Resort Primary Healthcare Clinic, a 10% margin of error (e = 0.10) was considered acceptable for determining the minimum required sample size. Using the Slovin formula ($n = 345 / 1 + 345 (0.1)^2$), the calculated sample size was 77.5, which was rounded up to 78 participants. Prior to data collection, the questionnaire was tested for validity and reliability. The majority of respondents were female (59.0%), the highest proportion of participants were aged between 17 and 24 years (26.9%), and the majority held a bachelor's degree (53.8%). The most common current occupation among respondents was the police (35.9%, 28 respondents) (Table 1).

Table 1 Respondent characteristics.

Variables	Participants	Percentage (%)
Gender		
Man	32	41.0
Woman	46	59.0
Age (y.o)*		
17-24	21	26.9
25-34	17	21.8
35-44	18	23.1
45-54	16	20.5
55-64	6	7.7
Education		
Junior High School	1	1.3
Senior High School	35	44.9
College	42	53.8
Job		
Doctor	1	1.3
Housewife	12	15.4
Student	13	16.7
Civil Servants	9	11.5
Police	28	35.9
Self Employed	15	19.2

Note: * y.o: years old.

The qualitative component of this study employed semi-structured interviews to gain a deeper understanding of patients' experiences, challenges, and perceptions regarding dental services under the Social Health Insurance scheme (Gill et al., 2008; Kallio et al., 2016). Semi-structured interviews were selected because they enable participants to describe their experiences, beliefs, and perceptions in depth while allowing the researcher to explore predetermined topics consistently across participants (Gill et al., 2008). The interview guide was developed in accordance with the framework proposed by Kallio et al. (2016), which recommends identifying the rationale for using semi-structured interviews, reviewing relevant literature, developing a preliminary interview guide, pilot testing the guide, and finalizing the interview questions. The final interview guide consisted of open-ended questions focusing on three core areas: accessibility of dental services, patient-provider communication, and practical challenges encountered during treatment. All interviews were conducted by the primary researcher, with an average duration of 20-30 minutes per participant. With participants' informed consent, all interviews were audio-recorded and transcribed verbatim to ensure accurate documentation for subsequent qualitative analysis (Kallio et al., 2016).

2.3. Data analysis

The questionnaire was tested for validity and reliability using the Pearson Correlation and Cronbach's Alpha tests (Cho & Kim, 2015; Hair & Sabol, 2025). Both analyses showed that all indicators of the three variables (patient loyalty, patient satisfaction, and servqual) were considered valid. A five-point Likert scale was used to assess servqual, participants' satisfaction, and loyalty regarding the study variables. The Likert scale is an ordinal measurement scale that enables respondents to indicate

their level of agreement with a series of statements, ranging from the lowest to the highest response category (Opuni, 2023). The questionnaire items were developed based on the indicators of each study variable and presented in a checklist format. To facilitate interpretation of the questionnaire scores, class intervals were calculated by subtracting the minimum possible score from the maximum possible score and dividing the result by the number of predefined categories. The resulting interval width was used to classify respondents' perceptions into five categories: very poor, poor, fair, good, and very good (Rianto et al., 2020).

Additionally, all variables had α values greater than 0.60, indicating that the research instruments were reliable and suitable for data collection. Descriptive statistics were used to determine the highest, lowest, mean, and standard deviation values, as well as to describe the characteristics and identities of respondents. The instrument testing consisted of validity and reliability tests. Classical assumption tests included normality, multicollinearity, and heteroscedasticity tests. This study used the following multiple linear regression model:

$$Y = \alpha + \beta1.X1 + \beta2.X2 + e$$

Hypothesis testing included t-tests for individual regression coefficients, the F-test for overall model significance, and the coefficient of determination (R^2) to evaluate explanatory power (Bah, 2001; Hair & Sabol, 2025). Finally, qualitative data analysis aimed to summarize data from interviews, observations, and other sources to be presented as findings.

3. Results and Discussion

3.1. Patient perceptions across servqual and satisfaction dimensions

The questionnaire, which was distributed in February 2025, was used to evaluate patient satisfaction and servqual in relation to patient loyalty. The five dimensions of servqual showed high average scores. The tangible dimension had an average score of 16.91, while the empathy dimension had an average score of 16.79. The reliability dimension showed an average score of 16.71, the responsiveness dimension had an average score of 16.87, and the assurance dimension had an average score of 16.69. The high scores in the tangible, empathy, reliability, responsiveness, and assurance dimensions suggest that the clinic was able to provide adequate facilities and equipment, demonstrate caring and individualized attention, deliver services consistently and accurately, respond promptly to patient needs, and ensure patient trust and confidence in the healthcare staff (Table 2).

Table 2 Descriptive statistic test of servqual dimensions.

Descriptive Statistics						
	N	Min	Max	Mean	Std. Deviation	Inform
Tangible Dimension	78	12	20	16.91	2.084	Very Good
Empathy Dimension	78	12	20	16.79	1.996	Very Good
Reliability Dimension	78	13	20	16.71	1.442	Very Good
Responsiveness Dimension	78	12	20	16.87	2.060	Very Good
Assurance Dimension	78	12	19	16.69	1.861	Very Good

The three dimensions of patient satisfaction also demonstrated high average scores. The conformity to expectations dimension had an average score of 21.10, the intention to revisit dimension had an average score of 29.73, and the willingness to recommend dimension had an average score of 12.83. These findings indicate that patients were highly satisfied with the services provided by the clinic. The high score in the conformity to expectations dimension suggests that the services met or exceeded patient expectations. The high score for intention to revisit indicates that patients were willing to return to the clinic for future healthcare needs, reflecting positive experiences with the services received (Alfian et al., 2026; Harriet et al., 2024; Rifa & Bernarto, 2023). In addition, the high score for willingness to recommend suggests that patients were confident in recommending the clinic to others, reflecting a high level of trust and overall satisfaction with the quality of care provided (Table 3).

Table 3 Descriptive analysis of patient satisfaction dimensions.

Descriptive Statistics						
	N	Min	Max	Mean	Std. Deviation	Inform
Dimension of Conformity to Expectations	78	15	25	21.10	2.680	Very Good
Dimension of Interest in Revisiting	78	21	35	29.73	3.720	Very Good
Dimension of Willingness to Recommended	78	9	15	12.83	1.875	Very Good

Patient loyalty aspects had an average score of 42.34, which was categorized as very good based on the patient loyalty score range criteria. This finding indicates that patients demonstrated a high level of loyalty toward the clinic. Patients were likely willing to continue using the clinic's healthcare services, maintain long-term relationships with the clinic, and consistently

choose the clinic for their healthcare needs. The high loyalty score also reflects positive patient experiences and trust in the services provided by the healthcare staff (Table 4).

Table 4 Descriptive statistic test of patient loyalty.

Descriptive Statistics						
	N	Min	Max	Mean	Std. Deviation	Inform
Patient Loyalty Dimension	78	30	48	42.34	4.927	Very Good
Valid N *(Listwise)*	78					

Table 5 showed the average score for servqual was 83.97, while patient satisfaction had an average score of 63.67. Patient loyalty obtained an average score of 43.35. Based on the score range criteria for servqual, patient satisfaction, and patient loyalty, all variables were classified within the very good category. These findings suggest that the clinic was successful in delivering high-quality healthcare services that met patient expectations and resulted in strong patient satisfaction and loyalty. The consistently high scores across all variables also indicate a positive relationship between servqual, patient satisfaction, and patient loyalty, where better servqual may contribute to higher patient satisfaction and stronger loyalty toward the clinic.

Table 5 Descriptive statistic test of variables.

Descriptive Statistics						
	N	Min	Max	Mean	Std. Deviation	Inform
Servqual	78	64	98	83.97	7.533	Very Good
Patient Satisfaction	78	45	75	63.67	8.043	Very Good
Patient Loyalty	78	30	48	42.35	4.928	Very Good

3.2. The positive influence of servqual and patient satisfaction on patient loyalty

The results of the multiple regression analysis are presented in Table 6. Based on the unstandardized coefficients, the constant value (α) was -3.133, indicating that patient loyalty would decrease by 3.133 units if all independent variables (servqual and patient satisfaction) were assumed to be zero. The regression coefficient for the servqual variable was 0.368, meaning that every one-unit increase in servqual would increase patient loyalty by 0.368 units. This finding indicates that better servqual contributes positively to improving patient loyalty. Furthermore, the patient satisfaction variable had a regression coefficient of 0.648, indicating that every one-unit increase in patient satisfaction would increase patient loyalty by 0.648 units. This result suggests that patient satisfaction has a positive influence on patient loyalty and demonstrates a stronger contribution compared to servqual. Overall, these findings indicate that both servqual and patient satisfaction play important roles in increasing patient loyalty at the clinic.

Table 6 Multiple linear regression test.

Coefficients[a]					
Model	Unstandardized Coefficient		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	-3.133	2.688		-1.166	.247
Servqual	0.241	0.038	0.368	6.292	0.000
Patient Satisfaction	0.397	0.036	0.648	11.072	0.000

Note: [a]: Dependent Variable (Patient Loyalty).

3.3. Significant influence of servqual and patient satisfaction on patient loyalty

The hypothesis testing results demonstrated strong support for the proposed relationships. As shown in Table 7, the adjusted R Square value was 0.822, indicating that servqual and patient satisfaction jointly explained 82.2% of the variance in patient loyalty, while the remaining 17.8% was attributed to other variables not included in the study. The F-test (Table 8) yielded a calculated F-value of 179.011 ($p<0.001$), exceeding the F-table value of 3.12, confirming that servqual and patient satisfaction simultaneously had a significant effect on patient loyalty. Furthermore, the t-test results (Table 9) showed that both servqual ($t=6.292$, $p<0.05$) and patient satisfaction ($p<0.05$) individually had significant positive effects on patient loyalty, with t-values exceeding the t-table value of 1.992. Consequently, the null hypothesis was rejected, and the alternative hypothesis was accepted. Collectively, these findings indicate that patients who perceived better servqual and experienced higher satisfaction were more likely to remain loyal to the clinic, revisit for future healthcare services, and recommend the clinic to others.

Table 7 R Square test results.

Model Summary[b]				
Model	R	R2	Adjusted R2	Std. Error of the Estimate
1	0.909[a]	0.827	0.822	2.078

Note: [a]: Predictors: (Constant), Patient Satisfaction, Servqual; [b]: Dependent Variable: Patient Loyalty.

Table 8 Results of simultaneous F-test.

ANOVA[a]					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1545.82	2	772.91	179.01	0.000[b]
Residual	323.82	75	4.318		
Total	1869.65	77			

Note: [a]: Dependent Variable (Patient Loyalty); [b]: Predictors: (Constant), Patient Satisfaction, Servqual.

Table 9 Results of Partial T-Test.

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig
(Constant)	-3.133	2.688		-1.166	0.247
Servqual	0.241	0.038	0.368	6.292	0.000
Patient Satisfaction	0.397	0.036	0.648	11.072	0.000

Note: [a]: Dependent Variable (Patient Loyalty).

3.4. Patient perceptions across servqual dimensions

Qualitative data analysis was obtained through direct interviews conducted after respondents completed the questionnaire (Table 10). The interviews and observational findings provided deeper insights into patient perceptions regarding servqual, patient satisfaction, and patient loyalty at the clinic. Based on direct observations, healthcare personnel were found to work professionally, use personal protective equipment (PPE), and provide post-treatment education to patients, reflecting the dimensions of reliability and assurance. This professionalism included fast, accurate, safe, and procedure-based services that contributed positively to patient loyalty (Ferreira et al., 2023). In addition, the clinic demonstrated good tangible aspects, including neat staff appearance, comfortable waiting rooms, handwashing facilities, sterile examination tools, adequate availability of medications and medical equipment, clean examination rooms and bathrooms, and the provision of a suggestion box to accommodate patient feedback.

The qualitative interviews further revealed predominantly positive perceptions across the five dimensions of servqual, although several areas requiring improvement were also identified. In the tangible dimension, one respondent reported that some medical equipment was incomplete and that expired medicines were still present (Respondent 1). However, most respondents stated that the overall quality of services, equipment, and materials was already good (Respondents 35 and 43). These findings indicate that patients generally perceived the clinic facilities positively, despite several concerns regarding equipment completeness and medication management.

Regarding the reliability dimension, the majority of respondents expressed satisfaction with the professionalism and friendliness of healthcare staff, as well as the consistency of examinations performed according to standard procedures. Many respondents described the services as highly satisfying, detailed, and complete. Nevertheless, several respondents highlighted weaknesses in the referral system, which was perceived as slow and sometimes complicated for patients (Respondent 3). Overall, these findings suggest that the clinic was considered reliable in delivering healthcare services, although administrative efficiency still requires improvement.

In terms of responsiveness, respondents generally appreciated the communicative, informative, and cooperative attitudes of doctors and healthcare personnel. Many respondents stated that doctors listened carefully, answered questions clearly, and provided useful information regarding treatment and patient conditions. However, some negative experiences were also reported, including insufficient referral information from nurses and unfriendly communication styles (Respondent 5). In addition, long waiting times during busy periods remained a recurring complaint among several respondents (Respondent 18). Despite these concerns, the findings indicate that the clinic demonstrated good responsiveness in addressing patient needs and concerns.

Table 10 Respondent interview results.

Dimensions	Respondents (N=78)	Interview Results
Tangible	1, 35, 43	Most respondents stated that servqual and the quality of equipment or materials were already good. However, one respondent noted that the equipment was incomplete and that there was still expired medicine.
Reliability	2, 3, 4, 7, 9, 14, 15, 16, 20, 22, 25, 34, 46, 53, 56, 63, 67	The majority of respondents expressed satisfaction with professional, friendly, and procedure-compliant services, describing the service as "very satisfying" and examinations as "detailed" and "complete." A few criticisms emerged, including a slow referral system that seemed to complicate patient access.
Responsiveness	5, 8, 10, 13, 17, 18, 21, 23, 24, 27, 28, 29, 33, 42, 52, 78	Most respondents appreciated the doctor's communicative, informative, and cooperative nature, noting that doctors listen, answer questions clearly, and provide helpful information. Negative experiences included nurses providing insufficient referral information or answering curtly, as well as long waiting times when many patients were present.
Emphaty	6, 11, 44, 50, 70	The majority felt that doctors listen to and answer patient complaints willingly. However, one respondent noted that examinations were sometimes lacking in detail, and another reiterated the issue of long waiting times.
Assurance	12, 19, 26, 30, 49, 66	All respondents reported positive experiences, highlighting that doctors explain actions clearly, answer all questions, and provide detailed information about illnesses.
Willingness to Recommend	31, 36, 38, 39, 47, 48, 51, 54, 58, 60, 69, 71, 73, 76	Respondents expressed willingness to recommend the clinic through various means, including word of mouth, social media (*WhatsApp, Instagram*), personal chats, neighborhood events, and by sharing their positive experiences about friendly service and good facilities.
Conformity to Expectations	32, 37, 40, 41, 45, 55, 57, 59, 61, 62, 64, 65, 68, 72, 74, 75, 77	Respondents hope for consistent, friendly, fair, and responsive service; improved facilities (e.g., own laboratory, complete equipment, better medicines); more thorough examinations; faster response times; and continued professional development of the clinic.

For the empathy dimension, most respondents felt that doctors willingly listened to patient complaints and communicated well during consultations. Patients generally perceived healthcare personnel as caring and attentive toward their conditions. However, one respondent noted that examinations were occasionally not detailed enough (Respondent 11), while another again emphasized long waiting times during crowded conditions (Respondent 44). These findings indicate that empathy among healthcare providers was generally perceived positively by patients. The assurance dimension demonstrated consistently positive responses from all respondents. Patients reported that doctors were able to explain medical procedures clearly, answer all patient questions, and provide detailed information regarding illnesses and treatments. These findings suggest that patients had a high level of trust and confidence in the competence and professionalism of the healthcare staff.

Patient loyalty was also reflected in the high willingness of respondents to recommend the clinic to others. Respondents stated that they would promote the clinic through direct communication, word of mouth, social media platforms such as WhatsApp and Instagram, and personal conversations. This willingness to recommend reflects high patient satisfaction and trust in the quality of healthcare services provided by the clinic.

In relation to conformity to expectations, respondents expressed hopes that the clinic would continue improving its servqual by maintaining friendly communication, providing faster responses, improving examination thoroughness, ensuring the availability of complete equipment and medications, and eventually establishing an in-house laboratory facility. Overall, the qualitative findings indicate that patient satisfaction and loyalty toward the clinic were generally high. However, improvements in equipment completeness, referral system efficiency, waiting time management, and examination thoroughness may further strengthen patient satisfaction and long-term patient loyalty.

The results of the partial T-test indicate a significant relationship between servqual and patient loyalty. This finding is consistent with previous studies demonstrating that patients who perceive healthcare services as reliable, responsive, empathetic, and trustworthy are more likely to remain loyal to a healthcare provider and continue utilizing its services (Amin & Nasharuddin, 2013; Caruana, 2002). High-quality healthcare services not only fulfill patients' needs and expectations but also contribute to the development of trust and long-term relationships between patients and healthcare providers. Therefore, healthcare organizations should continuously improve both clinical and non-clinical aspects of service delivery, including administrative efficiency, communication, responsiveness, and patient comfort.

The findings also revealed a significant association between patient satisfaction and patient loyalty. This result supports the widely accepted view that patient satisfaction is a key determinant of loyalty-related behaviors, including revisit intention and positive word-of-mouth recommendations (Batbaatar et al., 2017; Oliver, 1999). Satisfied patients are more likely to return to the same healthcare facility for future care and recommend the provider to family members, friends, and the wider community. Consequently, maintaining high levels of patient satisfaction is essential for sustaining patient retention and strengthening the competitive position of healthcare organizations.

Furthermore, the simultaneous analysis demonstrated that patient satisfaction and servqual jointly influence patient loyalty. This finding is consistent with the service marketing literature, which suggests that servqual contributes directly to loyalty and indirectly through its effect on patient satisfaction (Amin & Nasharuddin, 2013; Caruana, 2002). Together, these findings highlight the importance of delivering high-quality healthcare services that meet or exceed patient expectations and promote positive healthcare experiences. Previous studies have consistently demonstrated that servqual and patient satisfaction are key determinants of patient loyalty, influencing patients' intentions to revisit healthcare facilities and recommend them to others (Amin & Nasharuddin, 2013; Batbaatar et al., 2017; Caruana, 2002). Therefore, healthcare providers seeking to strengthen patient loyalty should prioritize continuous quality improvement initiatives aimed at enhancing both service performance and patient satisfaction.

However, several limitations should be considered when interpreting the findings of this study. First, the analysis was limited to two independent variables, namely servqual and patient satisfaction. Other factors that may influence patient loyalty, such as patient trust, perceived value, healthcare accessibility, patient experience, organizational image, and communication quality, were not included in the model. Previous studies have shown that these factors can also play important roles in shaping patient loyalty and healthcare utilization behaviors (Kristinawati et al., 2023; Oliver, 1999). The qualitative findings of this study revealed predominantly positive perceptions across all dimensions of servqual while also highlighting several critical areas for improvement. Notably, one respondent reported the presence of expired medication and incomplete medical equipment. While this solitary report of expired medication presents a safety concern, it did not significantly impact the overall high quantitative satisfaction scores. This discrepancy may be attributed to a 'gratitude bias' or 'social desirability bias' among the participant cohort (Badejo et al., 2022; Day et al., 2020). Given that the study was conducted within a police-affiliated healthcare facility and many respondents were police officers, participants may have felt a sense of organizational solidarity, leading to higher ratings despite isolated operational failures. Therefore, while the quantitative data reflect high general satisfaction, the qualitative feedback serves as a vital diagnostic tool (Wardhana et al., 2026), ensuring that individual service operational challenges such as supply chain management and inventory auditing, are not obscured by aggregate positive scores.

5. Conclusions

This study demonstrated that servqual and patient satisfaction are significant determinants of patient loyalty in a primary healthcare setting. Both variables independently and jointly contributed to strengthening patients' intention to continue utilizing healthcare services. While the quantitative findings indicated high levels of servqual, patient satisfaction, and patient loyalty, the qualitative findings identified several operational challenges, including prolonged waiting times, limitations in the referral system, medication inventory management, and the availability of medical equipment. These findings suggest that maintaining patient loyalty requires not only high-quality interpersonal care but also continuous improvements in operational efficiency and patient safety. Therefore, primary healthcare managers should prioritize strengthening referral coordination, optimizing patient flow to reduce waiting times, implementing regular medication inventory audits, and ensuring the availability of essential medical equipment. Addressing these areas may further enhance patient satisfaction, strengthen patient loyalty, and improve the overall quality of healthcare services.

Acknowledgment

The authors would like to express their sincere gratitude to the Master Program in Dental Sciences, Faculty of Dentistry, Universitas Islam Sultan Agung (UNISSULA), Semarang, Indonesia, for its academic guidance, institutional support, and encouragement throughout the conduct of this study.

6. Declarations

6.1. Ethical considerations

This study was conducted in accordance with the Declaration of Helsinki. Ethical approval was obtained from the Ethics Committee of Universitas Islam Sultan Agung, Indonesia (Approval No. 683/B-1.KEPK/SA-FKG/II/2025). Written informed consent was obtained from all participants.

6.2. Use of artificial intelligence (AI)

The authors declare that the generative artificial intelligence (AI) tool QuillBot Premium (2026) was used solely to improve the language, grammar, and readability of the manuscript. The AI tool was not used for generating scientific content, interpreting data, drawing conclusions, or making editorial decisions. The authors reviewed and verified all AI-assisted revisions and accept full responsibility for the accuracy, integrity, and content of the manuscript.

6.3. Conflict of interest

All authors have no conflict of interest to be declared.

6.4. Funding

This research did not receive any financial support.

References

Alfian, A., Yusriani, Y., Yuliati, Y., Mahmud, N., & Alwi, M. (2026). Strategies to enhance inpatients' revisit intention through the Blue Ocean Strategy and Customer Satisfaction Index. *Journal La Medihealtico, 7*, 195–219. https://doi.org/10.37899/journallamedihealtico.v7i1.3066

Amin, M., & Nasharuddin, S. (2013). Hospital service quality and its effects on patient satisfaction and behavioural intention. *Clinical Governance: An International Journal, 18*(3), 238–254. https://doi.org/10.1108/CGIJ-05-2012-0016

Anugraheni, T., Izzah, L., & Hadi, M. (2023). Increasing the students' speaking ability through role-playing with Slovin's formula sample size. *Jurnal Studi Guru dan Pembelajaran, 6*(3), 262–272. https://doi.org/10.30605/jsgp.6.3.2023.2825

Badejo, M. A., Ramtin, S., Rossano, A., Ring, D., Koenig, K., & Crijns, T. J. (2022). Does adjusting for social desirability reduce ceiling effects and increase variation of patient-reported experience measures? *Journal of Patient Experience, 9*, Article 23743735221079144. https://doi.org/10.1177/23743735221079144

Bah, S. (2001). Discovering Statistics Using SPSS for Windows: Advanced Techniques for Beginners by A. Field. *Journal of the Royal Statistical Society: Series D (The Statistician), 50*(4), 551–552. https://doi.org/10.2307/2681235

Batbaatar, E., Dorjdagva, J., Luvsannyam, A., & Amenta, P. (2015). Conceptualisation of patient satisfaction: A systematic narrative literature review. *Perspectives in Public Health, 135*(5), 243–250. https://doi.org/10.1177/1757913915594196

Batbaatar, E., Dorjdagva, J., Luvsannyam, A., Savino, M. M., & Amenta, P. (2017). Determinants of patient satisfaction: A systematic review. *Perspectives in Public Health, 137*(2), 89–101. https://doi.org/10.1177/1757913916634136

Caruana, A. (2002). Service loyalty: The effects of service quality and the mediating role of customer satisfaction. *European Journal of Marketing, 36*(7/8), 811–828. https://doi.org/10.1108/03090560210430818

Cho, E., & Kim, S. (2015). Cronbach's coefficient alpha: Well known but poorly understood. *Organizational Research Methods, 18*(2), 207–230. https://doi.org/10.1177/1094428114555994

Creswell, J. W., Fetters, M. D., & Ivankova, N. V. (2004). Designing a mixed methods study in primary care. *The Annals of Family Medicine, 2*(1), 7–12. https://doi.org/10.1370/afm.104

Day, G., Robert, G., & Rafferty, A. (2020). Gratitude in health care: A meta-narrative review. *Qualitative Health Research, 30*(14), 2303–2315. https://doi.org/10.1177/1049732320951145

Doyle, L., Brady, A.-M., & Byrne, G. (2016). An overview of mixed methods research revisited. *Journal of Research in Nursing, 21*(8), 623–635. https://doi.org/10.1177/1744987116674257

Ferreira, D. C., Vieira, I., Pedro, M. I., Caldas, P., & Varela, M. (2023). Patient satisfaction with healthcare services and the techniques used for its assessment: A systematic literature review and a bibliometric analysis. *Healthcare, 11*(5), Article 639. https://doi.org/10.3390/healthcare11050639

Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: Interviews and focus groups. *British Dental Journal, 204*(6), 291–295. https://doi.org/10.1038/bdj.2008.192

Hair, J. F., & Sabol, M. (2025). Overview of multivariate data analysis. In M. Lovric (Ed.), *International Encyclopedia of Statistical Science* (2nd ed., pp. 1853–1856). Springer. https://doi.org/10.1007/978-3-662-69359-9_20

Harriet, N., Arthur, N., Komunda, M., & Mugizi, T. (2024). Service quality, customer loyalty and customer retention among private health care services in Mbarara City. *Open Journal of Social Sciences, 12*(1), 101–126. https://doi.org/10.4236/jss.2024.121008

Kallio, H., Pietilä, A.-M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing, 72*(12), 2954–2965. https://doi.org/10.1111/jan.13031

Kristinawati, F., Gunardi, W., & Fushen. (2023). The effect of service quality and patient satisfaction on patient loyalty mediated by patient trust at Rumah Indonesia Sehat (RIS) Hospital. *MORFAI Journal, 2*(4), 701–717. https://doi.org/10.54443/morfai.v2i4.630

Lee, D. (2017). HEALTHQUAL: A multi-item scale for assessing healthcare service quality. *Service Business, 11*(3), 491–516. https://doi.org/10.1007/s11628-016-0317-2

Liu, S., Li, G., Liu, N., & Wang, H. (2021). The impact of patient satisfaction on patient loyalty with the mediating effect of patient trust. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing, 58*, Article 00469580211007221. https://doi.org/10.1177/00469580211007221

Mukti, B. H. (2025). Sample size determination: Principles and applications for health research. *Health Sciences International Journal, 3*(1), 127–143. https://doi.org/10.71357/hsij.v3i1.63

Noviyani, A., & Viwattanakulvanid, P. (2025). Service quality as a driver of perceived value, satisfaction, and revisit intention in Indonesia. *Scientific Reports, 15*(1), Article 43363. https://doi.org/10.1038/s41598-025-29414-3

Oliver, R. L. (1999). Whence consumer loyalty? *Journal of Marketing, 63*(Special Issue), 33–44. https://doi.org/10.2307/1252099

Opuni, F., & Alhassan, I. (2023). The Likert scale: Exploring the unknowns and their potential to mislead the world. *UDS International Journal of Development, 9*, 867–880. https://doi.org/10.47740/586.UDSIJD6i

Otani, K., Waterman, B., Faulkner, K. M., Boslaugh, S., Burroughs, T. E., & Dunagan, W. C. (2009). Patient satisfaction: Focusing on "excellent." *Journal of Healthcare Management, 54*(2), 93–103.

Palinkas, L. A., Aarons, G. A., Horwitz, S., Chamberlain, P., Hurlburt, M., & Landsverk, J. (2011). Mixed method designs in implementation research. *Administration and Policy in Mental Health and Mental Health Services Research, 38*(1), 44–53. https://doi.org/10.1007/s10488-010-0314-z

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing, 64*(1), 12–40.

Rianto, L., Agustina, I., Alfian, S. D., Iskandarsyah, A., Pradipta, I. S., & Abdulah, R. (2024). Development and validation of a structured questionnaire for assessing risk factors of medication non-adherence among pulmonary tuberculosis patients in Indonesia. *Frontiers in Pharmacology, 14*, Article 1257353. https://doi.org/10.3389/fphar.2023.1257353

Rifa, A., & Bernarto, I. (2023). Patient satisfaction and intention to revisit outpatient specialist clinic at XYZ Hospital, Bekasi City. *Jurnal Aplikasi Bisnis dan Manajemen, 9*(3), 887–898. https://doi.org/10.17358/jabm.9.3.887

Robinson, P. (2007). Designing and conducting mixed methods research. *Australian and New Zealand Journal of Public Health, 31*(4), 388. https://doi.org/10.1111/j.1753-6405.2007.00096.x

Shabbir, A., Malik, S. A., & Malik, S. A. (2016). Measuring patients' healthcare service quality perceptions, satisfaction, and loyalty in public and private sector hospitals in Pakistan. *International Journal of Quality & Reliability Management, 33*(5), 538–557. https://doi.org/10.1108/IJQRM-06-2014-0074

Sholeh, M., & Chalidyanto, D. (2021). The effect of service quality on loyalty through patient satisfaction in outpatient of Hospital X, Malang. *JMMR (Jurnal Medicoeticolegal dan Manajemen Rumah Sakit), 10*(2), 148–157. https://doi.org/10.18196/jmmr.v10i2.10239

Sofiaturrohmah, S., & Kasman, A. (2025). Service quality disparities in public healthcare: A comparative study of customer expectations and perceptions in urban and remote areas of Indonesia. *Government & Resilience, 3*(2), 21–31. https://doi.org/10.62503/gr.v3i2.29

Wardhana, E., Ratnawati, I., & Shafira, N. (2026). Patient satisfaction and loyalty based on SERVQUAL and PRP dimensions at the dental polyclinic of Sragen Hospital. *Indonesian Journal of Dentistry, 6*(1), Article 23. https://doi.org/10.26714/ijd.v6i1.19385

Wulandari, A. R. C., Rachmawaty, R., Ilkafah, I., & Erfina, E. (2021). Patient satisfaction towards healthcare quality in Indonesian public hospital. *Enfermería Clínica, 31*(Suppl. 2), S745–S750. https://doi.org/10.1016/j.enfcli.2021.09.006

Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing, 60*(2), 31–46. https://doi.org/10.1177/002224299606000203