

THE INFLUENCE OF QUALITY MANAGEMENT AND PATIENT SAFETY ON HEALTHCARE SERVICE QUALITY AND PATIENT SATISFACTION

Hasno Abbas^{1*}, Abdul Gani Sidqi², Ayu Laili Rahmiyati³

^{1,2,3}Master of Management Study Program, Universitas Sangga Buana YPKP Bandung, Bandung City, Indonesia

E-mail: hasnoabbasskmmmmkes@gmail.com^{1*}, abdulganisidqi@gmail.com², ayunasihin2@gmail.com³

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Abstract

Healthcare quality is increasingly determined by the capacity of primary healthcare facilities to integrate quality management, patient safety, and patient-centered service delivery. This study aims to analyze the effects of quality management and patient safety on healthcare service quality and BPJS patient satisfaction, as well as to examine the mediating role of healthcare service quality at UPTD Puskesmas Tubaan, Berau Regency, Indonesia. A quantitative approach was employed using a cross-sectional survey of 82 BPJS patients selected through Slovin's sampling formula. Data were collected using a structured questionnaire with a five-point Ordinal scale and analyzed using descriptive statistics, validity and reliability testing, classical assumption tests, multiple linear regression, and path analysis. The results indicate that quality management has a positive and significant effect on healthcare service quality ($\beta = 0.318$; $p = 0.003$), while patient safety also has a positive and significant effect ($\beta = 0.301$; $p = 0.005$). Quality management significantly affects BPJS patient satisfaction ($\beta = 0.271$; $p = 0.011$), as does patient safety ($\beta = 0.279$; $p = 0.010$). Healthcare service quality has a significant positive effect on BPJS patient satisfaction ($\beta = 0.322$; $p = 0.002$). The estimated indirect effects of quality management and patient safety on satisfaction through healthcare service quality are 0.102 and 0.097, respectively. These findings indicate that healthcare service quality represents an important mechanism linking organizational quality practices and patient safety with patient satisfaction. The study highlights the importance of integrating continuous quality improvement, patient-safety practices, staff involvement, service responsiveness, and patient-oriented care to strengthen the experience and satisfaction of BPJS patients in primary healthcare settings.

Keywords: BPJS; Healthcare; Patients; Safety; Satisfaction

INTRODUCTION

Healthcare quality and patient safety have become central concerns in the development of effective, accountable, and patient-centred health systems. Quality improvement is increasingly understood not merely as compliance with technical standards but as a continuous organizational process aimed at improving safety, effectiveness, efficiency, responsiveness, and patient experience. Contemporary healthcare quality management incorporates structured improvement approaches, including Lean, Six Sigma, Plan-Do-Study-Act, and other continuous quality improvement methodologies (Pruitt et al., 2020; Zhou et al., 2025). Recent studies also show that systematic quality improvement can reduce errors, improve operational processes, and strengthen patient safety across healthcare settings (Al Yami et al., 2024; Kanyal & Ghewade, 2025; Oyeneyin et al., 2024).

Patient safety is an integral component of healthcare quality because preventable adverse events may directly affect clinical outcomes and patients' experiences. Recent evidence demonstrates that safety improvement requires not only incident prevention but also organizational learning, safety culture, staff engagement, and systematic monitoring. For example, quality improvement initiatives have been associated with substantial reductions in preventable patient safety incidents (Oyeneyin et al., 2024), while implementing structured safety programmes has strengthened safety culture and improved patient outcomes (Obaid et al., 2023). Similarly, patient complaints can provide valuable information for identifying diagnostic and service-related safety concerns and therefore constitute an important source for organizational learning and quality improvement (Clausen et al., 2024; Giardina et al., 2021).

The relationship between healthcare quality and patient experience is particularly important in primary healthcare, where patients frequently interact with frontline providers. Patient-centred care emphasizes access, involvement, cooperation, effectiveness, safety, and responsiveness to patients' needs and preferences (Khosravi et al., 2024). Empirical evidence also shows that perceived service quality is closely associated with patient satisfaction. In particular, reliability and responsiveness have been identified as important dimensions influencing

patient satisfaction in healthcare services (Wu et al., 2024) . Thus, healthcare service quality can function as an important mechanism through which organizational quality management and patient safety translate into better patient experiences.

In Indonesia, Puskesmas constitute an important component of primary healthcare and serve as first-level healthcare facilities within the National Health Insurance system. Consequently, the quality and safety of services delivered by Puskesmas have implications not only for health outcomes but also for public perceptions of the healthcare system. Indonesian health policy places increasing emphasis on continuous quality improvement, patient safety, and patient-oriented service delivery. Nevertheless, quality improvement in primary healthcare remains influenced by organizational capacity, service processes, human resources, and the consistency with which quality and safety practices are implemented.

This issue is evident at UPTD Puskesmas Tubaan. Preliminary data from the Community Satisfaction Survey (*Survei Kepuasan Masyarakat* or SKM) indicate that the Community Satisfaction Index (IKM) fluctuated during 2021–2025.

Table 1. Community Satisfaction Index of UPTD Puskesmas Tubaan, 2021–2025

Year	Community Satisfaction Index (IKM)	Service Quality Category
2021	80.6	Good
2022	76.3	Fair
2023	82.9	Good
2024	84.8	Good
2025	86.2	Good

Source: Preliminary Community Satisfaction Survey data, UPTD Puskesmas Tubaan, 2026

The data show a decline in IKM from 80.6 in 2021 to 76.3 in 2022, followed by gradual improvement to 86.2 in 2025. Although the subsequent scores returned to the “Good” category, none reached the “Very Good” threshold of 88.31 stipulated in the Indonesian public service satisfaction framework. This fluctuation suggests that improvements in perceived service quality have not yet been consistently translated into the highest level of patient satisfaction.

Previous studies provide evidence that quality management, patient safety, and patient-centred approaches are interconnected dimensions of healthcare improvement. Quality management interventions can improve service processes and reduce inefficiencies, while patient-centred approaches strengthen patient experience and satisfaction (Al Yami et al., 2024; Devlin et al., 2024; Lopresti et al., 2020) . In addition, organizational leadership and a supportive safety culture may reinforce healthcare professionals’ commitment to quality and patient safety (Ahmed et al., 2024; Teo et al., 2025) . However, much of the available empirical literature focuses on hospital settings, accreditation, specialized clinical services, or specific quality improvement interventions. Evidence examining the integrated relationship between quality management, patient safety, healthcare service quality, and patient satisfaction in primary healthcare facilities, particularly Puskesmas in Indonesia, remains comparatively limited.

This study therefore examines the impact of quality management and patient safety on healthcare service quality and patient satisfaction at UPTD Puskesmas Tubaan. It further investigates whether healthcare service quality mediates the relationships between quality management and patient satisfaction and between patient safety and patient satisfaction. By integrating these relationships within a primary healthcare context, the study seeks to contribute empirical evidence to the healthcare quality management literature and provide practical insights for strengthening continuous quality improvement, patient safety, service quality, and patient-centred care

LITERATURE REVIEW

Quality Management and Patient Safety in Healthcare

Quality management in healthcare is a systematic organizational approach to maintaining and continuously improving quality, safety, efficiency, and effectiveness. It involves process control, performance measurement, staff involvement, patient-centred care, and continuous improvement rather than merely administrative activities. (Ahmed et al., 2024) identify Lean, Six Sigma, Plan–Do–Study–Act (PDSA), and Define–Measure–Analyze–Improve–Control (DMAIC) as important approaches for structuring continuous quality improvement. Recent evidence

supports this perspective. (Zhou et al., 2025) demonstrated that Six Sigma DMAIC reduced prescription errors and improved process quality, patient safety, and job satisfaction, while (Al Yami et al., 2024) found that Lean, Six Sigma, and TQM can reduce waiting times, procedural errors, and inefficiencies while improving patient satisfaction and safety.

The effectiveness of quality management, however, depends on organizational capacity and implementation conditions. (Alhassan et al., 2024) reported that participation in a structured quality improvement programme improved perceived healthcare quality, patient safety, patient satisfaction, and service utilization, although staff motivation, workload, and resource limitations constrained implementation. (Gupta et al., 2023) similarly showed that organizational self-assessment against accreditation standards can support continuous improvement in performance, service quality, and patient satisfaction. (Kanyal & Ghewade, 2025) further associated accreditation with improvements in quality indicators, patient safety, operational efficiency, documentation, and patient satisfaction. These findings indicate that quality management requires not only formal standards but also organizational commitment, monitoring, and sustained improvement.

Patient safety is closely connected with quality management because safe care depends on effective risk identification, error prevention, incident reporting, organizational learning, and safety culture. Quality improvement interventions have demonstrated measurable safety benefits. (Oyeneyin et al., 2024) reported a reduction in falls from 9.5 to 4.6 per 1,000 bed days following a structured quality improvement initiative, while (Obaid et al., 2023) found substantial improvement in nursing units achieving extended periods without harm after implementing a zero-harm programme. (Ahmed et al., 2024) further highlighted the role of leadership and compassion in strengthening patient safety, organizational culture, patient engagement, and healthcare quality.

Patient involvement and feedback also contribute to patient safety and quality improvement. (Giardina et al., 2021) demonstrated that patient complaints can reveal diagnostic safety concerns and opportunities for organizational learning, while (Clausen et al., 2024) showed that patient complaints can identify quality and safety problems that may be overlooked when improvement relies primarily on clinician-generated reports. (Teo et al., 2025) likewise demonstrated the importance of organizational systems, leadership, caregiver engagement, education, and workflow redesign in operationalizing patient safety goals and improving patient experience.

These relationships are particularly relevant in primary healthcare. (Roach et al., 2022) identified access, relationships, quality, and safety as interconnected dimensions of high-quality primary care, while (Gomez-Cano et al., 2021; Wu et al., 2024) emphasized patient experience as an important indicator for understanding variations in primary-care quality and safety. Thus, patient safety can be conceptualized as an organizational and process-level determinant of healthcare service quality, while quality management provides the organizational mechanisms through which safe and reliable care can be continuously improved.

Healthcare Service Quality and Patient Satisfaction

Healthcare service quality reflects the extent to which healthcare services meet patients' clinical, functional, interpersonal, and experiential expectations. Beyond technical effectiveness, patients assess services through reliability, responsiveness, assurance, empathy, accessibility, communication, and physical conditions. The SERVQUAL model of Parasuraman et al. (1988), comprising tangibles, reliability, responsiveness, assurance, and empathy, remains an important framework for evaluating perceived service quality. Its continued relevance is supported by (Wu et al., 2024), who found that reliability and responsiveness had direct effects on patient satisfaction.

Patient experience is increasingly regarded as an essential component of healthcare quality alongside clinical effectiveness and patient safety. (Chakaipa et al., 2022) demonstrated that patient experience is multidimensional, involving access to care, interpersonal relationships, physical conditions, psychological responses, and other aspects of healthcare encounters. (Roach et al., 2022) similarly emphasized that quality primary care should integrate access, relationships, safety, and quality from the patient's perspective. These findings indicate that service quality is not solely determined by clinical performance but also by how patients experience the delivery of care.

Service quality is also shaped by the design and improvement of healthcare processes. (Al Yami et al., 2024) found that process improvement methodologies can simultaneously improve procedural efficiency, patient safety, and satisfaction, while (Hou et al., 2022) demonstrated that quality function deployment can translate patient needs into targeted service-quality improvements. In the Indonesian healthcare context, (Sunarko & Koeswo, 2020) identified management, human resources, drug availability, waiting time, and insurance-related processes as factors associated with healthcare service performance. These findings reinforce the importance of organizational and operational processes in shaping patients' perceptions of service quality.

Patient satisfaction represents the overall evaluation of the healthcare experience and is influenced by the correspondence between expected and perceived service performance. Evidence indicates that service quality is an important determinant of satisfaction. (Wu et al., 2024) found that reliability and responsiveness directly influenced patient satisfaction, while (Gomez-Cano et al., 2021) highlighted patient experience as an important measure of primary-care quality and safety. Quality improvement programmes have also been associated with improvements in satisfaction. (Alhassan et al., 2024) reported improvements in patient satisfaction alongside quality and safety improvements, while (Kanyal & Ghewade, 2025) found increased patient satisfaction following accreditation-related quality improvements.

Patient-centred care provides an additional explanation of satisfaction. Khosravi et al. (2024) identified education, involvement and cooperation, access, effectiveness and safety, health and well-being, and ethics as central elements of patient-centredness, indicating that patient involvement and safe, accessible, and responsive care can improve healthcare experiences. (Teo et al., 2025) similarly demonstrated that patient and caregiver engagement can be integrated into healthcare workflows to improve patient experience. Therefore, patient satisfaction can be conceptualized as an important outcome of healthcare service quality and, more broadly, of organizational quality management and patient safety.

Integrated Relationships and Research Gap

The literature suggests that quality management, patient safety, service quality, and patient satisfaction are interconnected but conceptually distinct. Quality management emphasizes systematic process control and continuous improvement, whereas patient safety focuses specifically on preventing avoidable harm, managing risks, and developing a culture of organizational learning. Both mechanisms can influence patients' perceptions of service quality. Empirical evidence shows that quality improvement can reduce errors and improve safety outcomes (Zhou et al., 2025; Oyeneyin et al., 2024), while structured quality programmes can improve healthcare standards and patient satisfaction (Alhassan et al., 2024; Kanyal & Ghewade, 2025).

Service quality provides an important mechanism linking organizational practices to patient satisfaction. Patients do not directly experience quality-management systems or safety policies; rather, they encounter their consequences through reliable, responsive, safe, accessible, and patient-centred services. Evidence from process improvement and patient-centred care studies supports this mechanism (Al Yami et al., 2024; Hou et al., 2022; Khosravi et al., 2024). Patient experience research further demonstrates that quality and safety are reflected in patients' actual interactions with healthcare systems (Chakaipa et al., 2022; Gomez-Cano et al., 2021).

Despite substantial research on these individual relationships, important gaps remain. First, many studies focus on hospitals, tertiary-care facilities, or specific clinical services, whereas evidence from primary healthcare remains comparatively limited (Obaid et al., 2023; Kanyal & Ghewade, 2025). Second, existing studies frequently examine quality management, patient safety, service quality, or patient satisfaction separately rather than integrating them within a single empirical model. Third, although previous research demonstrates that quality improvement and patient safety can improve healthcare outcomes, the mechanism through which these organizational factors influence patient satisfaction through perceived service quality requires further examination. Fourth, empirical evidence integrating these relationships in the Indonesian primary healthcare context remains limited.

Therefore, this study develops an integrated model in which quality management and patient safety function as exogenous variables, healthcare service quality serves as a mediating variable, and patient satisfaction represents the outcome variable. The model proposes that effective quality management strengthens the consistency and reliability of healthcare processes, while effective patient safety practices reduce service risks and enhance perceived safety and reliability. These improvements are expected to strengthen healthcare service quality, which subsequently contributes to higher patient satisfaction. In this framework, healthcare service quality provides the principal mechanism through which organizational quality management and patient safety are translated into patients' evaluations of healthcare services.

METHOD

Research Design and Research Object

This study employed a quantitative cross-sectional survey to examine the relationships among quality management, patient safety, healthcare service quality, and BPJS patient satisfaction (Bloomfield & Fisher, 2019; Creswell & Creswell, 2018; Ghanad, 2023; Holton & Burnett, 2005; Takona, 2024). Conducted at UPTD Puskesmas Tubaan, Berau Regency, the study involved 450 monthly BPJS patient visits, from which 82 respondents were selected using the Slovin formula with a 10% margin of error. The model comprised quality management (X_1) and

patient safety (X_2) as independent variables, healthcare service quality (Z) as a mediator, and BPJS patient satisfaction (Y) as the dependent variable, reflecting established links between quality improvement, patient safety, service quality, and patient experience (Al Yami et al., 2024; Alhassan et al., 2024; Gupta et al., 2023; Pruitt et al., 2020; Roach et al., 2022; Wu et al., 2024; Zhou et al., 2025). Respondents were BPJS participants aged ≥ 18 years who had directly received services and completed the questionnaire, while emergency patients, those unable to communicate adequately, and incomplete responses were excluded, ensuring that assessments were based on direct patient experience (Chakaipa et al., 2022; Giardina et al., 2021; Clausen et al., 2024).

Population and Sample

The population comprised all BPJS Health participants receiving services at UPTD Puskesmas Tubaan, with an average of approximately 450 visits per month. Using the Slovin formula with a 10% margin of error, 82 respondents were selected. Eligible participants were BPJS members aged ≥ 18 years who had directly received healthcare services and completed the questionnaire voluntarily; emergency patients, individuals with cognitive or communication limitations, and incomplete responses were excluded. This approach ensured that respondents had direct experience with the services assessed, consistent with the importance of patient perspectives in evaluating healthcare quality, safety, and patient experience (Chakaipa et al., 2022; Roach et al., 2022; Gomez-Cano et al., 2021; Giardina et al., 2021; Clausen et al., 2024; Khosravi et al., 2024; Teo et al., 2025).

Research Variables and Instruments

The study examined four variables: quality management (X_1), measured by leadership commitment, employee involvement, SOP implementation, continuous quality evaluation, and patient orientation based on TQM and continuous quality improvement principles (Goetsch & Davis, 2016; Alamsyah et al., 2018; Pruitt et al., 2020; Gupta et al., 2023; Alhassan et al., 2024); patient safety (X_2), assessed through patient identification, effective communication, error prevention, incident reporting, and safety culture in line with WHO and national frameworks (WHO, 2021; Kementerian Kesehatan RI, 2022; Ahmed et al., 2024; Obaid et al., 2023; Teo et al., 2025); healthcare service quality (Z), measured using the SERVQUAL dimensions of reliability, responsiveness, assurance, empathy, and tangibles (Parasuraman et al., 1988; Tjiptono & Diana, 2016; Wu et al., 2024; Roach et al., 2022; Gomez-Cano et al., 2021); and BPJS patient satisfaction (Y), assessed through service procedures, waiting time, staff attitudes, facilities, and complaint handling, reflecting patients' overall evaluation of healthcare experiences (Oliver, 2010; Khosravi et al., 2024; Wu et al., 2024; Teo et al., 2025). All indicators were measured using a five-point Ordinal scale (1 = strongly disagree to 5 = strongly agree) and operationalized through a structured questionnaire.

Data Collection and Data Analysis

Primary data were collected through a closed-ended questionnaire administered to BPJS patients after receiving services at UPTD Puskesmas Tubaan, using a five-point Ordinal scale to assess quality management, patient safety, healthcare service quality, and patient satisfaction (Bloomfield & Fisher, 2019; Chakaipa et al., 2022; Ghanad, 2023; Holton & Burnett, 2005; Takona, 2024). Secondary data included the health center profile, BPJS patient visits, quality and patient-safety documents, and Community Satisfaction Survey (SKM) results, supported by scientific literature, WHO documents, and Indonesian health regulations (WHO, 2022). Data were analyzed using SPSS through descriptive statistics, validity and reliability tests, and classical assumption tests. Item validity was assessed using Pearson correlation, while reliability was evaluated using Cronbach's Alpha (≥ 0.70) (Ghozali, 2021). Multiple linear regression and path analysis were employed to examine direct and indirect relationships. The first model tested the effects of quality management (X_1) and patient safety (X_2) on healthcare service quality (Z), while the second examined their effects on BPJS patient satisfaction (Y), with Z as the mediator. Hypotheses were tested at $\alpha = 0.05$ using t , F , and indirect-effect tests (Pruitt et al., 2020; Hou et al., 2022; Wu et al., 2024).

RESULTS AND DISCUSSION

Respondent Characteristics

The study involved 82 BPJS patients who received healthcare services at UPTD Puskesmas Tubaan. The characteristics of respondents are presented in Table 2.

Table 2. Characteristics of Respondents

Characteristics	Category	n	%
Gender	Male	38	46.34
	Female	44	53.66
Age	26–35 years	22	26.83
	36–45 years	21	25.61
	46–55 years	23	28.05
	>55 years	16	19.51
Education	Elementary school	24	29.27
	Junior high school	14	17.07
	Senior high school	21	25.61
	Diploma	16	19.51
	Bachelor's degree	7	8.54
Occupation	Civil servant	17	20.73
	Housewife	20	24.39
	Entrepreneur	19	23.17
	Private employee	14	17.07
	Other	12	14.64
Visit frequency	2–3 visits	36	43.90
	3 visits	24	29.27
	>3 visits	22	26.83

Source: Research findings, 2026

The respondent profile indicates that healthcare services at UPTD Puskesmas Tubaan are utilized by patients with diverse demographic and socioeconomic backgrounds. Female respondents constituted a slightly larger proportion than males, while the largest age group was 46–55 years. Importantly, most respondents had visited the health center more than once, providing them with direct experience of the service process. This is relevant because patient experience represents an important dimension of healthcare quality assessment, complementing clinical effectiveness and safety (Chakaipa et al., 2022; Roach et al., 2022).

Descriptive Results

The descriptive assessment of the four study variables is summarized in Table 2.

Table 3. Descriptive Statistics of Study Variables

Variable	Mean	Category
Quality Management (X ₁)	3.66	Good
Patient Safety (X ₂)	3.65	Good
Healthcare Service Quality (Z)	3.68	Good
BPJS Patient Satisfaction (Y)	3.68	Good

Source: Research findings, 2026

All variables were rated in the good category, with mean scores ranging from 3.65 to 3.68. Healthcare service quality and patient satisfaction obtained the highest mean score (3.68), whereas patient safety obtained the lowest (3.65), although the difference was relatively small. These findings suggest that respondents generally perceived the quality-management system, patient-safety practices, service delivery, and resulting satisfaction positively. Such findings support the broader perspective that healthcare quality is multidimensional and involves organizational processes, safety, service delivery, and patient experience (WHO, 2021; Gupta et al., 2023; Khosravi et al., 2024).

Measurement and Regression Assumptions

The questionnaire demonstrated acceptable measurement quality. All quality-management items had Pearson correlation coefficients ranging from 0.564 to 0.612; patient-safety items ranged from 0.617 to 0.648; healthcare service quality items ranged from 0.612 to 0.654; and patient-satisfaction items ranged from 0.631 to 0.675. All coefficients exceeded the critical value of 0.217 and were therefore considered valid. The reliability test also indicated that all constructs had Cronbach's Alpha values above the acceptance threshold.

The regression assumptions were also satisfied. The Kolmogorov–Smirnov tests produced significance values of 0.200 for Model I and 0.164 for Model II, indicating normally distributed residuals. No multicollinearity was identified, with VIF values of 1.096 for Model I and between 1.148 and 1.172 for Model II. The Glejser tests also indicated no heteroskedasticity, with significance values of 0.182 and 0.651, respectively. These results indicate that the regression models were suitable for subsequent hypothesis testing.

Effects of Quality Management and Patient Safety on Healthcare Service Quality

The results of the first regression model are presented in Table 3.

Table 4. Regression Results for Healthcare Service Quality

Predictor	B	β	t	Sig.
Quality Management (X_1)	0.286	0.318	3.107	0.003
Patient Safety (X_2)	0.274	0.301	2.885	0.005
F-test			11.964	<0.001

Source: Research findings, 2026

The results show that quality management had a positive and significant effect on healthcare service quality ($\beta = 0.318$; $p = 0.003$), while patient safety also had a positive and significant effect ($\beta = 0.301$; $p = 0.005$). The simultaneous test confirmed that both variables jointly affected healthcare service quality ($F = 11.964$; $p < 0.001$). The effect of quality management indicates that systematic quality practices can translate into better service delivery. Standardized procedures, monitoring, staff involvement, and continuous evaluation provide organizational mechanisms for maintaining consistency in healthcare processes. This finding is consistent with TQM principles, which emphasize process management, continuous improvement, and customer orientation as mechanisms for improving organizational performance (Goetsch & Davis, 2020). It is also consistent with empirical evidence showing that quality-improvement initiatives can strengthen healthcare processes and patient experience (Pruitt et al., 2020; Gupta et al., 2023; Al Yami et al., 2024).

Patient safety likewise demonstrated a significant relationship with service quality. Safe patient identification, effective communication, error prevention, incident reporting, and safety culture contribute to the reliability and confidence associated with healthcare delivery. WHO identifies patient safety as a fundamental component of quality healthcare, while empirical studies demonstrate that safety-oriented quality initiatives can improve patient outcomes and experiences (WHO, 2021; Obaid et al., 2023; Ahmed et al., 2024). Thus, H1, H2, and H6 are supported.

Effects on BPJS Patient Satisfaction

The second regression model examined the effects of quality management, patient safety, and healthcare service quality on BPJS patient satisfaction.

Table 5. Regression Results for BPJS Patient Satisfaction

Predictor	B	β	t	Sig.
Quality Management (X_1)	0.219	0.271	2.606	0.011
Patient Safety (X_2)	0.231	0.279	2.652	0.010
Healthcare Service Quality (Z)	0.297	0.322	3.301	0.002
F-test			12.483	<0.001

Source: Research findings, 2026

Quality management significantly affected BPJS patient satisfaction ($\beta = 0.271$; $p = 0.011$), as did patient safety ($\beta = 0.279$; $p = 0.010$). Healthcare service quality also had a significant positive effect ($\beta = 0.322$; $p = 0.002$). Collectively, the three variables significantly affected patient satisfaction ($F = 12.483$; $p < 0.001$). The significant relationship between quality management and satisfaction suggests that patients respond to the consistency and organization of healthcare delivery, not merely to individual interactions with providers. Effective quality-

management practices can improve procedural consistency, coordination, and service reliability, thereby contributing to a more positive patient experience (Pruitt et al., 2020; Gupta et al., 2023).

Patient safety also demonstrated a significant positive relationship with satisfaction. A safe service environment can strengthen patients' confidence in healthcare providers and reduce uncertainty during the care process. This finding is consistent with research emphasizing safety culture, patient-centredness, and effective communication as important components of patient experience (Obaid et al., 2023; Khosravi et al., 2024; Ahmed et al., 2024).

Healthcare service quality produced the largest standardized coefficient in the model ($\beta = 0.322$). This finding emphasizes the importance of the service experience directly encountered by patients. The SERVQUAL framework explains service quality through reliability, responsiveness, assurance, empathy, and tangibles (Parasuraman et al., 1988). In primary healthcare, these dimensions are reflected in service timeliness, staff responsiveness, professional assurance, interpersonal treatment, and facility conditions. Recent research similarly identifies responsiveness, reliability, patient-centredness, and safety as important components of patients' evaluations of healthcare services (Khosravi et al., 2024; Wu et al., 2024). Accordingly, H3, H4, and H5 are supported.

Mediating Role of Healthcare Service Quality

The path analysis examined whether healthcare service quality mediates the relationships between quality management, patient safety, and BPJS patient satisfaction.

Table 6. Direct and Indirect Effects

Path	Direct Effect (β)	Indirect Effect
Quality Management -Service Quality	0.318	-
Patient Safety-Service Quality	0.301	-
Service Quality-Satisfaction	0.322	-
Quality Management-Satisfaction	0.271	0.102
Patient Safety- Satisfaction	0.279	0.097

Source: Research findings, 2026

The indirect effect of quality management on satisfaction through healthcare service quality was 0.102 (0.318×0.322), while the indirect effect of patient safety was 0.097 (0.301×0.322). The findings indicate that both quality management and patient safety have pathways to patient satisfaction through healthcare service quality, in addition to their direct relationships with satisfaction.

This mediation mechanism is theoretically consistent with Donabedian's Structure–Process–Outcome framework, in which organizational structures and systems influence healthcare processes and ultimately generate outcomes (Donabedian, 1980). In the present study, quality management and patient safety provide the organizational and safety foundations, healthcare service quality represents the service process experienced by patients, and satisfaction represents an important patient-reported outcome. The finding is also consistent with evidence that quality improvement, patient safety, process improvement, and patient-centred care can jointly shape patient experience (Hou et al., 2022; Al Yami et al., 2024; Wu et al., 2024).

Because the direct effects of quality management and patient safety on satisfaction remain significant while indirect pathways through service quality are also observed, healthcare service quality functions as an additional pathway linking organizational quality and safety practices to patient satisfaction. This suggests that improvements in internal quality and safety systems need to be translated into visible and consistently experienced service improvements. H7 and H8 are therefore supported based on the estimated indirect effects.

Integrated Discussion

Overall, the findings demonstrate an interconnected relationship among quality management, patient safety, healthcare service quality, and BPJS patient satisfaction at UPTD Puskesmas Tubaan. Quality management and patient safety significantly contribute to healthcare service quality, while all three factors are significantly associated with patient satisfaction. The mediation results further indicate that service quality provides an important pathway through which organizational quality and safety practices are translated into patient perceptions and satisfaction.

The findings reinforce the argument that improving patient satisfaction in primary healthcare requires more than improving individual service encounters. Quality management provides the organizational mechanism for standardization and continuous improvement, patient safety ensures that services are delivered with minimized avoidable risks, and healthcare service quality represents how these systems are experienced by patients. This integrated relationship is consistent with Donabedian's Structure–Process–Outcome model and contemporary

approaches emphasizing quality improvement, patient safety, patient-centred care, and patient experience as interconnected elements of healthcare quality (Donabedian, 1980; WHO, 2021; Hou et al., 2022; Khosravi et al., 2024). For UPTD Puskesmas Tubaan, the findings imply that sustained improvement in BPJS patient satisfaction should focus simultaneously on strengthening quality-management practices, reinforcing patient-safety mechanisms, and improving the service dimensions directly experienced by patients. In particular, the descriptive results indicate that all four constructs remain in the “good” rather than “very good” category, suggesting opportunities for continued improvement in service responsiveness, reliability, communication, empathy, and consistency. Such integrated improvement is important because organizational quality and safety systems ultimately generate value for patients only when they are translated into reliable, safe, responsive, and patient-centred services.

CONCLUSION

This study concludes that quality management and patient safety significantly contribute to healthcare service quality and BPJS patient satisfaction at UPTD Puskesmas Tubaan, Berau Regency. Quality management has a positive and significant effect on healthcare service quality, indicating that leadership commitment, staff involvement, adherence to standard operating procedures, continuous quality evaluation, and patient-oriented practices contribute to improved service delivery. Patient safety also has a positive and significant effect on healthcare service quality, demonstrating that patient identification, effective communication, error prevention, incident reporting, and a safety-oriented organisational culture are important in supporting quality healthcare services. In addition, quality management and patient safety have positive and significant direct effects on BPJS patient satisfaction, indicating that improvements in organisational quality practices and patient-safety mechanisms are associated with more favorable patient evaluations. Healthcare service quality also has a positive and significant effect on BPJS patient satisfaction, confirming the importance of reliability, responsiveness, assurance, empathy, and tangible aspects of healthcare services in shaping patient experiences. The path analysis further shows that healthcare service quality serves as an intervening mechanism in the relationship between quality management and patient safety and BPJS patient satisfaction, with estimated indirect effects of 0.102 and 0.097, respectively. These findings indicate that organisational efforts to improve quality management and patient safety can contribute to patient satisfaction both directly and through improvements in healthcare service quality. Therefore, strengthening continuous quality evaluation, employee involvement, patient-safety practices, service responsiveness, and systematic patient-feedback mechanisms is relevant for sustaining and improving the quality of BPJS healthcare services at primary healthcare facilities.

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