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Determinants of Patient's Satisfaction and Loyalty at Surakarta Central General Hospital, Central Java, Indonesia

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ABSTRACT

Background: Hospitals are required to continuously improve service quality and ensure patient safety. Surakarta Central General Hospital, as the only type C vertical hospital owned by the Ministry of Health in Surakarta, faces competition from other type C hospitals operated by local governments and private sectors. This study aimed to identify factors influencing patient satisfaction and loyalty among users of healthcare services at Surakarta Central General Hospital.

Subjects and Method: This was a quantitative cross-sectional study conducted at the Surakarta Central General Hospital, Central Java, Indonesia, from April to May 2025. A total of 270 respondents, including both inpatients and outpatients, were selected using simple random sampling. The dependent variables were service quality, patient satisfaction, and patient loyalty. The independent variables included hospital image, type of health financing, type of disease, and type of care.

Results: Patient loyalty was positively and significantly influenced by satisfaction (b = 0.33; 95% CI = 0.26–0.41; p < 0.001) and hospital image (b = 0.41; 95% CI = 0.29–0.53; p < 0.001). Patient satisfaction was positively and significantly affected by service quality (b = 0.19; 95% CI = 0.13–0.24; p < 0.001), hospital image (b = 0.25; 95% CI = 0.08–0.43; p = 0.005), and type of financing (b = 0.51; 95% CI = 0.11–0.92; p = 0.013). Service quality was positively and significantly influenced by hospital image (b = 1.13; 95% CI = 0.77–1.48; p < 0.001) and type of financing (b = 0.91; 95% CI = 0.05–1.78; p = 0.039). The path analysis model demonstrated good model fit, as indicated by the following indices: p = 0.702; RMSEA = 0.00; CFI = 1.00; TLI = 1.05; SRMR = 0.00; and CD = 0.33.

Conclusion: Patient loyalty is directly and significantly influenced by satisfaction and hospital image. Patient satisfaction is directly and significantly influenced by service quality, hospital image, and type of financing. Service quality is directly and significantly influenced by hospital image and type of financing. Overall, the path analysis model demonstrated a good fit.

Keywords: Satisfaction, Loyalty, Healthcare Services

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BACKGROUND

Health encompasses a state of physical, mental, and social well-being, as emphasized by the World Health Organization and Law of the Republic of Indonesia Number 17 of 2023. Within the framework of national development, health is recognized as a strategic component of public welfare and is prioritized in the 2025–2045 National Long-Term Development Plan through the strengthening of basic health services, including hospitals. Surakarta Central General Hospital, as a vertical hospital under the Ministry of Health, implements healthcare service transformation based on seven strategic pillars, in which service quality plays a key role in shaping patient satisfaction and loyalty.

A decline in service quality can erode public trust, making the evaluation of patient satisfaction essential. At Surakarta Central General Hospital, patient satisfaction decreased from 92.33% in 2022 to 82.46% in 2024, although it remains above the national minimum standard of 80%. Patient satisfaction is influenced by various factors, including demographic characteristics, type of health financing, accreditation status, and hospital image. The SERVQUAL model—comprising reliability, responsiveness, assurance, empathy, and tangibles—has been shown to significantly affect both patient satisfaction and loyalty. In addition, a positive hospital image strengthens patient trust and fosters long-term loyalty.

Therefore, this study aims to analyze the effects of type of disease, type of care, type of financing, and institutional image on perceived service quality, patient satisfaction, and patient loyalty among healthcare service users at Surakarta Central General Hospital.

SUBJECTS AND METHOD

1. Study Design

This study employed a quantitative research approach with a cross-sectional study design.

2. Population and Sample

The study population consisted of all patients receiving healthcare services at Surakarta Central General Hospital. The study sample was selected using a simple random sampling technique and included both inpatients and outpatients at Surakarta Central General Hospital. A total of 270 respondents participated in the study.

3. Inclusion Criteria

The inclusion criteria comprised patients who utilized healthcare services at Surakarta Central General Hospital during the study period and had made at least three visits. Respondents were required to be willing to participate, able to communicate effectively, and not illiterate, with adequate reading and writing skills. For pediatric patients receiving care at the pediatric outpatient clinic, the questionnaire was completed by a parent or accompanying guardian.

4. Exclusion Criteria

The exclusion criteria included patients who met the inclusion criteria but declined to participate in the study. In addition, patients who met the inclusion criteria but were unable to be interviewed or complete the questionnaire due to physical weakness or time constraints were excluded, as they could not adequately participate in the data collection process.

5. Study Variables

In this study, the independent variables included hospital image, type of health financing, type of disease, and type of care. The dependent variables analyzed were perceived service quality, patient satisfaction, and loyalty of healthcare service users.

6. Operational Definition

Patient satisfaction was defined as the feeling of pleasure or disappointment experienced by patients after comparing their expectations with the actual healthcare services received at Surakarta Central General Hospital, Central Java, Indonesia.

Patient loyalty referred to patients' attitudes reflecting their commitment to repeatedly utilize healthcare services and recommend them to others.

Service quality was defined as the level of excellence of healthcare services provided by Surakarta Central General Hospital, measured based on the SERVQUAL dimensions.

Hospital image was defined as patients' perceptions of the reputation and credibility of Surakarta Central General Hospital as a healthcare provider, measured through perceptions of service reliability, healthcare professionals' competence, and trust in the institution.

Type of financing referred to the healthcare payment mechanism used by patients, categorized as participation in the National Health Insurance (Jaminan Kesehatan Nasional, JKN) or self-financing (non-JKN).

Type of disease was defined as the classification of patients' medical conditions into communicable and non-communicable diseases based on medical record diagnoses.

Type of care referred to the form of healthcare services received by patients, classified as inpatient or outpatient care. This variable reflects the intensity and duration of patient engagement within the healthcare system at Surakarta Central General Hospital.

7. Research Instrument

The research instruments consisted of structured questionnaires as the primary data source and hospital records as secondary data.

8. Data Analysis

Data analysis was conducted in several stages, beginning with univariate analysis to describe respondent characteristics and study variables, followed by bivariate analysis to identify relationships between variables. Multivariate analysis was performed using path analysis to examine the simultaneous effects among variables within the research model. All analyses were conducted using STATA version 17.

RESULTS

1. Sample Characteristics

This study was conducted from April to May 2025 at Surakarta Central General Hospital. The results section presents findings based on data collected from respondents who met the inclusion criteria. During April and May, a total of 14,850 patients received healthcare services at Surakarta Central General Hospital. Of these, 11,992 patients met the sampling criteria. Simple random sampling was applied to select 348 patients, of whom 270 fulfilled both the inclusion and exclusion criteria and were included in the final analysis.

Table 1. Sample Characteristics

Characteristics	Category	n	%
Sex	Male	133	49.26
	Female	137	50.74
Age group (based on Ministry of Health categorization)	Late adolescent (17-25 years old)	25	9.26
	Early Adult (26-35 years old)	63	23.33
	Late adult (36-45 years old)	56	20.74
	Pre-elderly (46-55 years old)	49	18.15
	Late elderly (56-65 years old)	38	14.07
	Senile (>65 years old)	39	14.44
Marital status	Married	230	85.19
	Unmarried	40	14.81
Education level	Elementary school	41	15.19
	Junior High School	35	12.96
	Senior High School	111	41.11

Characteristics	Category	n	%
	Diploma	26	9.63
	College	57	21.11
Employment status	Midwives	2	0.74
	Labor	19	7.04
	Housewives	57	21.11
	Private-sector employee	49	18.15
	Seller	8	2.96
	Retiree	17	6.30
	Farmer	8	2.96
	Civil servant	12	4.44
	Indonesian National Armed Forces personnel	1	0.37
	Self-employed	62	22.96
	Unemployed	35	12.96
Income (minimum regional wage)	<2.416.560 million IDR	122	45.19
	≥2.416.560 million IDR	148	54.81

Table 1 shows that female respondents (50.74%) slightly outnumbered male respondents (49.26%). The largest age group was early adulthood (26–35 years), comprising 63 respondents (23.33%). Most respondents were married, with 230 individuals (85.19%).

In terms of educational attainment, the majority had completed senior high school, accounting for 111 respondents (41.11%). The most common occupation was self-employment, reported by 62 respondents (22.96%). Regarding income, more than half of the respondents reported a monthly income of ≥ IDR 2,416,560 (148 respondents, 54.81%), which was higher than those earning < IDR 2,416,560 (122 respondents, 45.19%).

2. Univariate Analysis

The univariate analysis described the distribution of respondents based on the type of disease, type of health care, and type of health service payment.

Table 2. Univariate analysis of categorical determinants of satisfaction and loyalty among healthcare service users

Characteristics	Category	n	%
Type of disease	Non-communicable disease	226	83.70
	Infectious disease	44	16.30
Type of health care	Inpatient	116	42.96
	Outpatient	154	57.04
Type of health service payment	National Health Insurance (JKN)	205	75.93
	Out-of-pocket	65	24.07

Table 2 shows that most respondents had non-communicable diseases, accounting for 226 individuals (83.70%), while 44 individuals (16.30%) had communicable diseases. Regarding type of care, 116 respondents (42.96%) received inpatient services, whereas 112 respondents (56.00%) received outpatient services. In terms of payment method, the majority of respondents, 205 individuals (75.93%), used the National Health Insurance (JKN), while 65 individuals (24.07%) paid out of pocket.

Table 3. Univariate analysis of continuous determinants of satisfaction and loyalty among healthcare service users

Variables	n	Mean	SD	Min.	Max.
Perceived Hospital Image	270	23.56	1.03	16	24
Quality of health service	270	72.03	3.34	52	75
Patient satisfaction	270	23.10	1.64	16	24
Loyality	270	14.36	1.26	7	15

Table 3 shows that the hospital image variable had a mean score of 23.56 (SD= 1.03). The service quality variable had a mean score of 72.03 (SD = 3.34). Patient satisfaction had a mean score of 23.10 (SD= 1.64), while patient loyalty had a mean score of 14.36 (SD= 1.26).

3. Bivariate analysis

Bivariate analysis was conducted to examine the relationships between service quality, perceived hospital image, patient satisfaction, and patient loyalty. The analysis used correlation tests to determine the strength and significance of the associations among the study variables

Table 4. Bivariate analysis of service quality and perceived hospital image in relation to patient satisfaction and loyalty

Variable	Loyality	Satisfaction	Service quality	Hospital imaging
Loyality	1.00			
Satisfaction	0.55 (p<0.001)	1.00		
Service quality	0.32 (p<0.001)	0.45 (p<0.001)	1.00	
Hospital imaging	0.48 (p<0.001)	0.30 (p<0.001)	0.36 (p<0.001)	1.00

Table 4 shows significant positive correlations between patient satisfaction (r= 0.55; p <0.001) and service quality (r= 0.32; p <0.001) with patient loyalty at Surakarta Central General Hospital.

There were also significant positive correlations between hospital image perception (r = 0.30; p < 0.001) and service quality (r = 0.45; p < 0.001) with patient satisfaction among healthcare service users.

In addition, a significant positive correlation was observed between hospital image perception and service quality (r = 0.36; p < 0.001). Furthermore, hospital image perception was positively and significantly correlated with patient loyalty (r = 0.48; p < 0.001).

4. Multivariate analysis

Multivariate analysis in this study was conducted using path analysis to examine the simultaneous effects among variables included in the research model.

a. Model Specification

Model specification describes the relationships among the variables examined in the study. A total of seven variables were included in the model, namely hospital image, type of disease, type of financing, type of care, service quality, patient satisfaction, and patient loyalty.

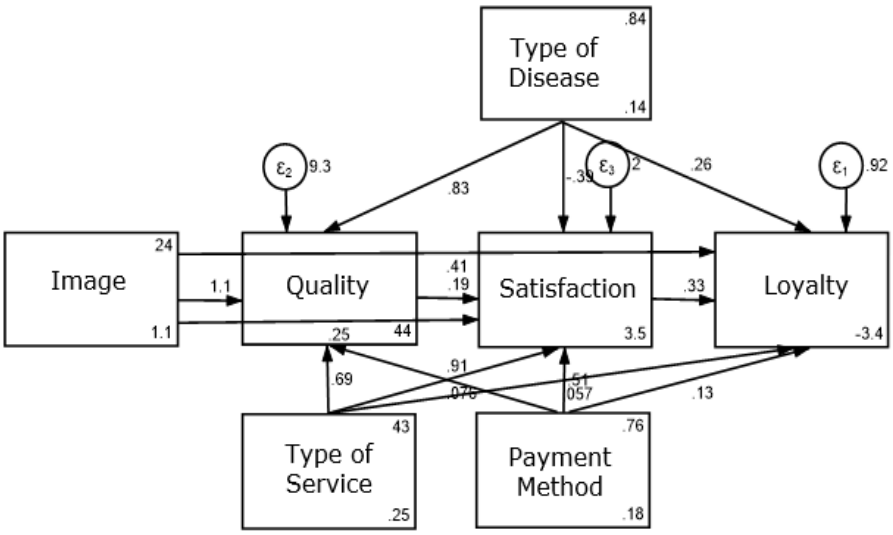

Figure 1. Path analysis model structure of determinants of patient satisfaction and loyalty

b. Model Identification

Model identification was assessed using the degrees of freedom (df). A degree of freedom value of df ≥ 0 indicates that the available information is sufficient and valid for parameter estimation, that the sample size is adequate, and that path analysis can be appropriately conducted. The degree of freedom obtained in this study was 7, indicating that the model was over-identified. Therefore, path analysis was feasible and could be performed to estimate the relationships among variables in the model.

c. Estimation model

The goodness-of-fit between the model and the estimated parameters is presented in the table 6. Table 6 shows significant direct effects of patient loyalty on patient satisfaction and hospital image. Patient satisfaction had a positive and significant direct effect on loyalty (b = 0.33; 95% CI = 0.26–0.41; p < 0.001), as did hospital image (b = 0.41; 95% CI = 0.29–0.53; p < 0.001).

Patient loyalty also demonstrated significant indirect effects through patient satisfaction. Service quality (b = 0.19; 95% CI = 0.13–0.24; p < 0.001), type of financing (b = 0.51; 95% CI = 0.11–0.92; p = 0.013), and hospital image (b = 0.25; 95% CI = 0.08–0.43; p = 0.005) showed significant indirect effects on loyalty via patient satisfaction.

In addition, patient loyalty showed significant indirect effects through service quality. Type of financing (b = 0.91; 95% CI = 0.05–1.78; p = 0.039) and hospital image (b = 1.12; 95% CI = 0.77–1.48; p < 0.001) had significant indirect effects on loyalty through service quality.

However, patient loyalty showed no significant direct effects with type of disease (b= 0.25; 95% CI = −0.56–0.57; p = 0.108), type of care (b = 0.06; 95% CI = −0.18–0.29; p = 0.633), or type of financing (b = 0.13; 95% CI = −0.15–0.41; p = 0.351).

Furthermore, patient loyalty showed no significant indirect effects through patient satisfaction for type of disease (b = −0.39; 95% CI = −0.85–0.07; p = 0.096) or type of care (b= 0.76; 95% CI = −0.27–0.42; p = 0.670). Similarly, no significant indirect effects were observed through service quality for type of disease (b = 0.83; 95% CI = −0.16–1.82; p= 0.099) or type of care (b = 0.69; 95% CI= −0.06–1.43; p = 0.070).

Table 6. Results of Path Analysis

Dependent variables	Independent variables	b	95% CI		p
			Lower limit	Upper limit	
Direct effect					
Loyality	← Patient satisfaction	0.33	0.26	0.41	<0.001
	← Type of disease	0.25	-0.56	0.57	0.108
	← Type of health care payment	0.06	-0.18	0.29	0.633
	← Perceived hospital image	0.41	0.29	0.53	<0.001
	← Type of health care payment	0.13	-0.15	0.41	0.351
Indirect effect					
Patient satisfaction	← Quality of health care service	0.19	0.13	0.24	<0.001
	← Type of disease	-0.39	-0.85	0.07	0.096
	← Type of health care service	0.76	-0.27	0.42	0.670
	← Perceived hospital image	0.25	0.08	0.43	0.005
	← Type of health care payment	0.51	0.11	0.92	0.013
Quality of health care service	← Type of disease	0.83	-0.16	1.82	0.099
	← Type of health care service	0.69	-0.06	1.43	0.070
	← Perceived hospital image	1.13	0.77	1.48	<0.001
	← Type of health care payment	0.91	0.05	1.78	0.039

Number of observasi= 270; Chi^2= 0.15; p= 0.702; RMSEA= 0.01; CFI = 1.00; TLI = 1.05; SRMR= 0.01; CD = 0.33

DISCUSSION

1. Effect of Satisfaction on Patient Loyalty

Patients who report higher satisfaction are more likely to remain loyal compared with those who are less satisfied. This finding is consistent with the study by Aladwan et al. (2021) in Malaysia, which reported a strong positive association between satisfaction and loyalty (b = 0.731; p < 0.001). Patient loyalty reflects a sustained commitment to continue using healthcare services despite alternative options (Liu et al., 2021) and is expressed through repeat utilization, resistance to switching providers, and willingness to recommend services to others (Ringopoulou, 2008).

Patient satisfaction is widely recognized as a fundamental prerequisite for the development of loyalty (Biscaia et al., 2017; Kamra et al., 2015). Highly satisfied patients are more likely to become long-term advocates who disseminate positive word of mouth recommendations (Ganiyu, 2017). From a strategic perspective, satisfaction offers dual benefits for healthcare organizations by strengthening patient loyalty and enhancing informal promotion through patient recommendations. Therefore, healthcare managers should prioritize key determinants of satisfaction and loyalty to ensure long term sustainability in both service quality and financial performance (Zaid et al., 2020; Sertan, 2023).

2. Effect of Service Quality on Patient Loyalty

Patients who perceive higher service quality tend to report greater satisfaction, supporting findings from Addo et al. (2020), Aladwan et al. (2021), and other studies that identify service quality as a primary determinant of patient satisfaction. Satisfaction, in turn, plays a critical role in patients' intention to reuse healthcare services and in the long-term viability of healthcare facilities (Huang et al., 2021).

Specific dimensions of service quality, including timeliness, physical facilities, and staff competence, substantially contribute to patient satisfaction (Meesala et al., 2018; Hassan et al., 2021). High-quality services are associated with increased profitability and stronger patient loyalty, whereas poor-quality services often lead to dissatisfaction and disengagement. Empirical evidence from Asadpoor et al. (2017), Zaid et al. (2020), and Coutinho et al. (2025) further supports the positive relationship between service quality, satisfaction, and loyalty. In high value healthcare settings, positive service experiences may exert an even greater influence on loyalty than satisfaction alone (Amalia et al., 2023). Thus, superior service quality not only enhances satisfaction but also serves as a key differentiating factor in building sustained loyalty and competitive advantage (Goula, 2021).

3. Effect of Hospital Image on Patient Loyalty

Patients who perceive a positive hospital image are more likely to experience higher satisfaction, which subsequently strengthens loyalty. These findings align with Sulistyo (2023), who reported a significant indirect effect of hospital image on loyalty mediated by satisfaction among patients at Awal Bros Hospital in Tangerang. Similarly, Imran and Ramli (2019) found a positive and significant relationship between hospital image and inpatient satisfaction, while Situngkir et al. (2024) reported comparable results at Suaka Ihsan Hospital in Banjarmasin.

Further evidence from Amalia et al. (2024) confirms the critical role of hospital image in shaping patient satisfaction. A scoping review by Dewi et al. (2023) also concluded that hospital image is a key determinant influencing patient satisfaction. Previous studies by Hasby (2018) and Rindasiwi (2024) emphasize that institutional image plays an essential role in forming patients' initial perceptions of service quality. Continuous managerial evaluation of hospital image has been shown to improve patient retention and loyalty (Tan, 2019; Sulistyo, 2023; Setiyowati et al., 2023).

Nevertheless, a positive image must be supported by non technical aspects such as responsive service systems, affordability of care (Hasan, 2018), and supportive hospital policies (Aminah, 2017). A strong hospital image shapes patient expectations, and fulfillment of these expectations leads to satisfaction, whereas discrepancies may result in dissatisfaction (Nafisa, 2018; Anfal, 2020). Hospital image also indirectly influences loyalty through perceived service quality. Bivariate analysis revealed a positive correlation between image and quality ($r= 0.36$; $p< 0.001$), although the strength of this relationship was relatively weak. The path coefficient from image to service quality ($b= 1.13$; $p <0.001$) indicates that a favorable image enhances perceptions of service quality.

Consistent with these findings, Yuliariani (2023) demonstrated that hospital image and service quality significantly contribute to patient loyalty. Rindasiwi (2024) further emphasized that hospital image affects loyalty both directly and indirectly through improvements in satisfaction and service quality. Overall, these results highlight the central role of hospital image in shaping patient experiences. A positive image reinforces perceptions of quality and satisfaction, ultimately fostering loyalty. Therefore, hospital management is encouraged to conduct regular image evaluations, at least every six months, as a strategic measure to maintain patient trust and loyalty (Albana, 2015).

4. Effect of Type of Financing on Patient Loyalty

Based on Kebede et al. (2021), who reported that insured or cost free patients were 3.6 times more likely to be satisfied than those

who paid out of pocket. Similarly, Sagaro et al. (2015) found that patients receiving free services reported higher satisfaction than those who paid for care.

Free healthcare financing can improve patient satisfaction by removing financial barriers to accessing services. When cost is not a concern, patients are more likely to seek timely and appropriate care without financial constraints influencing their decisions, thereby increasing satisfaction (González et al., 2010). Free or subsidized financing also fosters a sense of support and security, which may strengthen patient commitment to healthcare providers offering such financial assistance (Johnson et al., 2016). Patients who perceive substantial added value from free services tend to develop positive perceptions, which can translate into higher loyalty (Rahmani et al., 2017).

Conversely, paying for services may raise patient expectations regarding service delivery. Flexible and affordable financing arrangements are therefore more likely to enhance loyalty by improving access to healthcare services (Arhin et al., 2023). In the healthcare context, loyalty is reflected not only in repeat utilization but also in voluntary recommendations to others (Kandampully et al., 2015; Liu et al., 2021). As noted by Ringopoulou (2008), loyal behavior includes repeat use, resistance to switching providers, and positive referrals.

5. Effect of Type of Care on Patient Loyalty

The type of care has no significant direct effect on patient loyalty. Likewise, the indirect effects through satisfaction and service quality are not statistically significant. These findings are consistent with Geberu (2019), who reported no significant differences in satisfaction between public and private hospitals in Ethiopia.

In contrast, a meta-analysis by Anggraeni (2022) and a study by Chen (2022) in China emphasize that comprehensive nursing management and positive patient experiences with nursing care significantly enhance satisfaction and loyalty. Sedighi (2025) further demonstrated that caring nursing behaviors increase patient trust, which fully mediates the relationship with loyalty. These findings suggest that the quality of nursing care, rather than the type of care setting, plays a decisive role in shaping patient loyalty.

6. Effect of Type of Disease on Patient Loyalty

The results indicates that patient loyalty does not depend solely on the type of disease. Both communicable and non-communicable diseases that require long-term treatment may encourage repeated visits, fostering trust and shaping perceptions of service quality and satisfaction (Sedighi, 2025).

Patients with chronic conditions such as diabetes, stroke, hypertension, and cancer typically interact more frequently with healthcare providers. These sustained interactions create opportunities for stronger loyalty, particularly when care is consistent, reliable, and supportive of recovery (Álvarez García et al., 2019).

Overall, these findings underscore the importance of enhancing hospital image, service quality, and patient satisfaction to strengthen patient loyalty. This study has several limitations, including the dominance of morning outpatient respondents, which may limit representativeness, and the cross sectional design, which does not capture changes in loyalty over time. Future longitudinal studies are recommended to provide a more comprehensive understanding of patient loyalty dynamics.

AUTHOR CONTRIBUTION

All authors made substantial and meaningful contributions to data analysis and the preparation of the final manuscript.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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