Journal : *JMMR (Jurnal Medicoeticolegal dan Manajemen Rumah Sakit), 14 (3): 395-420, December 2025*
Website : https://jmmr.umy.ac.id/index.php/jmmr
DOI : https://doi.org/10.18196/jmmr.v14i3.658

The Quality of Insurance and Non-Insurance Patient Services and Their Effect on Loyalty Mediated by Patient Satisfaction

Herry Kelana*, Maria Widyarini, Danny Widjaja
*Correspondence Author: hekel08@gmail.com
Master of Business Administration, Faculty of Social and Political Sciences, Universitas Katolik Parahyangan, Indonesia

INDEXING

Keywords:
Insured patients;
Patient loyalty;
Patient satisfaction;
Service quality;
Uninsured patients

ABSTRACT

The world is currently navigating challenges in reaching UHC by 2030. In Indonesia, the Health Services Coverage Index (SCI) recovered significantly however, its downturn in 2021 highlighted a prominent challenge. Eka Hospital, as a reputable referral hospital, has developed its services through innovations and technology; however, little has been discussed regarding the differences in service quality between insured and uninsured patients. This research aims to investigate the variance in service quality between insurance and non-insurance services, as well as its impact on customer satisfaction and loyalty. You'll also discover which service attributes need to be upgraded to meet the needs of patients. Research employed a cross-sectional study design. Regarding its design, this research utilized SERVQUAL, IPA, and Partial Least Squares Multigroup Analysis (PLS-MA) to test the hypothesis. The population consisted of outpatients of Eka Hospital in 2024. At least 110 samples are known, according to the consecutive sampling method/service and the 10-times rule SEM analysis. After excluding non-eligible participants, 415 participants were deemed valid. Results indicated no difference in services between insured and non-insured patients, indicating equivalent service. Some elements that require improvement include better medical equipment, trust in doctors' diagnoses, fair medical fees when treating patients, convenience in the procedure process, procedural effectiveness, and the enhancement or even remission of symptoms after treatment. Quality of service is closely linked to patient satisfaction, which in turn promotes patient loyalty. Hospitals should consider both the technical and emotional aspects of care to create a satisfying experience, which is crucial for UHC success in Indonesia.

Kata kunci:
Kualitas layanan;
Kepuasan pasien;
Loyalitas pasien;
Pasien asuransi;
Pasien non-asuransi

Dunia saat ini menghadapi tantangan besar dalam mencapai Universal Health Coverage (UHC) pada tahun 2030. Di Indonesia, Service Coverage Index (SCI) menunjukkan kemajuan yang signifikan, namun penurunan pada tahun 2021 menandakan adanya hambatan serius. Eka Hospital, sebagai rumah sakit rujukan yang terpercaya, terus berupaya meningkatkan kualitas layanan melalui inovasi dan teknologi. Namun, perbedaan kualitas layanan antara pasien asuransi dan non-asuransi masih jarang dikaji secara mendalam. Penelitian ini bertujuan untuk menganalisis perbedaan kualitas layanan antara pasien asuransi dan non-asuransi, serta pengaruhnya terhadap kepuasan dan loyalitas pasien. Selain itu, penelitian ini juga berupaya mengidentifikasi faktor-faktor layanan yang perlu ditingkatkan agar dapat memenuhi harapan pasien. Desain penelitian menggunakan pendekatan cross-sectional dengan metode SERVQUAL, Importance–Performance Analysis (IPA), dan Partial Least Squares Multigroup Analysis (PLS-MGA) untuk menguji hipotesis. Populasi penelitian adalah seluruh pasien rawat jalan Eka Hospital periode tahun 2024. Berdasarkan metode consecutive sampling dan pedoman 10-times rule pada analisis SEM, diketahui bahwa jumlah sampel minimum yang dibutuhkan adalah 400 responden. Setelah proses pengumpulan data, sebanyak 415 responden dinyatakan valid. Hasil penelitian menunjukkan bahwa tidak terdapat perbedaan kualitas layanan antara pasien asuransi dan non-asuransi, yang mengindikasikan bahwa kedua kelompok memperoleh layanan yang setara. Beberapa faktor layanan yang perlu ditingkatkan meliputi ketersediaan alat medis canggih, keandalan diagnosis dokter, kewajaran biaya medis, kemudahan prosedur, efisiensi proses layanan, serta peningkatan kondisi pasien setelah mendapatkan perawatan. Kualitas layanan terbukti berpengaruh terhadap kepuasan pasien, yang selanjutnya meningkatkan loyalitas mereka. Temuan ini menegaskan pentingnya rumah sakit untuk memperhatikan aspek teknis maupun emosional dalam menciptakan pengalaman layanan yang memuaskan serta mendukung pencapaian UHC di Indonesia.

Article history: Received 2025-09-16; Revised 2025-11-29; Accepted 2025-12-10

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INTRODUCTION

The world is currently facing significant challenges in achieving Universal Health Coverage (UHC) by 2030. Since 2015, progress in health service coverage has stagnated, while catastrophic household health expenditure has increased sharply (WHO, 2023). Catastrophic household spending on health has been sharply increasing. Extrapolation of the health-center data suggests marked inequities in the quality of care across countries, as demonstrated by Lewis et al. (2023), who found statistically significant differences between the GMPI scores of the top and bottom-performing institutions globally. At the national level, Indonesia has made modest progress on its Service Coverage Index (SCI), which has stagnated in the Medium Coverage range (40–59%) and decreased slightly in 2021 due to global and pandemic-related pressures (Ministry of Health of the Republic of Indonesia, 2022). However, the good news is that hospital performance indicators are slowly improving — outpatient recovery rates have held steady between 97 and 99 percent, inpatient recovery rates have ticked up from 93 to 94 percent, and the patient-request discharge rate has dropped from a high of 1.9 percent in 2015 to just one percent last year. These improvements include hospital accreditation at national and international levels; for example, Eka Hospital (established in 2008) has an EMR, robotic navigation for spinal surgery, cryoablation, IORT minimally incisional scoliosis surgery, and JetStream to treat atelectasis. These developments reflect the growing emphasis on quality of care, medical technology, and patient safety in the country's private healthcare sector.

However, the world literature tends to compare service quality in public and private hospitals. Many studies continue to find higher satisfaction with PHS facilities; for example, (Ahmad Zamil et al., 2012; Al-Borie & Sheikh Damanhouri, 2013; Allahham et al., 2022; Alodhialah et al., 2024; Lewis et al., 2023). Yet, these studies are limited in addressing one crucial aspect: disparities in service quality depending on how patients' care is financed. Previous studies compare ownership forms without analyzing the quality of care patients receive (insured and non-insured). Health insurance enables policyholders to mitigate the financial burden associated with medical services, whether for outpatient care, inpatient care, or long-term treatment (Jayadie et al., 2023). It constitutes a significant global research gap, especially given that insurance status directly influences patient flow, reimbursement schemes, provider incentives, and ultimately service equity, yet remains underexplored in empirical literature.

Furthermore, studies such as Bakhtiar et al. (2025) demonstrate substantial gaps between expectations and perceptions in private clinics, particularly regarding empathy, but they do not differentiate patients based on insurance type. Therefore, globally, past research has insufficiently examined whether service delivery varies not only by hospital ownership but also by patient insurance classification. This question is increasingly relevant as insurance coverage expands worldwide.

At the local level, Indonesia faces the same unaddressed issue. Although health insurance coverage rose from 68.36% in 2021 to 72.38% in 2023 (BPS, 2023), little is known about whether this expansion has been accompanied by equitable service quality across insured and non-insured populations. While public perceptions often suggest that BPJS patients experience longer waiting times or lower perceived service quality than privately insured or self-paying patients, academic evidence remains limited. Indonesian studies primarily examine general service quality, patient satisfaction, and loyalty (Fatonah, 2019; Vimla & Taneja, 2020;

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Mariano et al., 2022; Chen et al., 2024; Ulucayli et al., 2023; Alodhialah et al., 2024), or compare university versus non-university hospitals (Nemati et al., 2020), but none directly assess differences in service quality by insurance status. This local gap becomes even more critical given that fairness in health services is essential for maintaining public trust (Chakraborty et al., 2023) and supporting national progress toward equitable healthcare access.

SERVQUAL, developed by Parasuraman et al. (1985), is a seminal service quality theory that assesses the discrepancy between patients' expectations and their perceived performance along five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. The five dimensions include tangibles (referring to physical facilities and equipment), reliability (the provision of accurate treatment by caregivers), responsiveness, assurance (professional competence and courtesy), and empathy. The SERVQUAL model has been utilized in numerous health studies e.g., (Fatima et al., 2019; Nemati et al., 2020; Mariano et al., 2022; Allahham et al., 2022; Estiri et al., 2023), and it remains a dominant method for assessing patient experience. Quality of care in the health sector encompasses both technical and functional dimensions (Fatima et al., 2019) as well as structural and efficiency-related factors (Mariano et al., 2022). The quality of service had an additional impact on satisfaction and loyalty (Vimla & Taneja, 2020; Arman et al., 2023), where soft quality attributes contributed significantly for outpatients (Chen et al., 2024). Frequent inter-clan communication and satisfaction are significant predictors of loyalty (Alodhialah et al., 2024). Prior studies demonstrate that service quality has indirect effects on satisfaction (Ulucayli et al., 2023). Despite being prevalent, SERVQUAL and SERVPERF do not fully encapsulate the intricacies of healthcare services across developing countries, as Endeshaw (2020) contends. In response, (Lee, 2017) proposed a healthcare-focused measurement model that focuses on the quality of empathy, tangibles, safety, expedience, and advancement (HEALTHQUAL).

Multiple analyses have demonstrated the cross-contextual applicability of HEALTHQUAL, including studies by (Allahham et al., 2022; Barrios-Ipenza et al., 2020; Estiri et al., 2023; Mariano et al., 2022; Nemati et al., 2020; Sharifi et al., 2021). Since the dimensions of SERVQUAL measure quality perceptions regardless of a patient's financial situation, it is grounded in a sound foundation for equity-based care. Tangibles are sterilized in a manner that both insured and non-insured patients perceive the same clean, safe, technologically formulated care environment (Lee, 2017), with reliability provided through a standardized process of clinical pathways and scheduling systems that promote consistency across all insurance types, irrespective of time constraints involved (Farrokhi et al., 2023). Service responsiveness is governed by common operating procedures, which are reflected in comparable waiting times, communication speed, and staff attentiveness across all patient groups, consistent with the observation that service responsiveness strongly relates to patient satisfaction (Nguyen et al., 2021). Equality of professional competence is also a source of certainty and serves as a foundation for transparency, which previous research has shown to be a precursor to trust (Agarwala & Deore, 2023). Empathy is exercised without bias or financial motive, consistent with the evidence that empathic concern and individualized treatment are critical to patient satisfaction and loyalty (Alodhialah et al., 2024; Ulucayli et al., 2023).

From the global, national, and theoretical context we have constructed, it is evident that a sharp and new knowledge gap exists. First, to the best of our knowledge, based on the literature, there has been no empirical examination in global or Indonesia literature that

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compares service quality between insured and uninsured patients in advanced hospitals, such as private hospitals. At the same time, insurance coverage status has become a central determinant in determining one's patient experience. Insured patients refer to those with part or full coverage of their medical costs by third-party payers, including national health insurance (e.g., BPJS), private insurance, or employer-based plans; uninsured patients, in contrast, are those who independently pay for health care services or do not have a recognized financial system covering healthcare expenses and are thus subject to increased risk of service delays, financial burden from medical bills, and unequal treatment (WHO, 2023; Chakraborty et al., 2023). Second, existing research has focused on quality differences between public and private services, but overlooks the possibility that different financing mechanisms (BPJS insurance, private insurance, OOP) might lead to different patient outcomes. Third, no study has applied the HEALTHQUAL model to assess whether insurance status systematically influences key dimensions of healthcare quality, such as empathy, safety, efficiency, tangibility, and continuous improvement. Based on these gaps, the study aimed to analyze the differences in service quality between insured and uninsured patients and their impact on patient satisfaction and loyalty at Eka Hospital.

RESEARCH METHOD

This study employed a cross-sectional design to analyze the differences in service quality between insured and uninsured individuals, as well as their impact on satisfaction and loyalty. Additionally, it identifies service factors that need improvement to meet patient expectations. The population of this study consisted of all outpatients at Eka Hospital during the 2024 period. The sample was selected using a consecutive sampling technique, in which every eligible patient visiting the outpatient department during the data collection period was recruited until the required sample size was achieved. Following the SEM–PLS sample adequacy criteria, the 10-times rule, which requires a minimum sample size equal to ten times the largest number of indicators in a construct or the largest number of structural paths pointing to a latent variable, was applied. As the model contains 11 indicators, the minimum required sample size was 110 respondents. Data collection exceeded this requirement, resulting in 415 valid responses from both insured and uninsured patients, which ensured robust statistical power for the PLS-MGA analysis.

Eka Hospital, which has been in operation since 2008, is dedicated to delivering high-quality care and ensuring patient safety. The hospital, which is certified both nationally and internationally, is an excellent setting to examine the differences in service quality provided to insured and non-insured patients, as well as their impact on satisfaction and loyalty. The study was conducted from October 2024 onwards, spanning the preparation, implementation, and reporting phases. The type of data in this study is primary data. Primary data in this study were obtained from the results of questionnaires completed by insurance and non-insurance patients of Eka Hospital. The measurement of the research variables is shown in Table 1.

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Table 1. Research Variables

Variable	Definition	Indicators / Dimensions	Measurement Scale	References
Service Quality (X)	Efforts undertaken by Eka Hospital to fulfill patients' needs and align services with their expectations	HEALTHQUAL 1. Empathy, 2. Tangible, 3. Safety, 4. Efficiency, 5. Continuous Improvement	Likert Scale (1–5)	(Lee, 2017; Allahham et al., 2022; Barrios-Ipenza et al., 2020; Estiri et al., 2023; Mariano et al., 2022; Nemati et al., 2020; Sharifi et al., 2021)
Patient Satisfaction (Z)	Patients' perceptions of multiple aspects of the service experience provided by Eka Hospital	The revised patient satisfaction questionnaire (PSQR-18) 1. Satisfaction with medical staff, 2. Satisfaction with the hospital, 3. Satisfaction with medical costs, 4. Satisfaction with medical insurance	Likert Scale (1–5)	(Marshall & Hays, 1994; Niu et al., 2024)
Patient Loyalty (Y)	The level of patient loyalty and commitment to Eka Hospital	The Net Promoter Score (NPS) 1. Recommendation Likelihood, 2. Return Intention	Numeric Scale (1–10)	(Reichheld, 2003; Alodhialah et al., 2024)

Service Quality in this study is assessed through the application of HEALTHQUAL, which measures healthcare providers, such as Eka Hospital, on how well they provide services that meet or exceed patient expectations. This model includes five major areas: Empathy, Tangible, Safety, Efficiency, and Continuous Improvement that collectively account for the functional and emotional aspects of healthcare delivery (Lee, 2017; Allahham et al., 2022; Barrios-Ipenza et al., 2020; Estiri et al., 2023; Mariano et al., 2022; Nemati et al., 2020; Sharifi et al., 2021). Customer satisfaction reflects the comparison between perceived performance and expectations, resulting in satisfaction or dissatisfaction (Kotler & Keller, 2016). While, patient satisfaction refers to patients' reactions to multiple aspects of the service experience provided to them (Ferreira et al., 2023). Patient satisfaction is measured using the PSQ-R/PSQ-18:12, an abbreviated version of the original RAND PSQ-III 50-item questionnaire (Marshall & Hays, 1994). The PSQ-18 consists of 18 items that measure seven constructs: general satisfaction, technical quality, interpersonal manner, communication, financial aspects of care, time spent with the provider, and access to care & convenience scale. Recent verification was performed by Niu et al. (2024), which validated the scale's reliability and its appropriateness in measuring hospital patient satisfaction. The PSQ-R is an 18-item, four-factor questionnaire that assesses satisfaction with medical staff, hospital, treatment costs, and insurance premiums paid. The Patient Loyalty variable is captured using the Net Promoter Score (NPS) methodology to calculate both patients' likelihood of recommending the hospital and their intention to return (Reichheld, 2003; Alodhialah et al., 2024). This 2D model succinctly represents the long-term commitment and behavioral loyalty between the patient and Eka Hospital.

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The analyses performed involve SERVQUAL, which evaluates the quality of service. To measure health service quality in this study, I have utilized HEALTHQUAL (Lee, 2017), a measurement of health service quality based on the SERVQUAL model. The HEALHQUAL model for evaluating quality in healthcare services is based on empathy, tangibles, safety, efficiency, and feedback. Service quality at Eka Hospital is measured using the SERVQUAL method and the HEALTHQUAL approach, which assesses patients' perceptions and expectations. The gap in the SERVQUAL analysis is calculated using the following formula:

$$\text{Gap} = \textit{Performance} - \textit{Expectations}$$

Information:

a. Performance measures how customers perceive the quality of the services they receive.
b. Expectations are to measure the level of customer expectations for ideal service quality.

The gap analysis is visualized as follows: a positive gap (>0) indicates that service quality goes beyond expectations and is very satisfying; a zero gap (=0) stands for performance that matches expectations; and a negative gap (<0) denotes that the performance is under expectations and requires improvement. To determine the improvement priorities, the Importance-Performance Analysis (IPA) method is employed next, which evaluates the importance of a particular service to customers in relation to its actual performance. This method enables companies to distribute their resources effectively and enhance the general customer satisfaction level. The IPA matrix plots the four quadrants to classify the attributes that help organizations plan the improvement priorities based on the averages calculated by the following formula:

$$\bar{X} = \frac{\sum_{i=1}^{N} X_i}{K} \quad \bar{Y} = \frac{\sum_{i=1}^{N} Y_i}{K}$$

Information:

$\underline{X}$ = Average score of performance level or satisfaction
$\underline{Y}$ = Average score of interest or expectation level
K = Number of attributes

The Science Matrix is divided into four quadrants:

a) Quadrant A: *Concentrate Here*: important but underperforming attributes that require improvement.
b) Quadrant B: *Keep Up the Good Work*: important attributes that are well managed and should be maintained.
c) Quadrant C: *Low Priority*: attributes with little impact on satisfaction that require minimal attention.
d) Quadrant D: *Possible Overkill*: less important attributes that are managed excessively well.

Furthermore, to examine differences in service quality, patient satisfaction, and loyalty between insured and non-insured patients, this study employed Partial Least Squares–Multi-Group Analysis (PLS-MGA). Prior to conducting PLS-MGA, the Measurement Invariance of Composite Models (MICOM) procedure was performed and confirmed, ensuring configural,

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compositional, and partial measurement invariance between groups. Once MICOM was met, we implemented the PLS-MGA test using a non-parametric permutation procedure to verify if there were significant differences in model paths between insured and uninsured individuals. Contrasts were analyzed using original path coefficient gaps and permutation p-values, and no statistical difference was observed when $p > 0.05$.

Beautiful Brave, Taste Tomorrow: Taste Tomorrow, inspired by beauty (Dutch and English Edition). The analysis process commenced with the identification of hypotheses and the definition of a theoretical research model, followed by model specification and the quantification of all measurement and structural constructs. The construct quality of the measures was assessed using various criteria in the measurement model (outer model). Convergent validity was determined by outer loadings (>0.70) and average variance extracted (AVE >0.50). Reliability was assessed using Composite Reliability (CR > 0.70). The Heterotrait-Monotrait Ratio (HTMT) examined discriminant validity, and all HTMT values below 0.85 indicated construct separation was achieved. The inner model (structural model) was then analyzed to investigate the causal relationships between the concepts. Multicollinearity was tested using the Variance Inflation Factor (VIF), with acceptable values below 3.3. Model predictive accuracy and relevance were evaluated using R^2 and Q^2. Effect sizes were assessed through the f^2 index to determine the magnitude of influence between constructs. Additionally, model fit was examined using the Standardized Root Mean Square Residual (SRMR), ensuring that the overall model demonstrated good fit (Ghozali & Latan, 2019). The structural model equations in this study are formulated mathematically, as shown in Figure 1.

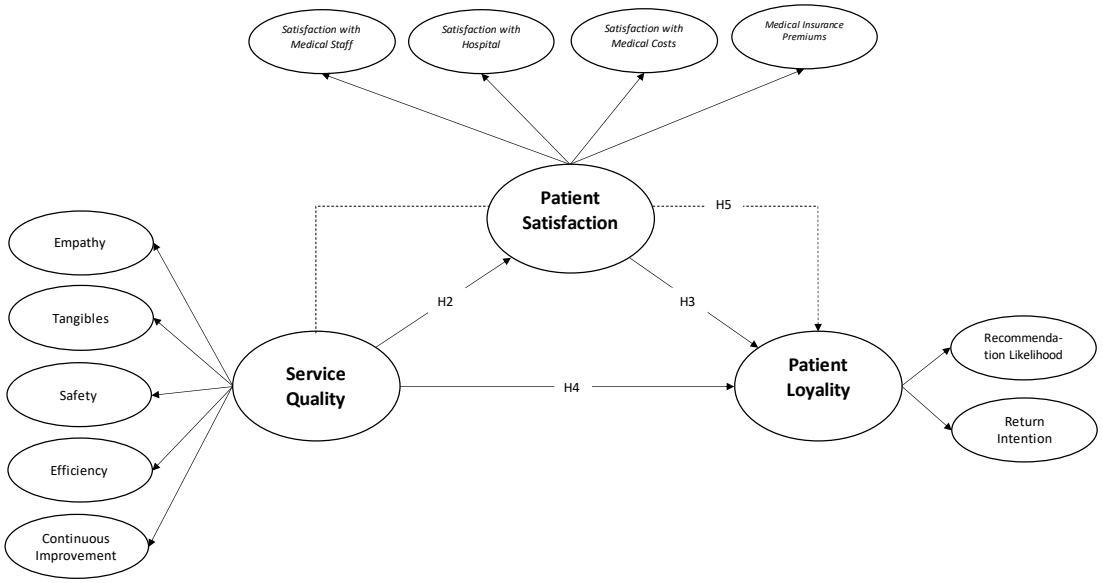

Figure 1. Research Model

Equation:

$Z = \beta 1X + \varepsilon$

$Y = \beta 2Z + \beta 3X + \varepsilon$

Information:

Z = Patient satisfaction variable

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Y = Patient Loyalty Variable
X = Service Quality Variable
β = Path coefficient between latent-exogenous variables
ε = Latent-endogenous variable measurement error

To test the hypothesis, bootstrapping is used to analyze the significance of the influence between variables using t-statistics and values. The hypotheses tested include the effect of service quality on patient satisfaction, the relationship between patient satisfaction and patient loyalty, and the impact of service quality on patient loyalty. Indirect influence testing was conducted using the bootstrapped indirect effect to examine whether patient satisfaction mediates the relationship between service quality and patient loyalty (Ghozali & Latan, 2019).

RESULTS AND DISCUSSION

This research was conducted at Eka Hospital, involving 436 patients who initially completed a questionnaire. After data reduction was carried out to eliminate duplicate data, 415 respondents provided complete and valid answers, which were then analyzed. The characteristics of the respondents in this study encompass those of both insurance and non-insurance patients at Eka Hospital, including various demographic aspects such as gender, age, and education level. Of the 415 patients surveyed, more women (58.6%) than men (41.4%) were surveyed, with male patients being more likely to use insurance (21.4%) than those without insurance (20.0%). Female patients are less likely not to use insurance (31.3%). The age distribution showed that the most patients were 30-39 years old (41.4%) and 40-49 years old (35.2%). Patients aged 30-39 years use hospital services more frequently, both with and without insurance. Meanwhile, the number of people under 20 years old and above 59 years old is relatively small.

In terms of education, most patients have a higher education level, with a higher proportion of insured patients holding a Bachelor's degree (S1/Diploma IV). Patients with higher education (S1 and above) tend to use insurance services more frequently, while those without insurance are more likely to have a high school education/equivalent. Higher education is associated with greater awareness of the importance of health insurance. Table 2 provides an overview of the characteristics of respondents, including their gender, age, and education, regarding Eka Hospital patients.

Table 2. Patient Characteristics at Eka Hospital

Patient Characteristics	Eka Hospital Patients (n=415)		Total (%)
	Insurance (%)	Non-Insurance (%)	
Gender			
Man	89 (21.4)	83 (20.0)	172 (41.4)
Woman	113 (27.2)	130 (31.3)	243 (58.6)
Sum	202 (48.7)	213 (51.3)	415 (100)
Age			
<20 years	6 (1.4)	14 (3.4)	20 (4.8)
20-29 years old	1 (0.2)	4 (1.0)	5 (1.2)
30-39 years old	71 (17.1)	101 (24.3)	172 (41.4)
40-49 years old	87 (21.0)	59 (14.2)	146 (35.2)
50-59 years old	29 (7.0)	25 (6.0)	54 (13.0)
>59 years	8 (1.9)	10 (2.4)	18 (4.3)
Sum	202 (48.7)	213 (51.3)	415 (100)

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Patient Characteristics	Eka Hospital Patients (n=415)		Total (%)
	Insurance (%)	Non-Insurance (%)	
Education			
Elementary School / Equivalent	0 (0.0)	1 (0.2)	1 (0.2)
Junior High School/Equivalent	2 (0.5)	11 (2.7)	13 (3.1)
High School/Equivalent	47 (11.3)	88 (21.2)	135 (32.5)
Diploma (DI, DII, DIII)	44 (10.6)	38 (9.2)	82 (19.8)
Bachelor (S1/Diploma IV)	88 (21.2)	67 (16.1)	155 (37.3)
Postgraduate (S2)	17 (4.1)	7 (1.7)	24 (5.8)
Doctorate (S3)	4 (1.0)	1 (0.2)	5 (1.2)
Sum	202 (48.7)	213 (51.3)	213 (51.3)

Source: *Researcher's Data (2025)*

SERVQUAL Analysis of Insurance and Non-Insurance Patients at Eka Hospital

The analysis of service quality gaps at Eka Hospital reveals both positive and negative findings regarding performance. For the dimension of empathy, the polite behaviour of hospital staff had a positive gap (0.03), whereas the explanation by doctors and staff had a negative gap (-0.19). In the concrete aspect, hospital infrastructure and cleanliness showed a positive gap (0.06 and 0.05), while the medical instrumentation gap was negative (-0.14).

Regarding the safety domain (Table 3), patients perceive the setting as safe as they expect, but rate it with low scores in terms of trusting nurses (-0.19 gap). In the efficiency dimension, although doctors did not use unnecessary drugs with a positive gap (0.07), the cost of treatment received a large negative gap (-0.32), indicating patients' dissatisfaction with the higher-than-expected costs.

Finally, in the dimension of care service improvements, medical services are as expected (positive gap of 0.03). Still, disease prevention efforts in the community need to be improved with a negative gap (-0.19). Overall, while most dimensions demonstrate good performance, some areas, such as treatment costs, disease prevention, and communication, require improvement to enhance patient satisfaction.

Table 3. Patient Characteristics Eka Hospital

No.	Item	Performance	Expectation	Gap	Result
Empathy					
1	Polite attitude from Eka Hospital employees or staff	4.53	4.50	0.03	Very satisfying
2	Explanation given by the doctor and/or Eka Hospital staff details	4.39	4.58	-0.19	Unsatisfaction
3	Doctors and/or staff of Eka Hospital always listen to patients	4.32	4.34	-0.02	Unsatisfaction
4	Doctors and/or staff of Eka Hospital understand and consider the patient's situation	4.51	4.54	-0.03	Unsatisfaction
5	Doctors and/or staff of Eka Hospital have a feeling of closeness and friendliness towards patients	4.27	4.42	-0.16	Unsatisfaction
6	Eka Hospital's doctors and/or staff understand the patient's needs	4.45	4.47	-0.03	Unsatisfaction
7	Doctors and/or staff of Eka Hospital have a high level of empathy for every patient's problem	4.42	4.45	-0.03	Unsatisfaction
Rerata *Empathy*		4.41	4.47	-0.06	Unsatisfaction
Tangible					
8	Medical equipment at Eka Hospital is state-of-the-art	4.35	4.49	-0.14	Unsatisfaction

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No.	Item	Performance	Expectation	Gap	Result
9	The medical staff at Eka Hospital have advanced skills and knowledge	4.34	4.42	-0.08	Unsatisfaction
10	Eka Hospital has comfortable facilities	4.41	4.34	0.06	Very satisfying
11	The uniforms worn by doctors and or Eka Hospital staff are clean	4.35	4.44	-0.09	Unsatisfaction
12	Eka Hospital is always clean	4.45	4.40	0.05	Very satisfying
Rerata *Tangible*		4.38	4.42	-0.04	Unsatisfaction
Safety					
13	Eka Hospital's environment is comfortable and safe for receiving treatment	4.43	4.43	0.00	Satisfying
14	Patients feel that doctors will not make a mistake in diagnosis	4.38	4.49	-0.12	Unsatisfaction
15	Patients feel that nurses will not make mistakes	4.27	4.45	-0.19	Unsatisfaction
16	Patients have confidence in the hospital's medical professionalism	4.48	4.40	0.08	Very satisfying
17	Eka Hospital's environment is safe from infection	4.34	4.42	-0.09	Unsatisfaction
18	Eka Hospital's environment is comfortable and safe for patients	4.40	4.44	-0.03	Unsatisfaction
Rerata *Safety*		4.38	4.44	-0.06	Unsatisfaction
Efficiency					
19	Eka Hospital doctors do not use unnecessary drugs	4.43	4.36	0.07	Very satisfying
20	Eka Hospital doctors always strive to provide appropriate treatment methods	4.37	4.42	-0.05	Unsatisfaction
21	Eka Hospital's medical expenses are reasonable	4.27	4.59	-0.32	Unsatisfaction
22	Eka Hospital's medical expenses are in accordance with the medical services provided	4.38	4.42	-0.04	Unsatisfaction
23	Eka Hospital treatment procedure is easy	4.32	4.47	-0.15	Unsatisfaction
24	Eka Hospital always strives to reduce unnecessary procedures so that it is more efficient	4.37	4.47	-0.10	Unsatisfaction
Rerata *Efficiency*		4.36	4.46	-0.10	Unsatisfaction
Improvements of Care Service					
25	Eka Hospital's doctors and staff provide appropriate services	4.46	4.43	0.03	Very satisfying
26	Eka Hospital's medical staff strives to provide the best treatment	4.37	4.40	-0.04	Unsatisfaction
27	The improvement of the patient's medical condition is the result of efforts and treatment	4.39	4.50	-0.11	Unsatisfaction
28	The patient's condition improved after using Eka Hospital's medical services	4.36	4.46	-0.10	Unsatisfaction
29	Eka Hospital's medical staff provides information/explanations on disease prevention to patients	4.32	4.43	-0.11	Unsatisfaction
30	Eka Hospital's medical staff strive and have the will to prevent diseases	4.40	4.52	-0.13	Unsatisfaction
31	Improving health conditions through treatment at Eka Hospital	4.37	4.50	-0.13	Unsatisfaction
32	Eka Hospital strives to provide disease prevention in the community	4.39	4.58	-0.19	Unsatisfaction
Rerata *Improvements of Care Service*		4.38	4.48	-0.10	Unsatisfaction
Rerata *Service Quality*		4.38	4.45	-0.07	Unsatisfaction

Source: *SPSS 26.0 Output (2025)*

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Analysis Importance-Performance Analysis (IPA) di Eka Hospital

Based on the results of SERVQUAL's measurements, which assess the quality of services at Eka Hospital, an analysis was conducted using Importance-Performance Analysis (IPA) to examine the priorities for service improvement and development in greater detail. The IPA aims to map various service attributes into 4 quadrants based on their importance to patients and the performance provided by the hospital. The results of *the Importance-Performance Analysis* (IPA) are shown in Figure 2.

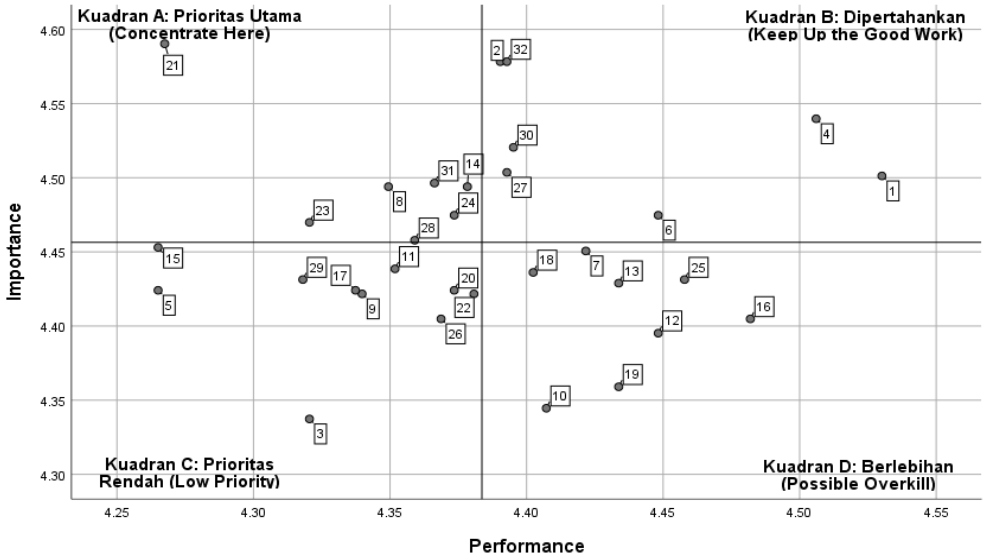

Figure 2. Cartesian Diagram of Importance-Performance Analysis *(IPA)*
Source: *SPSS 26.0 Output (2025)*

Based on the Importance-Performance Analysis (IPA) analysis, the service attributes at Eka Hospital are categorized into four quadrants, each providing strategic guidance for improving service quality. Based on the analysis, the following service factors require improvement, as indicated by the Importance-Performance Analysis (IPA) at Eka Hospital, as shown in Table 4.

Table 4. Importance–Performance Analysis (IPA) Results of Eka Hospital

Quadrant	Item No.	Service Attribute
A. Concentrate Here	8	Advanced medical equipment
	14	Trust in doctors' diagnosis
	21	Reasonable treatment costs
	23	Ease of treatment procedures
	24	Procedural efficiency
	28	Patient's condition improved after treatment.
	31	Health improvement resulting from treatment
B. Keep Up the Good Work	1	Staff politeness
	2	Detailed explanations from doctors
	4	Understanding of patient conditions
	6	Meeting patient needs
	27	Treatment outcomes meeting expectations
	30	Commitment to disease prevention
	32	Community disease prevention efforts

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Quadrant	Item No.	Service Attribute
C. Low Priority	3	Doctors listening to patients
	5	Staff friendliness
	9	Medical staff skills
	11	Clean uniforms
	15	Confidence in nurses
	17	Infection-free environment
	20	Appropriateness of treatment methods
	22	Costs aligned with services
	26	Best possible care by staff
	29	Disease prevention information
D. Possible Overkill	7	Staff empathy
	10	Facility comfort
	12	Hospital cleanliness
	13	Hospital environmental safety
	16	Medical professionalism
	19	Appropriate medication use
	25	Services meeting expectations

Source: *Researcher's analysis (2025)*

The IPA results indicate that several attributes fall into Quadrant A (Concentrate Here), indicating that patients consider them highly important. However, their performance is still below expectations, especially in areas such as advanced medical equipment, diagnostic accuracy, treatment costs, administrative simplicity, procedural efficiency, and treatment outcomes. These areas require urgent attention to improve overall patient satisfaction. On the other hand, Quadrant B (Keep Up the Good Work) comprises attributes that are vital and performed well, including the politeness of staff, clarity of doctor communication, understanding patient needs, achieving good treatment results, and making strong efforts around preventive care. These are the strengths that must be retained to ensure our patients continue to have confidence in our profession—Quadrant C (Low priority). There is relatively low importance and adequate performance in terms of staff-friendliness, medical competence, clean uniforms, and treatment methods; these current perceived values are not in urgent need of resource allocation. Lastly, Quadrant D (Not too much of a good thing) highlights what patients perceive as less important attributes that are also effectively managed, including empathy, hospital comfort/convenience, cleanliness/hospital safety/environmental safety, professionalism/medication, and overall service fit.

Table 5. Service Priorities that Need to be Optimized at Eka Hospital

Service Attributes	Explanation	Action
Advanced Medical Equipment	Patients expect access to modern and advanced medical technology; however, hospitals have not yet fully met these expectations.	Hospitals must upgrade their medical equipment with the latest technology to ensure diagnostic accuracy and treatment effectiveness.
Trust in the Doctor's Diagnosis	Patients have concerns about the accuracy of the diagnosis given by the doctor.	To increase trust, hospitals should provide more detailed explanations and utilize more precise and reliable diagnostic procedures.
Reasonable Medical Costs	The cost of treatment is perceived as not aligning with the patient's expectations, which impacts their satisfaction.	Hospitals need to review the cost structure to ensure the cost of care is reasonable and affordable for patients.

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Service Attributes	Explanation	Action
Ease of Treatment Procedures	Patients feel that administrative and treatment procedures are too complicated and time-consuming.	Hospitals should simplify administrative procedures and ensure the treatment process is more accessible.
Procedure Efficiency	Inefficient medical procedures hinder the patient experience.	Hospitals need to reduce unnecessary procedures and increase efficiency in the implementation of medical procedures.
Improvement of Patient Condition After Treatment	Patients feel that the treatment results have not fully met their expectations.	Focusing on improving treatment outcomes and improving the condition of post-treatment patients should be a priority.
Health Improvement Through Treatment	Patients believe that hospitals need to increase their efforts to improve patient health through effective care.	Hospitals need to improve their treatment approach to support the recovery and continuous improvement of patients' health.

Source: *Researcher's analysis (2025)*

To enhance service quality, Eka Hospital should prioritize certain attributes that can influence patient satisfaction. Sophisticated medical devices are in high demand, as patients seek the benefits of advanced technology that contribute to accurate diagnosis and effective treatment. Furthermore, the lack of trust in doctors' diagnoses needs to be addressed through broader explanations and more accurate diagnostic methodologies. In terms of what they pay for treatment, patients want a fairer cost structure, which means hospitals need to focus on aligning rates with their expectations. The cost of treatment is another issue, as cumbersome modes of delivery and complicated treatment regimens can hinder the ease with which patients are treated. Hence, process simplifications are necessary in order to access the results. Moreover, as many irrelevant operations are currently involved in the process, we must perform them in sequence, which makes the program slow and inefficient. The hospital also needs a patient to change their state after treatment, confirming the treatment results are consistent with the expected outcome, following continuous care for health, and achieving true health improvement. By focusing on this performance, Eka Hospital can enhance the level of MRI patient satisfaction and loyalty.

Differences in Service Quality, Patient Satisfaction, and Patient Loyalty in Insurance and Non-Insurance Patients at Eka Hospital

Partial Least Squares Multi-Group Analysis (PLS-MGA) was conducted to examine any significant differences in structural relationships among service quality dimensions, patient satisfaction, and patient loyalty across insured and non-insured patients. (sig. if p value ≤ 0.05). MICOM results are summarized in Table 6.

Table 6. MICOM Test Results

Step 3a (mean)	Original difference	Permutation mean difference	2.5%	97.5%	Permutation p-value
Empathy	-0.019	0.007	-0.190	0.199	0.847
Tangible	-0.051	0.004	-0.190	0.197	0.575
Safety	0.047	0.008	-0.191	0.205	0.621
Efficiency	-0.021	0.006	-0.192	0.204	0.809
Improvements of Care Service	-0.011	0.005	-0.199	0.200	0.892
Service Quality	-0.010	0.007	-0.190	0.202	0.929
Satisfaction with Medical Staff	-0.030	0.006	-0.179	0.212	0.752
Satisfaction with Hospital	-0.050	0.005	-0.188	0.195	0.615

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Step 3a (mean)	Original difference	Permutation mean difference	2.5%	97.5%	Permutation p-value
Satisfaction with Medical Costs	-0.039	0.004	-0.190	0.192	0.674
Medical Insurance Premiums	0.064	0.002	-0.203	0.199	0.525
Patient Satisfaction	-0.025	0.005	-0.192	0.204	0.798
Recommendation Likelihood	-0.051	0.002	-0.187	0.183	0.626
Return Intention	-0.091	-0.003	-0.194	0.182	0.377
Patient Loyalty	-0.083	-0.001	-0.193	0.187	0.405

Source: *SmartPLS 4 Output (2025)*

The MICOM test results indicate that all constructs meet the requirement for partial measurement invariance, as evidenced by the permutation p-values for all indicators being greater than 0.05, suggesting that the differences in means between the insured and non-insured groups are not statistically significant. Because no construct shows significant mean differences, compositional invariance is achieved, and the groups can be compared meaningfully. Thus, the MICOM criteria are satisfied, allowing the PLS-MGA analysis to proceed reliably.

Table 7 presents the results of the mean difference test, which compares the path coefficients between the two groups: insured and non-insured patients.

Table 7. PLS-MGA Test Results

PLS-MGA Bootstrapping	Original (Insurance Status 0)	Original (Insurance Status 1)	Difference (Insurance Status 0 - Insurance Status 1)	1-tailed (Insurance Status 0 vs Insurance Status 1) p-value	2-tailed (Insurance Status 0 vs Insurance Status 1) p-value
Service Quality -> Empathy	0.935	0.912	0.023	0.260	0.520
Service Quality -> Tangible	0.879	0.878	0.001	0.490	0.980
Service Quality -> Safety	0.950	0.941	0.009	0.370	0.739
Service Quality -> Efficiency	0.920	0.932	-0.012	0.635	0.730
Service Quality -> Improvements of Care Service	0.967	0.966	0.001	0.463	0.927
Service Quality -> Patient Satisfaction	0.940	0.942	-0.002	0.516	0.967
Service Quality -> Patient Loyalty	0.273	-0.007	0.280	0.170	0.341
Patient Satisfaction -> Satisfaction with Medical Staff	0.931	0.915	0.016	0.304	0.608
Patient Satisfaction -> Satisfaction with Hospital	0.920	0.937	-0.017	0.696	0.608
Patient Satisfaction -> Satisfaction with Medical Costs	0.923	0.910	0.013	0.361	0.723
Patient Satisfaction -> Medical Insurance Premiums	0.747	0.735	0.011	0.434	0.867
Patient Satisfaction -> Patient Loyalty	0.227	0.598	-0.371	0.889	0.223
Patient Loyalty -> Recommendation Likelihood	0.869	0.845	0.024	0.226	0.452
Patient Loyalty -> Return Intention	0.868	0.838	0.030	0.190	0.379

Note: Status 0 - non-insured patient; Status 1 - insured patient.

Source: *SmartPLS 4 Output (2025)*

The PLS-MGA results indicate no statistically significant differences between insured and non-insured patients across all constructs examined. This conclusion is supported by the permutation p-values, all of which are greater than 0.05, meaning that none of the observed

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differences in path coefficients reach statistical significance. Across service quality dimensions Empathy (diff = 0.023; p = 0.520), Tangible (diff = 0.001; p = 0.980), Safety (diff = 0.009; p = 0.739), Efficiency (diff = –0.012; p = 0.730), and Improvements of Care Service (diff = 0.001; p = 0.927) the differences between groups were >0,05. Insured and non-insured patients perceive and respond to service quality in a highly similar way. These results indicate that the quality of services received by insurance and non-insurance patients is nearly identical across all dimensions. Although there were some small differences in mean values across some dimensions, they were not significant enough to affect the overall patient experience. These findings suggest that the quality of service is provided uniformly by hospitals, regardless of the patient's insurance coverage. Other attributes, such as the professional quality of medical staff or hospital rules and regulations, can also influence service quality for all patients. These results suggest that the hospital was successful in delivering equitable, high-quality care to both insured and non-insured patients.

The Constitution of the Republic of Indonesia (UUD 1945) 1945 Article 28H Paragraph 1: Every person has the right to live prosperously spiritually and physically, to have a place for an adequate living environment, and is entitled to health services. Furthermore, Article 34, paragraph (3) of the 1945 Constitution underlines that it is the obligation of the state to provide good health care facilities and public service facilities. Therefore, Eka Hospital's commitment to consistently providing its patients with the same level of quality service is a tangible response to new laws and regulations in the constitution and health sector. Furthermore, the Regulation of the Minister of Health Number 7 in 2021 regarding Health Services in National Health Insurance stipulates that health services should be of high quality and non-discriminatory to all participants receiving services from national health insurance. The consistency of service quality in Eka Hospital ensures that all patients receive equally high treatment. This achievement not only represents compliance with regulations but also indicates the hospital's commitment to providing equitable healthcare services. As a result, Eka Hospital has contributed to facilitating the national health development target.

Patient Satisfaction (diff = –0.002; p = 0.967) and Patient Loyalty (diff = 0.280; p = 0.341). Satisfaction-related dimensions also did not significantly differ, including Satisfaction with Medical Staff (diff = 0.016; p diff = 0.608), Satisfaction with Hospital (diff = –0.017; p diff = 0.608), and Satisfaction with Medical Costs (diff = 0.013; p diff-test 0.723). The structural paths from these variables were being operated equally in the two groups, suggesting 'satisfaction triggers' are similar across both insured and uninsured. Recommendation Likelihood (diff = 0.024; p = 0.452) and Return Intention (diff = 0.030; p = 0.379) also demonstrated no significant group differences. Not even the construct of Medical Insurance Premiums (diff = 0.011; p = 0.867), which could be assumed to differ by group, varied significantly. These results suggest that all relationships in the model are statistically invariant across those with and without insurance. It means that Eka Hospital provides a consistent quality of service to patients, irrespective of their insurance, demonstrating equitable access to healthcare.

SEM-PLS Analysis of the Influence of Service Quality on Patient Satisfaction and Patient Loyalty at Eka Hospital

In this section, we present the SEM-PLS analysis, which examines the impact of service quality on patient satisfaction and loyalty at Eka Hospital. The analysis consists of two main

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steps: assessing the outer model and evaluating the inner model. All measurement items, including outer loadings, AVE, CR, and the HTMT ratio (<0.85), in the outer model evaluation met the requirements for reliability and validity checks. The focus of the inner model evaluation, meanwhile, is to assess whether there is multicollinearity among constructs; collinearity analysis is conducted using VIF (with values less than 3). 3), size (f^2), Q^2, and overall model fit as indicated in SRMR. Taken together, these assessments ensure the stability of measurement and structural models, allowing for the valid construction of cause-and-effect relationships between service quality, patient satisfaction, and patient loyalty. The results of the outer first-order evaluation for the overall research indicators are reported in Tables 8, 9, and 10.

Table 8. Value Evaluation Results *Outer Loading*, AVE, and CR in the First Order *(1st Order)* on variable *Service Quality*

Variabel	Dimension	Item	Outer Loading 1st Order	Result	CR 1st Order	AVE 1st Order	Result
Service Quality	*Empathy (EM)*	EM1 <- Empathy	0.646	Valid	0.805	0.373	Reliabel
		EM2 <- Empathy	0.617	Valid			
		EM3 <- Empathy	0.584	Valid			
		EM4 <- Empathy	0.572	Valid			
		EM5 <- Empathy	0.537	Valid			
		EM6 <- Empathy	0.689	Valid			
		EM7 <- Empathy	0.617	Valid			
	Tangible (TA)	TA1 <- Tangible	0.640	Valid	0.775	0.408	Reliabel
		TA2 <- Tangible	0.594	Valid			
		TA3 <- Tangible	0.629	Valid			
		TA4 <- Tangible	0.635	Valid			
		TA5 <- Tangible	0.693	Valid			
	Safety (SA)	SA1 <- Safety	0.637	Valid	0.805	0.408	Reliabel
		SA2 <- Safety	0.596	Valid			
		SA3 <- Safety	0.625	Valid			
		SA4 <- Safety	0.659	Valid			
		SA5 <- Safety	0.627	Valid			
		SA6 <- Safety	0.685	Valid			
	Efficiency (EF)	EF1 <- Efficiency	0.660	Valid	0.797	0.396	Reliabel
		EF2 <- Efficiency	0.608	Valid			
		EF3 <- Efficiency	0.641	Valid			
		EF4 <- Efficiency	0.622	Valid			
		EF5 <- Efficiency	0.637	Valid			
		EF6 <- Efficiency	0.608	Valid			
	Improvements of Care Service (ICS)	ICS1 <- Improvements of Care Service	0.612	Valid	0.844	0.404	Reliabel
		ICS2 <- Improvements of Care Service	0.598	Valid			
		ICS3 <- Improvements of Care Service	0.647	Valid			
		ICS4 <- Improvements of Care Service	0.665	Valid			
		ICS5 <- Improvements of Care Service	0.614	Valid			
		ICS6 <- Improvements of Care Service	0.637	Valid			
		ICS7 <- Improvements of Care Service	0.661	Valid			
		ICS8 <- Improvements of Care Service	0.649	Valid			

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Table 9. Value Evaluation Results *Outer Loading*, AVE, and CR in the First Order *(1st Order)* on variable *Patient Satisfaction*

Variabel	Dimension	Item	Outer Loading 1st Order	Result	CR 1st Order	AVE 1st Order	Result
Patient Satisfaction Questionnaire (PSQ-18)	*Satisfaction with Medical Staff*	PS14 <- Satisfaction with Medical Staff	0.639	Valid	0.797	0.441	Reliabel
		PS15 <- Satisfaction with Medical Staff	0.649	Valid			
		PS16 <- Satisfaction with Medical Staff	0.622	Valid			
		PS17 <- Satisfaction with Medical Staff	0.693	Valid			
		PS18 <- Satisfaction with Medical Staff	0.713	Valid			
	Satisfaction with Hospital	PS1 <- Satisfaction with Hospital	0.589	Valid	0.788	0.430	Reliabel
		PS2 <- Satisfaction with Hospital	0.677	Valid			
		PS3 <- Satisfaction with Hospital	0.761	Valid			
		PS4 <- Satisfaction with Hospital	0.680	Valid			
		PS5 <- Satisfaction with Hospital	0.548	Valid			
	Satisfaction with Medical Costs	PS7 <- Satisfaction with Medical Costs	0.624	Valid	0.801	0.447	Reliabel
		PS8 <- Satisfaction with Medical Costs	0.733	Valid			
		PS9 <- Satisfaction with Medical Costs	0.646	Valid			
		PS10 <- Satisfaction with Medical Costs	0.642	Valid			
		PS11 <- Satisfaction with Medical Costs	0.690	Valid			
	Medical Insurance Premiums	PS6 <- Medical Insurance Premiums	0.750	Valid	0.781	0.544	Reliabel
		PS12 <- Medical Insurance Premiums	0.761	Valid			
		PS13 <- Medical Insurance Premiums	0.699	Valid			

Source: *SmartPLS 4 Output (2025)*

Table 10. Value Evaluation Results *Outer Loading*, AVE, and CR in the First Order *(1st Order)* on variable *Patient Loyalty*

Variabel	Dimension	Item	Outer Loading 1st Order	Result	CR 1st Order	AVE 1st Order	Result
Patient Loyalty Questionnaire (PLQ)	*Recommendation Likelihood*	PL1 <- Recommendation Likelihood	1.000	Valid	1.000	1.000	Reliabel
	Return Intention	PL2 <- Return Intention	1.000	Valid	1.000	1.000	Reliabel

Source: *SmartPLS 4 Output (2025)*

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The first-order outer loadings results confirmed that all indicators met the convergent validity criteria, with loading values above 0.50. All indicators may therefore be seen as truly reflecting their respective constructs. Furthermore, the Composite Reliability (CR) values exceed 0.70, indicating that all constructs possess good reliability. The value of Average Variance Extracted (AVE) for all constructs is less than the value cutoff of 0,50. Nonetheless, the value of AVE < 0,50 is considered a borderline case by Fornell and Larcker (1981) in Lam (2012). Fornell and Larcker point out that a value AVE < 0.5, even if there are < 0.50 s out of seventy-two items for total behavior, does not destroy their particular extrapolation of the convergent validity test, which could usefully be added for future work on that same set-up. Fornell and Larcker further point out that even if the AVE is less than the 0.5 standard, the researcher can still conclude that the convergent validity of the construct is quite good, as long as Composite Reliability is an acceptable 0.70. The results of the confirmatory validity test indicate that the constructs in this study possess good validity and reliability, enabling them to measure the variables they purport to measure accurately.

The results of the assessment of the second-order outer model for all research indicators are shown in Tables 11, 12, and 13.

Table 11. Value Evaluation Results Outer Loading, AVE, and CR in the Second Order *(2nd Order)* on variable Service Quality

Variabel	Dimension	Item	Outer Loading 2nd Order	Result	CR 2nd Order	AVE 2nd Order	Result
Service Quality	*Empathy (EM)*	EM1 <- Empathy EM2 <- Empathy EM3 <- Empathy EM4 <- Empathy EM5 <- Empathy EM6 <- Empathy EM7 <- Empathy	0.924	Valid	0.944	0.344	Reliabel
	Tangible (TA)	TA1 <- Tangible TA2 <- Tangible TA3 <- Tangible TA4 <- Tangible TA5 <- Tangible	0.878	Valid			
	Safety (SA)	SA1 <- Safety SA2 <- Safety SA3 <- Safety SA4 <- Safety SA5 <- Safety SA6 <- Safety	0.945	Valid			
	Efficiency (EF)	EF1 <- Efficiency EF2 <- Efficiency EF3 <- Efficiency EF4 <- Efficiency EF5 <- Efficiency EF6 <- Efficiency	0.926	Valid			
	Improvements of Care Service (ICS)	ICS1 <- Improvements of Care Service ICS2 <- Improvements of Care Service ICS3 <- Improvements of Care Service	0.967	Valid			

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Variabel	Dimension	Item	Outer Loading 2nd Order	Result	CR 2nd Order	AVE 2nd Order	Result
		ICS4 <- Improvements of Care Service					
		ICS5 <- Improvements of Care Service					
		ICS6 <- Improvements of Care Service					
		ICS7 <- Improvements of Care Service					
		ICS8 <- Improvements of Care Service					

Source: *SmartPLS 4 Output (2025)*

Table 12. Value Evaluation Results *Outer Loading*, AVE, and CR in the Second Order *(2nd Order)* on variable *Patient Satisfaction*

Variabel	Dimension	Item	Outer Loading 2nd Order	Result	CR 2nd Order	AVE 2nd Order	Result
Patient Satisfaction Questionnaire (PSQ-18)	*Satisfaction with Medical Staff*	PS14 <- Satisfaction with Medical Staff	0.923	Valid	0.909	0.360	Reliabel
		PS15 <- Satisfaction with Medical Staff					
		PS16 <- Satisfaction with Medical Staff					
		PS17 <- Satisfaction with Medical Staff					
		PS18 <- Satisfaction with Medical Staff					
	Satisfaction with Hospital	PS1 <- Satisfaction with Hospital	0.928	Valid			
		PS2 <- Satisfaction with Hospital					
		PS3 <- Satisfaction with Hospital					
		PS4 <- Satisfaction with Hospital					
		PS5 <- Satisfaction with Hospital					
	Satisfaction with Medical Costs	PS7 <- Satisfaction with Medical Costs	0.916	Valid			
		PS8 <- Satisfaction with Medical Costs					
		PS9 <- Satisfaction with Medical Costs					
		PS10 <- Satisfaction with Medical Costs					
		PS11 <- Satisfaction with Medical Costs					
	Medical Insurance Premiums	PS6 <- Medical Insurance Premiums	0.739	Valid			
		PS12 <- Medical Insurance Premiums					
		PS13 <- Medical Insurance Premiums					

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Table 13. Value Evaluation Results *Outer Loading*, AVE, and CR in the Second Order *(2nd Order)* on variable *Patient Loyalty*

Variabel	Dimension	Item	Outer Loading 2nd Order	Ket	CR 2nd Order	AVE 2nd Order	Ket
Patient Loyalty Questionnaire (PLQ)	*Recommendation Likelihood*	PL1 <- Recommendation Likelihood	0.858	Valid	0.846	0.733	Reliabel
	Return Intention	PL2 <- Return Intention	0.854	Valid			

Source: *SmartPLS 4 Output (2025)*

Based on the outer loading results of the second-order constructs, all indicators conformed to the requirements of convergence validation, with significant loading values exceeding the minimum threshold of 0.50. This finding shows a strong correlation between each indicator and its relevant construct. The Composite Reliability (CR) values, ranging from 0.936 to 0.940, also surpass the threshold of 0.70, indicating good stability. Besides, although the AVE values for the service quality and patient satisfaction constructs are lower than 0.50, this is acceptable. Fornell & Larcker (1981, quoted by Lam, 2012) noted that AVE values of 0.70 provide a decidedly stronger indication of convergence validity. Overall, the second-order measurement model exhibits face, content, and construct validity. It is also reliable — these constructs truly measure what they are supposed to represent.

Table 14. VIF Result

No	Indicator	VIF Result First/Second Order	Cut-off Value	Conclusion
1	EF1	1.351 / 1.977	< 3.3	Acceptable
2	EF2	2.008 / 1.408	< 3.3	Acceptable
3	EF3	1.378 / 2.020	< 3.3	Acceptable
4	EF4	1.293 / 1.929	< 3.3	Acceptable
5	EF5	1.403 / 1.874	< 3.3	Acceptable
6	EF6	1.327 / 1.708	< 3.3	Acceptable
7	EM1	1.810 / 1.371	< 3.3	Acceptable
8	EM2	1.501 / 1.987	< 3.3	Acceptable
9	EM3	2.007 / 1.409	< 3.3	Acceptable
10	EM4	1.809 / 1.403	< 3.3	Acceptable
11	EM5	1.580 / 1.349	< 3.3	Acceptable
12	EM6	2.316 / 1.542	< 3.3	Acceptable
13	EM7	1.424 / 1.656	< 3.3	Acceptable
14	ICS1	1.532 / 2.014	< 3.3	Acceptable
15	ICS2	2.339 / 1.700	< 3.3	Acceptable
16	ICS3	2.330 / 1.703	< 3.3	Acceptable
17	ICS4	2.448 / 1.604	< 3.3	Acceptable
18	ICS5	1.530 / 2.095	< 3.3	Acceptable
19	ICS6	2.299 / 1.648	< 3.3	Acceptable
20	ICS7	1.755 / 2.123	< 3.3	Acceptable
21	ICS8	1.528 / 1.787	< 3.3	Acceptable
22	PL1	1.000 / 1.277	< 3.3	Acceptable
23	PL2	1.000 / 1.277	< 3.3	Acceptable
24	PS1	1.856 / 1.314	< 3.3	Acceptable
25	PS2	2.005 / 1.366	< 3.3	Acceptable
26	PS3	1.489 / 1.948	< 3.3	Acceptable
27	PS4	1.297 / 1.882	< 3.3	Acceptable
28	PS5	1.669 / 1.196	< 3.3	Acceptable
29	PS6	1.920 / 1.157	< 3.3	Acceptable
30	PS7	1.272 / 2.061	< 3.3	Acceptable

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No	Indicator	VIF Result First/Second Order	Cut-off Value	Conclusion
31	PS8	1.965 / 1.432	< 3.3	Acceptable
32	PS9	1.240 / 2.164	< 3.3	Acceptable
33	PS10	1.243 / 1.801	< 3.3	Acceptable
34	PS11	1.515 / 1.314	< 3.3	Acceptable
35	PS12	1.228 / 1.620	< 3.3	Acceptable
36	PS13	1.174 / 1.464	< 3.3	Acceptable
37	PS14	1.268 / 1.736	< 3.3	Acceptable
38	PS15	1.829 / 1.283	< 3.3	Acceptable
39	PS16	1.302 / 2.018	< 3.3	Acceptable
40	PS17	1.385 / 2.099	< 3.3	Acceptable
41	PS18	1.389 / 2.063	< 3.3	Acceptable
42	SA1	1.416 / 2.047	< 3.3	Acceptable
43	SA2	2.100 / 1.373	< 3.3	Acceptable
44	SA3	1.253 / 1.924	< 3.3	Acceptable
45	SA4	2.084 / 1.308	< 3.3	Acceptable
46	SA5	1.388 / 1.701	< 3.3	Acceptable
47	SA6	1.417 / 1.841	< 3.3	Acceptable
48	TA1	1.842 / 1.229	< 3.3	Acceptable
49	TA2	1.241 / 1.981	< 3.3	Acceptable
50	TA3	1.322 / 1.845	< 3.3	Acceptable
51	TA4	1.475 / 1.284	< 3.3	Acceptable
52	TA5	1.394 / 1.715	< 3.3	Acceptable

Source: *SmartPLS 4 Output (2025)*

When it comes to the variable independence factor (VIF) value, which is used to judge collinearity among different independent variables in a statistical model--that is, whether or not one of these dependent measures has significant overlap with others--all of our data meets this standard well under 3.3 The set of values for the Service Quality, Patient Satisfaction and Patient Loyalty factors in all indicators cover a range that is about 1.15 to 2.45, supporting the idea that each indicator throws something new and non-overlapping into its construct. Since all indicators consistently fall within the respectable range, the measurement model can be seen as being free from collinearity problems and therefore meets the required standard for assessment in PLS-SEM's outer model evaluation.

Table 15. Model Test Results

No.	Compatibility Criteria	Nilai *Cut-off Value*	Model Estimation Results	Model Conclusion
1	SRMR	SRMR < **0.10** (acceptable) or < **0.08** (good fit)	0.092	**Acceptable model fit**
3	Q^2	Q^2 > 0: The model has good predictive relevance. Q^2 = 0: The model is only capable of predicting sample data. Q^2 < 0: The model cannot predict well.	0.918	Excellent
4	f^2	0.02 = small, 0.15 = medium, 0.35 = large (Cohen, 1988).	Service Quality - Efficiency: 5.975 - Empathy: 5.835 - Improvements of Care Service: 14.305 - Patient Loyalty: 0.003 - Patient Satisfaction: 7.738 - Safety: 8.316 - Tangible: 3.349 Patient Satisfaction - Medical Insurance Premiums: 1.201	

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No.	Compatibility Criteria	Nilai *Cut-off Value*	Model Estimation Results	Model Conclusion
			- Patient Loyalty: 0.027 - Satisfaction with Hospital: 6.162 - Satisfaction with Medical Staff: 5.734 - Satisfaction with Medical Costs: 5.234 Patient Loyalty - Recommendation Likelihood: 2.785 - Return Intention: 2.702	Large
5	*R-Square* (R^2)	A value close to 1 indicates a better model at explaining data variability.R^2 - $R^2 > 0.75$: Strong - $0.50 < R^2 \leq 0.75$: Medium - $R^2 \leq 0.50$: Weak	R^2 1 =0.886 & R^2 2 =0.287	Strong & Weak

Source: *SmartPLS 4 Output (2025)*

With an SRMR value of 0.092, the fit appears to be effectively acceptable, and it remains ideal or close to ideal in this region (<0.10). The predictive relevance is equally remarkable, with Q^2 = 0.918; thus, F was confirming what Q^2 had already shown: we have developed a model of out-of-sample values that outperforms 10,000-sample E.D. procedures based on CASES I and II only three times. In addition, the f^2 values derived here indicate that nearly all relationships in the model have significant effects, particularly in the Service Quality field and the Patient Satisfaction category; only two relationships show negligible or small effects. The R^2 values further tell us that one endogenous construct is explained very well (R^2 = 0.886, strong), while the other is explained weakly (R^2 = 0.287). These results contribute to the robustness of our structural model. They demonstrate its high predictive accuracy conclusively and show that substantial variance in key outcome measures can be attributed to it.

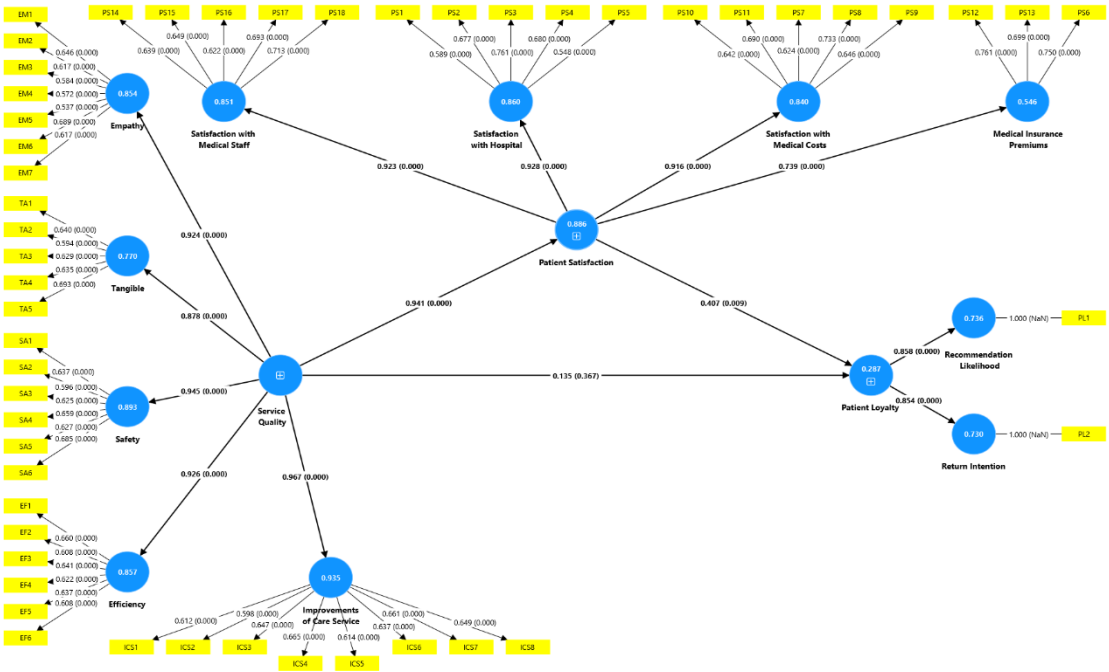

Figure 3. Inner Model Test Results

Source: *SmartPLS 4 Output (2025)*

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Table 16. Results of Measurement Model *Evaluation (Inner Model)*

	Original sample (O)	T statistics (|O/STDEV|)	P value	Ket
Service Quality -> Patient Satisfaction	0.941***	56.111	0.000	Signifikan
Patient Satisfaction -> Patient Loyalty	0.407**	2.627	0.009	Signifikan
Service Quality -> Patient Loyalty	0.135	0.902	0.367	Insignificant
Service Quality -> Patient Patient Loyalty > Satisfaction	0.383**	2.626	0.009	Signifikan

Description: *p<0.05; **p<0.01; p<0.0001.

Table 16 of the structural model confirms that service quality has a significant influence on patient satisfaction (β = 0.941, p < 0.001), which is consistent with the theoretical framework of the Donabedian Model (Donabedian, 1966, 1983, 2005). In this model, it is argued that adequate structure (e.g., facilities, equipment, staff) and effective processes (e.g., care delivery, administrative procedures) can lead to positive outcomes, such as patient satisfaction and improved health. According to Oliver (1980), when expectations are met or exceeded, high service quality reduces negative disconfirmation and, consequently, increases satisfaction. More importantly, patient satisfaction significantly predicts patient loyalty (β = 0.407, p = 0.009). In contrast, the direct effect of service quality on patient loyalty is not statistically significant (β = 0.135, p = 0.367), indicating that technical or structural aspects of service alone are insufficient to foster loyalty in the absence of the mediating role of patient satisfaction.

These findings align with Alkawamleh et al. (2021), highlighting the mediating role of patient satisfaction in the relationship between healthcare service quality and patient loyalty. The finding implies that excellent facilities or processes will not result in patient loyalty unless patients have satisfactory experiences. Analysis of the Importance further supports this conclusion–Performance Analysis (IPA): many critical attributes, such as advanced medical equipment, diagnostic security ensured by trust, fair-costing procedures, efficient practices, and tangible health outcomes, fall into Quadrant A (high importance, low performance), indicating that service deficiencies are apt to erode long-term loyalty. By focusing on improving these high-importance but underperforming areas, the hospital can raise satisfaction, which in turn increases loyalty. Indonesia's efforts to achieve Universal Health Coverage (UHC) and the expanding role of BPJS Kesehatan have important implications for service equity and policy. Ensuring equitable quality of care across insured and non-insured patients by reducing cost burdens, improving administrative efficiency, and building diagnostic trust becomes essential not only for individual satisfaction and loyalty, but also for public confidence in UHC implementation. This study contributes to the refinement of the HEALTHQUAL model by demonstrating that, in a middle-income, Asian hospital context, structural and process dimensions (e.g., safety, efficiency, and continuous improvement) have a greater influence on satisfaction and loyalty than interpersonal or tangibles dimensions.

CONCLUSION

The research findings highlighted that the patient experience at Eka Hospital begins with the fact that there is no differential treatment in the quality of service between insured patients and those without insurance. It speaks volumes about how Eka Hospital strives to deliver equitable and uniform services, without equitably disregarding the type of insurance. In

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building trust and satisfaction, an equitable level of service provision, regardless of the coverage one has, is a manifestation of the non-discriminatory principle in subjective health service provision, particularly in patient satisfaction. The delivery areas that need improvement to satisfy all patient expectations, whether they are covered by insurance or not, are also identified in this research. It is key to note the provision of advanced medical instruments, the cost of treatments, an efficient and smooth treatment process, and full recovery from treatment. The improvement of patients' health and hospital performance, in parallel with the treatment provided, should and will be a key focus in the provision of services, leading to documented and experienced positive patient outcomes.

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