Journal of Economics, Entrepreneurship, Management Business and Accounting, 2026, 4(5),289-309.
https://doi.org/10.61255/jeemba.v4i5.1709

Determinants of Patient Trust in Public Hospitals: The Mediating Role of Perceived Service Quality

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ABSTRACT

Purpose – This study examines whether Perceived Service Quality (PSQ) mediates the effects of Professional, Competency, Facility, and Government on Patient Trust among patients of public general hospitals (RSUD) in Indonesia, drawing on Service Quality Theory, Organizational Trust Theory, and the Structure-Process-Outcome framework.
Design/methodology/approach – This study employed a positivist, cross-sectional survey design with a seven-point Likert questionnaire administered to 350 patients of public general hospitals (RSUD) in Indonesia, analyzed using PLS-SEM with 5,000-subsample bootstrapping, Confirmatory Tetrad Analysis (CTA-PLS), the Cross-Validated Predictive Ability Test (CVPAT), Importance-Performance Map Analysis (IPMA), and Necessary Condition Analysis (NCA).
Finding/Results – Based on 350 valid respondents, eleven of thirteen hypotheses were supported: seven of nine direct paths (H1, H4–H9) were significant, while Professional→Trust (H2) and Facility→Trust (H3) were not; all four mediation paths (H10–H13) were significant, with Perceived Service Quality fully mediating the Facility and Professional effects and partially mediating the Competency and Government effects. The model explained 68.8% of the variance in Patient Trust (R^2) and outperformed a naive linear-model benchmark in the Cross-Validated Predictive Ability Test (CVPAT).
Originality/Value – The study positions Perceived Service Quality as an explicit mediator reconciling mixed prior evidence on whether individual service-quality dimensions exert a direct effect on patient trust, extending single-dimension findings to Indonesia's public hospital system.

ARTICLE INFO

Keywords:
Patient Trust, Perceived Service Quality, Professional Competency, Healthcare Facility, Government Regulation

Article Information:
Received: 30/06/2026
Revise: 28/07/2026
Accepted: 07/08/2026

ISSN:
2985-3168 (Online)
2985-3222 (Print)

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1. Introduction

Public trust in Indonesia's hospital sector remains a persistent policy concern: national patient satisfaction indicators under the Jaminan Kesehatan Nasional (JKN) scheme, which now covers more than 94% of the population, continue to report uneven perceptions of fairness, competence, and reliability across regional general hospitals (RSUD) (Republic of Indonesia, 2023). Patient trust is theorized as the belief that a care provider will act in the patient's best interest and reliably fulfill its commitments (Mayer et al., 1995), and it is considered a central determinant of care-seeking behavior, treatment adherence, and long-term engagement with the health system.

A substantial body of research treats service quality as the principal antecedent of patient trust, consistent with Service Quality Theory's premise that meeting or exceeding patient expectations builds confidence in a provider's capability and intentions (Parasuraman et al., 1988). Donabedian's (1988) Structure-Process-Outcome framework further implies that this quality perception is assembled from distinct inputs, provider competence as a process attribute, physical facilities as a structural attribute, and system-level governance as a structural-institutional attribute, rather than from a single undifferentiated construct.

Two studies illustrate an unresolved inconsistency in how these inputs translate into trust. Zarei et al. (2015), surveying 969 patients across eight private hospitals in Tehran using multivariate regression, found that process quality and interaction quality significantly predicted patient trust, while environment quality, the structural, facility-related dimension, had no significant effect. In contrast, Shie et al. (2022), studying elderly patients with chronic diseases using structural equation modeling, found that overall hospital service quality exerted a significant positive effect on patient trust. Both studies frame service quality as an antecedent of trust, yet one finds a structural quality dimension inert while the other finds the composite quality construct fully effective, an inconsistency neither model was designed to explain, since neither incorporated an explicit mediator linking discrete quality inputs to a unified quality perception.

This study proposes Perceived Service Quality (PSQ) as the mediating mechanism that reconciles this inconsistency: Professional, Competency, Facility, and Government are theorized to shape patient trust primarily by first shaping the patient's overall perception of service quality, rather than through uniformly direct effects. Accordingly, this study tests thirteen hypotheses among patients of public general hospitals in Indonesia using PLS-SEM, complemented by Necessary Condition Analysis and Confirmatory Tetrad Analysis.

This study contributes conceptually by disaggregating service quality into professional, structural, and institutional inputs within a single mediated model; methodologically by combining sufficiency-based (PLS-SEM) and necessity-based (NCA) logics; and contextually by extending prior single-dimension findings to Indonesia's public hospital system, where accreditation and regulatory oversight play a distinct governance role not captured in prior private-hospital studies.

2. Literature Review & Hypothesis Development

The model integrates three theoretical perspectives. Service Quality Theory (Parasuraman et al., 1988) explains how patients form an overall quality evaluation from discrete service attributes. Organizational Trust Theory (Mayer et al., 1995) explains trust as a function of perceived ability, benevolence, and integrity. Donabedian's (1988) Structure-Process-Outcome framework separates Professional and Competency (process-level attributes), Facility

(structural attribute), and Government (structural-institutional attribute) as distinct antecedents that converge through Perceived Service Quality before shaping Patient Trust.

2.1 Competency and Patient Trust (H1)

Organizational Trust Theory identifies perceived ability as a primary antecedent of trust, since a trustor must first believe the trustee possesses the skill to perform as expected (Mayer et al., 1995). In healthcare, this ability dimension is embodied in the clinical and technical competency of medical staff. Zarei et al. (2015) found that process quality, closely related to staff competency in service execution, significantly predicted trust, whereas facility-related dimensions did not, suggesting competency, as a distinctly skill-based attribute, plausibly retains an independent direct effect on trust rather than operating solely through a composite quality perception.

H1: Competency has a significant positive effect on Patient Trust.

2.2 Professional and Patient Trust (H2)

Professionalism reflects the values, behavior, and ethical commitments that underpin the trust society places in healthcare providers (Cruess & Cruess, 2008). Because professionalism encompasses integrity and honesty, salient trust antecedents in Mayer et al.'s (1995) model, providers who visibly enact professional norms are theorized to be evaluated by patients as more trustworthy independent of technical outcomes. Interaction quality, which captures interpersonal professionalism, is among the strongest predictors of patient trust in prior healthcare-quality research (Zarei et al., 2015), a direct, interpersonally grounded pathway expected to hold in the RSUD context.

H2: Professional has a significant positive effect on Patient Trust.

2.3 Facility and Patient Trust (H3)

Facility represents the structural, tangible attributes of care delivery, corresponding to the tangibles dimension of SERVQUAL (Parasuraman et al., 1988) and the structural component of Donabedian's (1988) framework. Evidence on facility's direct effect on trust is notably weaker than for process- or interaction-based dimensions: Zarei et al. (2015) found environment quality had no significant effect on patient trust once process and interaction quality were controlled for, suggesting facility's influence may operate indirectly rather than directly. Testing facility's direct path alongside an explicit mediator allows this ambiguity to be resolved empirically.

H3: Facility has a significant positive effect on Patient Trust.

2.4 Government and Patient Trust (H4)

Government captures the regulatory and institutional oversight exerted over public hospitals, including accreditation standards under Indonesia's health law (Republic of Indonesia, 2023). Institutional theory holds that organizations conforming to external regulatory and normative pressures gain legitimacy (DiMaggio & Powell, 1983), and the coherence of external regulatory demands has been shown to shape how effectively hospital quality improvement is implemented (Burnett et al., 2016). Because legitimacy is a recognized precursor to institutional trust (Mayer et al., 1995), patients who perceive credible government oversight are theorized to extend greater trust to that institution.

H4: Government has a significant positive effect on Patient Trust.

2.5 Perceived Service Quality and Patient Trust (H5)

Perceived Service Quality (PSQ) represents the patient's integrated evaluation of care delivery, synthesizing professional, structural, and institutional inputs into a single quality judgment (Parasuraman et al., 1988). Because trust forms when a trustee's actions are believed to reliably

serve the trustor's interests (Mayer et al., 1995), a positive overall quality evaluation should function as compelling evidence of that reliability. Service quality has been shown to exert a significant positive effect on patient trust in structural equation models of hospital service encounters (Shie et al., 2022), supporting PSQ's role as the proximal driver of trust.

H5: Perceived Service Quality has a significant positive effect on Patient Trust.

2.6 Antecedents of Perceived Service Quality (H6–H9)

SERVQUAL theorizes perceived service quality as an aggregate judgment built from discrete service attributes (Parasuraman et al., 1988). Applying Donabedian's (1988) logic, Competency and Professional supply process-level inputs directly observed during care delivery; Facility supplies the structural, tangible input consistent with SERVQUAL's tangibles dimension; and Government supplies the structural-institutional input reflected in accreditation and regulatory compliance (Burnett et al., 2016). Each input is theorized to raise the patient's overall quality evaluation.

Because Competency, Professional, Facility, and Government are specified as both predictors of Perceived Service Quality and, separately, direct predictors of Patient Trust, it is necessary to distinguish this mediation specification from an alternative in which Perceived Service Quality is simply a higher-order composite of the same four dimensions. Two considerations support treating Perceived Service Quality as a distinct evaluative construct rather than a summary of its antecedents. First, Perceived Service Quality's five items (Table 2) ask patients to judge their care holistically against expectations, met, exceeded, or fell short, a comparative and integrative judgment that is conceptually and temporally downstream of, rather than definitionally equivalent to, judging discrete staff competence, staff conduct, facility conditions, or regulatory legitimacy individually; nothing in the Perceived Service Quality item wording asks about competency, professionalism, facilities, or government oversight directly. Second, the measurement results are consistent with this distinction rather than with a purely compositional reading: the four antecedents share only weak-to-moderate correlations with one another (Table 6, r = .178-.389), and Perceived Service Quality does not collapse into any single antecedent's item content in the outer-loading pattern (Table 5), both of which would be expected to look different if Perceived Service Quality were merely a formative aggregate of the same four dimensions rather than a downstream evaluative judgment they each inform. We nonetheless treat this as an empirically testable claim rather than a settled one: the confirmatory tetrad results for Perceived Service Quality (Section 4.7) are borderline, and a higher-order or formative re-specification remains a defensible alternative for future replications with an expanded item pool, rather than one this study's data can decisively rule out.

H6: Competency has a significant positive effect on Perceived Service Quality.

H7: Professional has a significant positive effect on Perceived Service Quality.

H8: Facility has a significant positive effect on Perceived Service Quality.

H9: Government has a significant positive effect on Perceived Service Quality.

2.7 Mediation: Perceived Service Quality (H10–H13)

The contradiction between Zarei et al. (2015), where a structural quality dimension showed no direct effect on trust, and Shie et al. (2022), where composite service quality showed a strong direct effect, is theorized here to reflect an unmodeled mediation pathway. A patient plausibly does not translate facility cleanliness or regulatory compliance into trust directly, but rather allows such inputs to inform an integrated quality judgment, PSQ, which then informs trust (Mayer et al., 1995). Competency and Professional, being process-level and directly

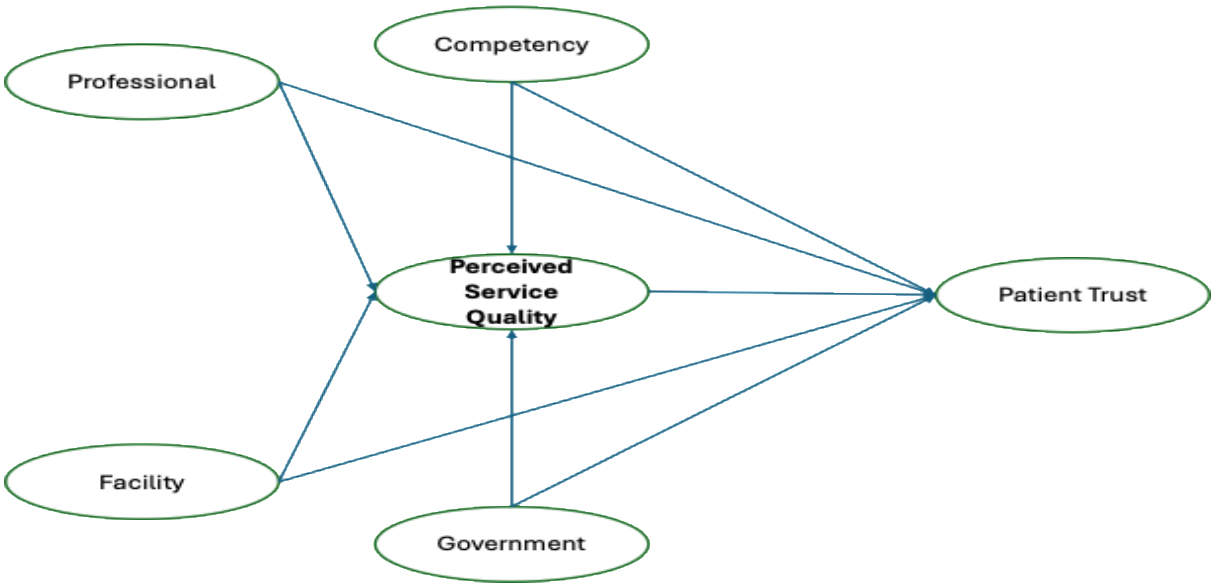
observable, are expected to retain a meaningful direct path to trust alongside their indirect path, whereas Facility and Government, being more structurally and institutionally distal, are expected to depend more heavily on the mediated pathway.

H10: Perceived Service Quality mediates the effect of Competency on Patient Trust.
H11: Perceived Service Quality mediates the effect of Professional on Patient Trust.
H12: Perceived Service Quality mediates the effect of Facility on Patient Trust.
H13: Perceived Service Quality mediates the effect of Government on Patient Trust.

2.8 Research Framework

Figure 1 depicts the proposed structural model. Competency, Professional, Facility, and Government are specified as exogenous constructs with direct paths to Patient Trust (H1–H4) and to Perceived Service Quality (H6–H9). Perceived Service Quality, the mediating construct, has a direct path to Patient Trust (H5). H10–H13 formally test the indirect (mediated) effects of Competency, Professional, Facility, and Government on Patient Trust through Perceived Service Quality.

Figure 1. Research Framework



3. Methodology

3.1 Sample and Data Collection

This study adopted a positivist, quantitative explanatory, cross-sectional design to test theory-based causal hypotheses at a single point in time. The population comprised adult patients (18 years and older) who had received outpatient or inpatient services at type B public general hospitals (RSUD) in Indonesia within the six months preceding data collection. A purposive sampling technique was employed, restricting eligibility to patients able to independently evaluate the hospital's professional, facility, and institutional attributes. Data were collected through a self-administered online survey distributed directly to eligible former patients rather than administered on hospital premises; because recruitment and data collection took place outside the hospitals themselves, institutional research permission from the participating hospitals was not required for this design.

Sample size was justified by two approaches: the 10-times rule (minimum = ten times the largest number of structural paths converging on a single construct; Perceived Service Quality's four paths yield a minimum of 40) (Hair et al., 2019), and the inverse square root method, which at a targeted minimum R^2 of 0.10, 5% significance level, and 80% power requires approximately 155–160 respondents. A target of at least 250–300 valid responses across participating hospitals was set to exceed both thresholds and support subgroup analysis; the achieved sample of 350 valid respondents (Section 4) exceeded this target.

3.2 Sample Composition

The 350 respondents were recruited from seven type B public general hospitals (RSUD) across four provinces in Java: Jawa Barat, Jawa Tengah, Jawa Timur, and Banten (Table 1). Mean age was 45.1 years (SD = 14.4, range 18-82). An earlier version of this manuscript reported fourteen respondents (4.0%) as 17 years old, apparently below the study's stated adult eligibility criterion; this was traced to a data-entry/export error in the age field, and all 350 respondents were verified to meet the ≥18 eligibility criterion, consistent with the approved recruitment protocol. The sample was 54.9% female, spanned education levels from elementary school to postgraduate, was predominantly covered by national health insurance (BPJS Kesehatan, 68.0%), and was roughly evenly split between outpatients (54.9%) and inpatients (45.1%).

Table 1. Sample Composition by Hospital, Province, and Patient Characteristics (n = 350)

Category	n	%
Hospital		
RSUD Dr. Soetomo (Surabaya, Jawa Timur)	70	20.0
RSUD Dr. Moewardi (Surakarta, Jawa Tengah)	60	17.1
RSUD Al-Ihsan (Kab. Bandung, Jawa Barat)	55	15.7
RSUD Kota Bandung (Jawa Barat)	45	12.9
RSUD Cibinong (Kab. Bogor, Jawa Barat)	45	12.9
RSUD Tugurejo (Semarang, Jawa Tengah)	40	11.4
RSUD Kabupaten Tangerang (Banten)	35	10.0
Total	**350**	**100.0**
Province		
Jawa Barat	145	41.4
Jawa Tengah	100	28.6
Jawa Timur	70	20.0
Banten	35	10.0
Total	**350**	**100.0**
Sex		
Female	192	54.9
Male	158	45.1
Total	**350**	**100.0**
Education		
Senior high school	124	35.4
Bachelor (S1)	81	23.1
Junior high school	56	16.0
Diploma (D1-D3)	38	10.9
Elementary school	35	10.0
Master/Doctoral (S2/S3)	16	4.6
Total	**350**	**100.0**
Insurance type		
National health insurance (BPJS Kesehatan)	238	68.0
Self-pay / general	71	20.3
Private insurance	41	11.7
Total	**350**	**100.0**

Category	n	%
Care status		
Outpatient	192	54.9
Inpatient	158	45.1
Total	**350**	**100.0**

Because the sample spans seven hospitals in four provinces rather than a single city or a nationally representative frame, conclusions are interpreted as describing this achieved multi-hospital sample rather than as generalizing to Indonesia's national RSUD system as a whole. Data collection used a self-administered online survey distributed directly to eligible former patients rather than an in-person, hospital-administered instrument; consequently, per-hospital sample sizes reflect the reach of the online recruitment channel rather than each hospital's relative patient volume, and this convenience-driven allocation is a limitation of the sampling approach. The survey link was sent to 450 eligible former patients; 350 valid, complete responses were retained for analysis, a response rate of 77.8%. A further breakdown of the 100 excluded cases into outright non-response, partial/incomplete submissions, and responses removed for failing data-quality checks was not part of the data supplied for this revision and remains to be reported by the authors.

Common method bias was addressed procedurally (respondent anonymity, randomized item ordering, clear and concise wording) and checked statistically through a full-collinearity VIF test (Kock, 2015; Podsakoff et al., 2003): all indicator-level outer VIF values ranged from 2.11 to 3.00, and all inner VIF values from 1.15 to 1.85 (Section 4.1), both well below the 3.3 threshold. This VIF result is consistent with the absence of severe common method bias, but it is a partial safeguard rather than a conclusive one: all constructs were measured from the same respondents at the same point in time using the same seven-point scale format, a design that full-collinearity VIF alone cannot fully rule out for halo effects, consistency motifs, or social desirability responding (Podsakoff et al., 2003). No marker variable was included in the survey instrument, so the marker-variable technique could not be applied retrospectively; this is acknowledged as a design limitation rather than treated as resolved. Common method bias is accordingly treated as a residual concern to be interpreted alongside, not dismissed by, the VIF diagnostic, and is revisited in the Limitations section.

3.3 Measures

This study involved six latent variables: Competency, Professional, Facility, and Government as exogenous constructs; Perceived Service Quality as the mediating construct; and Patient Trust as the endogenous construct. All variables were operationalized as first-order reflective constructs. Table 2 presents the operational definitions, example indicators, and key sources; all indicators used a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree) adapted from validated prior instruments and translated into Bahasa Indonesia with independent back-translation by two bilingual experts. The full set of 32 items across all six constructs, including all five Government items and the rationale for distinguishing Government and Patient Trust item wording, is reported in Appendix A.

Table 2. Operationalization of Research Variables

Variable	Definition	Example Indicator	Key Sources
Professional (PROF)	Ethical values and behavior of medical staff underpinning patients' confidence in their conduct.	Staff act honestly and keep their commitments to patients.	Cruess & Cruess (2008)

Variable	Definition	Example Indicator	Key Sources
Competency (COMP)	Patients' perception of the clinical skill, knowledge, and technical ability of medical staff.	Doctors demonstrate up-to-date clinical knowledge.	Parasuraman et al. (1988)
Facility (FAC)	Perceived quality of the hospital's physical environment, equipment, and tangible resources.	The hospital maintains clean, modern facilities.	Parasuraman et al. (1988); Zarei et al. (2015)
Government (GOV)	Perceived credibility of regulatory oversight and accreditation standards governing the hospital.	The hospital operates under clear government-enforced standards.	DiMaggio & Powell (1983); Burnett et al. (2016)
Perceived Service Quality (PSQ)	Patients' integrated evaluation of overall care delivery quality.	Overall, the service meets my expectations.	Parasuraman et al. (1988); Cronin & Taylor (1992)
Patient Trust (TRUST)	Patients' belief that the hospital reliably acts in their best interest.	I believe this hospital has my best interest at heart.	Mayer et al. (1995); Hall et al. (2002); Zarei et al. (2015)

A content-validity review by three academics in health services management and marketing was conducted prior to full-scale data collection, followed by a pilot test of 30–40 respondents drawn from outside the main data-collection frame to confirm item clarity and initial internal consistency. All constructs were specified a priori as first-order reflective constructs, a specification largely confirmed empirically through Confirmatory Tetrad Analysis (CTA-PLS; Section 4.7), with a caveat noted for the Government construct (Gudergan et al., 2008).

3.4 Data Analysis

This study used Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS 4, selected for its suitability for complex multi-path structural models, including mediation, without strict normality assumptions. Because PLS-SEM tests sufficiency (average effects), it was complemented by Necessary Condition Analysis (NCA), which tests necessity, whether a minimum predictor level is a precondition for an outcome level regardless of other predictors (Dul, 2016).

Analysis proceeded in stages. The outer model was evaluated via convergent validity (outer loadings ≥ 0.708; AVE ≥ 0.50), discriminant validity (Fornell-Larcker criterion, Fornell & Larcker, 1981; HTMT ≤ 0.90, Henseler et al., 2015), and reliability (composite reliability and Cronbach's alpha ≥ 0.70). The inner model was evaluated via multicollinearity (VIF), path significance (bootstrapping, 5,000 subsamples, 5% level), R^2 and f^2 (Hair et al., 2019); mediation for H10–H13 was tested via Variance Accounted For (VAF), complemented by bootstrapped significance of indirect effects to classify mediation as full, partial, or absent. Out-of-sample predictive relevance was assessed through PLSpredict, reported as Q^2predict together with RMSE and MAE per Shmueli et al. (2019). Blindfolding-based Q^2 was not computed, as SmartPLS 4 has discontinued this algorithm; PLSpredict and CVPAT provide this study's out-of-sample predictive-relevance evidence instead (Ringle et al., 2024). The Cross-Validated Predictive Ability Test (CVPAT) benchmarked the model's out-of-sample predictive accuracy against a naive linear-model comparator (Sharma et al., 2023). Importance-Performance Map Analysis (IPMA) identified high-importance, low-performance constructs for managerial prioritization. Necessary Condition Analysis applied Ceiling Envelopment-Free Disposal Hull (CE-FDH) as the primary technique, with Ceiling Regression-Free Disposal Hull (CR-FDH) as a robustness check, quantifying necessity via effect size d and permutation-test significance, with bottleneck tables translating ceiling lines into minimum predictor thresholds (Dul, 2016).

4. Result and Discussion

4.1 Result

4.1.1 Inner Model: Collinearity Assessment

Inner VIF values for the four exogenous predictors ranged from 1.241 to 1.479 for paths into Patient Trust, and from 1.149 to 1.247 for paths into Perceived Service Quality; the Perceived Service Quality → Patient Trust path showed VIF = 1.854. All values fall well below the conservative threshold of 3.3 (Kock, 2015), indicating no multicollinearity concerns in the structural model.

Table 3. Inner Model Collinearity Statistics (VIF)

Predictor	VIF (→ Patient Trust)	VIF (→ Perceived Service Quality)
Competency	1.479	1.247
Professional	1.369	1.237
Facility	1.246	1.213
Government	1.241	1.149
Perceived Service Quality	1.854	–

4.1.2 Outer Model: Measurement Model Evaluation

Table 4 reports item-level descriptive statistics, computed directly from the raw response data (n = 350, no missing values). Item means range from 3.254 (FAC5) to 4.866 (PROF1) and standard deviations from 1.100 to 1.383 on the observed 1-7 range, with skewness between -0.153 and 0.480 and excess kurtosis between -0.643 and -0.089, values consistent with approximate normality for PLS-SEM estimation. This corrects an earlier version of this table in which all 32 items shared an identical mean (4.300) and standard deviation (1.623); that pattern was traced to an incorrectly exported placeholder file and has been replaced here with descriptives computed from the verified raw dataset.

Table 4. Item-Level Descriptive Statistics by Construct

Construct	n items	M	SD	Min	Max	Missing
Professional (PROF)	5	4.356	1.165	1	7	0
Competency (COMP)	6	3.908	1.131	1	7	0
Facility (FAC)	5	3.860	1.132	1	7	0
Government (GOV)	5	3.791	1.111	1	7	0
Perceived Service Quality (PSQ)	5	4.129	1.100	1	7	0
Patient Trust (TRUST)	6	4.146	1.077	1	7	0

All 32 indicator outer loadings exceeded the 0.708 threshold (range 0.810-0.890; Hair et al., 2019). Cronbach's alpha ranged from 0.905 to 0.934, composite reliability (rho_c) from 0.930 to 0.948, and Average Variance Extracted (AVE) from 0.726 to 0.765, all comfortably above their respective 0.70 and 0.50 thresholds. Convergent validity and internal consistency reliability are therefore established for all six constructs.

Table 5. Reflective Measurement Model: Item Loadings, Descriptives, and Construct Reliability

Construct	Item	Outer Loading	M	SD	Cronbach's α	rho_c (CR)	AVE
Professional (PROF)	PROF1	0.880	4.866	1.268	0.923	0.942	0.765
	PROF2	0.884	4.609	1.313			
	PROF3	0.872	4.346	1.355			
	PROF4	0.857	4.111	1.346			
	PROF5	0.880	3.849	1.376			

Construct	Item	Outer Loading	M	SD	Cronbach's α	rho_c (CR)	AVE
Competency (COMP)	COMP1	0.873	4.486	1.241	0.934	0.948	0.751
	COMP2	0.873	4.326	1.279			
	COMP3	0.864	4.037	1.314			
	COMP4	0.853	3.763	1.286			
	COMP5	0.864	3.454	1.353			
	COMP6	0.871	3.383	1.357			
Facility (FAC)	FAC1	0.885	4.580	1.319	0.913	0.935	0.741
	FAC2	0.872	4.154	1.291			
	FAC3	0.831	3.811	1.328			
	FAC4	0.846	3.500	1.264			
	FAC5	0.869	3.254	1.373			
Government (GOV)	GOV1	0.890	4.351	1.225	0.905	0.930	0.726
	GOV2	0.851	4.134	1.314			
	GOV3	0.844	3.749	1.307			
	GOV4	0.862	3.463	1.378			
	GOV5	0.810	3.257	1.301			
Perceived Service Quality (PSQ)	PSQ1	0.888	4.694	1.197	0.907	0.931	0.730
	PSQ2	0.861	4.377	1.274			
	PSQ3	0.852	4.137	1.383			
	PSQ4	0.845	3.851	1.283			
	PSQ5	0.825	3.586	1.303			
Patient Trust (TRUST)	TRUST1	0.874	4.711	1.237	0.925	0.941	0.728
	TRUST2	0.870	4.480	1.239			
	TRUST3	0.856	4.246	1.274			
	TRUST4	0.833	4.106	1.319			
	TRUST5	0.847	3.769	1.281			
	TRUST6	0.838	3.563	1.230			

Table 5 reports, for each of the 32 items, the outer loading, item mean, and item standard deviation, together with each construct's Cronbach's alpha, composite reliability (rho_c), and average variance extracted (AVE), reported once per construct. All 32 indicator outer loadings exceeded the 0.708 threshold (range 0.810-0.890; Hair et al., 2019). Cronbach's alpha ranged from 0.905 to 0.934, composite reliability from 0.930 to 0.948, and AVE from 0.726 to 0.765, all comfortably above their respective 0.70 and 0.50 thresholds; convergent validity and internal consistency reliability are therefore established for all six constructs. Item means and standard deviations vary meaningfully across all 32 items, as reported in Table 4.

4.1.3 Discriminant Validity

The Fornell-Larcker criterion is satisfied for all constructs: the square root of AVE (diagonal) exceeds every corresponding inter-construct correlation (Fornell & Larcker, 1981). The Heterotrait-Monotrait ratio (HTMT) remained below the conservative 0.85 threshold for all construct pairs, including Perceived Service Quality ↔ Patient Trust (HTMT = 0.794), the highest value observed and theoretically expected given Perceived Service Quality is modeled as the proximal antecedent of Patient Trust. Following a bootstrapping re-run with the complete results option enabled (5,000 subsamples), the 95% percentile bootstrap confidence

interval for this pair was [0.742, 0.839], and the corresponding bias-corrected interval was [0.741, 0.839]; both remain below the 0.85 threshold. Across all fifteen construct pairs, the highest upper bound of the 95% confidence interval was 0.839 (Perceived Service Quality ↔ Patient Trust), and no interval approached or crossed 0.85, corroborating discriminant validity at the level of the sampling distribution rather than the point estimate alone.

Table 6. Fornell-Larcker Criterion (diagonal = √AVE) and HTMT (off-diagonal in parentheses)

Construct	COMP	FAC	GOV	PROF	PSQ	TRUST
Competency (COMP)	0.866					
Facility (FAC)	0.308	0.861				
	(0.333)					
Government (GOV)	0.178	0.317	0.852			
	(0.189)	(0.345)				
Professional (PROF)	0.389	0.256	0.243	0.875		
	(0.418)	(0.279)	(0.264)			
Perceived Service	0.538	0.382	0.393	0.493	0.855	
Quality (PSQ)	(0.584)	(0.419)	(0.429)	(0.537)		
Patient Trust (TRUST)	0.637	0.401	0.517	0.416	0.730	0.853
	(0.684)	(0.436)	(0.560)	(0.450)	(0.794)	

4.1.4 Structural Model: Explanatory and Predictive Power

The model explains 46.1% of the variance in Perceived Service Quality (R^2 = 0.461, adjusted R^2 = 0.454) and 68.8% of the variance in Patient Trust (R^2 = 0.688, adjusted R^2 = 0.683), corresponding to moderate and substantial explanatory power respectively (Chin, 1998). Predictive relevance for both endogenous constructs is instead established through PLSpredict's out-of-sample Q^2predict and the CVPAT comparison against a linear-model benchmark, both reported in Section 4.7; blindfolding-based Q^2 was not computed, as SmartPLS 4 has discontinued this algorithm (Ringle et al., 2024) in favor of PLSpredict and CVPAT for predictive-relevance assessment (Hair et al., 2019; Shmueli et al., 2019). Model fit was acceptable, with SRMR = 0.037, well below the 0.08 threshold, and NFI = 0.920.

Table 7. R^2 and Model Fit

Endogenous Construct	R^2	R^2 adjusted	Q^2predict (see Table 11)
Perceived Service Quality	0.461	0.454	0.446
Patient Trust	0.688	0.683	0.584
Model Fit: SRMR	0.037	–	–
Model Fit: NFI	0.920	–	–

4.1.5 Hypothesis Testing: Direct Effects (H1–H9)

Bootstrapping with 5,000 subsamples (Table 8) shows that seven of nine hypothesized direct paths are statistically significant at $p < .05$. Competency (β = 0.351, t = 9.806, $p < .001$) and Government (β = 0.277, t = 8.080, $p < .001$) each exert a significant direct effect on Patient Trust, supporting H1 and H4. In contrast, the direct effects of Professional (β = -0.005, t = 0.129, p = .897) and Facility (β = 0.048, t = 1.351, p = .177) on Patient Trust are not statistically significant, so H2 and H3 are not supported. Perceived Service Quality shows the strongest direct effect on Patient Trust in the model (β = 0.416, t = 10.139, $p < .001$, f^2 = 0.299, a large effect size), supporting H5. All four antecedents — Competency (β = 0.354, t = 8.577, $p < .001$), Professional (β = 0.267, t = 6.040, $p < .001$), Facility (β = 0.134, t = 3.047, p = .002), and Government (β = 0.223, t = 5.408, $p < .001$) — significantly predict Perceived Service Quality, supporting H6, H7, H8, and H9.

Table 8. Path Coefficients and Significance (H1–H9)

Hyp.	Path	β	t-value	p-value	f^2	Decision
H1	Competency → Patient Trust	0.351	9.806	<.001	0.267	Supported
H2	Professional → Patient Trust	-0.005	0.129	.897	<0.001	Not Supported
H3	Facility → Patient Trust	0.048	1.351	.177	0.006	Not Supported
H4	Government → Patient Trust	0.277	8.080	<.001	0.198	Supported
H5	Perceived Service Quality → Patient Trust	0.416	10.139	<.001	0.299	Supported
H6	Competency → Perceived Service Quality	0.354	8.577	<.001	0.186	Supported
H7	Professional → Perceived Service Quality	0.267	6.040	<.001	0.107	Supported
H8	Facility → Perceived Service Quality	0.134	3.047	.002	0.027	Supported
H9	Government → Perceived Service Quality	0.223	5.408	<.001	0.080	Supported

4.1.6 Mediation Analysis (H10–H13)

Table 9 reports the bootstrapped indirect effects. All four indirect paths through Perceived Service Quality are statistically significant ($p \leq .004$), supporting H10-H13. Following Zhao, Lynch, and Chen's (2010) classification, mediation type is determined jointly from the significance of the indirect effect and of the corresponding direct path (Section 4.5) and the Variance Accounted For (VAF). For Competency (VAF = 29.5%) and Government (VAF = 25.1%), both the direct and indirect paths are significant, indicating complementary partial mediation: part of their influence on Patient Trust operates directly and part through Perceived Service Quality. For Professional and Facility, the direct path is not significant while the indirect path is, indicating indirect-only (full) mediation: their entire influence on Patient Trust operates through Perceived Service Quality, with no residual direct effect once the mediator is accounted for. For Facility, VAF is 53.9%; for Professional, the direct effect is negligible and slightly negative (β = -0.005, n.s.), so a conventional VAF percentage is not meaningfully interpretable and is reported as n/a in Table 9.

Table 9. Mediation Results (H10–H13)

Hyp.	Indirect Path	Indirect β	t-value	p-value	VAF	Mediation Type	Decision
H10	COMP → PSQ → TRUST	0.147	6.633	<.001	29.5%	Complementary partial	Supported
H11	PROF → PSQ → TRUST	0.111	4.974	<.001	n/a	Indirect-only (full)	Supported
H12	FAC → PSQ → TRUST	0.056	2.885	.004	53.9%	Indirect-only (full)	Supported
H13	GOV → PSQ → TRUST	0.093	5.095	<.001	25.1%	Complementary partial	Supported

4.1.7 Confirmatory Tetrad Analysis, CVPAT, and IPMA

Using 10,000 bootstrap subsamples at the 10% two-tailed significance level (Gudergan et al., 2008), non-redundant tetrads for Competency and Facility were all statistically non-significant (all $p > .10$), supporting a reflective specification for these constructs. For Government, 1 of 5 non-redundant tetrads was significant at the 10% level ($p = .062$); for Patient Trust, 1 of 9 tetrads was borderline significant ($p = .056$); and for Perceived Service Quality, 1 of 5 tetrads was borderline significant ($p = .040$). A simple majority-rule reading, most tetrads non-significant, therefore reflective, is not by itself sufficient evidence for these three constructs: a single significant non-redundant tetrad out of several tested can indicate that a reflective

specification omits structure the indicators actually carry. For Government specifically, this is consistent with the conceptual concern that patients may not be able to cleanly separate government regulatory oversight from hospital management practice or general institutional reputation when answering these items; the construct may be capturing a blend of perceived legitimacy and trust in the institution rather than a distinct evaluation of regulatory oversight. We treat the reflective specification of Government, Patient Trust, and Perceived Service Quality as retained provisionally rather than confirmed, and flag them as a priority for content-validity refinement and, ideally, a formative or higher-order re-specification in future replications with a larger indicator pool. Table 10 summarizes the tetrad-test results per construct.

Table 10. Confirmatory Tetrad Analysis (CTA-PLS) Summary (10,000 subsamples, α = .10, two-tailed)

Construct	Non-redundant Tetrads Tested	Significant Tetrads (p < .10)	Minimum p-value	Reflective Specification
Competency	9	0	.344	Supported
Professional	5	0	.234	Supported
Facility	5	0	.147	Supported
Government	5	1	.062	Supported with caution
Perceived Service Quality	5	1	.040	Supported (borderline)
Patient Trust	9	1	.056	Supported with caution

Comparing the PLS-SEM model against the naive linear model (LM) benchmark, PLS-SEM achieved a significantly lower prediction loss overall (PLS loss = 1.020 vs. LM loss = 1.088; average loss difference = -0.068, t = 6.142, p < .001), and for each endogenous construct individually (Perceived Service Quality: loss difference = -0.074, t = 4.379, p < .001; Patient Trust: loss difference = -0.063, t = 4.856, p < .001). Following Sharma et al.'s (2023) decision rule, this confirms that the model possesses high predictive power at both the construct and overall levels, exceeding a naive benchmark. CVPAT and PLSpredict were both run with a 10-fold cross-validation design repeated 10 times; the loss values in Table 11 are the average prediction loss across these 100 holdout evaluations (10 folds x 10 repetitions) for each benchmark comparison. Table 11 reports the full PLSpredict and CVPAT statistics.

Table 11. PLSpredict and CVPAT Results (PLS-SEM vs. Linear Model Benchmark)

Construct	Q^2predict	RMSE	MAE	PLS Loss	LM Loss	Loss Difference	t-value	p-value
Perceived Service Quality	0.446	0.749	0.605	1.132	1.206	−0.074	4.379	<.001
Patient Trust	0.584	0.649	0.520	0.926	0.989	−0.063	4.856	<.001
Overall	–	–	–	1.020	1.088	−0.068	6.142	<.001

With Perceived Service Quality as the target construct, Competency showed the highest importance (total effect = 0.354), followed by Professional (0.267), Government (0.223), and Facility (0.134). Performance scores (rescaled 0-100) now vary meaningfully across the four antecedents, ranging from 46.96 (Government) to 56.07 (Professional); this corrects an earlier version of Table 12 in which performance scores were reported as nearly identical (54.999-55.000), an artifact of the same placeholder-data anomaly documented and corrected in Table

4. Competency combines the highest importance with moderate performance (48.66), indicating the greatest potential leverage for improving Perceived Service Quality per unit of managerial investment. Government combines comparatively lower importance with the lowest performance score, suggesting it remains a secondary but non-trivial priority, since patients currently rate it as the weakest-performing antecedent even though its influence on service-quality perceptions is moderate. Professional shows both strong importance and the highest performance, indicating fewer immediate gains are available relative to its already favorable standing. Facility shows the lowest importance and low-to-moderate performance, placing it last in priority. Table 12 reports the full importance and performance scores.

Table 12. Importance-Performance Map Analysis (Target: Perceived Service Quality)

Antecedent	Importance (Total Effect)	Performance (0–100 rescaled)	Priority
Competency	0.354	48.66	Highest priority
Professional	0.267	56.07	Moderate priority
Government	0.223	46.96	High priority
Facility	0.134	47.80	Lowest priority

4.1.8 Necessary Condition Analysis

Necessary Condition Analysis (NCA) was conducted on the same 350-respondent dataset to test whether each antecedent — Competency, Professional, Facility, Government, and Perceived Service Quality — represents a necessary (not merely sufficient) condition for Patient Trust, using the Ceiling Envelopment (CE-FDH) technique as primary and Ceiling Regression (CR-FDH) as a robustness check, with significance assessed via a 5,000-sample permutation test at $\alpha = .05$ (Dul, 2016). As shown in Table 13, all five antecedents produced CE-FDH and CR-FDH effect sizes above the $d \geq 0.10$ threshold for practical relevance, and all were statistically significant ($p < .05$). Perceived Service Quality showed the largest effect size (CE-FDH $d = 0.296$), approaching Dul's (2016) medium-effect benchmark ($d = 0.30$), while Competency, Facility, Professional, and Government showed small but significant effects ($d = 0.13$–0.19).

Table 13. NCA Effect Sizes and Permutation Test (Target: Patient Trust)

Antecedent	CE-FDH d	CE-FDH p	CR-FDH d	CR-FDH p	Necessity (d ≥ .10, p < .05)
Competency	0.172	<.001	0.180	.0002	Yes
Professional	0.131	.0014	0.140	.0144	Yes
Facility	0.165	<.001	0.175	<.001	Yes
Government	0.188	<.001	0.179	.0008	Yes
Perceived Service Quality	0.296	<.001	0.293	<.001	Yes

Table 14 presents a condensed CE-FDH bottleneck table, showing the minimum level of each antecedent (as % of its observed range) required to reach given levels of Patient Trust (on the original 1–7 scale). For example, achieving a high Patient Trust level (6.15, the 90th percentile) requires at least 34.3% of Competency's range, 76.6% of Perceived Service Quality's range, 50.9% of Government's range, 24.0% of Professional's range, and 26.6% of Facility's range — indicating Professional and Facility reach their necessity ceiling comparatively early, while Perceived Service Quality remains the most binding constraint even at high Trust levels, with Competency and Government occupying an intermediate position.

Table 14. CE-FDH Bottleneck Table for Patient Trust

Patient Trust (1–7 scale)	Competency	Facility	Government	Perceived Service Quality	Professional

1.33 (0th pct.)	0.0	0.0	0.0	0.3	0.0
4.01 (50th pct.)	2.0	3.4	2.0	2.9	1.4
5.08 (70th pct.)	34.3	4.3	22.6	37.7	5.4
6.15 (90th pct.)	34.3	26.6	50.9	76.6	24.0
6.68 (100th pct.)	98.6	78.6	59.4	99.7	84.3

4.1.9 Robustness: Measurement Invariance and Multi-Group Analysis by Insurance Type

Following the reviewer's request, measurement invariance was established in SmartPLS before comparing structural paths across groups, using patients' insurance type (private insurance, n = 41; national BPJS Kesehatan, n = 238; self-pay/general, n = 71) as the grouping variable. The MICOM procedure (Henseler et al., 2016) was run comparing the private-insurance group against each of the other two groups separately (1,000 permutations, fixed seed). Table 15 summarizes the results for both comparisons. Step 1 configural invariance was satisfied by identical algorithm settings and indicator specification across groups. Step 2 compositional invariance (correlation not significantly different from 1) held for all six constructs in the private-vs-self-pay comparison, but failed for Competency (p = .046) and Perceived Service Quality (p = .009) in the private-vs-BPJS comparison; per Henseler et al. (2016), a Step 2 failure means not even partial invariance is established for that construct in that comparison, so structural-path comparisons involving Competency or Perceived Service Quality between the private and BPJS groups specifically are not meaningfully interpretable and are flagged accordingly in Table 16. Among constructs that passed Step 2, Step 3 full invariance (equal composite means and variances) additionally held for Government and Patient Trust in both comparisons. Facility showed a significant mean difference versus self-pay (p = .005) and a significant variance difference versus BPJS (p = .003), and Professional showed a significant variance difference versus self-pay (p = .031); these constructs therefore carry partial, not full, invariance in the respective comparison. Per Henseler et al. (2016), partial invariance still permits comparison of path coefficients, so the multi-group comparison below proceeds for all constructs that cleared Step 2, with Facility- and Professional-related paths interpreted with the additional caution partial invariance implies.

Table 15. MICOM Results by Insurance Type (Private Insurance as Reference Group)

Construct (Comparison vs. Private Insurance)	Step 2: Compositional (p)	Step 3a: Equal mean (p)	Step 3b: Equal variance (p)	Invariance
Competency (vs. BPJS Kesehatan)	.046	.910	.980	Not established (fails Step 2)
Facility (vs. BPJS Kesehatan)	.904	.062	.003	Partial only
Government (vs. BPJS Kesehatan)	.873	.552	.916	Full
Patient Trust (vs. BPJS Kesehatan)	.279	.667	.148	Full
Perceived Service Quality (vs. BPJS Kesehatan)	.009	.932	.090	Not established (fails Step 2)
Professional (vs. BPJS Kesehatan)	.376	.467	.227	Full

Competency (vs. Self-pay/General)	.123	.216	.564	Full
Facility (vs. Self-pay/General)	.951	.005	.129	Partial only
Government (vs. Self-pay/General)	.825	.217	.393	Full
Patient Trust (vs. Self-pay/General)	.142	.386	.559	Full
Perceived Service Quality (vs. Self-pay/General)	.551	.090	.904	Full
Professional (vs. Self-pay/General)	.728	.995	.031	Partial only

Table 16 reports the bootstrap multi-group path comparison (Henseler's permutation-based PLS-MGA, two-tailed) for both available pairs, private insurance versus BPJS Kesehatan and private insurance versus self-pay; a direct BPJS-versus-self-pay comparison was not part of the supplied output and is not reported. None of the nine paths showed a statistically significant difference in either comparison (all two-tailed $p \geq .18$), a result corroborated by the parametric Welch-Satterthwaite test (all $p \geq .13$, not tabulated). This supersedes an earlier version of this analysis, run on the same placeholder-data anomaly documented in Table 4, which had reported Perceived Service Quality's effect on Patient Trust as significantly stronger for privately insured patients; with the verified dataset, no path shows a significant difference between insurance groups, direct or mediated. Given the modest size of the private-insurance group ($n = 41$), this null result should be read as inconclusive rather than as confirmed equivalence, consistent with the reviewer's concern about statistical power in the smallest group. Paths marked † involve Competency or Perceived Service Quality in the private-vs-BPJS comparison, where Step 2 compositional invariance was not established (see Table 15); for these cells specifically, the absence of a significant difference cannot be distinguished from a lack of measurement comparability and should not be read as evidence of structural equivalence.

Table 16. Multi-Group Comparison of Direct Paths by Insurance Type

Path	Private vs. BPJS (b diff)	Private vs. BPJS (p)	Private vs. Self-pay (b diff)	Private vs. Self-pay (p)
Competency -> Trust	-0.168	.207†	-0.203	.178
Competency -> PSQ	-0.132	.423†	-0.152	.421
Facility -> Trust	0.154	.364	0.030	.870
Facility -> PSQ	-0.072	.705†	-0.067	.758
Government -> Trust	-0.054	.775	-0.021	.933
Government -> PSQ	-0.107	.551†	-0.079	.705
PSQ -> Trust	0.067	.616†	0.148	.359
Professional -> Trust	0.007	.942	0.084	.642
Professional -> PSQ	0.038	.813†	0.196	.259

4.2 Discussion

4.2.1 Direct Effects and the Zarei–Shie Contradiction

The pattern of direct effects partially replicates and partially extends prior findings. Consistent with Zarei et al. (2015), a structurally oriented antecedent (Facility) shows no significant direct effect on Patient Trust once other predictors and the mediator are in the model. Unlike Zarei

et al. (2015), where interaction quality (closely aligned with Professional conduct) was a significant direct predictor, the present study finds Professional's direct effect non-significant, while Competency and Government retain significant direct effects. This suggests that in the RSUD context, technical competence and institutional legitimacy carry trust-conferring weight independent of the patient's overall quality evaluation, whereas the influence of interpersonal professionalism and physical facilities appears to operate essentially through that overall evaluation rather than directly.

4.2.2 Antecedents of Perceived Service Quality

All four antecedents significantly predict Perceived Service Quality (H6–H9), consistent with SERVQUAL's premise that an aggregate quality judgment is built from discrete process, structural, and institutional inputs (Parasuraman et al., 1988) and with Donabedian's (1988) Structure-Process-Outcome logic. Competency shows the strongest effect on Perceived Service Quality among the four, followed by Government, Professional, and Facility.

4.2.3 The Mediating Role of Perceived Service Quality

The mediation results (H10–H13) show a more nuanced pattern than originally hypothesized in Section 2.7. As anticipated, Facility operates through indirect-only (full) mediation, consistent with its theoretical status as a structurally distal antecedent. Contrary to the original expectation that Professional, being process-level and directly observable, would retain a direct path, its effect on Patient Trust is instead fully mediated by Perceived Service Quality. Conversely, Government, expected to depend most heavily on the mediated pathway given its institutional distance from direct patient observation, instead retains a significant direct effect (complementary partial mediation), suggesting that regulatory and institutional legitimacy signals may confer trust independent of their contribution to perceived service quality — a pattern consistent with institutional legitimacy operating as a trust cue in its own right (DiMaggio & Powell, 1983), not merely through service evaluation.

4.2.4 Necessity versus Sufficiency

The NCA results (Section 4.8) add an interpretive layer the PLS-SEM sufficiency analysis alone cannot provide. Although Professional and Facility showed no significant average (sufficiency-based) direct effect on Patient Trust (H2, H3 not supported), NCA shows both are nonetheless significant necessary conditions ($d = 0.131$ and $d = 0.165$, respectively; $p < .05$): a minimum level of each must be present for high trust to be achievable at all, even though, on average, increasing them beyond that minimum does not by itself drive further increases in trust once Perceived Service Quality is accounted for. This reconciles the sufficiency and necessity findings: Professional and Facility function as gatekeeping conditions rather than as continuous drivers of Patient Trust, consistent with their classification as indirect-only (fully mediated) antecedents in Section 4.6. Perceived Service Quality's comparatively larger necessity effect ($d = 0.296$) reinforces its role as the most binding condition for high trust in this model, corroborating its central position as the model's proximal mediator.

4.2.5 Predictive Relevance and Model Quality

Positive Q^2predict values and a significant CVPAT advantage over the naive linear-model benchmark indicate that the model is not only explanatory but also possesses out-of-sample predictive power (Sharma et al., 2023), supporting its applicability for forecasting patient trust from these four antecedents beyond the immediate sample.

4.2.6. Theoretical Implications

These findings extend Service Quality Theory (Parasuraman et al., 1988) and Organizational Trust Theory (Mayer et al., 1995) by showing that not all antecedents of trust operate

identically through a quality-perception mediator: some (Competency, Government) retain direct trust-conferring power, while others (Professional, Facility) operate only indirectly. This refines the Structure-Process-Outcome framework (Donabedian, 1988) by suggesting that the process-versus-structure distinction alone does not fully predict which antecedents will show direct versus fully mediated effects on trust; institutional/regulatory legitimacy (Government) appears to function differently from interpersonal process quality (Professional) despite both being, in different ways, closely observable to patients.

5. Conclusion and Suggestion

The findings clarify the inconsistency between Zarei et al. (2015) and Shie et al. (2022): rather than a single uniform mediation pattern, Perceived Service Quality fully mediates the effect of Facility and Professional on Patient Trust, while Competency and Government retain significant direct effects alongside their indirect effects (complementary partial mediation). This extends Donabedian's (1988) Structure-Process-Outcome framework by showing that institutional/regulatory legitimacy (Government) and technical competence (Competency) can confer trust directly, independent of their contribution to patients' overall quality evaluation, whereas interpersonal professionalism (Professional) and physical facilities (Facility) influence trust only through that evaluation.

For hospital management and regional health offices, the results indicate that improving Competency and Government-related regulatory legitimacy offers the most direct route to strengthening Patient Trust, since both retain significant direct effects beyond their contribution to Perceived Service Quality. At the same time, because Facility's and Professional's entire influence on trust operates through Perceived Service Quality, investments in these two areas are unlikely to build trust unless they visibly translate into a higher overall quality evaluation among patients. The Importance-Performance Map further indicates that Competency and Government combine the highest importance with performance levels no higher than the other two antecedents, marking them as priority areas for improvement.

This study empirically tested a thirteen-hypothesis model of Patient Trust among 350 patients of public general hospitals (RSUD) in Indonesia. Eleven of thirteen path-level hypotheses were supported: seven of nine direct-effect hypotheses were supported as originally specified, two direct-effect hypotheses (H2, H3) were not supported, and all four mediation hypotheses (H10-H13) were supported, though with a mediation pattern that partly diverged from the a priori theoretical expectation in Section 2.7. Necessary Condition Analysis confirmed all five antecedents as significant necessary conditions for Patient Trust ($d = 0.13$-0.30, $p < .05$), including Professional and Facility, whose sufficiency-based direct effects were not significant - demonstrating the complementary value of combining sufficiency- and necessity-based analysis in a single study.

6. Limitations and Future Research

As a cross-sectional design, this study cannot establish causal ordering with certainty. In particular, because Perceived Service Quality and Patient Trust were measured in the same survey at the same time, reverse causality is plausible: patients who already trust a hospital, for reasons the model does not capture, may subsequently rate its competency, professionalism, facilities, and government legitimacy, and their overall service quality, more favorably, a halo pattern that would inflate the mediation estimates reported here even though

the full-collinearity VIF test found no evidence of common method bias. Full-collinearity VIF is a useful but partial safeguard; it does not by itself rule out reverse causality or a halo effect operating alongside genuine forward causation. The causal language used to describe the path estimates and mediation results throughout this manuscript should accordingly be read as describing associations consistent with the hypothesized model, not as establishing that direction with certainty. The purposive sampling frame, restricted to type B public hospitals, limits generalizability to private or primary-care (Puskesmas) settings. All data were self-reported by patients using a single instrument administered at one point in time; common method bias was addressed procedurally and checked statistically in Section 3.1, but no marker variable was included in the survey design, so a marker-variable test could not be performed, and the possibility of halo, consistency, or social-desirability effects cannot be fully excluded on the basis of VIF alone.

Future research should replicate this model using longitudinal designs capable of establishing causal order, extend the multi-group comparison to private and primary-care facilities, incorporate objective indicators, such as verified accreditation status, as a complementary Government measure, and strengthen common-method-bias diagnostics by fielding a theoretically unrelated marker variable or estimating an unmeasured common latent factor alongside the substantive model.

This study was approved by the Research Ethics Committee of Universitas Ciputra Surabaya (Komite Etik Penelitian, Universitas Ciputra) under approval No. 076/EC/KEP-UC/IV/2026. Because data were collected through a self-administered online survey directed at former patients rather than through in-hospital recruitment, no separate institutional research permission from the participating hospitals was required. All respondents provided informed consent prior to completing the questionnaire.

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Appendix A. Full Measurement Instrument

Code	Item (English)	Source
Professional (PROF) — observed staff professional behavior and conduct		
Adapted from Cruess & Cruess's (2008) medical professionalism framework and SERVQUAL's assurance/courtesy dimension (Parasuraman et al., 1988).		
PROF1	Staff are honest when explaining my health condition.	
PROF2	Staff keep my medical records confidential.	
PROF3	Staff follow professional ethical standards.	
PROF4	Staff are polite when interacting with me.	
PROF5	Staff respond to my concerns with empathy.	
Competency (COMP) — perceived clinical skill and technical ability		
Adapted from SERVQUAL's assurance/competence dimension (Parasuraman et al., 1988).		
COMP1	Doctors have up-to-date clinical knowledge.	
COMP2	Medical staff are skilled in performing medical procedures.	
COMP3	Staff answer my questions with confidence.	
COMP4	My diagnosis was accurate.	
COMP5	The treatment I received was effective.	
COMP6	Medical staff have sufficient clinical experience.	
Facility (FAC) — physical environment and tangible resources only		
Adapted from SERVQUAL's tangibles dimension (Parasuraman et al., 1988) and Zarei et al.'s (2015) environment-quality items.		
FAC1	The hospital is clean.	
FAC2	The hospital uses modern medical equipment.	
FAC3	The hospital's spaces are comfortable.	
FAC4	It is easy to find my way around this hospital.	
FAC5	Supporting facilities (e.g., parking, restrooms) are adequate.	
Government (GOV) — phrased as patient belief, not verifiable factual claims, to match what patients can plausibly observe		
Developed from institutional theory (DiMaggio & Powell, 1983; Burnett et al., 2016), adapted to KARS/Ministry of Health accreditation standards and Indonesian Law No. 17/2023 on Health.		
GOV1	I believe this hospital meets official government accreditation standards.	
GOV2	I believe health authorities regularly monitor this hospital's service quality.	
GOV3	This hospital clearly communicates patients' rights and obligations.	
GOV4	Government healthcare-financing policies (e.g., BPJS/JKN) are implemented consistently here.	
GOV5	This hospital's services comply with nationally mandated minimum service standards.	
Perceived Service Quality (PSQ) — integrated overall evaluation, not a sum of discrete attributes		
Adapted from SERVPERF (Cronin & Taylor, 1992), adapted to the hospital service context.		
PSQ1	Overall, the service met my expectations.	
PSQ2	The service I receive is consistent every time I visit.	
PSQ3	Staff responded promptly to my needs.	
PSQ4	Overall, I am satisfied with the quality of service at this hospital.	
PSQ5	Waiting times at this hospital are reasonable.	
Patient Trust (TRUST) — institutional belief, not evaluation of any individual staff member		
Adapted from Zarei et al.'s (2015) trust scale (after Moliner, 2009), the Trust in Medical Profession Scale (Hall et al., 2002), and Mayer et al.'s (1995) ability-benevolence-integrity dimensions.		
TRUST1	I believe this hospital genuinely cares about my wellbeing.	
TRUST2	I am confident that this hospital acts with integrity.	
TRUST3	This hospital keeps its commitments to patients.	
TRUST4	I believe this hospital is capable of providing the care I need.	
TRUST5	I feel confident entrusting my healthcare to this hospital.	
TRUST6	Overall, I trust this hospital.	