Service Quality and Patients' Willingness to Recommend a Hospital: A Cross-Sectional Analysis of Operational Survey Data

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ABSTRACT

Hospital service quality shapes patient experience and recommendations. This study examined the association between perceived service quality and patients' willingness to recommend a hospital. A cross-sectional analysis was conducted using secondary survey data from 306 randomly sampled respondents. Service quality was measured via 11 Likert-type indicators (Cronbach's alpha = 0.813); willingness to recommend was dichotomized (Yes/No). Descriptive statistics and simple binary logistic regression were applied. Most respondents were female (53.59%) and used the BPJS Kesehatan payment pathway (95.10%). The mean service-quality score was 3.80 (SD = 0.29), and 94.12% were willing to recommend the hospital. Logistic regression showed that every 0.1-point increase in the service-quality score was associated with higher odds of willingness to recommend (OR = 1.85; 95% CI = 1.50–2.29; $p < 0.001$). Perceived service quality significantly predicts recommendation willingness, supporting patient-experience improvement strategies, despite cross-sectional design limitations.

I. Introduction

Hospital service quality is a central component of patient experience and organizational performance because patients evaluate hospitals through both clinical and non-clinical encounters. In quality-of-care theory, the patient experience can be understood as an outcome that is shaped by hospital structures and care processes, including accessibility, communication, responsiveness, reliability, empathy, administrative flow, and the physical care environment (Donabedian, 1988; Parasuraman et al., 1988; Zehra et al., 2025).

Willingness to recommend a hospital is a meaningful behavioral intention because it requires patients to translate their personal experience into advice for others. A patient may be satisfied with an individual encounter but still hesitate to recommend the provider if care is inconsistent, administrative processes are burdensome, or trust in the institution is weak. Therefore, willingness to recommend reflects patient advocacy, confidence, and positive word-of-mouth rather than satisfaction alone (Kitapci et al., 2014; Xu et al., 2022).

International patient-experience measurement systems also reinforce the importance of recommendation. The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey includes willingness to recommend the hospital alongside other patient-perspective domains such as communication, responsiveness, hospital environment, care coordination, discharge information, and overall hospital rating (Centers for Medicare & Medicaid Services [CMS], 2025). Thus, recommendation is not merely a promotional indicator; it is a patient-centered signal of whether the service experience is sufficiently trustworthy to be socially endorsed.

Hospital service quality is multidimensional. It includes tangible dimensions such as facilities and cleanliness, process dimensions such as waiting time and administrative flow, interaction dimensions such as communication and empathy, and trust-related dimensions such as perceived safety and

confidence in treatment. SERVQUAL-based health-care studies commonly emphasize tangibles, reliability, responsiveness, assurance, and empathy as core dimensions of perceived service quality (Parasuraman et al., 1988; Goula et al., 2021).

The Indonesian hospital setting provides an important empirical arena for examining this issue. Patient experience is shaped by clinical services, financing mechanisms, referral pathways, administrative procedures, expectations toward public and private providers, and the operational realities of National Health Insurance - Social Security Agency for Health (BPJS Kesehatan). Recent Indonesian evidence shows that patients interpret service quality through practical and relational experiences, including waiting time, staff communication, service coordination, facility comfort, and perceived value (Noviyani & Viwattanakulvanid, 2024, 2025).

The novelty of this study lies in its use of routine operational hospital survey data to examine willingness to recommend as a specific patient-advocacy outcome in an Indonesian hospital setting. Most service-quality studies focus on satisfaction, revisit intention, or broad loyalty outcomes, whereas operational analyses that directly connect perceived service quality with recommendation intention remain more limited. Focusing on recommendation is important because it links patient experience with social endorsement and hospital reputation.

Based on this background, the present study examined the association between perceived hospital service quality and willingness to recommend the hospital. The research question was: Is perceived service quality significantly associated with willingness to recommend the hospital among surveyed respondents?

II. Methods

Study Design, Setting, and Data Source

This study used a quantitative cross-sectional design based on anonymized secondary operational patient-experience survey data from [Hospital Name], [City/Province], Indonesia. The unit of analysis was the individual respondent. The sampling frame consisted of eligible and complete patient-experience survey records in the hospital database during [survey period]. From this sampling frame, 306 respondent records were selected using simple random sampling. Records with incomplete service-quality or recommendation data were excluded from the analysis. Because the data were cross-sectional, the study was designed to identify statistical associations rather than causal effects.

Variables and Measurement

The independent variable was perceived service quality. The variable was calculated as the mean score of 11 service-quality indicators. Each item used a numerical Likert-type score, and the resulting composite score ranged from 2.8 to 4.0 in the analyzed dataset. Internal consistency of the 11-item composite was assessed using Cronbach's alpha and showed acceptable reliability (alpha = 0.813). For descriptive categorical presentation, the composite score was recoded into lower quality (<3.5) and good quality (>=3.5), using 3.5 as the operational threshold for good perceived service quality.

The dependent variable was willingness to recommend the hospital. This variable was dichotomized as Yes for respondents willing to recommend the hospital and No for respondents unwilling to recommend the hospital. Respondent characteristics included sex and payment method. Sex was coded as male and female. Payment method consisted of National Health Insurance - Social Security Agency for Health (BPJS Kesehatan), private insurance, and general/self-payment.

Ethical Considerations

This study used secondary operational survey data that had been anonymized before analysis. The dataset did not include direct personal identifiers such as names, medical record numbers, addresses, or telephone numbers. Permission to use the data was obtained from the authorized hospital data custodian. Ethical clearance or data-use approval number: [insert approval/permit number and issuing institution].

Statistical Analysis

Descriptive statistics were used to summarize the frequency and percentage distributions of sex, payment method, categorized service-quality score, and willingness to recommend. The mean, standard deviation, minimum, and maximum were also calculated for the continuous service-quality score.

To avoid an overly fragmented analytic presentation, the primary inferential analysis used simple binary logistic regression. Willingness to recommend was coded as the binary outcome, and the continuous service-quality score was entered as the predictor. The logistic regression result was reported as an odds ratio (OR), 95% confidence interval (CI), and p-value. Because the service-quality score had a narrow observed range and the OR per one-point increase was very large, the OR was also transformed into an OR per 0.1-point increase for clearer substantive interpretation. Statistical significance was determined at $p < 0.05$.

III. Results

A total of 306 respondents were included in the analysis. The descriptive characteristics are shown in Table 1. The primary inferential result is presented in Table 2, and the descriptive cross-tabulation between categorized service quality and willingness to recommend is shown in Table 3.

Table 1. Descriptive characteristics of respondents and key study variables

Sex	**Frequency**	**Percentage**
Male	142	46.41
Female	164	53.59
Total	306	100.00
Payment method	**Frequency**	**Percentage**
National Health Insurance (BPJS Kesehatan)	291	95.10
Private insurance	8	2.61
General/self-payment	7	2.29
Total	306	100.00
Service-quality category	**Frequency**	**Percentage**
Lower quality (<3.5)	40	13.07
Good quality (>=3.5)	266	86.93
Total	306	100.00
Willingness to recommend	**Frequency**	**Percentage**
Yes	288	94.12
No	18	5.88
Total	306	100.00

Female respondents were slightly more dominant than male respondents. Women accounted for 164 respondents (53.59%), while men accounted for 142 respondents (46.41%). The overwhelming majority of respondents used National Health Insurance (BPJS Kesehatan) as the payment method, indicating that the findings mainly reflect patient experience within the national health insurance service pathway.

For categorical interpretation, service-quality scores were recoded using a 3.5 cut-off.

Respondents with scores below 3.5 were classified as having lower perceived service quality, whereas respondents with scores of 3.5 or higher were classified as having good perceived service quality. Based on this classification, 40 respondents (13.07%) were in the lower-quality category and 266 respondents (86.93%) were in the good-quality category. The raw service-quality score remained high overall, with a mean of 3.80, a standard deviation of 0.29, and an observed range of 2.8 to 4.0. A total of 154 respondents (50.33%) recorded the maximum score of 4.0, indicating a potential ceiling effect. Most respondents were willing to recommend the hospital. A total of 288 respondents (94.12%) answered Yes, while 18 respondents (5.88%) answered No.

Table 2. Simple binary logistic regression of service quality and willingness to recommend

Analysis	Result
Outcome variable	Willingness to recommend (Yes = 1; No = 0)
Predictor variable	Continuous service-quality score
Mean service-quality score among respondents answering Yes	3.83
Mean service-quality score among respondents answering No	3.21
OR per one-point increase in service-quality score	475.62
95% CI for OR per one-point increase	58.04-3897.48
Transformed OR per 0.1-point increase in service-quality score	1.85
95% CI for transformed OR	1.50-2.29
p-value	$p < 0.001$

Respondents willing to recommend the hospital had a higher mean service-quality score than respondents unwilling to recommend it (3.83 vs. 3.21). Simple binary logistic regression showed a statistically significant positive association between service quality and willingness to recommend.

The OR per one-point increase in service-quality score was large (OR = 475.62; 95% CI = 58.04-3897.48; $p < 0.001$). Because the observed score range was narrow, the transformed estimate is more interpretable: every 0.1-point increase in service-quality score was associated with 1.85 times higher odds of being willing to recommend the hospital (95% CI = 1.50-2.29). The wide confidence interval for the one-point estimate indicates that the magnitude should be interpreted cautiously.

Table 3. Cross-tabulation of categorized service quality and willingness to recommend

Service-quality category	No	Yes	Total
Lower quality (<3.5)	16 (40.00%)	24 (60.00%)	40
Good quality (>=3.5)	2 (0.75%)	264 (99.25%)	266
Total	18	288	306

The descriptive cross-tabulation showed a clear gradient. In the lower-quality category (<3.5), 16

of 40 respondents (40.00%) were unwilling to recommend the hospital, while 24 respondents (60.00%) were willing to recommend it. In the good-quality category (>=3.5), 264 of 266 respondents (99.25%) were willing to recommend the hospital, while only 2 respondents (0.75%) were unwilling.

IV. Discussions

This study found a significant positive association between perceived hospital service quality and patients' willingness to recommend the hospital. Respondents who were willing to recommend the hospital reported substantially higher service-quality scores than those who were not willing to recommend it. The logistic regression result supports the conclusion that recommendation intention is closely linked to perceived service quality in this operational dataset.

The finding is theoretically plausible. Donabedian's quality-of-care framework suggests that patient outcomes and evaluations are influenced by health-care structures and processes, while service-quality theory emphasizes that patients judge services through reliability, responsiveness, assurance, empathy, and tangible cues (Donabedian, 1988; Parasuraman et al., 1988). In the hospital setting, these cues are experienced through registration, waiting time, communication with staff, physician and nursing encounters, facility cleanliness, and confidence in the continuity of care.

Recommendation is a stronger behavioral signal than satisfaction because it involves social endorsement. Patients who recommend a hospital place their own social credibility behind the advice they give to relatives, friends, or community members. This interpretation is consistent with prior evidence that service quality influences satisfaction, loyalty, repurchase or revisit intention, and word-of-mouth behavior in health-care services (Kitapci et al., 2014; Huang et al., 2021; Xu et al., 2022).

The result is also consistent with patient-experience measurement frameworks such as HCAHPS, which treats hospital recommendation as part of patient-perspective measurement together with communication, responsiveness, hospital environment, care coordination, discharge information, and overall hospital rating (CMS, 2025). From this perspective, willingness to recommend should not be interpreted only as a marketing outcome. It can also be used as a patient-centered indicator of whether the hospital has delivered an experience that patients consider trustworthy and worth endorsing.

The Indonesian hospital setting adds contextual relevance to the findings. Since 95.10% of respondents used BPJS Kesehatan, the results primarily reflect patient experience in a national health insurance pathway. In this pathway, administrative clarity, queue management, referral procedures, service coordination, perceived fairness, and communication may be especially important. Recent Indonesian studies similarly emphasize that service quality is shaped by patients' experiences of staff interaction, waiting time, facility conditions, perceived value, satisfaction, and intention to return (Noviyani & Viwattanakulvanid, 2024, 2025).

A key methodological issue is the ceiling effect in the service-quality score. Half of the respondents recorded the maximum score of 4.0, and the overall mean was high. This may indicate genuinely favorable patient evaluations, but it may also reflect limited scale sensitivity, response tendency, or social desirability bias. Future patient-experience surveys should consider using more response categories, item-level analysis, dimension-level modeling, and open-ended questions to capture greater variation in patient perceptions.

The distribution of willingness to recommend was also highly imbalanced: only 18 respondents were unwilling to recommend the hospital. This imbalance explains why the logistic regression OR per one-point increase was extremely large and accompanied by a wide confidence interval. The direction of association is robust, but the exact magnitude should not be overinterpreted. Reporting the transformed OR per 0.1-point increase provides a more meaningful interpretation, and future studies with larger or more balanced outcome categories should consider penalized logistic regression or alternative modeling approaches.

From a managerial perspective, the findings suggest that hospital leaders should treat service-quality improvement as a strategy for strengthening patient advocacy. Priority areas may include responsiveness, communication clarity, staff empathy, queue and waiting-time management, cleanliness, comfort, and care coordination. Routine patient-experience monitoring should not only measure satisfaction but also identify which specific service dimensions most strongly shape willingness to recommend.

This study has several limitations. First, the cross-sectional design prevents causal inference. Second, the dataset did not include important covariates such as age, education, diagnosis, service unit,

inpatient or outpatient status, length of care, frequency of previous visits, and prior hospital experience. Third, the recommendation outcome was highly imbalanced. Fourth, the service-quality score was concentrated at the high end of the scale. Fifth, the study used a composite score and did not analyze the specific service-quality dimensions that may be most influential. Future research should use richer covariates, more balanced samples, and item-level or dimension-level modeling to identify actionable quality priorities.

V. Conclusion

Perceived hospital service quality was significantly associated with patients' willingness to recommend the hospital. Respondents willing to recommend the hospital had higher service-quality scores than respondents unwilling to recommend it, and the association was supported by simple binary logistic regression. Nevertheless, because the study used a cross-sectional design, an imbalanced recommendation outcome, and a service-quality score with a ceiling effect, the findings should be interpreted as evidence of association rather than causality. Improving hospital service quality may help strengthen patient loyalty and positive word-of-mouth, but future studies should include richer patient characteristics, more balanced outcome distributions, and detailed analysis of specific service-quality dimensions.

VI. Conflict of Interest

The authors declare no conflict of interest.

VII. Acknowledgement

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