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Patient Safety, Service Quality, and Service Excellence as Predictors of Patient Satisfaction: A Study of Student Perceptions at STIKes Widya Husada Tangerang

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Abstract: This study investigates the effects of patient safety, service quality, and service excellence on patient satisfaction from the perspective of students at STIKes Widya Dharma Husada Tangerang. The study is important because student perceptions provide an early indicator of service performance and can inform continuous quality improvement in healthcare facilities. **Methodology:** A quantitative design was applied using survey data collected through structured questionnaires. The data were analyzed using multiple linear regression, supported by partial t-tests and a simultaneous F-test to examine both individual and joint effects of the independent variables on patient satisfaction. **Findings:** The results indicate that patient safety has a positive and significant effect on patient satisfaction ($t = 2.123$; $p = 0.038$). Service quality also shows a positive and significant effect ($t = 3.979$; $p = 0.032$). Service excellence demonstrates a positive and significant influence on patient satisfaction ($t = 3.860$; $p = 0.000$). Simultaneously, patient safety, service quality, and service excellence significantly affect patient satisfaction ($F = 71.507$; $p = 0.000$), confirming that these factors collectively contribute to improved satisfaction outcomes. **Implications:** The findings suggest that healthcare providers should implement integrated improvement strategies by strengthening patient safety practices, enhancing service quality dimensions, and institutionalizing service excellence standards to increase patient satisfaction. These results can support managerial decision-making in quality assurance programs and service delivery evaluation. **Originality:** This study contributes by empirically testing an integrated model that combines patient safety, service quality, and service excellence as simultaneous predictors of patient satisfaction within a student-based perception setting, offering a practical evidence base for targeted service improvement in Indonesian healthcare contexts.

Keywords: Patient Safety, Quality of Service, Quality of Service, Patient Satisfaction

INTRODUCTION

Healthcare services constitute a fundamental component in improving public health status and ensuring the well-being of society. Along with the growing public awareness of the right to receive safe and high-quality healthcare services, expectations toward healthcare providers have increased significantly. Patients no longer assess healthcare services solely based on clinical outcomes, but also consider safety, service quality, and

overall service excellence. Consequently, patient satisfaction has emerged as a key indicator in evaluating the success and effectiveness of healthcare service delivery (Donabedian, 2003; Organization, 2017).

Patient satisfaction reflects the extent to which healthcare services meet or exceed patients' expectations and needs. According to Oliver, satisfaction arises from a comparison between expected service performance and actual service experiences. In healthcare settings, satisfaction is closely linked to service safety, service quality, and service excellence, as these aspects shape patients' perceptions and trust toward healthcare institutions (Oliver, 2010). Failure to adequately address these factors may result in dissatisfaction, reduced utilization of services, and declining public confidence in healthcare providers.

Patient safety is widely recognized as a core element of healthcare quality and an essential component of healthcare systems. It refers to systematic efforts aimed at preventing medical errors, adverse events, and unintended harm to patients during the care process (Organization, 2017). The implementation of patient safety practices not only minimizes risks and medical errors but also fosters a sense of security and trust among patients. Previous studies indicate that effective patient safety practices positively influence patient satisfaction and healthcare outcomes (Alrubaiee & Alkaa'ida, 2011; Atinga et al., 2011).

In addition to patient safety, service quality plays a crucial role in shaping patient satisfaction. Parasuraman conceptualized service quality through the SERVQUAL model, which includes reliability, responsiveness, assurance, empathy, and tangibles. In healthcare services, these dimensions are reflected in the competence of healthcare personnel, responsiveness to patient needs, clear communication, empathetic attitudes, and the adequacy of facilities and infrastructure (Parasuraman et al., 1988). High perceived service quality has been consistently associated with increased patient satisfaction and trust in healthcare providers (Naidu, 2009).

Furthermore, service excellence or service quality at a systemic level, often referred to as service quality or healthcare service quality, encompasses not only service outcomes but also the processes and systems supporting healthcare delivery. Service excellence is achieved when healthcare services adhere to professional standards, operate efficiently, and prioritize patient-centered care. According to Donabedian, high-quality healthcare services must be effective, efficient, safe, timely, equitable, and patient-oriented. Such

service characteristics are essential in enhancing patient satisfaction and fostering long-term loyalty (Donabedian, 2003).

From an academic perspective, students of health sciences institutions, such as STIKes Widya Husada Tangerang, represent a unique and relevant group for evaluating healthcare services. As prospective healthcare professionals, these students possess both theoretical knowledge and practical exposure to healthcare standards, patient safety principles, and service quality frameworks. Their perceptions of healthcare services provide valuable and critical insights into the effectiveness of patient safety implementation, service quality, and service excellence in healthcare facilities. Therefore, examining patient satisfaction from the perspective of health science students offers a more informed and objective assessment of healthcare service performance.

Based on the above considerations, this study aims to analyze the influence of patient safety, service quality, and service excellence on patient satisfaction based on the perceptions of students at STIKes Widya Husada Tangerang. This research is expected to provide empirical evidence regarding key determinants of patient satisfaction and to offer practical insights for healthcare providers in improving patient safety practices, service quality, and overall service excellence. Additionally, the findings are anticipated to contribute to the academic literature in healthcare service management and serve as a reference for future studies on patient satisfaction and healthcare quality improvement.

RESEARCH METHOD

Research Design

This study employed a quantitative research approach using a survey method. The research design combined descriptive and verificative approaches. The descriptive approach was applied to describe respondents' characteristics and perceptions regarding patient safety, service quality, service excellence, and patient satisfaction. Meanwhile, the verificative approach aimed to empirically test the influence of independent variables on the dependent variable through statistical analysis (Creswell, 2014; Sekaran & Bougie, 2016).

Time and Location of the Study

The study was conducted from September 2025 to January 2026. This period covered the preparation stage, instrument development, data collection, data processing, and the

preparation of the research report. The research location was STIKes Widya Husada Tangerang. This institution was selected because its students possess relevant knowledge and learning experiences related to healthcare services and patient safety, enabling them to provide informed and objective perceptions of patient satisfaction.

Population and Sample

The population of this study consisted of all students of STIKes Widya Husada Tangerang who had acquired basic knowledge of healthcare services and patient safety. A total of 60 respondents were selected as the research sample using a purposive sampling technique. Purposive sampling was employed to ensure that respondents met specific criteria aligned with the research objectives, namely students who were considered to understand concepts related to healthcare services and patient safety (Etikan et al., 2016).

Data Collection Techniques

Data were collected primarily through a structured questionnaire. The questionnaire comprised closed-ended questions developed based on relevant theories and previous empirical studies. A five-point Likert scale was used to measure respondents' perceptions, ranging from strongly disagree (1) to strongly agree (5). The Likert scale is widely used in social and health sciences research to capture attitudes and perceptions in a measurable and consistent manner (Likert, 1932).

In addition, limited observation was conducted to gain a general understanding of the academic environment and learning activities at STIKes Widya Husada Tangerang related to healthcare services and patient safety. This observation supported the contextual interpretation of the survey findings.

Variables and Operational Definitions

This study involved three independent variables and one dependent variable. Patient safety (X1) refers to all efforts undertaken to prevent medical errors and adverse events during healthcare service delivery. Service quality (X2) is defined as the level of excellence of healthcare services perceived by patients based on the congruence between expectations and actual service performance. Service excellence (X3) refers to the degree to which healthcare services comply with professional standards and comprehensively meet patient needs. The dependent variable, patient satisfaction (Y), represents the level of pleasure or

disappointment experienced by patients after comparing perceived service performance with their expectations (Oliver, 2010; Parasuraman et al., 1988).

All variables were operationalized using multiple indicators measured through questionnaire items developed from established concepts and theoretical frameworks to ensure content validity.

Instrument Validity and Reliability

The research instrument was tested for validity and reliability prior to hypothesis testing. Validity testing was conducted by comparing the calculated correlation coefficients with the critical r-table values to ensure that each item measured the intended construct. All items were found to be valid, as the calculated correlation values exceeded the r-table threshold.

Reliability testing was performed using Cronbach's Alpha coefficient to assess the internal consistency of the instrument. According to Hair a Cronbach's Alpha value greater than 0.70 indicates acceptable reliability (Hair et al., 2019). The results confirmed that all constructs in this study met the reliability criteria.

Data Analysis Techniques

Data analysis was conducted using statistical software and followed several stages, including data editing, coding, tabulation, and statistical analysis. Descriptive statistical analysis was first applied to summarize respondents' characteristics and response distributions using mean values, percentages, and standard deviations.

Multiple linear regression analysis was subsequently employed to examine the influence of patient safety, service quality, and service excellence on patient satisfaction. Multiple regression analysis is appropriate for assessing the simultaneous and partial effects of several independent variables on a single dependent variable (Gujarati & Porter, 2009).

Classical Assumption Tests

To ensure the robustness and validity of the regression model, classical assumption tests were conducted, including tests of normality, multicollinearity, and heteroscedasticity. These tests are essential to confirm that the regression model meets the

assumptions of the classical linear regression model and produces unbiased and reliable estimates (Ghozali, 2018).

Hypothesis Testing

Hypothesis testing was conducted using both partial and simultaneous statistical tests. The partial t-test was used to assess the individual effect of each independent variable on patient satisfaction, while the simultaneous F-test examined the collective influence of patient safety, service quality, and service excellence on patient satisfaction. A significance level of 0.05 was applied as the criterion for hypothesis acceptance or rejection.

Coefficient of Determination

The coefficient of determination (R^2) was calculated to measure the proportion of variance in patient satisfaction explained by the independent variables included in the model. A higher R^2 value indicates greater explanatory power of the regression model (Hair et al., 2019).

RESULT AND DISCUSSION

Descriptive Statistical Analysis

Descriptive statistical analysis was conducted to provide an overview of respondents' perceptions regarding each research variable, including patient safety, service quality, service excellence, and patient satisfaction. The analysis presents the minimum and maximum scores, total scores, mean values, and standard deviations for each variable.

Table 1. Descriptive Statistics

Variable	N	Minimum	Maximum	Sum	Mean	Std. Error	Std. Deviation
Patient Safety (X1)	60	5	25	1,392	23.20	0.496	3.844
Service Quality (X2)	60	5	25	1,383	23.05	0.498	3.855
Service Excellence (X3)	60	5	25	1,371	22.85	0.492	3.808
Patient Satisfaction (Y)	60	4	20	1,069	17.82	0.407	3.154
Valid N (listwise)	60						

Based on the descriptive statistics, the mean score for patient safety is 23.20, indicating that respondents generally perceive patient safety practices to be implemented at a high level. The service quality variable has a mean value of 23.05, suggesting positive perceptions of healthcare service performance. The service excellence variable records a mean score of 22.85, reflecting favorable evaluations of healthcare service standards and processes. Meanwhile, patient satisfaction shows a mean value of 17.82, indicating a relatively high level of satisfaction with healthcare services.

The standard deviation values across all variables indicate a relatively moderate dispersion of responses, suggesting that respondents' perceptions are fairly consistent.

Validity Test

The validity test was conducted by comparing the calculated correlation coefficient (r-calculated) with the critical value (r-table). The r-table value was determined at a significance level of $\alpha = 5\%$ (0.05) with a sample size (n) of 60. The degree of freedom (df) was calculated as $df = n - 2 = 58$, resulting in an r-table value of 0.254.

Table 2. Validity Test Results

Variable	Item	r-calculated	r-table	Remarks
Patient Safety (X1)	X1.1	0.937	0.254	Valid
	X1.2	0.886	0.254	Valid
	X1.3	0.919	0.254	Valid
	X1.4	0.961	0.254	Valid
	X1.5	0.892	0.254	Valid
Service Quality (X2)	X2.1	0.928	0.254	Valid
	X2.2	0.915	0.254	Valid
	X2.3	0.931	0.254	Valid
	X2.4	0.950	0.254	Valid
	X2.5	0.947	0.254	Valid
Service Excellence (X3)	X3.1	0.914	0.254	Valid
	X3.2	0.943	0.254	Valid
	X3.3	0.914	0.254	Valid
	X3.4	0.918	0.254	Valid
	X3.5	0.926	0.254	Valid
Patient Satisfaction (Y)	Y1	0.942	0.254	Valid
	Y2	0.962	0.254	Valid
	Y3	0.952	0.254	Valid
	Y4	0.941	0.254	Valid

All items show r-calculated values greater than the r-table value (0.254), indicating that all questionnaire items are valid and capable of measuring patient safety, service

quality, and service excellence in relation to patient satisfaction based on students' perceptions at STIKes Widya Dharma Husada Tangerang.

Reliability Test

The reliability test was conducted to examine the consistency of respondents' answers in measuring each research variable. Reliability was assessed using Cronbach's Alpha coefficient.

Table 3. Reliability Test Results

Research Variable	Cronbach's Alpha	Remarks
Patient Safety (X1)	0.954	Reliable
Service Quality (X2)	0.963	Reliable
Service Excellence (X3)	0.956	Reliable
Patient Satisfaction (Y)	0.963	Reliable

All variables have Cronbach's Alpha values greater than 0.70, indicating that the instruments used in this study are reliable. This confirms that respondents provided consistent responses to all questionnaire items.

Classical Assumption Tests

1. Normality Test

A linear regression model is considered normally distributed when the data points in the normal probability plot are scattered around the diagonal line and the significance value of the One-Sample Kolmogorov–Smirnov test exceeds 0.05 (Ghozali, 2018). The residuals are normally distributed if the significance value is greater than 0.05.

Based on the normal probability plot, the plotted points follow or closely approach the diagonal line, indicating that the residuals are normally distributed.

Table 4. One-Sample Kolmogorov–Smirnov Test

Statistic	Unstandardized Residual
N	60
Mean	0.0000000
Std. Deviation	143.509.031
Most Extreme Differences (Absolute)	0.290
Most Extreme Differences (Positive)	0.167
Most Extreme Differences (Negative)	0.290
Test Statistic	0.290
Asymp. Sig. (2-tailed)	0.089

Note: Test distribution is Normal; Lilliefors Significance Correction applied.

The Asymp. Sig. (2-tailed) value of 0.089 (> 0.05) confirms that the residuals are normally distributed.

2. Multicollinearity Test

Multicollinearity was assessed by examining the Variance Inflation Factor (VIF) and tolerance values. According to Ghozali a model is free from multicollinearity if tolerance values exceed 0.10 and VIF values are below 10.00 (Ghozali, 2018).

Table 5. Multicollinearity Test Results

Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	0.545	1.205	–	0.452	0.653	–	–
Patient Safety (X1)	0.269	0.127	0.327	2.123	0.038	0.155	6.433
Service Quality (X2)	0.208	0.213	0.255	3.979	0.032	0.285	8.326
Service Excellence (X3)	0.693	0.180	0.837	3.860	0.000	0.279	2.725

Dependent Variable: Patient Satisfaction (Y)

All tolerance values are greater than 0.10 and all VIF values are less than 10.00; therefore, the model is free from multicollinearity.

3. Heteroscedasticity Test

Heteroscedasticity was examined using a scatterplot of standardized residuals. The scatterplot shows that the points are randomly distributed and spread both above and below zero on the Y-axis, without forming a specific pattern. This indicates that heteroscedasticity is not present in the regression model.

4. Autocorrelation Test

Autocorrelation was tested using the Durbin–Watson statistic by comparing the calculated value (d) with the Durbin–Watson table values, namely the lower bound (dL) and upper bound (dU). No autocorrelation is indicated if the Durbin–Watson value lies between dU and (4 − dU).

Table 6. Durbin–Watson Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin–Watson
1	0.891	0.793	0.782	1.473	1.576

Predictors: (Constant), Service Excellence (X3), Patient Safety (X1), Service Quality (X2)
Dependent Variable: Patient Satisfaction (Y)

With dL = 1.479, Durbin–Watson = 1.576, and 4 − dU = 2.332, the condition dL < DW < (4 − dU) is satisfied. Therefore, no autocorrelation is detected in the model.

Partial Hypothesis Testing (t-test)

The partial t-test was conducted to examine the individual effect of each independent variable on the dependent variable at a significance level of α = 0.05. The t-table value was determined based on degrees of freedom (df = n − k).

Table 7. Partial t-test Results

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t-value	Sig.
(Constant)	0.545	1.205	–	0.452	0.653
Patient Safety (X1)	0.269	0.127	0.327	2.123	0.038
Service Quality (X2)	0.208	0.213	0.255	3.979	0.032
Service Excellence (X3)	0.693	0.180	0.837	3.860	0.000

Dependent Variable: Patient Satisfaction (Y)

The results indicate that:

a. Patient safety (X1) has a positive and significant effect on patient satisfaction (t = 2.123; p = 0.038).
b. Service quality (X2) has a positive and significant effect on patient satisfaction (t = 3.979; p = 0.032).
c. Service excellence (X3) has a positive and significant effect on patient satisfaction (t = 3.860; p = 0.000).

Simultaneous Hypothesis Testing (F-test)

The F-test was conducted to examine the simultaneous effect of patient safety, service quality, and service excellence on patient satisfaction.

Table 8. F-test Results (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.

Regression	465.474	3	155.158	71.507	0.000
Residual	121.510	56	2.170		
Total	586.983	59			

The F-test result shows an F-value of 71.507, which is greater than the F-table value of 2.76, with a significance value of 0.000 (< 0.05). This indicates that patient safety, service quality, and service excellence simultaneously have a significant effect on patient satisfaction.

Coefficient of Determination (R^2)

Table 9. Coefficient of Determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.891	0.793	0.782	1.473

The coefficient of determination (R^2) value of 0.793 indicates that 79.3% of the variation in patient satisfaction can be explained by patient safety, service quality, and service excellence. The remaining 20.7% is influenced by other variables not included in this study.

CONCLUSION

This study provides empirical evidence on the factors influencing patient satisfaction based on the perceptions of students at STIKes Widya Dharma Husada Tangerang. The findings demonstrate that patient safety, service quality, and service excellence each have a positive and significant effect on patient satisfaction. Patient safety is shown to play an essential role in shaping satisfaction, indicating that adherence to safety standards, prevention of medical errors, and the development of a safety-oriented culture contribute to patients' sense of security and confidence in healthcare services.

Furthermore, service quality has a significant positive influence on patient satisfaction, highlighting the importance of healthcare personnel professionalism, responsiveness, and empathetic attitudes in delivering services. When healthcare providers are able to offer reliable and patient-centered services, patients tend to develop higher levels of trust and satisfaction. In addition, service excellence is found to have a strong and significant effect on patient satisfaction, suggesting that continuous improvements in service processes, facilities, and timeliness are critical in meeting patient expectations.

The simultaneous test results confirm that patient safety, service quality, and service excellence collectively exert a substantial influence on patient satisfaction. These findings emphasize the need for an integrated management approach that prioritizes safety, quality, and service excellence as interconnected elements. Overall, this study underscores the importance of comprehensive and sustainable healthcare service improvement strategies in enhancing patient satisfaction and provides valuable insights for healthcare institutions seeking to optimize service performance.

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