

Analysis of Service Quality on Inpatient and Outpatient Satisfaction at Dr. H. Soemarno Sosroatmodjo Hospital, Tanjung Selor

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Abstract

Healthcare service quality is one of the key indicators in determining the level of patient satisfaction with hospital services. RSD dr. H. Soemarno Sosroatmodjo Tanjung Selor, as the main referral hospital in Bulungan Regency, faces various service challenges, such as long waiting times, suboptimal staff responsiveness, and limited-service facilities. These conditions may affect the satisfaction levels of both inpatient and outpatient care patients. This study aims to analyze the influence of service quality on patient satisfaction in inpatient and outpatient services at RSD dr. H. Soemarno Sosroatmodjo Tanjung Selor and to identify the most dominant dimension of service quality affecting patient satisfaction. This research employed a quantitative method with a descriptive survey design. The study sample consisted of 99 respondents selected using the accidental sampling technique. Data were collected through questionnaires that had been tested for validity and reliability and then analyzed using multiple linear regression with the assistance of SPSS software. The results indicate that all dimensions of service quality Tangibles, Empathy, Reliability, Responsiveness, and Assurance have a significant partial and simultaneous effect on patient satisfaction. The Responsiveness dimension emerged as the most dominant factor, with a Beta value of 0.378, followed by Assurance with 0.315. The coefficient of determination of 81.0% indicates that service quality has a very strong influence on patient satisfaction. This study concludes that improving service quality, particularly in staff Responsiveness and service Assurance, is essential to enhancing patient satisfaction in hospitals.

Introduction

Health is a very important basic need for every individual because it is the main factor that supports a person's ability to carry out various life activities. Good health conditions enable a person to work, study, interact socially, and fulfill life's needs optimally. On the other hand, when health is disturbed, a person's productivity and quality of life can decrease, thereby hindering the achievement of prosperity. Therefore, health is seen as the main capital that must be maintained and improved by every individual. In this case, the government has the responsibility to ensure the availability of quality, equitable and easily accessible health services for the entire community. Through the provision of health facilities, competent medical personnel, and policies that support equal distribution of services, every citizen can obtain health services according to their needs and rights. Apart from that, health as a basic need is also the responsibility of every individual to be able to meet his own living needs. The realization of meeting the health needs of the community essentially rests on commitment and collective responsibility between the government and every citizen, where the government is responsible for health services and individuals are responsible for themselves to live healthy and their awareness of the importance of healthy living (Kuryadinata et al., 2022).

Medical institutions that have a crucial contribution in providing medical services to the public are hospitals. Based on official regulations, "Law Number 44 of 2009 concerning Hospitals provides comprehensive guidance regarding the governance of this institution." These guidelines include providing economical medical services to the public, strengthening service quality, protecting patient safety, expanding operational accessibility, and strengthening institutional autonomy. The regulation also defines a hospital as a health service institution that provides comprehensive and integrated individual health services. The services provided include various forms of care, ranging from inpatient services for patients who require ongoing monitoring and treatment, outpatient services for examination and treatment needs without having to undergo hospital treatment, to emergency services aimed at treating medical conditions that require immediate action. With this comprehensive service coverage, hospitals act as the main health facilities in meeting the community's health service needs (Taneda et al., 2023; Phang et al., 2023).

Hospitals play a strategic function in the national health service structure through the support of structured professional medical personnel and the availability of inpatient rooms. Operation of this facility takes place non-stop 24 hours a day and 7 days a week to provide medical care, nursing procedures and other clinical interventions. The approach implemented includes holistic health services that combine curative healing measures and preventive measures (Maqbullla & Pujo, 2014). In addition, hospitals also act as educational bases for prospective health practitioners as well as scientific research centers. An optimal medical treatment system is characterized by providing efficient, safe and high-quality services for patients through the support of the availability of representative resources (Dewi & Adnan, 2022).

The obligation for local governments, both at the provincial and district and city levels, to implement Minimum Service Standards in the health sector has been explicitly regulated in Article 1 of the Minister of Health Regulation Number 4 of 2019 concerning Technical Standards for Fulfilling Basic Service Quality in Minimum Service Standards in the Health Sector. This policy is implemented as a strategic instrument to spur improvements in the quality of public services. In an operational context, service quality itself is measured based on the deviation or gap that occurs between the reality received by consumers and the expectations they expect from the service (Herlambang, 2016). Evaluation of service quality can be done by comparing consumers' perceptions of the real service they feel with the ideal expectations they want from the operational attributes of a service provider. A positive assessment will appear if the service performance received is in line with expectations, so that the quality of the service is considered good and satisfactory. Furthermore, when an agency's performance can exceed user expectations, the quality of the service will be categorized as very excellent and superior service. The opposite phenomenon occurs when the work results received are below the standards of community expectations, which causes the quality of the service to be considered poor (Farikhin, 2018).

In general, the level of patient satisfaction shows variations that are influenced by various factors, including the quality of services provided, the availability and condition of health facilities, as well as the patient's overall experience while receiving health services. Based on various research results, the level of public satisfaction with the medical sector shows quite significant variations in various parts of the world. This phenomenon was clearly visible in the Southeast Asia region in 2018, where the proportion of patients who were satisfied with the health services they received only reached 45%. On the other hand, most service users, namely 55%, expressed dissatisfaction with the performance of medical operations during that period. 7 The level of patient satisfaction in Kenya was recorded at 40.4%. In Bakhtapur, India, data from Twayana shows a satisfaction level of 34.4%, while in Indonesia the patient satisfaction

level reached 42.8%.⁸ In 2024, the Consumer Satisfaction Index (IKK) for services at the BPS Integrated Statistics Service for North Kalimantan Province was recorded at 95.63, which is included in the "Very Good" category (Hasbi et al., 2023).

The level of service quality has a very strong correlation with the level of satisfaction felt by an individual. This premise is in line with Kotler's argument which states that there is a linear relationship between service reliability, consumer personal satisfaction, and profitability obtained by service providing institutions, where increasing quality standards will automatically encourage higher levels of satisfaction. Efforts to increase public satisfaction can be realized through a deep understanding of user preferences and needs, simplifying service bureaucracy, and implementing interactive and effective communication patterns. In addition, the institution's sensitivity in responding to every complaint and accuracy in mapping consumers' basic needs are determining factors that will increase the satisfaction of service users (Frislia & Handoyo, 2020).

Having satisfied patients is a very valuable strategic asset for hospitals, because their loyalty will encourage continued use of the same medical services. On the other hand, when disappointment is felt, patients tend to disseminate the negative experience more massively to the wider community. This condition requires the management of medical institutions to continue to build and manage operational capacity to maintain and even increase the satisfaction of their service users. The main indicators of quality standardization of a health facility as well as service quality parameters are basically reflected in the level of patient satisfaction (Ali et al., 2024). A decrease in public satisfaction figures will directly erode the volume of patient visits, which in turn will put pressure on the financial profitability of the medical institution. Apart from facility factors, the behavior and responsiveness of clinical staff in interacting with patients also plays a crucial role in determining perceptions of satisfaction, especially in the midst of the dynamics of community needs and demands that continue to increase for the quality of health services from time to time (Widodo et al., 2020)

Patient complaints are an important reference in evaluating and improving hospital services. Handling complaints effectively can improve the quality of medical services, thereby having a positive impact on patient satisfaction and trust. Several studies show that apart from waiting times, poor communication and lack of information, especially when patients leave the health facility, are also major factors in dissatisfaction. For example, inadequate post-discharge information can cause patients to be unprepared to care for themselves at home (Ferreira et al., 2023). In addition, other research on inpatients at private hospitals in Ho Chi Minh City highlighted that the value perceived by patients from social, emotional and functional aspects has a strong influence on their satisfaction with primary care.

Method

Research Design and Approach

This study employs a quantitative research approach using a descriptive survey design to examine the relationship between healthcare service quality and patient satisfaction among inpatients and outpatients at Dr. H. Soemarno Sosroatmodjo Regional Hospital, Tanjung Selor, Bulungan Regency, North Kalimantan, Indonesia. The quantitative approach was selected because the study seeks to measure patients' perceptions of healthcare service quality numerically and to determine the statistical relationships between specific service quality dimensions and patient satisfaction. A structured questionnaire was used to collect standardized responses from eligible patients, enabling the researcher to compare perceptions across respondents and conduct statistical analyses to test the research hypotheses.

The study focuses on five dimensions of service quality, namely tangibles, empathy, reliability, responsiveness, and assurance, which serve as the independent variables. Patient satisfaction is the dependent variable. Tangibles refer to the physical facilities, medical equipment, cleanliness, and appearance of healthcare personnel. Empathy concerns the individualized attention, understanding, and care provided to patients. Reliability refers to the hospital's ability to deliver services accurately, consistently, and dependably. Responsiveness describes the willingness and promptness of healthcare personnel in assisting patients and addressing their needs. Assurance encompasses the competence, courtesy, professionalism, and trustworthiness of healthcare personnel that contribute to patients' feelings of confidence and security. These dimensions are examined to determine their individual and combined relationships with patient satisfaction.

The descriptive survey design enables the study to characterize respondents' perceptions and examine associations between service quality and satisfaction within the hospital setting. Because the study relies on questionnaire responses collected during a defined research period rather than an experimental intervention, its findings are intended to identify statistical relationships and predictive associations. The design does not, by itself, establish definitive causal relationships between service quality and patient satisfaction.

Research Location and Period

The study was conducted at Dr. H. Soemarno Sosroatmodjo Regional Hospital in Tanjung Selor, Bulungan Regency, North Kalimantan, Indonesia. The hospital was selected as the research setting because it provides both inpatient and outpatient healthcare services and serves as an important referral facility for the surrounding community. Examining these two service categories provides an opportunity to assess patient perceptions across different healthcare experiences, including consultations and examinations that do not require hospitalization and treatment that involves admission to the hospital.

Data collection was conducted in April 2026. The population reference period was December 2025, based on the hospital's monthly patient-visit report. The distinction between the population reference period and the data collection period is important because the population size was derived from administrative records for December 2025, whereas the questionnaires were administered in April 2026. The methodology should therefore clarify that the December 2025 records were used to estimate the reference population, while the actual responses reflected patients' experiences as reported during the April 2026 data collection period. The eligibility criteria and recruitment procedures should also ensure that the respondents' reported experiences correspond to the service encounters relevant to the study objectives.

Population and Sample

The target population comprised patients receiving inpatient and outpatient services at Dr. H. Soemarno Sosroatmodjo Regional Hospital. According to the hospital's monthly report for December 2025, outpatient visits totaled 7,200, while inpatient visits totaled 1,118, producing a combined population of 8,318 recorded visits. These figures were used as the population reference for estimating the required sample size. However, because the available figures represent patient visits, rather than necessarily representing 8,318 unique individuals, they should be interpreted as a count of service encounters unless the hospital records confirm that each visit corresponds to a distinct patient.

The sample size was estimated using the Slovin formula, expressed as $n = \frac{N}{1 + Ne^2}$, where n represents the required sample size, N represents the population size, and e represents the selected margin of error. With a population of 8,318 and a margin of error of

10% or 0.10, the calculation was $\sqrt{n=8,318 / [1+8,318(0.10)^2]}$, yielding approximately 98.81 respondents. The result was rounded upward to establish a target sample size of 99 respondents. This calculation provides the numerical basis for the study's sample target; however, it should not be interpreted as guaranteeing statistical representativeness because the actual recruitment procedure used non-probability sampling.

The study recruited respondents using accidental sampling, also known as convenience sampling. Under this approach, patients who were accessible to the researcher during the data collection period and met the eligibility criteria were invited to participate. This technique was used to facilitate recruitment within the hospital setting and obtain responses from patients receiving the services under investigation. Nevertheless, because participants were selected according to their availability rather than through random selection from a complete sampling frame, the possibility of selection bias must be acknowledged. Consequently, the findings are most directly applicable to the respondents included in the study and should be generalized to the wider hospital population with appropriate caution.

The inclusion criteria specified that respondents had to be patients of Dr. H. Soemarno Sosroatmodjo Regional Hospital, have received the relevant hospital services within the population reference period specified by the study, and be at least 17 years old. Respondents were also required to be able to read and write and to provide informed consent. The exclusion criteria included individuals who were unwilling to participate, those who could not complete the questionnaire because they lacked the required reading and writing ability, and individuals who were unavailable for recruitment or could not be reached during data collection. For methodological clarity, the final manuscript should distinguish between patients who were screened and found ineligible, patients who declined participation, and patients who were eligible but unavailable. These categories represent different reasons for non-participation and should not be combined without explanation.

The study included 99 respondents, comprising 50 inpatients and 49 outpatients. This distribution provided nearly equal numerical representation of the two patient groups in the final sample. However, the near-equal allocation should not be interpreted as proportional representation of the underlying population, because outpatient visits substantially exceeded inpatient visits in the December 2025 hospital records. Future studies seeking to estimate population-level differences between the two service categories may consider stratified sampling or another probability-based sampling method to ensure that the sample reflects the relative sizes of the inpatient and outpatient populations (Kuantitatif, 2016).

Research Variables and Operational Definitions

The study examined five independent variables representing the dimensions of healthcare service quality and one dependent variable representing patient satisfaction. Each independent variable was operationalized through questionnaire items intended to measure patients' perceptions of the quality of services they received. The dependent variable was measured through questionnaire items assessing respondents' overall satisfaction with their hospital service experiences. Defining the variables in this manner provides a clear analytical framework for evaluating the relationship between individual service quality dimensions and patient satisfaction.

The tangibles variable measures patients' perceptions of the hospital's physical environment and supporting facilities, including the condition of service areas, cleanliness, equipment, and the appearance of healthcare personnel. The empathy variable measures the extent to which patients perceive that healthcare personnel provide individual attention, communicate

respectfully, and demonstrate concern for their needs. The reliability variable assesses whether services are perceived as accurate, consistent, dependable, and delivered as expected. The responsiveness variable measures the perceived promptness of assistance, willingness to respond to requests, and timeliness of service delivery. The assurance variable assesses patients' perceptions of staff competence, courtesy, professionalism, and their ability to inspire confidence and trust.

Patient satisfaction represents the outcome variable and reflects respondents' evaluations of their experiences with hospital services. The relationship between each service quality dimension and patient satisfaction was examined individually and collectively using correlation and regression analyses. The study also sought to identify which service quality dimension had the strongest relative association with satisfaction when the other dimensions were included in the same regression model.

For transparency and reproducibility, the final version of the manuscript should include an operational definition table in the supplementary materials or an appendix identifying the questionnaire items assigned to each variable, the response scale used, the scoring range, and the procedure for calculating each composite score. The manuscript reports that 54 of the 90 initial questionnaire statements were retained after validity testing, but the precise distribution of these retained items across the six variables and the response scale are not fully specified in the methodology provided. These details should be reported from the actual questionnaire and scoring records rather than inferred retrospectively.

Data Sources and Research Instruments

The study used both primary and secondary data to support the investigation. Primary data were obtained directly from respondents through structured questionnaires administered to eligible inpatients and outpatients. This approach enabled the researcher to collect standardized information about patients' perceptions of the five service quality dimensions and their satisfaction with the healthcare services received. The use of a structured questionnaire was appropriate for the quantitative design because it allowed responses to be coded numerically and analyzed using statistical techniques.

The questionnaire consisted of closed-ended questions or statements with predefined response options. Respondents selected the alternatives that best represented their perceptions or experiences. This format was intended to make the questionnaire relatively straightforward to complete, reduce variation in how questions were answered, and facilitate data entry and statistical analysis. The questionnaire was designed to measure tangibles, empathy, reliability, responsiveness, assurance, and patient satisfaction. To strengthen methodological transparency, the final manuscript should state the exact response scale, the meaning of each response category, the scoring direction, and whether any items required reverse scoring. These details are essential for allowing other researchers to understand how the questionnaire responses were converted into the scores used in the analysis.

Secondary data were obtained from existing documentation relevant to the study, including the hospital's monthly patient-visit report for December 2025 and other relevant institutional records and literature. The hospital report provided the numerical basis for establishing the reference population of 8,318 recorded visits. Relevant literature provided the conceptual foundation for the service quality dimensions and patient satisfaction variables. Secondary data were used to support the description of the research setting, establish the population reference, and situate the investigation within the existing body of healthcare service quality research.

Validity and Reliability of the Research Instrument

Before the questionnaire was used for the main data collection, its validity and reliability were assessed to evaluate whether the instrument items were suitable for measuring the intended research variables and whether the retained items demonstrated internal consistency. The manuscript reports that the initial instrument consisted of 90 statements and that the validity assessment was conducted using the Pearson Product-Moment correlation method with IBM SPSS Statistics version 30.0. The reported testing involved 30 respondents, and the criterion used was a calculated correlation coefficient greater than the critical value of 0.361.

The validity testing identified 54 statements as valid and excluded the remaining 36 statements from the instrument. The retained statements were subsequently used to measure the service quality dimensions and patient satisfaction. For clearer reporting, the final manuscript should explain how the 30 respondents were recruited, whether they were separate from the 99 main-study respondents, and whether the questionnaire was revised after the validity assessment. It should also provide the validity results for the individual retained items, preferably in an appendix, so that the decision to retain or exclude each item can be independently assessed. The number of retained items assigned to each variable should also be stated explicitly.

Instrument reliability was assessed using Cronbach's alpha. The reported coefficient was 0.964, exceeding the commonly used reference threshold of 0.70 and indicating high internal consistency for the items included in the reported reliability assessment. This result suggests that the items assessed tended to measure their intended construct consistently. However, a high overall alpha does not independently establish the validity of the questionnaire or demonstrate that all six variables are measured distinctly. For a more rigorous methodological presentation, the manuscript should clarify whether the coefficient of 0.964 was calculated for the complete retained questionnaire or separately for each construct. Reporting construct-specific reliability coefficients would help demonstrate the consistency of the measures for tangibles, empathy, reliability, responsiveness, assurance, and patient satisfaction individually.

Data Collection Procedures

Data collection was carried out in April 2026 through the direct administration of structured questionnaires to eligible patients at the hospital. Before recruitment, the researcher prepared the study materials and questionnaire, reviewed the eligibility criteria, and established the procedures for approaching potential respondents. The hospital's December 2025 monthly report was used to establish the reference population, while questionnaire responses were collected during the designated fieldwork period. These activities were intended to ensure that the data collection process followed a consistent approach across participants.

During recruitment, patients who were accessible to the researcher were assessed against the inclusion and exclusion criteria. Eligible individuals were informed about the purpose of the study, the type of information being requested, and the voluntary nature of participation. Those who agreed to participate were asked to provide informed consent before completing the questionnaire. The questionnaire was then administered to obtain responses concerning the patients' perceptions of service quality and satisfaction. The researcher was responsible for ensuring that the questionnaire was completed in accordance with the established procedures and that completed forms were collected for subsequent checking and processing.

After data collection, the completed questionnaires were reviewed to identify missing responses, unclear entries, and inconsistencies that could affect data quality. Questionnaires were then prepared for coding, entry, and statistical analysis. To strengthen the reproducibility of this procedure, the final manuscript should report the number of patients approached, the

number who declined, the number excluded, and the number of questionnaires retained for analysis, if these records are available. It should also specify whether questionnaires were self-administered or completed with assistance from the researcher. Such information is important for evaluating possible non-response bias and understanding how the data were obtained.

Data Processing and Management

Following data collection, the questionnaire responses were processed systematically before statistical analysis. The first stage involved editing, during which the researcher reviewed the completed questionnaires for completeness, legibility, and internal consistency. This procedure was intended to identify incomplete forms, ambiguous responses, and data-entry issues before the information was transferred into the statistical database. Any rules for handling missing or inconsistent responses should be documented so that the treatment of incomplete questionnaires is transparent and reproducible.

The second stage involved scoring, in which the respondents' answers were converted into numerical values according to the questionnaire's established scoring scheme. The scoring procedure was intended to ensure that responses could be summarized into measures representing the five service quality dimensions and patient satisfaction. The third stage involved coding, during which demographic characteristics, patient categories, questionnaire items, and other relevant variables were assigned numerical or categorical codes. A consistent coding system was necessary to ensure that the variables were entered and interpreted correctly during the analysis.

The fourth stage involved data entry into IBM SPSS Statistics version 30.0. The coded responses were entered into the statistical software to create a structured dataset suitable for analysis. The data-entry process should include verification against the original questionnaires to reduce transcription errors. The fifth stage involved tabulation and preliminary checking, during which the data were organized into tables and examined for unexpected values, missing entries, and inconsistencies. These procedures were intended to improve data accuracy and ensure that the dataset was sufficiently complete for the planned descriptive and inferential statistical analyses.

Statistical Data Analysis

The statistical analysis was conducted using IBM SPSS Statistics version 30.0. The analytical strategy was designed to describe the respondents, assess the relationships between the service quality dimensions and patient satisfaction, and evaluate the relative contribution of each independent variable to the dependent variable. The manuscript describes univariate, bivariate, and multivariate analyses, together with regression assumption testing and hypothesis testing. A significance level of 0.05 was adopted for the principal inferential analyses.

Univariate Analysis

Univariate analysis was used to describe the characteristics of the respondents and summarize the distribution of the study variables. Respondent characteristics, including gender, age, educational attainment, occupation, and patient category, were summarized using frequencies and percentages. These descriptive statistics provided an overview of the composition of the sample and helped clarify the representation of inpatient and outpatient respondents in the study.

For the service quality dimensions and patient satisfaction, descriptive statistics included the mean, median, minimum, maximum, and standard deviation, as reported in the manuscript. The mean and median were used to summarize central tendency, while the minimum,

maximum, and standard deviation described the spread of the observed scores. These statistics provided an initial overview of how respondents evaluated the different dimensions of service quality and their overall satisfaction. Because the numerical values depend on the number of questionnaire items and the scoring scale, interpretation of differences between the variables should take their respective score ranges into account.

Bivariate Analysis

Bivariate analysis was used to examine the relationship between each service quality dimension and patient satisfaction individually. The manuscript reports Pearson Product-Moment correlation coefficients for tangibles, empathy, reliability, responsiveness, and assurance in relation to patient satisfaction. Pearson correlation was used to assess the direction and strength of the linear association between each service quality score and the satisfaction score. A positive coefficient indicates that higher scores on a service quality dimension tend to occur alongside higher satisfaction scores, while the magnitude of the coefficient indicates the strength of the linear association.

Statistical significance was evaluated using a threshold of $(p < 0.05)$. The reported correlations were positive and statistically significant for all five dimensions, with responsiveness demonstrating the strongest bivariate correlation with patient satisfaction. These analyses provide evidence of the individual associations between the variables, but they do not establish whether each dimension makes an independent contribution after the other dimensions are considered. That question was addressed through multivariate regression analysis.

For consistency, the final manuscript should clearly distinguish the Pearson correlation analysis from any simple linear regression analysis conducted separately for each independent variable. Correlation measures the strength and direction of an association, whereas simple regression estimates a relationship using a specified outcome and predictor. If both procedures were conducted, the methods should state the purpose of each and report the corresponding results separately. If only Pearson correlations were calculated, references to simple linear regression in the description of bivariate analysis should be revised accordingly.

Multivariate Analysis Using Multiple Linear Regression

Multiple linear regression was used to examine the simultaneous association between the five service quality dimensions and patient satisfaction. In this model, patient satisfaction served as the dependent variable, while tangibles, empathy, reliability, responsiveness, and assurance were entered as independent variables. This approach enabled the researcher to estimate the association between each service quality dimension and patient satisfaction while statistically controlling for the other dimensions included in the model. The regression analysis assessed both the direction and statistical significance of the individual coefficients and the explanatory performance of the model. Unstandardized coefficients were used to describe the estimated change in patient satisfaction in the original scoring units, while standardized beta coefficients were used to compare the relative strength of the predictors measured on potentially different scales. The standardized coefficient with the largest absolute magnitude was considered the strongest predictor within the fitted model, provided that the model assumptions were sufficiently satisfied and the predictors were interpreted in context.

The overall model was evaluated using the F-test, while individual regression coefficients were evaluated using t-tests. The coefficient of determination, (R^2) , was used to estimate the proportion of variation in patient satisfaction explained collectively by the five predictors. The adjusted (R^2) was also reported to account for the number of predictors included in the

model. These statistics were interpreted together to assess the explanatory performance of the regression model rather than treating any single statistic as sufficient evidence of model quality.

Regression Assumption Testing

Before interpreting the multiple linear regression results, the study examined assumptions relevant to the fitted model. These assessments were intended to determine whether the data and residual patterns were sufficiently compatible with the assumptions underlying ordinary least-squares regression. The manuscript reports assessments of normality, homoscedasticity, multicollinearity, linearity, and residual independence. The final reporting should identify the specific diagnostic procedure used for each assumption and present the corresponding evidence rather than relying exclusively on general descriptions of graphs or threshold values.

Normality was assessed using a histogram of the research variables, as described in the manuscript. For multiple linear regression, the assumption relevant to conventional significance tests is the approximate normality of the model residuals, rather than the requirement that every predictor or the outcome variable be normally distributed individually. Accordingly, the final manuscript should clarify whether the histogram represented regression residuals or the raw variable scores. If the residuals were examined, the analysis may also report a normal probability plot or an appropriate residual-based diagnostic to support the interpretation.

Homoscedasticity was assessed through a residual plot to examine whether the variability of the residuals remained approximately constant across the range of predicted values. A relatively random distribution of residuals without a systematic funnel-shaped pattern would support the assumption of constant variance. The manuscript reports that the residual points appeared reasonably balanced, which was interpreted as supporting homoscedasticity. This conclusion should be based on the actual diagnostic plot and should be presented as an assessment of the available evidence rather than as an absolute guarantee that unequal variance is absent.

Multicollinearity was evaluated using tolerance and the variance inflation factor (VIF) for each independent variable. Tolerance values greater than 0.10 and VIF values below 10 were used as the manuscript's stated criteria for identifying the absence of severe multicollinearity. The reported values fell within these thresholds. The final manuscript should verify the numerical values against the original SPSS output, particularly because multicollinearity affects the stability and precision of the estimated regression coefficients even when it does not prevent the model from being calculated.

Linearity was examined using the SPSS Test for Linearity procedure. The manuscript reports that the deviation-from-linearity significance values exceeded 0.05 for all five service quality dimensions. These results were interpreted as consistent with linear relationships between the individual predictors and patient satisfaction. Because the Test for Linearity procedure assesses pairwise relationships, the final manuscript should also consider whether the relationship between the fitted values and residuals supports the linear functional form of the complete multiple regression model.

Residual independence was assessed using the Durbin–Watson statistic. The reported value was 1.753, which the manuscript interpreted as providing no clear indication of problematic residual autocorrelation under its stated screening criterion. However, the interpretation of this statistic depends on the study design and relevant reference bounds, and a value between 1 and 3 should not be treated as a universal proof of independence. Given that the data were collected from individual patients in a hospital setting, the final manuscript should explain whether the

order of observations or any potential grouping of respondents could reasonably create dependence among residuals.

Hypothesis Testing and Decision Criteria

Hypothesis testing was conducted to determine whether each of the five service quality dimensions was statistically associated with patient satisfaction after controlling for the other predictors in the multiple regression model. For each dimension, the null hypothesis stated that its regression coefficient was equal to zero, indicating no independent linear association with patient satisfaction after adjustment for the other dimensions. The corresponding alternative hypothesis stated that its regression coefficient differed from zero. Unless a directional hypothesis was specified in advance and justified theoretically, two-tailed tests should be used.

Individual hypotheses were assessed using the t-statistics and p-values reported in the regression output. At the 5% significance level, a p-value below 0.05 was interpreted as evidence against the corresponding null hypothesis. The estimated coefficient and its direction were then considered to determine whether the observed association was positive or negative. The simultaneous contribution of the five service quality dimensions was assessed using the regression F-test. A statistically significant F-test indicated that the model containing the five predictors explained variation in patient satisfaction beyond that represented by an intercept-only model.

The coefficient of determination and adjusted coefficient of determination were used to describe the explanatory performance of the model. The manuscript reports an (R^2) of 0.810 and an adjusted (R^2) of 0.800. These values indicate that the fitted model accounted for 81.0% of the observed variation in patient satisfaction within the analyzed sample, with an adjusted estimate of 80.0% after accounting for the number of predictors. The remaining 19.0% of the sample variation was not explained by the fitted model. It should not automatically be attributed to specific omitted factors unless those factors were measured and examined in the study.

All statistical conclusions were based on the relevant coefficient estimates, test statistics, p-values, and model diagnostics. Where the SPSS output displayed a significance value of 0.000, the final manuscript should report this as $(p < 0.001)$, because a displayed value of 0.000 reflects rounding and does not mean that the probability is exactly zero. Reporting estimates and p-values in this manner improves statistical accuracy and supports clearer interpretation of the findings.

Result and Discussion

The results of this study are presented to examine the relationship between hospital service quality and patient satisfaction using the five dimensions of the SERVQUAL model: tangibles, reliability, responsiveness, assurance, and empathy. These dimensions provide a comprehensive framework for evaluating patients' experiences and perceptions of healthcare services, including the quality of physical facilities, the accuracy and consistency of care, the promptness of staff responses, the professionalism of healthcare providers, and the individual attention given to patients. The findings are discussed in relation to the study results and relevant previous research to identify the contribution of each service quality dimension to patient satisfaction. Furthermore, the analysis highlights the most influential factors affecting patient satisfaction and provides a basis for recommending improvements in hospital service delivery.

Table 1. Characteristics of the Research Respondents (n = 99)

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	58	58.6
	Female	41	41.4
Age	18–25 years	15	15.2
	26–30 years	14	14.1
	31–40 years	46	46.5
	41–50 years	24	24.2
Educational Level	Senior High School	70	70.7
	Higher Education	29	29.3
Occupation	Student	6	6.1
	Entrepreneur	23	23.2
	Civil Servant/Government Employee	11	11.1
	Private Employee	47	47.5
	Others	12	12.1
Patient Type	Inpatient	50	50.5
	Outpatient	49	49.5

Source: Research data processed, 2026.

Table 1. presents the demographic characteristics of the 99 respondents included in this study. Male respondents accounted for most of the sample, comprising 58 individuals (58.6%), while female respondents represented 41 participants (41.4%). Regarding age distribution, the largest proportion of respondents belonged to the 31–40 years age group (46.5%), indicating that the study population was predominantly composed of individuals within the productive working-age category. Based on educational attainment, most respondents had completed senior high school (70.7%), whereas 29.3% possessed a higher education qualification. In terms of occupation, private employees constituted the largest occupational group (47.5%), followed by entrepreneurs (23.2%), government employees (11.1%), students (6.1%), and other occupations (12.1%). Regarding healthcare utilization, the respondents were almost equally distributed between inpatient services (50.5%) and outpatient services (49.5%), indicating a balanced representation of both patient groups in the study.

Table 2. Descriptive Statistics of the Research Variables

Variable	Mean	Median	Questionnaire Score Range	Minimum	Maximum	Standard Deviation
Responsiveness	30.86	31	11–44	11	44	6.98
Tangibles	17.04	17	6–24	6	24	3.71
Empathy	21.80	22	8–32	8	32	5.33
Assurance	24.95	26	9–36	9	36	5.84
Reliability	27.32	27	12–39	12	39	6.18
Patient Satisfaction	27.98	28	15–37	15	37	4.66

Source: Research data processed, 2026.

Table 2. summarizes the descriptive statistics for all study variables. Overall, the variables exhibit relatively stable distributions with moderate variability, indicating that respondents

expressed diverse perceptions regarding service quality and patient satisfaction. The Responsiveness dimension recorded the highest mean score (30.86), with a median of 31 and a standard deviation of 6.98, suggesting a moderate level of variability in respondents' perceptions regarding the promptness and willingness of healthcare personnel to aid. The Tangibles dimension had a mean score of 17.04, a median of 17, and the lowest standard deviation (3.71), indicating relatively consistent responses concerning the hospital's physical facilities, equipment, and environmental conditions.

For the Empathy dimension, the mean score was 21.80 with a median of 22 and a standard deviation of 5.33, reflecting moderate variability in respondents' perceptions of individualized attention and caring attitudes demonstrated by healthcare providers. The Assurance dimension achieved a mean score of 24.95 with a median of 26 and a standard deviation of 5.84, suggesting that respondents generally perceived healthcare personnel as competent, trustworthy, and capable of providing a sense of confidence and security during service delivery. Similarly, the Reliability dimension obtained a mean score of 27.32, with a median of 27 and a standard deviation of 6.18, indicating that respondents reported varying perceptions regarding the consistency and dependability of healthcare services. Finally, Patient Satisfaction recorded a mean score of 27.98 with a median of 28 and a standard deviation of 4.66, demonstrating that patient satisfaction levels were relatively consistent across respondents compared with the service quality dimensions.

Table 3. Pearson Correlation Analysis between Service Quality Dimensions and Patient Satisfaction

Variables	p-value	Correlation Coefficient (r)	Direction of Relationship
Tangibles and Patient Satisfaction	<0.001	0.486	Positive linear
Empathy and Patient Satisfaction	<0.001	0.660	Positive linear
Reliability and Patient Satisfaction	<0.001	0.542	Positive linear
Responsiveness and Patient Satisfaction	<0.001	0.721	Positive linear
Assurance and Patient Satisfaction	<0.001	0.539	Positive linear

Source: Research data processed, 2026.

The Pearson Product-Moment correlation analysis revealed that all five dimensions of service quality were positively and significantly associated with patient satisfaction ($p < 0.001$). These findings indicate that improvements in service quality are consistently accompanied by higher levels of patient satisfaction. Among the service quality dimensions, Responsiveness demonstrated the strongest positive correlation with patient satisfaction ($r = 0.721$, $p < 0.001$), indicating a strong relationship. This finding suggests that prompt service delivery, timely responses, and the willingness of healthcare personnel to assist patients are the most influential factors contributing to patient satisfaction. The Empathy dimension also exhibited a strong positive relationship with patient satisfaction ($r = 0.660$, $p < 0.001$). This result highlights the importance of individualized attention, effective communication, and compassionate care in enhancing patients' overall satisfaction with healthcare services.

The Reliability dimension showed a moderate-to-strong positive correlation with patient satisfaction ($r = 0.542$, $p < 0.001$), indicating that consistent, accurate, and dependable healthcare services play a significant role in shaping patients' perceptions of service quality. Similarly, Assurance was positively correlated with patient satisfaction ($r = 0.539$, $p < 0.001$). This finding suggests that healthcare providers' competence, professionalism, and ability to instill confidence and trust positively influence patient satisfaction. Finally, the Tangibles dimension demonstrated a moderate positive relationship with patient satisfaction ($r = 0.486$, $p < 0.001$), implying that physical facilities, medical equipment, cleanliness, and the overall hospital environment contribute positively to patient satisfaction, although their influence is less pronounced than interpersonal aspects of service quality.

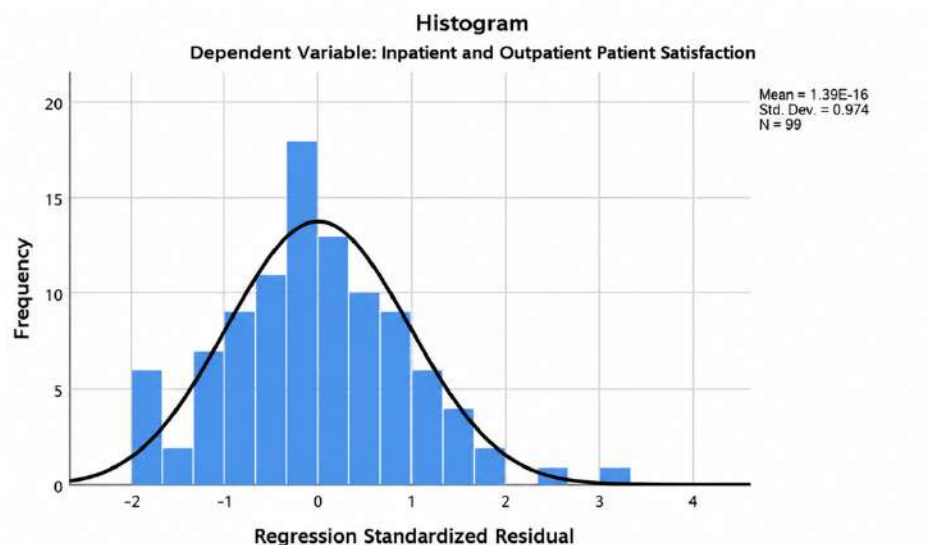


Figure 1. Research Variable Normality Test Results

Visual analysis of the data distribution via histogram graphs shows a symmetrical curve that resembles a bell. This visual pattern indicates that the research data has been evenly distributed around the average value. The characteristic sloping curve on both sides proves that the distribution of empirical data is close to the ideal normal distribution model. Based on this geometric visualization, the normality assumption in this modeling has been validly fulfilled. The conformity of the data to the principle of normal distribution provides theoretical legitimacy that the available data base has met the formal requirements to be used as an operational basis in subsequent statistical analysis procedures.

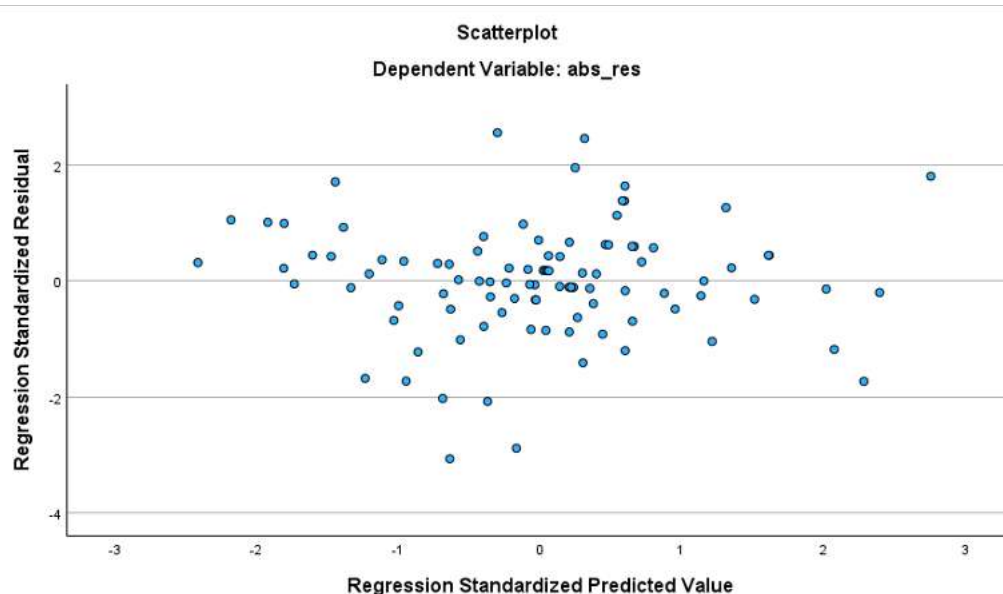


Figure 2. homoscedasticity Test Results for Research Variables

Based on the plot visualization results, the distribution of points appears relatively balanced in the area above and below the zero diagonal line. This distribution pattern shows that there are no systematic differences in variance, so that the assumption of homoscedasticity can be stated to have been fulfilled.

Table 4. Results of the Multicollinearity Test

Variable	Tolerance	VIF	Interpretation
Tangibles	0.771	1.297	No multicollinearity
Empathy	0.699	1.431	No multicollinearity
Reliability	0.804	1.244	No multicollinearity
Responsiveness	0.646	1.549	No multicollinearity
Assurance	0.909	1.100	No multicollinearity

Source: Research data processed, 2026.

Table 4. presents the results of the multicollinearity test for the independent variables included in the regression model. All variables have Tolerance values greater than 0.10 and Variance Inflation Factor (VIF) values below 10, indicating that multicollinearity is not present among the predictor variables. Specifically, the Tolerance values ranged from 0.646 to 0.909, while the VIF values ranged from 1.100 to 1.549. These values are well within the acceptable thresholds commonly recommended in multiple regression analysis. Therefore, the independent variables Tangibles, Empathy, Reliability, Responsiveness, and Assurance—are not highly correlated with one another and each contributes unique information to the regression model.

Table 5. Results of the Linearity Test

Variable	Sig. Linearity	Sig. Deviation from Linearity	Interpretation
Tangibles	0.000	0.156	Linear
Empathy	0.000	0.525	Linear
Reliability	0.000	0.584	Linear

Responsiveness	0.000	0.265	Linear
Assurance	0.000	0.724	Linear

Source: Research data processed, 2026.

As presented in Table 5. all independent variables have Deviation from Linearity significance values greater than 0.05. Specifically, the values are 0.156 for Tangibles, 0.525 for Empathy, 0.584 for Reliability, 0.265 for Responsiveness, and 0.724 for Assurance. These findings indicate that each service quality dimension has a statistically linear relationship with patient satisfaction. Moreover, the significant Linearity values ($p < 0.001$) further support the existence of meaningful linear relationships between the predictor variables and the dependent variable. Therefore, the linearity assumption required for multiple linear regression analysis has been fully satisfied, confirming that the regression model is appropriate for subsequent hypothesis testing.

Table 6. Results of the Independence (Durbin–Watson) Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin–Watson
1	0.900	0.810	0.800	2.086	1.753

Source: Research data processed, 2026.

Table 6. shows that the regression model produced a Durbin–Watson statistic of 1.753. Since this value falls within the commonly accepted range of 1.0 to 3.0, there is no evidence of autocorrelation among the regression residuals. This result indicates that the residual errors are statistically independent, satisfying another important assumption of multiple linear regression. Consequently, the regression estimates are considered unbiased and suitable for further inferential analysis.

Table 7. Multiple Linear Regression Analysis of Service Quality on Patient Satisfaction

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	p-value
Constant	1.281	1.416	—	0.904	0.368
Tangibles	0.152	0.065	0.121	2.353	0.021
Empathy	0.247	0.047	0.283	5.227	<0.001
Reliability	0.170	0.038	0.225	4.470	<0.001
Responsiveness	0.253	0.038	0.378	6.722	<0.001
Assurance	0.252	0.038	0.315	6.643	<0.001

Source: Research data processed, 2026.

The multiple linear regression analysis demonstrates that all five dimensions of service quality positively influence patient satisfaction. The regression equation indicates that, holding other variables constant, an increase in any service quality dimension is associated with an increase in patient satisfaction. The regression constant of 1.281 represents the predicted patient satisfaction score when all independent variables are equal to zero. Although this scenario has limited practical meaning, it serves as the baseline value of the regression model. Among the independent variables, Responsiveness exhibited the largest standardized regression coefficient ($\beta = 0.378$, $p < 0.001$), indicating that it is the strongest predictor of patient satisfaction. This finding suggests that prompt responses, timely assistance, and the willingness of healthcare personnel to address patients' needs contribute most substantially to improving patient satisfaction. The second strongest predictor was Assurance ($\beta = 0.315$, $p < 0.001$),

implying that patients place considerable importance on healthcare professionals' competence, courtesy, and ability to inspire trust and confidence. Empathy also had a significant positive effect ($\beta = 0.283$, $p < 0.001$), indicating that individualized attention, effective communication, and compassionate care significantly enhance patient satisfaction. Similarly, Reliability positively influenced patient satisfaction ($\beta = 0.225$, $p < 0.001$), suggesting that providing dependable, accurate, and consistent healthcare services is an important determinant of patient satisfaction. Although Tangibles had the smallest standardized coefficient ($\beta = 0.121$, $p = 0.021$), its effect remained statistically significant, demonstrating that improvements in physical facilities, equipment, cleanliness, and the healthcare environment contribute positively to patient satisfaction.

Table 8. Partial t-Test Results for the Effect of Service Quality Dimensions on Patient Satisfaction

Independent Variable	Calculated t-Value	Critical t-Value	Decision	Conclusion
Tangibles	2.353	1.986	Reject H_{01}	Significant effect
Empathy	5.227	1.986	Reject H_{02}	Significant effect
Reliability	4.470	1.986	Reject H_{03}	Significant effect
Responsiveness	6.722	1.986	Reject H_{04}	Significant effect
Assurance	6.643	1.986	Reject H_{05}	Significant effect

Source: Multiple regression analysis, based on the study results.

The results indicate that all five service quality dimensions have statistically significant effects on patient satisfaction because their calculated t-values exceed the critical t-value of 1.986. At the 5% significance level ($\alpha = 0.05$), all null hypotheses are rejected, and the alternative hypotheses are supported. Responsiveness has the highest calculated t-value (6.722), followed by Assurance (6.643), Empathy (5.227), Reliability (4.470), and Tangibles (2.353). These findings demonstrate that each service quality dimension contributes significantly to patient satisfaction. However, the relative strength of each predictor should be confirmed using the standardized regression coefficients (Beta).

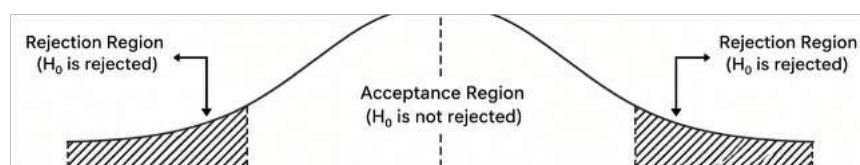


Figure 3. Curve of Acceptance and Rejection of Tangible Variables Hypothesis (Physical Evidence)

The results of the hypothesis test showed a calculated t-value of 2.353 with a significance level of 0.021. Based on statistical comparisons, the calculated t-value exceeded the t-table value, and the significance value was below the threshold of $\alpha=0.05$ ($0.021 < 0.05$). This test result confirmed the rejection of H_{01} and the acceptance of H_{a1} . The researchers concluded

that the Tangibles (Physical Evidence) variable made a positive and significant contribution to determining the satisfaction of inpatients and outpatients.

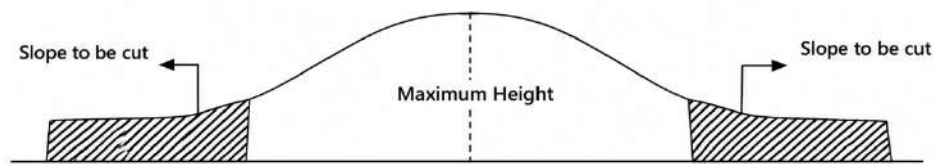


Figure 4. Curve of Acceptance and Rejection of the Empathy Variable Hypothesis (Empathy)

The hypothesis test yielded a calculated t-value of 5.227 with a significance level of 0.000. The statistical ratio indicates that the calculated t-value successfully exceeded the t-table value. Furthermore, the significance score was well below the threshold of $\alpha=0.05$ ($0.000 < 0.05$). These test results underpin the decision to reject H02 and accept Ha2. Thus, the researchers concluded that the Empathy variable has a positive and significant influence on the satisfaction of both inpatients and outpatients.

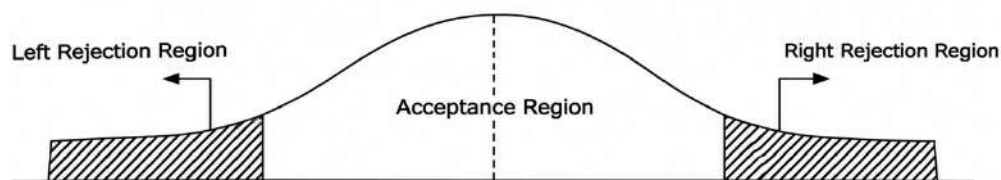


Figure 5. Reliability Variable Hypothesis Acceptance and Rejection Curve

The hypothesis test yielded a t-value of 4.470 with a significance level of 0.000. This t-value exceeded the t-table value, while the significance score fell below the threshold of $\alpha=0.05$ ($0.000 < 0.05$). This finding strengthens the decision to reject H03 and accept Ha3. Therefore, the researchers concluded that the Reliability variable has a positive and significant contribution to determining the satisfaction of both inpatients and outpatients.

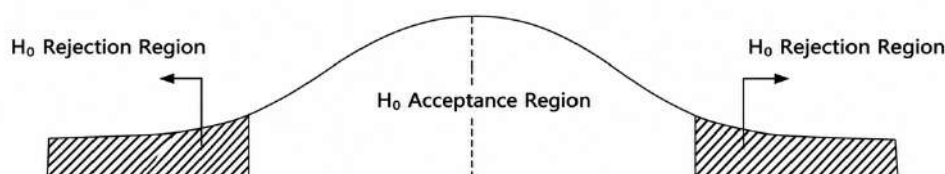


Figure 6. Curve of Acceptance and Rejection of the Responsiveness Variable Hypothesis (Responsiveness)

The hypothesis test yielded a t-value of 6.722 with a significance level of 0.000. The statistical ratio indicates that this t-value successfully exceeded the t-table value. Furthermore, the significance score was well below the threshold of $\alpha=0.05$ ($0.000 < 0.05$). This empirical finding supports the decision to reject H04 and accept Ha4. The researchers concluded that the Responsiveness variable has a positive and significant influence in determining the satisfaction levels of both inpatients and outpatients.

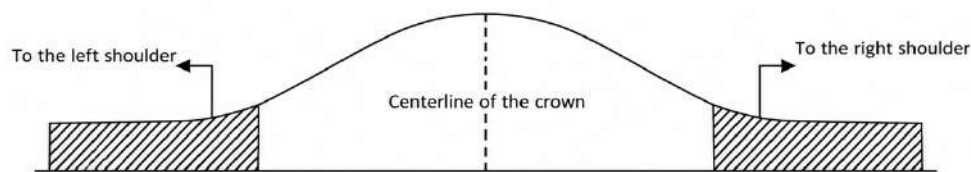


Figure 7. Acceptance and Rejection Curves for the Assurance Variable Hypothesis

The hypothesis test yielded a calculated t-value of 6.643 with a significance level of 0.000. Statistical comparisons demonstrated that the calculated t-value exceeded the t-table value, while the significance level fell below the threshold of $\alpha=0.05$ ($0.000 < 0.05$). These empirical findings support the decision to reject H_0 and accept H_a . Therefore, the researchers concluded that the Assurance variable makes a positive and significant contribution to constructing inpatient and outpatient satisfaction.

Table 9. Results of the Simultaneous F-Test

Model	Sum of Squares	df	Mean Square	F-value	p-value
Regression	1725.210	5	345.041	79.280	<0.001
Residual	404.752	93	4.352		
Total	2129.962	98			

Source: Research data processed, 2026.

Table 9. presents the results of the simultaneous F-test for the multiple linear regression model. The analysis produced an F-value of 79.280 with a p-value of less than 0.001, indicating that the regression model is highly statistically significant. Since the significance value is substantially lower than the 0.05 significance level, the null hypothesis is rejected. This finding demonstrates that the five service quality dimensions Tangibles, Empathy, Reliability, Responsiveness, and Assurance collectively have a significant effect on patient satisfaction. The significant F-test confirms that the proposed regression model is appropriate for explaining patient satisfaction and that service quality, when considered as a multidimensional construct, is a significant predictor of patient satisfaction among both inpatient and outpatient respondents. Therefore, the study hypothesis stating that service quality significantly influences patient satisfaction is supported.

Table 10. Coefficient of Determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.900	0.810	0.800	2.086

Source: Research data processed, 2026.

Table 10. shows that the multiple regression model produced a correlation coefficient (R) of 0.900, indicating a very strong positive relationship between the overall service quality dimensions and patient satisfaction. The coefficient of determination (R^2) is 0.810, indicating that 81.0% of the variation in patient satisfaction can be explained by the combined effects of Tangibles, Empathy, Reliability, Responsiveness, and Assurance. The remaining 19.0% of the variance is attributable to other factors not included in the present study, such as hospital accessibility, treatment outcomes, waiting time, healthcare costs, organizational policies, or other patient-related characteristics. Furthermore, the Adjusted R^2 of 0.800 suggests that the explanatory power of the model remains high even after adjusting for the number of predictors

included in the regression analysis. This indicates that the model is both statistically robust and effective in explaining patient satisfaction.

The Influence of Tangibles (Physical Evidence) on Patient Satisfaction

The results of this study indicate that the Tangibles dimension has a positive and significant relationship with patient satisfaction. This finding indicates that the better the condition of the hospital's physical facilities, the completeness of medical equipment, the comfort of the service room, the cleanliness of the environment, and the appearance of healthcare staff, the higher the level of patient satisfaction. According to the SERVQUAL theory developed by Berry (1988), Tangibles represent service quality that can be directly observed by customers through physical facilities, equipment, and the appearance of personnel. In the context of healthcare, the physical condition of a hospital is an initial indicator used by patients to assess the quality of service they will receive.

The results of this study align with those of Permana et al. (2023), who found that the tangibility dimension had a positive and significant effect on inpatient satisfaction at Waled Regional Hospital in Cirebon Regency. This study explained that clean, comfortable, complete, and modern facilities can improve patient perceptions of hospital service quality. A good service environment provides a sense of security and comfort during the treatment process, thus contributing to increased patient satisfaction. This finding is also supported by research by Wahyuni et al. (2024), which states that "service quality, measured through the dimensions of tangibles, reliability, responsiveness, assurance, and empathy, has a significant influence on hospital patient satisfaction." The results of this study indicate that "tangibles are an important component in shaping patients' assessments of the quality of healthcare services they receive."

Research by Ursula & Saryatmo (2024) on patients at K.R.M.T. Wongsonegoro Regional General Hospital also showed that "the tangibility dimension has a positive and significant influence on patient satisfaction." The study explains that adequate physical facilities, a comfortable service environment, clean treatment rooms, and the availability of supporting facilities and infrastructure can improve patient perceptions of the quality of hospital services. "The better the quality of tangible evidence perceived by patients, the higher the level of satisfaction they experience." Similar findings were found by Hafiz (2024) among BPJS patients in the Emergency Department of Haji General Hospital, Medan. The results showed that the tangible dimension significantly influenced patient satisfaction, with a p-value of 0.009. The study confirmed that environmental cleanliness, completeness of healthcare facilities, comfortable service rooms, and the professional appearance of staff can improve patient comfort and strengthen their satisfaction with the services received.

Furthermore, research by Putri & Surianto (2024) found that hospital facilities significantly influence patient satisfaction. Adequate, modern, safe, and easily accessible facilities provide a better service experience, thereby increasing overall patient satisfaction. The presence of complete supporting facilities not only supports the medical service process but also creates a positive impression that influences patients' evaluations of the quality of hospital services. Scientifically, patients tend to use the physical condition of a hospital as an indicator of service quality because medical aspects are difficult to assess directly. Therefore, a clean, comfortable, and well-organized service environment will increase patient confidence in the hospital's ability to provide quality care. These visual aspects and physical facilities serve as tangible evidence for patients to assess the professionalism and operational readiness of a healthcare institution before they experience actual medical treatment.

The implications of this research are the need for continuous improvement of hospital facilities and infrastructure, including building maintenance, waiting rooms, sanitation facilities, and the availability of medical equipment. Theoretically, tangibles are physical evidence of service that can be directly observed by customers, such as buildings, facilities, equipment, and the appearance of personnel. In the context of healthcare, patients tend to use the physical condition of a hospital as an initial indicator of the quality of service they will receive. Therefore, the better the condition of a hospital's physical facilities, the higher the perception of service quality and patient satisfaction. Practically, improving the quality of a hospital's physical facilities is an effective strategy for increasing patient satisfaction while strengthening the institution's positive image. The provision of modern facilities, a clean environment, and a comfortable waiting room have an instant, calming psychological impact on patients. Investing in this visual aspect not only supports operational comfort but also serves as an indirect marketing tool that builds the hospital's reputation for excellence in the eyes of the public.

The Influence of Empathy on Patient Satisfaction

Research results show that the empathy dimension has a strong positive relationship with patient satisfaction. This finding demonstrates that attention, care, effective communication, and the ability of healthcare workers to understand specific patient needs play a crucial role in increasing satisfaction. When medical staff demonstrate a friendly and responsive attitude to complaints, patients feel personally valued, which ultimately leads to positive perceptions of the overall quality of hospital services. The results indicate that patient satisfaction at K.R.M.T. Wongsonegoro Regional Hospital is positively and significantly influenced by the empathy dimension. This finding reinforces a previous study by Ursula & Saryatmo (2024). Based on this research track record, the personal care demonstrated by medical staff has been shown to be effective in optimizing patient experiences throughout the treatment period. These positive interpersonal experiences are what drive increased patient satisfaction with hospital services. In line with the above findings, research by Purwitasari et al. (2023) on chemotherapy patients at Ken Saras Hospital, Ungaran, also demonstrated a positive and significant correlation between the Empathy dimension and patient satisfaction ($p < 0.001$). The attention, emotional support, and effective communication patterns established by healthcare practitioners significantly boosted patient satisfaction.

This psychological and service-based quality contrasted with patients who felt neglected during their treatment, who tended to report lower levels of satisfaction. This scientific evidence is further supported by the observations of Nengsih et al. (2023), who concluded that outpatient satisfaction is significantly influenced by the service quality dimension, of which empathy is a key element. This research track record confirms that a service model that fully focuses on the specific needs of everyone can boost positive public perceptions of service quality. The domino effect of these personal interactions ultimately strengthens patient satisfaction with the entire range of care provided by the hospital. Theoretically, the relationship between empathy and patient satisfaction can be explained through the SERVQUAL theory developed by Berry (1988). In the SERVQUAL model, empathy is defined as the individualized attention and care provided by service providers to customers. This dimension emphasizes the ability of staff to understand each patient's unique needs, provide personalized attention, and establish warm and respectful communication.

When patients' expectations regarding the attention and care of healthcare providers are met, there will be a positive correlation between these expectations and the service experience received, resulting in higher satisfaction. Scientifically, patients experiencing health problems are generally emotionally vulnerable. When healthcare providers demonstrate attention,

patience, and concern, patients will feel valued, increasing their positive perceptions of the care they receive. The implication of this research is the importance of improving healthcare providers' therapeutic communication skills through training in excellent service and patient-centered care. Practically, patients require not only appropriate medical treatment but also attention and care that can provide psychological comfort during the healthcare process. Warm interactions and empathy from healthcare providers effectively reduce anxiety levels in patients who are ill. This sense of emotional safety and comfort is a crucial aspect that complements the success of clinical interventions in the treatment room.

The Influence of Reliability on Patient Satisfaction

The results of this study indicate that the reliability dimension is positively and significantly related to patient satisfaction. This finding demonstrates that a hospital's ability to provide services accurately, consistently, and as promised is a determining factor in increasing patient satisfaction. According to Berry (1988) SERVQUAL theory, reliability is an organization's core capacity to provide accurate, reliable, and trustworthy services from the first interaction without error. When medical personnel and administrative staff can consistently carry out service procedures according to standard operating procedures (SOPs), patients will feel safe and assured of the healthcare they receive. This study's findings align with the findings of Simanihuruk et al. (2024) stated that reliability has a positive effect on patient satisfaction at Santa Elisabeth Hospital, Medan. Furthermore, research by Ursula & Saryatmo (2024) supports these findings by showing that service reliability is a factor that significantly contributes to patient satisfaction in hospitals. This alignment with previous research confirms that consistency and accuracy of healthcare services are universally key pillars in building patient trust and satisfaction.

The results of this study are also supported by research by Pratiwi et al. (2023), which found that the reliability dimension remains a crucial aspect in assessing hospital service quality. This study showed a negative gap value of -0.33 for the reliability dimension, indicating that the service received by patients did not fully meet patient expectations. Aspects assessed included the ability of staff to address patient issues, the timeliness of service, and the speed of patient examination and treatment. These findings indicate that the more reliable the hospital's services, particularly in providing timely, accurate, and appropriate care to patients' needs, the better patients' perceptions of the quality of care received. This is supported by research by Pratiwi et al. (2023), which found that service reliability significantly influences outpatient satisfaction. The results showed that timeliness of service, accuracy of medical information, and minimal administrative errors increase patient trust in the hospital, thereby increasing satisfaction. These findings strengthen the argument that reliability is a fundamental dimension determining the quality of healthcare services.

Furthermore, Nengsih et al. (2023) reported that reliability is one of the service quality dimensions significantly related to patient satisfaction. Patients who receive consistent and expected service tend to rate hospital service quality higher than patients who experience delays or inconsistencies in service. Theoretically, the influence of reliability on patient satisfaction can be explained through the SERVQUAL theory developed by (Berry, 1988). In this theory, reliability is the ability of a service provider to deliver promised services accurately and dependably. Patients who receive services that meet their expectations will perceive the hospital as competent and committed to meeting their healthcare needs. Conversely, administrative errors, delays in service, or inappropriate medical procedures can decrease patient satisfaction.

Scientifically, patients expect consistent, timely service, and free from administrative and medical errors. When services are provided accurately and according to patient needs, trust in the hospital will increase, resulting in higher satisfaction. The implications of this research are the need to strengthen standard operating procedures (SOPs), monitor service quality, and improve the competence of healthcare workers. Practically, the more reliable the service provided by a hospital, the greater the level of patient trust and satisfaction with the healthcare services they receive. Timely administration, accurate doctor diagnoses, and consistent visit schedules are tangible evidence of this reliability. When patients receive guaranteed service without bureaucratic hurdles, their anxiety will decrease and transform into loyalty to the healthcare institution.

The Effect of Responsiveness on Patient Satisfaction

The research results show that Responsiveness is the variable that has the greatest influence on patient satisfaction. These findings indicate that the speed and responsiveness of staff are the main factors that determine patient satisfaction. According to (Berry, 1988) Responsiveness is the willingness of officers to help customers and provide service quickly and accurately. The results of this research are supported by research by Maulidda & Dewi (2025) which shows that the Responsiveness dimension received the highest score in assessing service quality and contributed greatly to patient satisfaction at the Muhammadiyah Hospital in Bandung. Research by Ursula & Saryatmo (2024) also found that Responsiveness has a positive and significant influence on hospital patient satisfaction. Similar findings were reported by Purwitasari et al. (2023) who found that Responsiveness was significantly related to chemotherapy patient satisfaction. Patients who receive a quick response from health workers during the therapy process show a higher level of satisfaction than patients who experience delays in service.

In addition, research by Nengsih et al. (2023) shows that Responsiveness is one of the SERVQUAL dimensions that has a significant effect on outpatient satisfaction. The ability of officers to aid quickly and responsively is considered capable of increasing perceptions of service quality and strengthening patients' positive experiences while receiving health services. Wijayanti & Rejeki's (2024) study proves that the waiting duration in the outpatient service unit has a significant correlation with the level of patient satisfaction. A linear reduction in the length of the queue passed by patients will strengthen the satisfaction they feel. These empirical results indicate that aspects of time efficiency and responsiveness of officers are crucial determinants in constructing public assessments of the quality of health services.

Theoretically, the influence of Responsiveness on patient satisfaction can be explained using the SERVQUAL model formulated by Berry (1988). In this model, Responsiveness is defined as the service provider's willingness to help customers and provide service quickly. This dimension is important because patients are generally in a vulnerable condition physically and psychologically, so they need services that are fast, precise and responsive to their needs. Scientifically, patients are very sensitive to waiting times and speed of service because delays in treatment often trigger anxiety and psychological discomfort. When medical staff can respond quickly to needs, provide clear information, and handle complaints promptly, patients will feel valued and prioritized. The speed of this response is a crucial indicator for patients in assessing the readiness, professionalism and concern of health institutions for the emergency conditions they experience.

The implication of the results of this research is the need to optimize service flow, reduce waiting times, utilize digital queuing systems, and increase the number of officers during busy service hours. Practically, increasing the responsiveness of staff is the most effective strategy

in increasing the level of satisfaction of service users in hospital institutions. Speed in service and accuracy in handling emergency complaints provide instant satisfaction for patients. Optimization of this aspect can be achieved through regular excellent service training and the preparation of concise workflows to reduce bureaucracy and waiting times in each service line.

The Effect of Assurance on Patient Satisfaction

The research results show that the Assurance dimension holds a positive and significant correlation in dictating the level of patient satisfaction. This empirical evidence confirms that aspects of capability, professional integrity, nobility or politeness, and staff reliability in creating a sense of security are crucial determinants in stimulating satisfaction of health service users. When doctors, nurses and administrative staff demonstrate convincing medical expertise and guarantee the safety of procedures, patients will feel calm and free from doubts during the treatment period. According to Berry (1988) SERVQUAL, Assurance includes knowledge, skills, politeness, and the ability of officers to foster customer trust.

This finding is in line with a study from Irawan et al. (2020) which concluded that Assurance appeared as one of the dimensions with the highest satisfaction scores. This assessment was obtained from the results of evaluating the quality of hospital institutional services through the application of the SERVQUAL method. In addition, research by Simanihuruk et al. (2024) shows that Assurance has a greater influence than several other dimensions of service quality on patient satisfaction. In addition, a study from Ursula & Saryatmo (2024) proves that the Assurance aspect has a positive and significant influence on the level of patient satisfaction at RSUD K.R.M.T. Wongsonegoro. Service users who believe they are treated by competent, courteous and professional medical practitioners tend to give significantly higher satisfaction scores. This psychological condition is inversely proportional to the group of patients who have doubts about the capability and competence of health workers in the field. Research by Nengsih et al. (2023) also shows that Assurance is an element of service quality that has a significant correlation with the level of patient satisfaction in the outpatient unit.

The capability of medical practitioners to provide professional and credible actions has been proven to be able to increase the public's assessment of the quality of hospital services holistically. Similar findings were reported by Purwitasari et al. (2023) who found that chemotherapy patients who received clear explanations regarding treatment procedures, side effects of therapy, as well as guarantees about the safety of procedures showed a higher level of satisfaction than patients who felt they received less information and certainty during the treatment process. Theoretically, the relationship between Assurance and patient satisfaction can be explained through the SERVQUAL theory. In this theory, Assurance is a dimension related to the service provider's ability to build customer trust through competence, professionalism and credibility. The higher the level of patient confidence in the abilities of health workers, the higher the patient's positive perception of the quality of service received. Scientifically, patients' hand over their health conditions to health workers who are considered to have professional competence.

Therefore, trust in the abilities of health workers will increase the patient's sense of security and comfort during the service process. The implication of this research is the importance of increasing the professional competence of health workers through continuing education and patient safety training. In practical terms, patients will be more satisfied if services are provided by health workers who are competent, professional, and able to provide a sense of security during the service process. Guarantees of medical safety and clarity of information regarding procedures are very crucial in eliminating patient anxiety. When trust in the expertise of doctors

and nurses is built, patients will feel calmer and more cooperative, which ultimately speeds up the recovery process and increases loyalty to the hospital.

The Influence of Service Quality on Patient Satisfaction

The results of multiple linear regression prove that the Tangibles, Empathy, Reliability, Responsiveness and Assurance aspects simultaneously make a positive contribution to patient satisfaction. These empirical results strengthen the legitimacy of existing health service quality theories. This theory states that the level of satisfaction felt by patients is the result of holistic calculations and evaluation of all dimensions of the quality of service they receive while in a health facility. The coefficient of determination with an R Square value of 0.810 indicates that 81.0% of fluctuations in patient satisfaction levels can be explained accurately by the five dimensions of service quality tested. Meanwhile, the remaining variation of 19.0% was triggered by the contribution of other external variables outside the research model. Factors forming the remaining percentage include nominal service fees, emotional psychological conditions, track records of past experiences, patient demographic profiles, and the socio-economic status of the community. Theoretically, the simultaneous influence of the five dimensions of service quality on patient satisfaction can be explained through the concept of expectation-disconfirmation theory. This theory constructs that individual satisfaction originates from conditions when actual service performance can match or even exceed the threshold of their initial expectations. If applied to the health sector, service users do not solely measure the clinical success of treatment actions. They also tested aspects of the appropriateness of physical facilities, consistency of service, speed of staff action, certainty of medical professionalism capabilities, and the depth of attention and care they felt during service interactions.

The results of this research are in line with research by Wahyuni et al. (2024) who found that all dimensions of SERVQUAL simultaneously influence hospital patient satisfaction. Research by Permana et al. (2023)¹⁸ and Ursula & Saryatmo (2024) also strengthen the evidence that service quality as reflected through the five dimensions of SERVQUAL acts as a crucial predictor of patient satisfaction. The empirical findings in this study are in line with the research results of Safitri and Ambarwati (2024) who dissected the level of satisfaction of hospital patients in Indonesia through the SERVQUAL framework. This previous study proves that the combination of the five SERVQUAL dimensions simultaneously contributes to stimulating patient satisfaction as well as being the main foundation for evaluating the quality of health services. Through this scientific confirmation, providing holistic service quality is the most crucial determinant for increasing satisfaction and building patient loyalty towards hospital institutions.

Other supporting empirical evidence comes from studies in the hospital inpatient service sector which proves that all dimensions in the SERVQUAL model have a significant influence on the level of patient satisfaction. The explanatory contribution from all these dimensions was able to explain variations in patient satisfaction of 67.7%. These findings in the literature strengthen the argument that interventions to holistically optimize service quality will trigger direct strengthening of satisfaction. The Responsiveness dimension appears as the most dominant variable in this study, which indicates that the speed and responsiveness of medical personnel is the highest priority for service users. These empirical findings reflect the shift in modern patient orientation. Nowadays, people no longer just demand accuracy in medical procedures, but also want services that are agile and responsive to their every need. In practical terms, the strategy to increase patient satisfaction at RSD dr. H. Soemarno Sosroatmodjo Tanjung Selor

needs to focus on increasing the responsiveness of officers, without ignoring improvements in the Tangibles, Empathy, Reliability and Assurance dimensions.

Conclusion

The results of the research can be concluded that the satisfaction of inpatient and outpatient patients at RSD dr. H. Soemarno Sosroatmodjo Tanjung Selor is influenced by service quality which consists of the dimensions Tangibles (Physical Evidence), Empathy (Empathy), Reliability (Reliability), Responsiveness (Responsiveness), and Assurance (Guarantee). All dimensions of service quality have been proven to have a positive and significant effect on patient satisfaction, with Responsiveness as the most dominant factor in increasing patient satisfaction. Therefore, the quality of service needs to continue to be improved through improving service facilities, strengthening the competence and professionalism of health workers, increasing communication and empathy with patients, as well as optimizing the speed and accuracy of service. These efforts need to be supported by hospital management, the Health Service, health workers and the community through continuous evaluation of service quality so that patient satisfaction can increase and the quality of health services in hospitals can be maintained optimally.

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