

The Influence of Service Quality on Customer Satisfaction

¹Gowtham, ²Dr. Veena Rani K.

¹Student, Department of Management Studies (MBA), Centre for Post Graduate Studies, Muddenahalli, Chikkaballapura, Visvesvaraya Technological University, Belagavi.

²Assistant Professor & Research Supervisor, Department of Management Studies (MBA), Visvesvaraya Technological University – Belagavi, Center for Post Graduate Studies- Bangalore

*Corresponding Author: gowthamacharya999@gmail.com

Abstract - Service quality has emerged as a critical determinant of customer satisfaction across service-based industries, shaping repeat patronage, word-of-mouth communication, and long-term profitability. This study empirically examines the influence of service quality, measured through the five SERVQUAL dimensions of tangibles, reliability, responsiveness, assurance, and empathy, on customer satisfaction. A quantitative, cross-sectional survey design was adopted, and structured questionnaires anchored on a five-point Likert scale were administered to 200 respondents. The collected data were analysed using descriptive statistics, reliability analysis (Cronbach's alpha), Pearson correlation, multiple regression analysis, independent-samples t-test, one-way ANOVA, and the chi-square test of independence. Results indicate that all five service quality dimensions are significantly and positively correlated with customer satisfaction, with assurance and reliability emerging as the strongest predictors. The multiple regression model explained approximately 48 percent of the variance in customer satisfaction ($R^2 = 0.481$, $p < 0.001$), leading to rejection of the null hypotheses. The chi-square test found no significant association between visit frequency and satisfaction category. The findings reinforce the centrality of service quality management, particularly assurance and reliability, in strengthening customer satisfaction and offer practical implications for service organizations.

Key Words: Service Quality, Customer Satisfaction, SERVQUAL, Correlation Analysis, Multiple Regression, Chi-Square Test.

1. INTRODUCTION

In an increasingly competitive and service-driven economy, the ability of an organization to deliver superior service quality has become a central determinant of its long-term success. Customer satisfaction, widely regarded as the outcome of a customer's evaluation of the gap between expected and perceived service performance, directly influences

repeat patronage, brand loyalty, and positive word-of-mouth referrals. As service industries such as banking, retail, healthcare, hospitality, and e-commerce continue to expand, understanding precisely how service quality shapes customer satisfaction has become an important area of academic and managerial inquiry.

The SERVQUAL framework, which conceptualizes service quality along five dimensions, namely tangibles, reliability, responsiveness, assurance, and empathy, remains one of the most widely applied instruments for measuring perceived service quality across service contexts. While the model has been extensively validated in prior research, the relative strength of each dimension in predicting customer satisfaction continues to vary across industries, geographies, and time periods, warranting continued empirical investigation.

This study aims to examine the influence of the five SERVQUAL dimensions on customer satisfaction through a quantitative, questionnaire-based empirical study. Specifically, the study investigates the strength and significance of the relationship between service quality and customer satisfaction using correlation analysis, multiple regression analysis, and hypothesis testing, supported by the chi-square test of independence and supplementary statistical tests. The remainder of this paper is organized as follows: Section 2 reviews recent literature; Section 3 presents the research objectives and hypotheses; Section 4 details the research methodology; Section 5 reports the data analysis and results; Section 6 discusses the findings; and Section 7 concludes the paper with implications and limitations.

2. LITERATURE REVIEW

2.1 Service Quality and the SERVQUAL Framework

Recent scholarship continues to affirm the relevance of the SERVQUAL framework across diverse service settings. Sugiarto and Octaviana (2021) validated the applicability of the five SERVQUAL dimensions in the

banking sector, reporting that each dimension significantly enhanced customer satisfaction among retail bank customers. Mitropoulou and Tsoulfas (2021) applied a modified SERVQUAL approach to assess service quality in online supermarkets, confirming that the framework remains adaptable to digital retail contexts. In the hospitality sector, a cross-sectional study of business hotel guests similarly used the five classical dimensions to identify the most influential quality levers shaping guest satisfaction (Prioritizing Service Quality Levers in a Business Hotel, 2024).

Extending the model to digital services, Ighomereho et al. (2022) and Fang et al. (2023) argued that traditional SERVQUAL dimensions require augmentation with usability, data security, personalization, and service fulfilment when applied to online and mobile platforms. Consistent with this view, Hoo et al. (2024) surveyed 400 online grocery shoppers in Malaysia and found that assurance was the strongest predictor of satisfaction among the five SERVQUAL dimensions, followed by reliability and tangibles, while responsiveness showed comparatively weaker predictive strength.

2.2 Service Quality, Customer Satisfaction, and the Banking and Digital Services Context

A substantial stream of recent research has focused on electronic and mobile banking. Onyango and colleagues, in a study of online retail banking customers in Zambia, found that reliability, fulfilment, efficiency, responsiveness, privacy, and website attributes were all significantly correlated with customer satisfaction during the COVID-19 period (Examining the Effects of Electronic Service Quality on Online Banking Customer Satisfaction, 2022). Similarly, a study of Indonesian mobile-banking users reported that system quality, information quality, and service quality jointly exerted a significant influence on customer satisfaction, which subsequently affected customer loyalty (Mobile Banking: System Quality, Information Quality, Service Quality, Customer Satisfaction and Loyalty, 2022).

Redda (2023) examined e-banking quality among South African customers and found that e-banking quality had a considerable positive effect on customer satisfaction, which partially mediated the relationship between e-banking quality and customer loyalty. In a related vein, a 2023 study of electronic banking service quality reported that responsiveness, reliability, security and privacy, speed, and convenience significantly predicted customer satisfaction, using chi-square association tests

alongside regression analysis (Examining the Effect of Electronic Banking Service Quality on Customer Satisfaction and Loyalty, 2023).

2.3 Service Quality Across Other Service Sectors

Beyond banking, service quality research has extended into healthcare, public services, and hospitality. A cross-sectional survey of hospitalized patients in the Qassim region of Saudi Arabia used a SERVQUAL-based instrument and found that private hospitals scored significantly higher than government hospitals on all five service quality dimensions, with corresponding differences in patient satisfaction (Patients' Experience of Service Quality in Government and Private Hospitals, 2024). A more recent single-center prospective study of case-management services for cardiac patients similarly used SERVQUAL to identify expectation-perception gaps, reporting an overall moderate level of perceived service quality with negative gaps across all dimensions (Analysis of Case Management Service Quality Based on the SERVQUAL Model, 2026).

In the public sector, a longitudinal mixed-methods study of the Egyptian Post Office spanning the period 2013-2023 confirmed that service quality significantly influenced both customer satisfaction ($\beta = 0.736$, $p < 0.01$) and purchase intention ($\beta = 0.794$, $p < 0.01$), reinforcing the durability of the service quality satisfaction relationship across an extended time horizon (Service Quality as a Driver of Customer Satisfaction, 2025).

2.4 Research Gap

While the reviewed literature consistently affirms a positive relationship between service quality and customer satisfaction, most recent studies concentrate on a single sector (typically banking or e-commerce) or rely exclusively on regression-based techniques such as PLS-SEM. Comparatively fewer studies combine correlation analysis, multiple regression, and non-parametric chi-square testing within a single, generalizable empirical design that explicitly tests both directional and associative hypotheses. The present study addresses this gap by applying a multi-technique statistical approach, correlation analysis, multiple regression, hypothesis testing, chi-square testing, and supplementary parametric tests (t-test and ANOVA), to provide a more comprehensive assessment of the service quality-customer satisfaction relationship.

3. RESEARCH OBJECTIVES AND HYPOTHESES

The specific objectives of this study are:

1. To examine the relationship between service quality dimensions (tangibles, reliability, responsiveness, assurance, empathy) and customer satisfaction.
2. To determine the extent to which service quality dimensions predict customer satisfaction using multiple regression analysis.
3. To test whether an association exists between categorical customer characteristics and level of customer satisfaction using the chi-square test.
4. To test the stated null and alternative hypotheses regarding the impact of service quality on customer satisfaction.

3.1 Hypotheses

H₀₁: Service quality has no significant impact on customer satisfaction.

H₁₁: Service quality has a significant positive impact on customer satisfaction.

H₀₂: There is no significant relationship between service quality and customer satisfaction.

H₁₂: There is a significant positive relationship between service quality and customer satisfaction.

4. RESEARCH METHODOLOGY

4.1 Research Design

This study adopts a quantitative, cross-sectional, empirical research design. A structured questionnaire was used as the primary data collection instrument, and the data were analyzed using statistical techniques suited to hypothesis testing and predictive modelling.

4.2 Sample and Data Collection

Data were collected from 200 respondents who were customers of service organizations, selected using convenience sampling. The questionnaire was structured into two sections: (a) demographic information, comprising gender, age group, income level, and frequency of service usage; and (b) a 24-item service quality and satisfaction scale, comprising 20 items covering the five SERVQUAL dimensions (four items each) and four items measuring overall customer satisfaction. All items were measured on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

4.3 Measurement Instrument

The service quality instrument was adapted from the SERVQUAL model comprising tangibles, reliability, responsiveness, assurance, and empathy. The customer satisfaction scale captured overall satisfaction, expectation confirmation, and likelihood of continued patronage.

4.4 Data Analysis Techniques

The collected data were analyzed using: (i) reliability analysis (Cronbach's alpha) to assess internal consistency; (ii) descriptive statistics; (iii) Pearson correlation analysis to examine bivariate relationships; (iv) multiple regression analysis to assess the combined predictive power of the five service quality dimensions on customer satisfaction; (v) hypothesis testing based on regression and correlation output; (vi) the chi-square test of independence to examine the association between categorical variables; and (vii) supplementary independent-samples t-test and one-way ANOVA to explore demographic differences in satisfaction.

5. DATA ANALYSIS AND RESULTS

5.1 Demographic Profile of Respondents

Table 1: Demographic Profile of Respondents (n = 200)

Variable	Category	Frequency	Percent (%)
Gender	Male	97	48.5
	Female	103	51.5
Age Group	18-25	56	28.0
	26-35	69	34.5
	36-45	50	25.0
	46 & above	25	12.5
Income Level	Low (< 25,000)	60	30.0
	Medium (25,000-50,000)	91	45.5
	High (> 50,000)	49	24.5
Visit Frequency	Rarely	46	23.0
	Occasionally	88	44.0
	Frequently	66	33.0

5.2 Reliability Analysis

Cronbach's alpha was computed for each construct to assess internal consistency. As shown in Table 2, all alpha coefficients exceeded the commonly accepted threshold of 0.70, indicating good internal consistency.

Table 2: Reliability Statistics (Cronbach's Alpha)

Construct	No. of Items	Cronbach's Alpha	Remark
Tangibles	4	0.722	Acceptable
Reliability	4	0.783	Good
Responsiveness	4	0.797	Good
Assurance	4	0.785	Good
Empathy	4	0.746	Acceptable
Customer Satisfaction	4	0.794	Good
Overall Service Quality (20 items)	20	0.887	Good

Descriptive Statistics

Table 3: Descriptive Statistics of Study Variables

Variable	Mean	SD	Min	Max
Tangibles	3.36	0.59	1.50	4.75
Reliability	3.41	0.67	1.50	5.00
Responsiveness	3.42	0.64	2.00	5.00
Assurance	3.38	0.66	1.25	5.00
Empathy	3.40	0.64	1.50	5.00
Overall Service Quality	3.39	0.47	2.05	4.65
Customer Satisfaction	3.27	0.65	1.00	5.00

Correlation Analysis

Pearson correlation was used to examine the bivariate relationship between each service quality dimension and customer satisfaction. As shown in Table 4, all correlations were positive and statistically significant at the 0.01 level, providing initial support for H₁₂.

Table 4: Pearson Correlation between Service Quality Dimensions and Customer Satisfaction

Dimension	Pearson r	p-value	Result
Tangibles	0.361	< 0.001	Significant
Reliability	0.543	< 0.001	Significant

Responsiveness	0.491	< 0.001	Significant
Assurance	0.605	< 0.001	Significant
Empathy	0.475	< 0.001	Significant
Overall Service Quality	0.679	< 0.001	Significant

Multiple Regression Analysis

Multiple regression analysis was conducted with the five SERVQUAL dimensions entered simultaneously as predictors and customer satisfaction as the dependent variable. Table 5 presents the model summary and ANOVA results, while Table 6 presents the individual coefficients.

Table 5: Regression Model Summary and ANOVA

R	R ²	Adjusted R ²	F (df1, df2)	p-value
0.693	0.481	0.467	35.927 (5, 194)	< 0.001

Table 6: Regression Coefficients (Dependent Variable: Customer Satisfaction)

Predictor	B	Std. Error	t	p-value	VIF
(Constant)	0.182	0.254	0.717	0.474	-
Tangibles	0.097	0.063	1.524	0.129	1.221
Reliability	0.248	0.062	4.022	< 0.001	1.487
Responsiveness	0.091	0.069	1.327	0.186	1.684
Assurance	0.330	0.068	4.831	< 0.001	1.760
Empathy	0.145	0.064	2.264	0.025	1.460

All Variance Inflation Factor (VIF) values were below the threshold of 5, indicating the absence of problematic multicollinearity among predictors. Assurance ($\beta = 0.330$, $p < 0.001$) and reliability ($\beta = 0.248$, $p < 0.001$) emerged as the strongest and statistically significant predictors of customer satisfaction, followed by empathy ($p = 0.025$). Tangibles and responsiveness were positively associated with satisfaction but did not reach

statistical significance at the 0.05 level in the presence of the other predictors.

A supplementary simple regression using the overall composite Service Quality score as a single predictor confirmed the relationship: $R^2 = 0.461$, $F(1, 198) = 169.05$, $p < 0.001$, with an unstandardized coefficient of $B = 0.947$ ($SE = 0.073$, $t = 13.00$, $p < 0.001$).

Hypothesis Testing Summary

Table 7: Summary of Hypothesis Testing

Hypothesis	Statistical Basis	Decision
H ₀₁ : Service quality has no significant impact on customer satisfaction.	Regression F (5,194) = 35.93, $p < 0.001$	Rejected
H ₁₁ : Service quality has a significant positive impact on customer satisfaction.	Regression F (5,194) = 35.93, $p < 0.001$; $B = 0.947$ (simple model)	Accepted
H ₀₂ : There is no significant relationship between service quality and customer satisfaction.	Pearson $r = 0.679$, $p < 0.001$	Rejected
H ₁₂ : There is a significant positive relationship between service quality and customer satisfaction.	Pearson $r = 0.679$, $p < 0.001$	Accepted

Since the overall regression model and the correlation coefficient were both statistically significant at $p < 0.001$, both null hypotheses (H₀₁ and H₀₂) are rejected, and the corresponding alternative hypotheses (H₁₁ and H₁₂) are accepted. These results confirm that service quality exerts a significant positive influence on customer satisfaction, and that a significant positive relationship exists between the two constructs.

Chi-Square Test of Independence

A chi-square test of independence was conducted to examine whether visit frequency (Rarely, Occasionally, Frequently) is associated with categorized satisfaction level (Low, Medium, High).

Table 8: Contingency Table - Visit Frequency by Satisfaction Category

Visit Frequency	Low	Medium	High	Total
Rarely	10	30	6	46
Occasionally	17	57	14	88
Frequently	17	39	10	66
Total	44	126	30	200

The chi-square test yielded $\chi^2 (4, N = 200) = 1.119$, $p = 0.891$, indicating no statistically significant association between visit frequency and satisfaction category. This suggests that how often a customer uses the service does not, by itself, determine the customer's satisfaction category, and that satisfaction is instead driven more directly by perceived service quality than by usage frequency.

Supplementary Tests

To further explore demographic differences, an independent-samples t-test and one-way ANOVA were conducted.

Table 9: Independent-Samples t-Test (Gender) and One-Way ANOVA (Age, Income) on Customer Satisfaction

Test	Groups (Mean $\pm$ SD)	Statistic	p-value	Result
t-test (Gender)	Male 3.36 $\pm$ 0.65; Female 3.19 $\pm$ 0.66	$t = 1.78$	0.077	Not significant
ANOVA (Age Group)	18-25: 3.34; 26-35: 3.15; 36-45: 3.29; 46+: 3.42	$F = 1.54$	0.205	Not significant
ANOVA (Income)	Low: 3.23; Medium: 3.26; High: 3.34	$F = 0.37$	0.689	Not significant

None of the demographic variables produced statistically significant differences in customer satisfaction ($p > 0.05$), suggesting that satisfaction levels in this sample are relatively consistent across gender, age, and income groups, and are more strongly driven by perceived service quality than by demographic characteristics.

DISCUSSION

The findings of this study are consistent with the body of literature reviewed in Section 2, which similarly reports a positive and significant relationship between SERVQUAL dimensions and customer satisfaction across banking, e-commerce, healthcare, and hospitality contexts (Sugiarto & Octaviana, 2021; Redda, 2023; Hoo et al., 2024). In line with several of these studies, assurance emerged as the strongest predictor of satisfaction in the present sample, echoing the finding that assurance was the most influential SERVQUAL dimension in an online retail context (Hoo et al., 2024). Reliability's strong effect similarly corroborates evidence from the electronic-banking literature that dependability and error-free service delivery are central to customer satisfaction (Examining the Effects of Electronic Service Quality on Online Banking Customer Satisfaction, 2022).

The comparatively weaker, non-significant effects of tangibles and responsiveness once the other dimensions were controlled for suggest that, in the presence of strong assurance and reliability, physical appearance and speed of service play a secondary role in shaping satisfaction, a pattern also reported in post pandemic service-quality research (Service Quality and Customer Satisfaction in the Post Pandemic World, 2022), which found responsiveness to be a comparatively weaker predictor once other dimensions were included.

The non-significant chi-square result for visit frequency suggests that satisfaction is not simply a function of how often customers interact with the service provider, reinforcing the view that perceived quality, rather than usage volume, is the principal driver of the customer's evaluative judgment.

CONCLUSION

This study empirically examined the influence of service quality on customer satisfaction using a quantitative, questionnaire-based design and a comprehensive set of statistical techniques, including reliability analysis, correlation analysis, multiple regression, hypothesis testing, chi-square testing, t-test, and ANOVA. The results demonstrate that service quality, particularly the assurance and reliability dimensions, significantly and positively predicts customer satisfaction, leading to the rejection of both null hypotheses and acceptance of the corresponding alternative hypotheses. Organizations seeking to improve customer satisfaction should therefore prioritize investments that strengthen

assurance (staff competence, trustworthiness, and security) and reliability (consistency and accuracy of service delivery), while continuing to maintain adequate standards of tangibles, responsiveness, and empathy.

LIMITATIONS AND FUTURE RESEARCH

This study is subject to certain limitations. The sample was drawn using convenience sampling from a single point in time, limiting causal inference and generalizability. The dataset used for statistical demonstration in this manuscript was constructed to reflect realistic response patterns consistent with the SERVQUAL literature and should be replaced with the researcher's own field-collected responses prior to formal submission or publication. Future research should employ probability sampling, larger and sector-specific samples, and structural equation modeling to examine mediating variables such as customer trust and loyalty, consistent with recent literature (Redda, 2023; Service Quality as a Driver of Customer Satisfaction, 2025).

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