The Impact of SERVQUAL Dimensions on Consumer Satisfaction in Restaurants:Evidence from Berhampur City of Odisha, India

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Abstract:
The present study aims to investigate the influence of service quality on customer satisfaction in restaurants in Berhampur, Odisha, India. In addition, the research seeks to identify the specific dimensions of service quality that contribute most significantly to overall customer satisfaction in these establishments. The study adopts a quantitative research design, and primary data were collected through a random sampling technique. A total of 300 self-administered questionnaires were distributed to customers across 30 restaurants in the city, with 10 per restaurant. Out of the total responses received, 256 questionnaires were found to be complete and suitable for further statistical analysis. Service quality in this study was evaluated using seven dimensions derived from the SERVQUAL framework and relevant literature, namely Tangibles, Reliability, Responsiveness, Assurance, Empathy, Food Quality, and Menu. Customer satisfaction was considered the dependent variable. Based on these dimensions of service quality, seven research hypotheses were formulated, and the results supported all of them. Various statistical techniques were applied for data analysis. Descriptive statistics, including frequency distributions, means, and standard deviations, were used to summarise the data. Cronbach's Alpha was employed to assess the reliability of the measurement scales, while the Variance Inflation Factor (VIF) was used to examine multicollinearity among variables. In addition, Karl Pearson's correlation coefficient, two-tailed t-test, F-test, ANOVA, and multiple regression analysis were conducted to test the relationships among the variables. All statistical analyses were performed using IBM SPSS version 23. The study's findings indicate that service quality has a significant, positive effect on customer satisfaction in restaurants. The results suggest that improvements in service quality led to higher levels of customer satisfaction among restaurant customers. The analysis further reveals that among the service quality dimensions, Tangibles exert the strongest influence on customer satisfaction (22.4%), followed by Food Quality (19.2%), Menu (18.2%), Reliability (16.9%), Assurance (14.4%), and Responsiveness (11.7%). Empathy was found to have the least influence on customer satisfaction, accounting for 11.1%. Overall, the study highlights the critical role of service quality in enhancing customer satisfaction in the restaurant sector.

Keywords: *Service Quality, Customer Satisfaction, Restaurants, Multicollinearity, Customer Delight*

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Introduction

Service quality has increasingly become a central concern for organizations seeking sustainable growth and improved financial performance. Over the past few decades, researchers have devoted considerable attention to understanding how service quality influences organizational outcomes. According to Mohammad Shahin and Mehdi Dabestani (2010), service quality is a critical determinant of organizational success, as the growth, competitiveness, and long-term survival of firms largely depend on the quality of services they provide. In service-oriented industries, particularly hospitality and restaurants, the ability to deliver superior service quality is vital for shaping customer perceptions and experiences. Previous studies have demonstrated that service quality significantly affects key outcomes of the service process, including customer satisfaction, loyalty, trust, organizational reputation, operational efficiency, and profitability (Baffour-Awuah, 2018a; 2018b). Consequently, organizations aiming to achieve long-term profitability must focus on meeting and exceeding customer expectations through high-quality service delivery.

Despite its recognized importance, service quality remains a complex and multidimensional concept that is often difficult to define and measure. Early research by A. Parasuraman and colleagues (1985) identified service quality as a challenging construct due to its intangible nature and the subjective nature of customer perceptions. Later studies have reinforced this perspective by emphasizing that service quality cannot be easily quantified using traditional product evaluation methods. Similarly, Amit Prakash and R. P. Mohanty (2012) argue that the theoretical structure of service quality continues to evolve and has not yet reached a universally accepted conceptual framework. In this context, Ramin Mosahab and colleagues (2010) define service quality as the overall assessment of excellence or superiority in the services delivered by an organization. This definition highlights the subjective nature of service quality, as it is largely shaped by customers' perceptions and evaluations of service performance. According to Baffour-Awuah (2018a), customers form perceptions of service quality based on their interactions with service providers, which ultimately influence their overall attitudes toward the organization. These perceptions are closely linked to customers' experiences and expectations, as discussed in A. Parasuraman et al. (1988), Valarie A. Zeithaml (1988), and Mary Jo Bitner (1990).

Customer satisfaction is another key concept that is closely associated with service quality. It is commonly defined as the gap between customers' expectations and their actual experiences with a product or service. Ismail Yunan (2016) describe customer satisfaction as the extent to which a service or product fulfils customer needs and expectations. Similarly, Fourie (2015) explains that customer satisfaction is the process by which consumers evaluate whether a service meets or exceeds their expectations. Expectations play a crucial role in this evaluation process, serving as benchmarks against which service performance is assessed. Baffour-Awuah (2018a) notes that expectations are typically defined as beliefs about how a service should be delivered. In the service literature, expectations are often framed in terms of what customers believe a service *would* deliver, whereas expectations for goods are commonly expressed in terms of what a product *should* deliver. Earlier research by Md. Alamgir and Mohammad Shamsuddoha (2004) suggest that service quality and customer satisfaction are closely interrelated and mutually reinforcing concepts.

To enhance customer satisfaction, organisations must align their service offerings with customer expectations and continuously improve service quality. Developing strong and lasting relationships with customers is essential for achieving long-term sustainability and competitive advantage (Fourie, 2015). In recent years, the evaluation and measurement of service quality dimensions have become increasingly important in both developed and developing economies. Rapid economic development, intensified competition, and globalization have compelled organizations to adopt more strategic approaches to service quality management (Baffour-Awuah, 2018b). As a result, improving service quality has become a key priority for organizations seeking to enhance customer satisfaction and maintain a strong competitive position in the marketplace.

Problem Statement:

The food service sector, particularly the restaurant industry, constitutes a significant component of the hospitality sector in many countries. Restaurants have become an integral part of modern lifestyles, serving multiple purposes beyond merely providing food. They are frequently used for social gatherings, celebrations, business meetings, and casual dining. In addition, restaurants cater to individuals who may not have sufficient time to cook or who prefer to enjoy meals prepared according to their tastes and preferences (Jain & Thakur, 2018). In the Indian context, especially among younger

consumers, restaurants are increasingly viewed as places for recreation and social interaction. Factors such as a pleasant environment, quality service, healthy food options, and overall food quality play a crucial role in influencing their choice of dining establishments.

Service quality has been widely recognised as a critical determinant of customer satisfaction in the hospitality industry. According to Jean Rubogora (2017), service quality can be understood as a customer attitude closely associated with, yet distinct from, satisfaction. It emerges from the comparison between customers' expectations and the service's actual performance. In the context of restaurants, customers evaluate service quality based on several key dimensions, including tangibility, reliability, responsiveness, assurance, empathy, food quality, and menu variety. These factors collectively influence customers' perceptions and their overall dining experience.

Despite the growing importance of the restaurant industry, limited research has examined the relationship between service quality and customer satisfaction in restaurants in Berhampur city. In particular, studies assessing how service quality, food quality, and menu offerings contribute to customer satisfaction remain scarce. Therefore, investigating these factors in the local restaurant sector can provide valuable insights to improve service performance and strengthen customer satisfaction in the region.

LITERATURE REVIEW

Table 1: Variables, Indicators, and Sources of Questionnaire Items

Variables	Indicators	Sources
Tangibles	• The physical facilities are visually appealing Employees are neat-appearing • Restaurant has clean restrooms • Restaurant has comfortable seats in the dining room	Parasuraman *et al.* (1988), Qin & Prybutok (2009)
Reliability	• The restaurant performs the service accurately the first time • Staff serve my food exactly as ordered • Staff serve my food in the time promised • Staff usually provide me with an accurate bill	Parasuraman *et al.* (1988), Qin & Prybutok (2009)
Responsiveness	• Employees give prompt service to customers Willingness to serve guests • Flexibility according to guests' demands • Maintaining speed and quality of service during busy times	Parasuraman *et al.* (1988), Qin & Prybutok (2009)
Assurance	• The behaviour of employees instils confidence in customers • Employees have the knowledge to answer customer's questions • Employees can answer questions completely • Staff provides information about menu items, their ingredients, and method of preparation	Parasuraman *et al.* (1988), Qin & Prybutok (2009)
Empathy	• Restaurant gives individual attention to the customer • Operating hours are convenient for all customers • Staff seem to have my best interest at heart • Staff are friendly and professional	Parasuraman *et al.* (1988), Qin & Prybutok (2009)
Food Quality	• The food is fresh • The food is delicious • A variety of menu items • The smell of the food is enticing	Ryu *et al.* (2012), Qin & Prybutok (2009)
Menu	• Variety of items • Knowledge of menu items • Truthfulness of menu • Visually attractive menu	Almohaimmeed, (2017)

Customer Satisfaction	• Food Quality • Menu • Price • Service • Restaurant layout and ambience • Returning to the restaurant • Recommending the restaurant to others • Overall satisfaction with the dining experience	Ryu *et al*. (2012), Qin & Prybutok (2009), Al-Tit (2015), Almohaimmeed (2017)

RESEARCH METHODOLOGY

This study employs a quantitative research design to examine the relationship between service quality and customer satisfaction in restaurants in Berhampur. Primary data were collected from restaurant customers and analysed using appropriate statistical techniques. To test the proposed hypotheses and examine the effect of service quality dimensions on customer satisfaction, multiple regression analysis was employed. All statistical analyses were conducted using IBM SPSS version 23, which facilitated the examination of relationships among the study variables and the validation of the research hypotheses.

Conceptual Framework and Hypothesis

Based on the literature review, the following conceptual framework with hypotheses was developed for the present study.

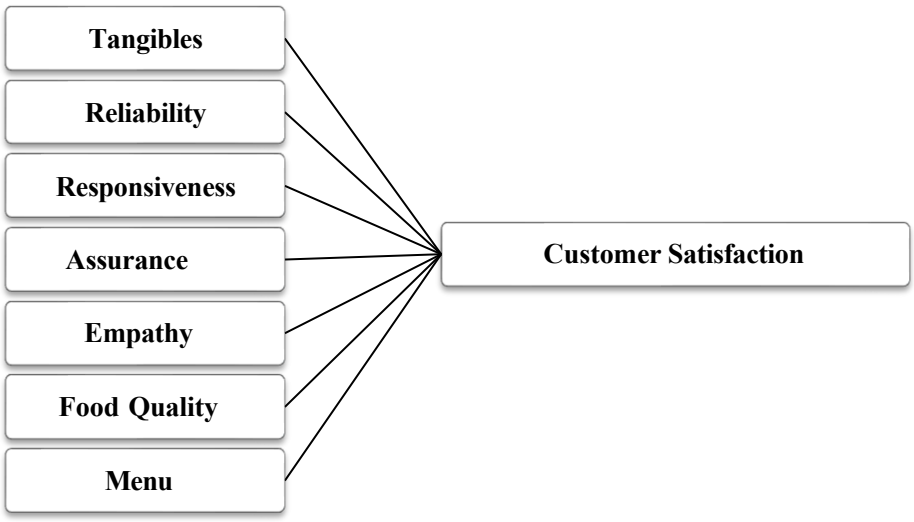

Figure 1: Conceptual Framework Source: Researcher, 2023

Hypotheses:

H_1: The tangible component of service quality has a significant positive effect on customer satisfaction in restaurants.

H_2: The reliability component of service quality has a significant positive effect on customer satisfaction in restaurants.

H_3: The responsiveness component of service quality has a significant positive effect on customer satisfaction in restaurants.

H_4: The assurance component of service quality has a significant positive effect on customer satisfaction in restaurants.

H_5: The empathy component of service quality has a significant positive effect on customer satisfaction in restaurants.

H_6: The food quality component of service quality has a significant positive effect on customer satisfaction in restaurants.

H_7: The menu component of service quality has a significant positive effect on customer satisfaction in restaurants.

Model Specification:

Multiple Linear Regression Analysis was employed in this study to examine the influence of the independent variables on the dependent variable. This statistical technique helps determine the extent to which each service quality dimension affects customer satisfaction in restaurants. Based on the proposed hypotheses, the regression model for the study is specified as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon$$

Where:

- Y = Customer Satisfaction (C_SAT), the dependent variable
- X_1 = Tangibles
- X_2 = Reliability
- X_3 = Responsiveness
- X_4 = Assurance
- X_5 = Empathy
- X_6 = Food Quality
- X_7 = Menu
- β_0 = Intercept (constant term)
- β_1–β_7 = Regression coefficients representing the effect of each independent variable on customer satisfaction
- ε = Error term representing unexplained variation in the model

Accordingly, the regression equation used in this study can be expressed as:

$$\boldsymbol{C\_SAT} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1}(\text{Tangibles}) + \boldsymbol{\beta_2}(\text{Reliability}) + \boldsymbol{\beta_3}(\text{Responsiveness}) + \boldsymbol{\beta_4}(\text{Assurance}) + \boldsymbol{\beta_5}(\text{Empathy}) + \boldsymbol{\beta_6}(\text{Food Quality}) + \boldsymbol{\beta_7}(\text{Menu}) + \boldsymbol{\varepsilon}$$

This model enables the analysis of the relative contribution of each service quality dimension in explaining variations in customer satisfaction in restaurants.

Data Collection and Questionnaire

Data Collection

Prior to data collection, permission was obtained from restaurant managers to conduct the survey among customers visiting their establishments. The questionnaires were administered only in restaurants that agreed to participate in the study and permitted the distribution of survey forms to their customers. In such cases, the restaurant staff assisted in distributing and collecting the completed questionnaires from customers who were willing to share their dining experiences and opinions.

The target population for this study consisted of customers dining at selected restaurants. Data were collected from 30 restaurants, and 300 questionnaires were distributed to restaurant customers. To ensure balanced representation, 10 questionnaires were distributed in each restaurant. Only customers who had completed their dining experience and voluntarily agreed to participate were requested to respond to the survey.

Questionnaire

The survey questionnaire used in this study was structured into three main sections. Section A included questions on respondents' demographic characteristics, such as age, gender, educational qualifications, and other relevant background information. Section B comprised items designed to measure customers' perceptions of service quality in restaurants, focusing on the dimensions of tangibles, reliability, responsiveness, assurance, empathy, food quality, and menu variety. Section C contained questions to assess overall customer satisfaction with the restaurant experience.

All measurement items were evaluated using a five-point Likert scale to capture respondents' perceptions and attitudes. The scale ranged from 1 = "strongly disagree" to 5 = "strongly agree." This scaling technique enabled respondents to indicate the degree of their agreement with each service quality and customer satisfaction statement.

The questionnaire was initially prepared in English and subsequently translated into Odia, the local language, to ensure better comprehension among respondents. The purpose of the study was clearly explained at the beginning of the questionnaire. Respondents were also informed that their participation was voluntary and that the information collected would be kept strictly confidential and used solely for academic research.

Questionnaire Response Rate

A total of 300 questionnaires were distributed to customers visiting selected restaurants in Berhampur, Odisha. Out of these, 280 questionnaires were returned by the respondents. After the screening process, 24 questionnaires were found to be incomplete or unusable and were therefore excluded from further analysis. Consequently, 256 questionnaires were considered valid and suitable for statistical analysis. The results indicate that 91.5% (256) of respondents completed the

questionnaire, while 8.5% (24) were unusable. The response rate in this study is relatively high, indicating strong participation from respondents.

In addition, methodological recommendations suggest that approximately 30 respondents per predictor variable should be included in regression analyses. Given that the present study includes seven predictor variables, the final sample size of 256 valid responses is considered adequate for the statistical analysis. Table 2 presents the number of questionnaires distributed, the number of responses received, and the corresponding response rate.

Table 2: Questionnaire Distribution and Response Rate

Total Questionnaire Administered	300		
Total Number of Questionnaires Returned	280		
Unusable Responses*	24	Percentage of Questionnaire Not Used	8.5%
Usable Responses	256	Percentage of Questionnaire Used	91.5%

*Unusable Responses were because of missing data and alterations

DATA PRESENTATION AND ANALYSIS

Reliability Analysis

The first step in the measurement process involved conducting a reliability analysis to assess the internal consistency of the measurement scales used in the study. Cronbach's alpha was used as the reliability coefficient to assess the consistency of items within each construct. In total, 28 items were used to measure the seven independent constructs, namely Tangible, Reliability, Responsiveness, Assurance, Empathy, Food Quality, and Menu, while 8 items were used to measure the dependent construct, Customer Satisfaction. Cronbach's alpha values greater than 0.70 are generally considered acceptable indicators of reliability and internal consistency of a scale. The reliability test results show that all constructs in this study exceed the recommended threshold. The Cronbach's alpha values obtained for the independent constructs are as follows: Tangible (0.890), Reliability (0.874), Responsiveness (0.790), Assurance (0.846), Empathy (0.860), Food Quality (0.858), and Menu (0.887). The dependent construct, Customer Satisfaction, recorded a Cronbach's alpha value of 0.896. These results indicate that all constructs demonstrate strong internal consistency and reliability, suggesting that the questionnaire's measurement items are appropriate and reliable for further statistical analysis. The detailed reliability scores for each construct are presented in Table 3.

Table 3: Reliability Analysis of the Research Variables

Constructs	Number of Items	Cronbach's Alpha	Reliability
Tangible	4	0.890	Supported
Reliability	4	0.874	Supported
Responsiveness	4	0.790	Supported
Assurance	4	0.846	Supported
Empathy	4	0.860	Supported
Food Quality	4	0.858	Supported
Menu	4	0.887	Supported
Customer Satisfaction	8	0.896	Supported

Demographic Analysis

Information regarding the respondents' gender, age, and frequency of previous visits to the restaurant was collected and analysed using descriptive statistics. The results of this analysis are presented in Table 4.

Regarding gender distribution, the findings indicate that the majority of respondents were female (58%), while 42% were male. This suggests a slightly higher participation of female customers in the survey. In terms of age distribution, the largest group of respondents belonged to the 21–30 years age category (45.3%), followed by those in the 31–40 years age group (35.2%). A smaller proportion of respondents were in the 41–50 years age group (14.8%), while the smallest number of respondents were above 50 years (4.7%). Regarding the frequency of restaurant visits, the analysis shows that 55% of the respondents had visited the restaurant two or more times previously, indicating repeat customers.

Additionally, 35% of respondents had visited the restaurant once before, while 10% were first-time visitors with no previous dining experience at the restaurant.

Table 4: Demographic Characteristics of Respondents

Variables		**Frequency**	**Percentage**
Gender of Customer	Male	108	42%
	Female	148	58%
	TOTAL	**256**	**100%**
Ages of Customer (years)	21 – 30 years	116	45%
	31 – 40 years	90	35%
	41 – 50 years	38	15%
	Above 50 years	12	5%
	TOTAL	**256**	**100%**
Number of Previous Visits to Restaurant	Never	26	10%
	Once	90	35%
	Twice or more	140	55%
	TOTAL	**256**	**100%**

Source: Primary Data, 2025

Descriptive Statistical Analysis

Descriptive statistics were used to summarise and interpret the dataset's basic characteristics. This technique helps in presenting the central tendency and variability of the variables included in the study. The primary purpose of descriptive statistics is to provide a clear understanding of the distribution of selected variables within the dataset. Table 5 presents the descriptive statistics of the computed variables used in this research.

The mean value represents the central tendency of the data and indicates the average response of respondents for each variable. The standard deviation, on the other hand, measures the dispersion, or spread, of the data around the mean, indicating how widely the responses vary from the average. The results indicate that the mean and standard deviation values for the variables are as follows: Tangible (M = 2.7041; SD = 0.60803), Reliability (M = 2.8496; SD = 0.67978), Responsiveness (M = 2.8018; SD = 0.56923), Assurance (M = 2.6836; SD = 0.51638), Empathy (M = 2.7705; SD = 0.53120), Food Quality (M = 2.7354; SD = 0.56968), Menu (M = 2.5957; SD = 0.42023), and Customer Satisfaction (M = 2.9912; SD = 0.47245).

As shown in Table 5, all standard deviation values are below 1, indicating that the responses are relatively close to the mean. This suggests low variability among respondents' opinions and reflects a relatively consistent perception among customers regarding the service quality dimensions and customer satisfaction in the restaurants surveyed.

Table 5: Mean (*X*) and Standard Deviation (SD)

Variable	**Mean**	**Std. deviation**	**Interpretation***
Tangible	2.7041	0.60803	High Level
Reliability	2.8496	0.67978	High Level
Responsiveness	2.8018	0.56923	High Level
Assurance	2.6836	0.51638	High Level
Empathy	2.7705	0.53120	High Level
Food Quality	2.7354	0.56968	High Level
Menu	2.5957	0.42023	High Level
Customer Satisfaction	2.9912	0.47245	High Level

*Mean Range Interpretation on the Level of Service Quality and Customer Satisfaction

3.26 - 4.00 Very high level 2.51 - 3.25 High level 1.76 - 2.50 Low level 1.00 – 1.75 Very low level

Variance Inflation Factor (VIF)

The collected data were subjected to diagnostic tests to examine the assumptions of homoscedasticity and multicollinearity. Multicollinearity among the variables was assessed using the Variance Inflation Factor (VIF) for 28 measurement items representing seven independent constructs: Tangible, Reliability, Responsiveness, Assurance, Empathy, Food Quality, and Menu. In general, VIF values below 5 are considered acceptable and indicate that multicollinearity is not a concern among the variables. The VIF results in the present study were within acceptable thresholds, confirming the absence of multicollinearity. Specifically, the VIF values were 2.572 for Tangible, 2.515 for Reliability, 2.830 for Responsiveness, 3.391 for Assurance, 3.048 for Empathy, 3.016 for Food Quality, and 4.001 for Menu, all of which are below the critical value of 5. In addition, the tolerance values for all seven constructs were above 0.250, satisfying the recommended criteria (see Table 6).

Table 6: Variance Inflation Factor (VIF)

Variable	Tolerance	VIF
Tangible	0.389	2.572
Reliability	0.398	2.515
Responsiveness	0.353	2.830
Assurance	0.295	3.391
Empathy	0.328	3.048
Food Quality	0.332	3.016
Menu	0.250	4.001

Correlation between Variables

Correlation analysis is employed to examine the degree and direction of association between variables. The strength of this relationship is expressed through the correlation coefficient (r), which ranges from −1 to +1. The present study uses correlation analysis to investigate the relationship between service quality dimensions and customer satisfaction and to determine whether these relationships are statistically significant. According to the Karl Pearson correlation coefficient, values greater than 0.60 indicate a strong positive association between variables. The analysis reveals a strong positive relationship between customer satisfaction and all service quality dimensions considered in the study. Specifically, customer satisfaction shows significant correlations with Tangible (r = 0.808), Reliability (r = 0.792), Responsiveness (r = 0.792), Assurance (r = 0.811), Empathy (r = 0.835), Food Quality (r = 0.813), and Menu (r = 0.854). Moreover, the significance values ($p < 0.05$) confirm that the relationships between the variables are statistically significant. All correlations are significant at the 0.01 level (two-tailed), as presented in Table 7.

Table 7: Correlation Matrix

Construct	Customer Satisfaction	Tangible	Reliability	Responsiveness	Assurance	Empathy	Food Quality	Menu
Customer Satisfaction Sig.(2-tailed)	1 0.000**							
Tangible Sig.(2-tailed)	0.808 0.000**	1 0.000**						
Reliability Sig.(2-tailed)	0.792 0.000**	0.610 0.000**	1 0.000**					

Responsiveness Sig.(2-tailed)	0.807 0.000**	0.653 0.000**	0.636 0.000**	1 0.000**				
Assurance Sig.(2-tailed)	0.811 0.000**	0.732 0.000**	0.544 0.000**	0.723 0.000**	1 0.000**			
Empathy Sig.(2-tailed)	0.835 0.000**	0.628 0.000**	0.648 0.000**	0.688 0.000**	0.698 0.000**	1 0.000**		
Food Quality Sig.(2-tailed)	0.813 0.000**	0.570 0.000**	0.671 0.000**	0.679 0.000**	0.624 0.000**	0.736 0.000**	1 0.000**	
Menu Sig.(2-tailed)	0.854 0.000**	0.678 0.000**	0.719 0.000**	0.707 0.000**	0.742 0.000**	0.744 0.000**	0.759 0.000**	1 0.000**

** Correlations are significant at the 0.01 level (2-tailed)

Regression Analysis

Model Summary

The model summary for the multiple regression analysis presented in Table 8 shows that the independent variables explain a substantial proportion of the variation in customer satisfaction. The correlation coefficient (R) is 0.963, indicating a very strong relationship between the independent and dependent variables. The coefficient of determination (R^2) is 0.928, which suggests that approximately 92.8% of the variation in restaurant customer satisfaction can be explained by the seven service quality dimensions examined in the study. The remaining proportion of variance may be attributed to other factors not included in the model. Furthermore, the adjusted R^2 value provides an estimate of the regression model's goodness-of-fit, accounting for the number of predictors. Since the adjusted R^2 value exceeds the commonly accepted threshold of 0.50, the model demonstrates a strong explanatory power. These findings indicate that the selected service quality dimensions significantly contribute to explaining variations in customer satisfaction in restaurants.

Table 8: Model Summary [b]

Model	R	R^2	Adjusted R^2	Standard Error Estimate
1	0.963	0.928	0.926	0.12881

a.Predictors (Constant): Tangible, Reliability, Responsiveness, Assurance, Empathy, Food Quality and Menu

b. Dependent Variable: Customer Satisfaction

Analysis of Variance (ANOVA)

Analysis of Variance (ANOVA) is used to examine whether there are statistically significant differences among variables included in the regression model. The significance value (p-value) is associated with the testing of the null hypothesis. In this study, the significance values for all independent variables are reported as 0.000, which is below the acceptable threshold of 0.05. This indicates that the results are statistically significant. As shown in Table 9, the low p-value indicates a significant relationship between the dependent variable and the independent variables in the model. Therefore, the findings suggest that the selected service quality dimensions significantly contribute to explaining variations in customer satisfaction in restaurants.

Table 9: Analysis of Variance (ANOVA)[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	52.803	7	7.543	454.630	0.000 [b]
Residual	4.115	248	0.017		
Total	56.918	255			

b. Dependent Variable: Customer Satisfaction

a. Predictors (Constant): Tangible, Reliability, Responsiveness, Assurance, Empathy, Food Quality and Menu

Hypotheses Test Results

Multiple regression analysis was employed to examine the impact of various service quality dimensions—Tangible, Reliability, Responsiveness, Assurance, Empathy, Food Quality, and Menu—on customer satisfaction in restaurants. Accordingly, the regression model formulated for the study is expressed as:

$$\mathbf{C\_SAT = \beta_0 + \beta_1(Tangible) + \beta_2(Reliability) + \beta_3(Responsiveness) + \beta_4(Assurance) + \beta_5(Empathy) + \beta_6(Food\ Quality) + \beta_7(Menu) + \varepsilon}$$

The regression results provide the estimated β coefficients for each independent variable included in the model. These coefficients represent the magnitude and direction of the relationship between each service quality dimension and customer satisfaction. The estimated coefficients are interpreted in light of the a priori expectation that all β coefficients are positive ($\beta > 0$), indicating that improvements in each service quality dimension are expected to contribute to customer satisfaction.

Hypothesis 1: Tangible component of service quality has a positive effect on customer satisfaction in restaurants.

As presented in Table 10, the regression results reveal a positive association between the tangible dimension of service quality and customer satisfaction. This finding is consistent with the a priori expectation that $\beta_1 > 0$. The estimated coefficient suggests that a one-unit increase in the tangible component leads to a 0.224-unit increase in customer satisfaction. The calculated t-value of 8.166 exceeds the critical value of 1.96, indicating statistical significance. Furthermore, the p-value (0.000) is lower than the significance level of $\alpha = 0.05$, confirming that the relationship is statistically significant. These results provide empirical support for Hypothesis H1, indicating that the tangible aspect of service quality significantly influences customer satisfaction in restaurants.

Hypothesis 2: The reliability component of service quality has a positive effect on customer satisfaction in restaurants.

As presented in Table 10, the regression results demonstrate a positive relationship between the reliability dimension of service quality and customer satisfaction. This finding is consistent with the a priori expectation that $\beta_2 > 0$. The estimated coefficient indicates that a one-unit increase in the reliability component leads to a 0.169-unit increase in customer satisfaction. The calculated t-value of 5.697 exceeds the critical value of 1.96, indicating that the coefficient is statistically significant. In addition, the p-value (0.000) is lower than the $\alpha = 0.05$ significance level, confirming the relationship's significance. These statistical results provide empirical support for Hypothesis H2, suggesting that the reliability aspect of service quality significantly enhances customer satisfaction in restaurants.

Hypothesis 3: Responsiveness component of service quality has positive effect on customer satisfaction in restaurants.

As shown in Table 10, the regression analysis reveals a positive relationship between the service quality responsiveness dimension and customer satisfaction. This finding is consistent with the a priori expectation that $\beta_3 > 0$. The estimated coefficient indicates that a one-unit increase in responsiveness is associated with a 0.117-unit increase in customer satisfaction. The calculated t-value of 4.074 exceeds the critical value of 1.96, demonstrating statistical significance. In addition, the p-value (0.000) is lower than the $\alpha = 0.05$ significance level, confirming that the relationship is statistically significant. These results provide empirical support for Hypothesis H3, indicating that responsiveness plays a significant role in influencing customer satisfaction in restaurants.

Hypothesis 4: Assurance component of service quality has a positive effect on customer satisfaction in restaurants.

As shown in Table 10, the regression results indicate a positive relationship between the assurance dimension of service quality and customer satisfaction. This finding is consistent with the a priori expectation that $\beta_4 > 0$. The estimated coefficient indicates that a one-unit increase in the assurance component leads to a corresponding increase of 0.144 units in customer satisfaction. The calculated t-value of 4.582 exceeds the critical value of 1.96, demonstrating that the coefficient is statistically significant. Furthermore, the p-value (0.000) is lower than the $\alpha = 0.05$ significance level, confirming the relationship is significant. These statistical results provide empirical support for Hypothesis H4, suggesting that the assurance aspect of service quality significantly enhances customer satisfaction in restaurants.

Hypothesis 5: Empathy component of service quality has positive effect on customer satisfaction in restaurants.

As shown in Table 10, the regression analysis indicates a positive relationship between the service quality empathy dimension and customer satisfaction. This result is consistent with the a priori expectation that $\beta_5 > 0$. The estimated coefficient suggests that a one-unit increase in the empathy component results in a 0.111-unit increase in customer satisfaction. The calculated t-value of 3.240 exceeds the critical value of 1.96, indicating statistical significance. Furthermore, the p-value (0.001) is lower than the $\alpha = 0.05$ significance level, confirming that the relationship is statistically significant. These findings provide empirical support for Hypothesis H5, suggesting that the empathy aspect of service quality plays a significant role in influencing customer satisfaction in restaurants.

Hypothesis 6: The food quality component of service quality has a positive effect on customer satisfaction in restaurants.

As presented in Table 10, the regression analysis reveals a positive relationship between the food quality dimension of service quality and customer satisfaction. This finding is consistent with the a priori expectation that $\beta_6 > 0$. The estimated coefficient indicates that a one-unit increase in the food quality component is associated with a 0.192-unit increase in customer satisfaction. The calculated t-value of 7.074 exceeds the critical value of 1.96, indicating that the coefficient is statistically significant. Moreover, the p-value (0.000) is lower than the $\alpha = 0.05$ significance level, confirming the relationship's statistical significance. These results provide empirical support for Hypothesis H6, suggesting that the food quality dimension of service quality significantly influences customer satisfaction in restaurants.

Hypothesis 7: The menu component of service quality has a positive effect on customer satisfaction in restaurants.

As shown in Table 10, the regression analysis indicates a positive relationship between the menu service quality dimension and customer satisfaction. This finding is consistent with the a priori expectation that $\beta_7 > 0$. The estimated coefficient suggests that a one-unit increase in the menu component results in a corresponding increase of 0.182 units in customer satisfaction. The calculated t-value of 6.115 exceeds the critical value of 1.96, indicating that the coefficient is statistically significant. Furthermore, the p-value (0.000) is lower than the $\alpha = 0.05$ significance level, confirming the relationship's statistical significance. These results provide empirical support for Hypothesis H7, indicating that the menu component of service quality significantly influences customer satisfaction in restaurants.

The results of the multiple regression analysis presented in Table 10 indicate that all seven dimensions of service quality—Tangible, Reliability, Responsiveness, Assurance, Empathy, Food Quality, and Menu—have a positive and statistically significant effect on customer satisfaction in restaurants. The estimated regression coefficients for these variables are positive and consistent with the a priori expectations (β_1–$\beta_7 > 0$). Specifically, the coefficients for Tangible ($\beta = 0.224$), Reliability ($\beta = 0.169$), Responsiveness ($\beta = 0.117$), Assurance ($\beta = 0.144$), Empathy ($\beta = 0.111$), Food Quality ($\beta = 0.192$), and Menu ($\beta = 0.182$) indicate that improvements in these service quality dimensions lead to corresponding increases in customer satisfaction. Furthermore, the calculated t-values for all variables exceed the critical value of 1.96, and the p-values are below the 0.05 significance level, confirming the relationships' statistical significance. These findings provide empirical support for hypotheses H1–H7 and suggest that service quality dimensions play a crucial role in enhancing customer satisfaction in restaurants.

Table 10: Multiple Regression Analysis (MRA)

Hypothesizes Statement	**β**	**t-value**	***p*-value**	**Test Result**
H1: Tangible Component of Service Quality on Customer Satisfaction	0.224	8.166	0.000	Null Hypothesis Rejected
H2: Reliability Component of Service Quality on Customer Satisfaction	0.169	5.697	0.000	Null Hypothesis Rejected
H3: Responsiveness Component of Service Quality on Customer Satisfaction	0.117	4.074	0.000	Null Hypothesis Rejected
H4: Assurance Component of Service Quality on Customer Satisfaction	0.144	4.582	0.000	Null Hypothesis Rejected

H5: Empathy Component of Service Quality on Customer Satisfaction	0.111	3.240	0.001	Null Hypothesis Rejected
H6: Food Quality Component of Service Quality on Customer Satisfaction	0.192	7.074	0.000	Null Hypothesis Rejected
H7: Menu Component of Service Quality on Customer Satisfaction	0.182	6.115	0.000	Null Hypothesis Rejected

β = Standardised Coefficients Beta Value

CONCLUSIONS

The study's overall findings indicate that the dataset comprises 7 independent variables, each measured by 28 items, all of which were successfully validated. The reliability analysis showed that Cronbach's alphas for all constructs exceeded the recommended threshold of 0.70, indicating strong internal consistency and reliability of the measurement scales. In addition, the tolerance values for all constructs were above 0.250, and the Variance Inflation Factor (VIF) values were below the acceptable limit of 5.0, confirming the absence of multicollinearity among the variables. The regression model also demonstrated a good fit with the dataset, indicating that the independent variables effectively explain variations in customer satisfaction. The beta coefficients from the regression analysis indicate that service quality dimensions have a significant, positive influence on customer satisfaction in restaurants.

The results further show that approximately 60% of customer satisfaction is influenced by three key service quality dimensions: Tangible (22.4%), Food Quality (19.2%), and Menu (18.2%). The tangible dimension encompasses visually appealing physical facilities, comfortable seating, well-groomed employees, and clean restrooms. The food quality dimension includes factors such as food freshness, appealing aroma, and taste. Similarly, the menu dimension encompasses visually appealing menus, informative descriptions, a variety of items, and accurate menu information. The statistical results confirm the significance of these dimensions, leading to the rejection of the null hypotheses for H1, H6, and H7.

The remaining 40% of customer satisfaction is influenced by the other four service quality dimensions: Reliability (16.9%), Assurance (14.4%), Responsiveness (11.7%), and Empathy (11.1%). The reliability dimension relates to providing services accurately the first time, delivering exactly ordered food, timely service, and accurate billing. Responsiveness refers to prompt service, willingness to assist customers, and the ability to provide quality service even during busy hours. Assurance reflects employees' knowledge and their ability to instil confidence in customers regarding food preparation and service processes. Empathy represents personalised attention, friendly and professional staff behaviour, concern for customer needs, and convenient operating hours. The statistical analysis confirms that these dimensions also significantly influence customer satisfaction, resulting in the rejection of the null hypotheses for H2, H3, H4, and H5.

Although all seven service quality dimensions positively affect customer satisfaction, the influence of Reliability, Responsiveness, Assurance, and Empathy is relatively weaker than that of Tangible, Food Quality, and Menu. Therefore, restaurant managers should focus on strengthening these comparatively weaker dimensions to further enhance overall customer satisfaction.

One of the major limitations of this study is the data collection method, which involved distributing questionnaires to customers during their dining experience. Some respondents declined to participate or did not complete the questionnaire fully. In addition, the study focused exclusively on full-service restaurants located in Pune, India; therefore, the findings may not be directly generalizable to other types of restaurants or geographical regions. Future research may extend the study's scope to a broader geographical area, such as the state or national level, to enhance the generalizability of the results. Nevertheless, the findings of this study provide valuable insights for both new and existing restaurant operators in understanding the role of service quality dimensions in influencing customer satisfaction.

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