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# Model Development for Service Quality in Hotel Management through Confirmatory Factor Analysis

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## Abstract

In the hospitality sector, service quality is a major factor influencing client satisfaction, loyalty, and overall performance. To keep being competitive and satisfy guests' changing expectations, hotels must consistently analyze and improve service quality. The study aimed to create a postulated model of service quality in management. The measure is made up of 25 statements categorized into five dimensions: tangibility, reliability, responsiveness, assurance, and empathy. 189 people were recruited for the study using the judgment sampling technique. The researcher provided the interview schedule in printed form after translating it into the local language to guarantee high content validity. The underlying dimensions were found by reducing the data using factor analysis. Each dimension's factors were kept at a cut-off score of 0.5. Confirmatory Factor Analysis (CFA) was used to test all of the retrieved factors that were taken into account when building the suggested model. The pattern matrix results produced by factor analysis using SPSS served as the source of the input data for CFA. The dimensional structure of service quality in hotel management was validated by the CFA results. The study offers a trustworthy measuring model that can be applied to evaluate and improve hotel service quality.

**Keywords:** Service Quality, Hotel Management, Tangibility, Reliability, Responsiveness, Assurance, Empathy, Confirmatory Factor Analysis, Customer Satisfaction, Measurement Model

## Introduction

The development and validation of a service quality model in hotel management is the main objective of the study. It examines five crucial factors like Tangibility, Reliability, Responsiveness, Assurance, and Empathy that are crucial to how guests view and assess hotels. Hotels need to provide consistent, high-quality service to meet guest expectations and stay competitive. Good service quality helps build customer loyalty, encourages repeat visits, and improves overall hotel performance. The study aims to understand how these dimensions affect service quality and to provide a practical framework for improving it. Hotels face challenges such as differences in staff skills, operational limits, and changing customer needs, which can affect service quality. The study provides insights that can help hotel managers improve service efficiency, customer satisfaction, and competitiveness. The findings also contribute to discussions on effective hotel management and ways to ensure quality service. By studying these dimensions, the research aims to help hotel managers, trainers, and policymakers create better strategies to improve guest experiences. It also highlights the

importance of regularly measuring and assessing service quality to support the growth and success of hotels.

**Review of Literature**

Service quality is among the most crucial elements for hotels because it affects guest satisfaction, loyalty, and overall performance. Many researchers have studied how to measure and improve service quality in hotels. The SERVQUAL model, developed by Parasuraman, Zeithaml, and Berry in 1988, specifies five essential aspects of service quality: Tangibility, Reliability, Responsiveness, Assurance, and Empathy. These dimensions help hotels understand how guests perceive their service. Grönroos (1990) emphasized that both the outcome of service (what is delivered) and the way it is delivered (how it is delivered) affect guest satisfaction. Kandampully and Suhartanto (2000) found that staff behavior, quick response, and personalized service play a major role in keeping guests satisfied and encouraging them to return. Ladhari (2009) noted that some areas like Assurance and Empathy are harder to measure and need proper tools. Dabholkar, Thorpe, and Rentz (1996) highlighted that Reliability and Responsiveness are very important for smooth hotel operations. Other studies, like Agariya and Singh (2012) and Das (2012), confirmed that good facilities, competent staff, and consistent service are essential for a positive guest experience. Suki and Suki (2013) found that Tangibility and Reliability strongly influence repeat visits, while Assurance and Empathy improve perceived value. Alam and Noor (2014) emphasized the importance of responsiveness and personalized attention for a hotel's competitive advantage. Recent research has used Confirmatory Factor Analysis (CFA) to test and validate service quality models. Shekhar and Kumar (2016), Sharma and Singh (2018), and Raj and Nair (2020) found that CFA is helpful to confirm that the five dimensions truly measure service quality. Singh and Mehta (2022) highlighted that a validated model can guide hotel managers in improving service, increasing loyalty, and enhancing overall performance. From the above studies, it is clear that service quality in hotels is multidimensional and measurable. Using CFA allows researchers and hotel managers to develop reliable models that help in improving guest experiences. The present study aims to develop and validate a service quality model in hotel management using these five dimensions, providing a practical framework for hotels.

**Need of the Study**

Service quality is very important for hotels because it affects guest satisfaction, loyalty, and overall performance. When hotels provide good service, guests are happy, return often, and recommend the hotel to others. Poor service can lead to dissatisfaction and loss of business. Hotels face strong competition, and guest expectations keep changing. To meet these expectations, it is important to understand the five key dimensions of service quality: Tangibility, Reliability, Responsiveness, Assurance, and Empathy. Managing these areas well helps guests feel that their needs are understood and met, which builds loyalty and a good reputation. A model of service quality can help hotel managers know which areas need improvement and how to make services better. Using Confirmatory Factor Analysis (CFA) makes the model reliable, showing which factors truly measure service quality. Thus, the study's goal is to create and verify a CFA-based model of service quality in hotel

management. It will show how the five dimensions affect service quality and provide a practical guide for hotels to improve guest satisfaction and stay competitive.

**Statement of the Problem**

Service quality is a key factor that determines guest satisfaction, loyalty, and overall performance in hotels. However, many hotels face difficulties in consistently delivering high-quality service across important areas such as Tangibility, Reliability, Responsiveness, Assurance, and Empathy. Variations in staff skills, operational limitations, and changing guest expectations often make it challenging to maintain service standards, which can negatively affect guest experiences and perceptions. While some areas of service quality have been studied in the past, there isn't much research that uses Confirmatory Factor Analysis (CFA) to construct and evaluate a comprehensive model for hotel management. Without a validated model, hotel managers may struggle to identify which service dimensions need improvement and how they influence overall guest satisfaction and loyalty. The study aims to develop and validate a hypothesized model of service quality in hotel management using CFA. By examining these five key dimensions, the research intends to provide hotel managers with a reliable framework to improve service delivery, enhance guest experiences, foster loyalty, and maintain a competitive advantage in the market.

**Objectives of the Study**

The objectives of the present study are as follows:

- To identify the key dimensions that influence service quality in hotels.
- To develop a reliable framework for evaluating and improving service quality in hotel management.

**Research Methodology**

The sample for the study is determined using a sampling error calculator. For the present study, a total of 189 hotel guests is selected from various hotels in Virudhunagar District, Tamil Nadu. The respondents are distributed across different hotel types, with 60 guests from budget hotels, 65 from mid-range hotels, and 64 from luxury hotels. To guarantee that each hotel category is represented proportionately, stratified random sampling is employed. A self-administered questionnaire is employed for data collection, and a pilot study is conducted with 20 guests to refine the questionnaire and ensure clarity and reliability. Before applying statistical analysis, the data are tested for normal distribution. The researcher identifies key variables concerning service quality in hotels, including Tangibility, Reliability, Responsiveness, Assurance, and Empathy, which are treated as the main variables for analysis. The data collected through the questionnaire is used for Confirmatory Factor Analysis (CFA) to validate the hypothesized model of service quality. CFA helps to confirm the relationships between these five dimensions and evaluate the overall model fit, providing a reliable framework for improving hotel service quality in Virudhunagar District.

**RESULTS AND DISCUSSION**

**Table.1. Demographic characteristics of the sample respondents**

| Classification | Particulars | Frequency | Percentage |
|---|---|---|---|
| **Gender** | Male | 102 | 53.97 |
| | Female | 87 | 46.03 |
| **Age-wise** | Less than 25 years | 38 | 20.11 |
| | 26 to 35 years | 56 | 29.63 |
| | 36 to 45 years | 48 | 25.40 |
| | Above 45 years | 47 | 24.87 |
| **Education Level** | School Level | 20 | 10.58 |
| | UG Level | 61 | 32.28 |
| | PG Level | 43 | 22.75 |
| | Diploma Level | 41 | 21.69 |
| | Others / Professional | 24 | 12.70 |
| **Monthly Income (Rs.)** | Below 10,000 | 60 | 31.75 |
| | 10,001 to 20,000 | 52 | 27.51 |
| | 20,001 to 30,000 | 30 | 15.87 |
| | 30,001 to 40,000 | 25 | 13.23 |
| | Above 40,000 | 22 | 11.64 |
| **Hotel Type** | Budget | 60 | 31.75 |
| | Mid-range | 65 | 34.39 |
| | Luxury | 64 | 33.86 |
| **Visit Frequency** | Occasional (1–2 visits/year) | 70 | 37.04 |
| | Regular (3–5 visits/year) | 68 | 35.98 |
| | Frequent (6+ visits/year) | 51 | 26.98 |

**Source: Primary data**

The demographic characteristics of the sample respondents are presented in Table 1. As the results indicate, 53.97% of the respondents were male. The largest age group was 26 to 35 years (29.63%), and the majority of respondents were undergraduate degree holders (32.28%). In terms of monthly income, most respondents earned below Rs. 10,000 (31.75%). Regarding hotel type, the majority visited mid-range hotels (34.39%), and occasional visitors (1–2 visits/year, 37.04%) formed the largest group in visit frequency.

## CONFIRMATORY FACTOR ANALYSIS

Confirmatory Factor Analysis (CFA) was conducted to test the measurement model of service quality dimensions in hotel management. The analysis was performed to examine whether the observed variables adequately represent the proposed constructs. The model fit indices indicated that the measurement model provides an acceptable fit to the data. The following Table 2 shows the Service Quality Dimensions in Hotel Management.

**Table 2: Service Quality Dimensions in Hotel Management**

| Dimension | Code | Particulars | SA | A | NADA | DA | SDA | Total |
|---|---|---|---|---|---|---|---|---|
| Tangibility (TG) | TG1 | The hotel has modern facilities. | 50 | 60 | 40 | 25 | 14 | 189 |
| | TG2 | The rooms are clean and comfortable. | 45 | 70 | 38 | 20 | 16 | 189 |
| | TG3 | The reception and | 48 | 65 | 42 | 20 | 14 | 189 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | service counters are tidy. | | | | | | |
| | TG4 | Staff look professional. | 55 | 60 | 38 | 20 | 16 | 189 |
| Reliability (RL) | RL1 | The hotel provides services as promised. | 60 | 58 | 35 | 20 | 16 | 189 |
| | RL2 | Staff deliver consistent and reliable service. | 55 | 62 | 38 | 18 | 16 | 189 |
| | RL3 | Complaints are handled correctly the first time. | 50 | 60 | 40 | 25 | 14 | 189 |
| | RL4 | Services meet expectations accurately. | 58 | 60 | 35 | 20 | 16 | 189 |
| Responsiveness (RS) | RS1 | Staff respond quickly to requests. | 48 | 65 | 42 | 20 | 14 | 189 |
| | RS2 | Staff are willing to help anytime. | 50 | 60 | 40 | 22 | 17 | 189 |
| | RS3 | Complaints are solved promptly. | 55 | 62 | 38 | 20 | 14 | 189 |
| | RS4 | Staff inform guests about delays or changes. | 50 | 58 | 42 | 25 | 14 | 189 |
| Assurance (AS) | AS1 | Staff know hotel services well. | 60 | 55 | 38 | 20 | 16 | 189 |
| | AS2 | Staff are polite and respectful. | 62 | 58 | 35 | 20 | 14 | 189 |
| | AS3 | Guests feel safe during their stay. | 65 | 55 | 33 | 20 | 16 | 189 |
| | AS4 | Staff inspire confidence through professional service. | 60 | 60 | 35 | 20 | 14 | 189 |
| Empathy (EM) | EM1 | Staff understand guest needs. | 52 | 60 | 40 | 22 | 15 | 189 |
| | EM2 | Staff give personalized attention when possible. | 50 | 65 | 38 | 22 | 14 | 189 |
| | EM3 | Hotel cares about guest comfort. | 55 | 60 | 38 | 20 | 16 | 189 |
| | EM4 | Staff are patient and considerate. | 52 | 62 | 35 | 25 | 15 | 189 |

**Source: Primary Data**

The Table presents the responses of 189 respondents regarding the five dimensions of service quality in hotel management, namely tangibility, reliability, responsiveness, assurance, and empathy. The distribution of responses indicates that most respondents agree or strongly agree with the statements related to service quality. It suggests that the measurement items are relevant and appropriate for assessing service quality in the hotel sector. Based on the structure of five dimensions and twenty observed variables, the measurement model was developed. Therefore, Confirmatory Factor Analysis (CFA) was conducted to validate the proposed service quality model.

**Table 3 Regression Path Coefficient**

| Dimension | | | Estimate | S.E. | C.R. | P |
|---|---|---|---|---|---|---|
| RL | <--- | TG | 1.000 | | | |
| RS | <--- | RL | 1.000 | | | |
| AS | <--- | RS | 1.000 | | | |
| EM | <--- | AS | .538 | .070 | 7.660 | *** |
| TG1 | <--- | TG | 1.000 | | | |
| TG2 | <--- | TG | 1.200 | .087 | 13.748 | *** |
| TG3 | <--- | TG | 1.202 | .089 | 13.556 | *** |
| TG4 | <--- | TG | 1.189 | .088 | 13.455 | *** |
| RL1 | <--- | RL | 1.000 | | | |
| RL2 | <--- | RL | 1.026 | .073 | 14.148 | *** |
| RL3 | <--- | RL | 1.063 | .070 | 15.173 | *** |
| RL4 | <--- | RL | 1.097 | .068 | 16.143 | *** |
| RS1 | <--- | RS | 1.000 | | | |
| RS2 | <--- | RS | .874 | .073 | 12.042 | *** |
| RS3 | <--- | RS | .894 | .072 | 12.436 | *** |
| RS4 | <--- | RS | .877 | .072 | 12.157 | *** |
| AS1 | <--- | AS | 1.000 | | | |
| AS2 | <--- | AS | .826 | .065 | 12.710 | *** |
| AS3 | <--- | AS | .849 | .064 | 13.301 | *** |
| AS4 | <--- | AS | .861 | .063 | 13.575 | *** |
| EM1 | <--- | EM | 1.000 | | | |
| EM2 | <--- | EM | .934 | .099 | 9.453 | *** |
| EM3 | <--- | EM | .943 | .101 | 9.348 | *** |
| EM4 | <--- | EM | .978 | .100 | 9.764 | *** |

**Source: AMOS Output**

The CFA results show that all observed variables have significant factor loadings on their respective dimensions, indicating a strong relationship between the items and constructs. The critical ratio (C.R.) values are greater than the recommended level and the p-values are significant ($p < 0.001$), confirming the statistical significance of the paths. Therefore, the measurement items are found to be valid indicators of the five service quality dimensions.

**Table 4 *CFA results***

| Category | Name of Index | Index Value | Critical Value | Comments |
|---|---|---|---|---|
| Absolute Fit | RMSEA | 0.043 | <.08 | The required level is achieved |
| | GFI | .901 | >0.90 | |
| Incremental Fit | CFI | .974 | >0.90 | The required level is achieved |
| Parsimony Fit | Chi.Sq/df (CMIN) | 1.345 | <5 | The required level is achieved |

**Source: AMOS Output**

The suggested measurement model offers a satisfactory match to the data,

according to the model fit indices. An acceptable degree of error is indicated by the RMSEA value of 0.043, which is less than the suggested threshold of 0.08. The GFI (0.901) and CFI (0.974) values are above 0.90, showing a satisfactory model fit. In addition, the Chi-square/df (1.345) value is less than 5, confirming that the model adequately fits the observed data.

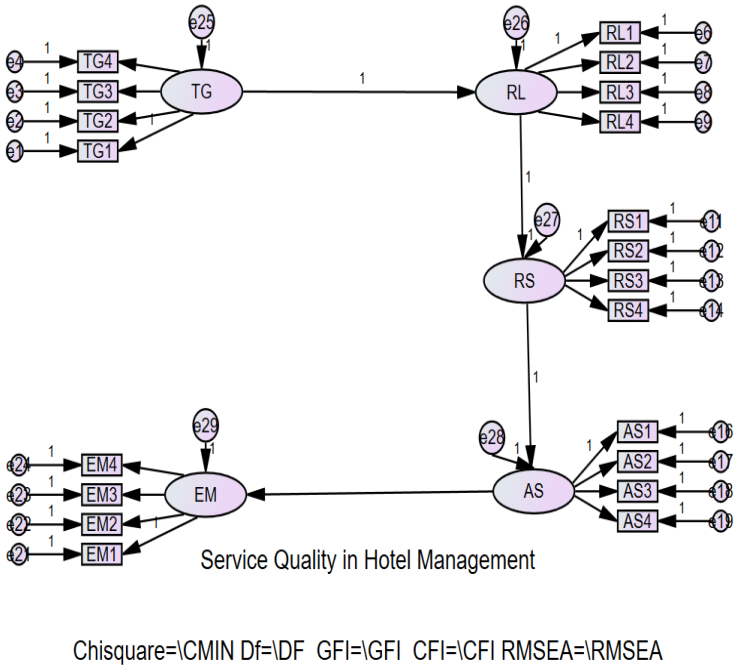


**Figure 1: Service Quality in Hotel Management Model**

## Suggestion and Recommendation

In order to increase visitor happiness and stay competitive in the hospitality sector, hotels have come to understand how crucial service quality is. Hotels may improve their reputation, foster long-term relationships with visitors, and generate repeat business by implementing service quality management. The present study developed and validated a service quality model in hotel management using the five dimensions: Tangibility, Reliability, Responsiveness, Assurance, and Empathy. The Confirmatory Factor Analysis (CFA) results indicated that the proposed model achieved an acceptable level of fit, confirming that these dimensions are important determinants of service quality. The findings of the study suggest that hotel managers should focus on improving staff responsiveness, reliability of services, and personalized attention to guests in order to enhance overall service quality and customer satisfaction. Therefore, the validated model can serve as a useful framework for hotel managers to assess and improve service quality practices in the hospitality sector.

## Conclusion

By creating and validating a structured measuring model with Confirmatory Factor Analysis (CFA), the current work advances knowledge of service quality in hotel

management. The findings confirm that service quality in hotels is a multidimensional concept shaped by the dimensions of Tangibility, Reliability, Responsiveness, Assurance, and Empathy. The acceptable model fit indices indicate that these dimensions collectively form a reliable framework for evaluating service quality from the guest perspective. From a researcher's viewpoint, the study demonstrates the importance of integrating theoretical service quality constructs with empirical validation through advanced statistical techniques. The validated model not only strengthens the conceptual understanding of service quality in hospitality research but also offers a practical analytical tool that can support hotel managers in systematically monitoring service performance and improving guest experiences in a competitive hospitality environment.

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