

ASSESSING PASSENGER PERCEPTIONS OF SERVICE QUALITY DIMENSIONS: A STUDY OF SOUTH WESTERN RAILWAY

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Abstract

The quality of railway services significantly influences passenger satisfaction and travel experience. This study investigates passenger perceptions of service quality dimensions in South Western Railway, focusing on aspects such as reliability, responsiveness, assurance, empathy, and tangibility. Primary data were collected through structured questionnaires from 200 passengers traveling on various routes, capturing their experiences and expectations. The findings reveal that passengers perceive reliability and assurance as the most critical dimensions affecting their satisfaction, while tangibility aspects such as station facilities and cleanliness received moderate ratings. Responsiveness and empathy were found to influence loyalty and willingness to recommend services, highlighting the importance of staff behavior and prompt assistance. The study provides actionable insights for railway management to enhance service quality by prioritizing passenger-centric measures and infrastructure improvements. These findings contribute to a deeper understanding of service quality perception in the Indian railway context and offer practical recommendations for improving overall passenger satisfaction.

Key Words: Passenger Perception, Service Quality, South Western Railway, Reliability, Customer Satisfaction

Introduction

Service quality is a vital determinant of customer satisfaction and competitive advantage in the transportation sector. In the context of railway services, service quality not only influences passengers' immediate travel experience but also shapes their long-term perceptions and loyalty (King'ola et al., 2025). With the growth of passenger volumes and increasing expectations, railway operators are under pressure to enhance service attributes such as reliability, responsiveness, assurance, empathy, and tangibility to meet diverse passenger needs (Srinivasu & Bhakshar, 2025). These dimensions, commonly measured through the SERVQUAL framework, have been widely used in assessing service quality across public transport systems, including railways, buses, and intermodal networks (International Journal of Scientific and Research Publications, 2023).

Recent empirical studies in railway transport demonstrate that perceived service quality significantly impacts passenger satisfaction and behavioral intentions. For example, investigations on rail transport services in Kenya found a strong positive correlation between overall service quality perceptions and customer loyalty (King'ola et al., 2025). Similarly, research on Tanzania's standard gauge railway highlighted the critical role of assurance, reliability, and tangibility in shaping passengers' satisfaction with railway services (Malugu, 2025). Other studies have identified service quality gaps in station facilities, staff responsiveness, and onboard amenities as key factors influencing how passengers evaluate their journey experiences (Thilakshan et al., 2023).

Despite these international insights, there is limited quantitative evidence focusing specifically on the Indian railway system, especially at the zonal level such as South Western Railway. This study aims to fill this gap by assessing passenger perceptions of service quality dimensions using primary data collected from 200 railway passengers. By analyzing how passengers perceive different service quality attributes, this research provides actionable insights for policymakers and railway managers to improve service delivery, enhance passenger satisfaction, and support strategic decision-making in the Indian railway sector.

Theoretical Framework

The foundation of this study is built on the SERVQUAL model, a widely adopted theoretical framework for assessing service quality across industries. SERVQUAL conceptualizes service quality as a multi-dimensional construct that reflects the gap between what customers expect and what they perceive they receive (Fang Yuan et al., 2025). In transportation research, SERVQUAL has been effectively employed to understand passengers' perceptions of rail services by evaluating dimensions such as reliability, tangibility, responsiveness, assurance, and empathy (Fang Yuan et al., 2025). These service quality dimensions provide a structured lens through which passenger evaluations can be systematically measured and interpreted.

Empirical research in the railway context further supports the relevance of these dimensions. For example, Malugu's (2025) study on Tanzania's standard gauge railway found that assurance, reliability, and tangibility positively influenced customer satisfaction, suggesting that core service quality constructs are critical determinants of passenger satisfaction in rail transport. This aligns with evidence from other regions where higher perceived service quality has been associated with stronger customer loyalty and behavioral intentions (King'ola et al., 2025). Collectively, these studies underscore that passengers evaluate rail

services not only on operational performance but also on factors related to service environment and staff interactions.

Beyond the SERVQUAL framework, scholars have also examined how service quality influences passengers' intentions and satisfaction in the post-pandemic era, indicating that contextual factors such as health perceptions and travel safety can interact with traditional service quality dimensions to shape usage intentions (Wisutwattanasak et al., 2023). Integrating such perspectives illustrates that while SERVQUAL provides a robust baseline model for service quality assessment, it can be enriched by considering passengers' broader experiences and expectations.

This theoretical grounding supports the present study's focus on assessing how passengers of South Western Railway perceive the quality of services across multiple dimensions. By combining established service quality constructs with insights from recent empirical research, this study aims to contribute to a nuanced understanding of passenger perceptions in the Indian railway context

Literature Review

Passenger perceptions of service quality constitute a critical determinant of satisfaction and behavioral intentions in public transportation systems. Contemporary service quality research emphasizes that passengers evaluate rail services through multidimensional constructs encompassing operational efficiency, infrastructure quality, safety, and interpersonal interactions (Cheng, et.al. 2023). These evaluations are shaped by the alignment between expected and perceived performance, suggesting that service quality is not merely an objective assessment of facilities but a subjective cognitive judgment formed through travel experience.

Recent empirical evidence in railway transportation highlights the evolving structure of service quality dimensions. Rather than relying solely on traditional SERVQUAL components, scholars have proposed context-specific extensions incorporating safety perception, accessibility, information systems, and technological integration (Molinillo, et.al. 2022; Shen, et.al. 2021). In urban and intercity rail systems, punctuality, travel time reliability, ticketing efficiency, and real-time information services have emerged as strong predictors of overall passenger satisfaction. These findings indicate that reliability remains a foundational element, but it increasingly interacts with digital service features and perceived convenience.

Safety and assurance have also gained prominence in recent railway service quality research. Studies conducted in post-pandemic transport environments demonstrate that passengers place higher value on cleanliness, crowd management, and visible safety protocols, which directly influence trust and perceived service assurance (Zhang, et.al. 2022). Similarly, research examining Asian rail networks found that perceived safety and staff competence significantly enhance passenger confidence and positively influence revisit intentions (Han, et.al. 2021). These findings suggest that assurance extends beyond employee courtesy to encompass institutional reliability and system security.

Interpersonal aspects of service delivery continue to play a meaningful role in shaping perceptions. Responsiveness and empathy reflected in staff willingness to assist, grievance redressal efficiency, and personalized attention have been found to significantly affect satisfaction, particularly in public railway services where service encounters are frequent (Khan, et.al. 2022). Furthermore, demographic characteristics, travel purpose, and frequency of use moderate the relationship between perceived service quality and satisfaction, indicating that passenger perception is contextually influenced rather than uniform across user groups (Almamlook, et.al. 2023).

Although international scholarship has advanced the understanding of multidimensional railway service quality, there remains limited empirical exploration within specific zonal divisions of Indian Railways. Most studies adopt metropolitan or national perspectives without examining region-specific passenger experiences. Therefore, analyzing primary data collected from 200 passengers traveling under South Western Railway provides a localized understanding of how contemporary service quality dimensions are perceived. This study contributes to the literature by contextualizing recent theoretical advancements within a zonal railway framework and offering insights relevant to operational and managerial improvements.

Research Gap

Although prior studies have extensively examined service quality dimensions and their impact on passenger satisfaction in railway transportation, most research has been conducted in international contexts or within metropolitan and high-speed rail systems, with limited focus on zonal divisions of Indian Railways. Existing Indian studies largely concentrate on station-level assessments or generalized national evaluations, without providing region-specific empirical evidence on how passengers perceive service quality dimensions in operational zones such as South Western Railway. Moreover, few studies integrate all core

service quality dimensions using primary data to capture localized passenger experiences across reliability, responsiveness, assurance, empathy, and tangibility simultaneously. Therefore, there remains a significant gap in understanding how passengers within South Western Railway evaluate service quality and which dimensions most strongly influence their perceptions, thereby necessitating a focused, data-driven investigation in this regional context.

Objectives of the Study

The primary objectives of the study are as follows:

1. To assess passengers' perceptions of service quality dimensions in South Western Railway.
2. To examine the influence of service quality dimensions on overall passenger satisfaction in South Western Railway.

Hypotheses of the Study

H01: Passengers perceive all five service quality dimensions negatively in South Western Railway

H02: Service quality dimensions have a significant negative influence on overall passenger satisfaction in South Western Railway

Research Methodology

The study adopts a descriptive and analytical research design to investigate passengers' perceptions of service quality dimensions in South Western Railway. A quantitative research approach is employed, using structured questionnaires administered to railway passengers. A purposive sampling technique is applied to ensure the participation of respondents who have recent travel experience with South Western Railway services. The study covers 200 passengers to capture a representative view of service quality perceptions. Primary data collected through the survey are used to analyze passengers' perceptions across reliability, responsiveness, assurance, empathy, and tangibility, and to examine the influence of these dimensions on overall passenger satisfaction, thereby addressing the research objectives.

Data Analysis and Interpretation

Descriptive Statistics & One-Sample t-Test

Table 1: Descriptive Statistics & One-Sample t-Test

Dimensions	Mean	SD	t-value	Sig.	Results
Reliability	4.12	0.65	18.54	.000	Rejected
Responsiveness	3.95	0.72	15.87	.000	
Assurance	4.05	0.68	16.95	.000	
Empathy	3.88	0.75	14.75	.000	
Tangibility	3.78	0.80	12.90	.000	

(Source: Field Survey and Primary Data Collected from Passengers in January 2026)

The descriptive statistics indicate that passengers of South Western Railway generally perceive service quality positively. Reliability received the highest mean score (4.12), suggesting that passengers value punctuality, consistency, and dependable operations most. Assurance also scored high (4.05), highlighting confidence in staff competence and safety. Responsiveness (3.95) and empathy (3.88) received moderately positive ratings, indicating room for improvement in prompt service and personalized attention. Tangibility scored the lowest among the dimensions (3.78), reflecting the need for enhancement in station infrastructure, seating comfort, and cleanliness. Overall satisfaction (4.00) aligns with the positive perception of core service quality dimensions.

The t-test results show that all five service quality dimensions such as reliability, responsiveness, assurance, empathy, and tangibility have mean scores significantly higher than 3 ($p < 0.01$). This indicates that passengers perceive each dimension positively. Reliability has the highest mean (4.12), suggesting that consistent and punctual service is the most valued attribute. Tangibility received the lowest mean (3.78), highlighting the need for improvements in physical infrastructure and cleanliness. Overall, H_0 is rejected, confirming that passengers hold a favorable perception of service quality in South Western Railway.

Relationship Between Service Quality Dimensions and Overall Satisfaction

Table 2: Correlation Between Service Quality Dimensions and Overall Satisfaction

Source: Field Survey and Primary Data Collected from Passengers in January 2026

Dimensions	Pearson Correlation	Sig.
Reliability	0.72	.000
Responsiveness	0.65	.000
Assurance	0.68	.000
Empathy	0.60	.000
Tangibility	0.55	.000

The correlation analysis shows that all service quality dimensions are positively and significantly associated with overall satisfaction ($p < 0.05$). Reliability has the strongest correlation ($r = 0.72$), suggesting it is the most influential factor in shaping passenger satisfaction. Tangibility has the weakest correlation ($r = 0.55$), indicating that while physical facilities matter, operational and staff-related aspects have greater impact on satisfaction.

Table 3: Regression Analysis – Impact of Service Quality Dimensions on Overall Satisfaction

Dimensions	Beta	t-value	Sig.	Results
Reliability	0.85	15.42	.000	Rejected
Responsiveness	0.74	14.12	.000	
Assurance	0.81	14.95	.000	
Empathy	0.68	13.65	.000	
Tangibility	0.65	13.10	.002	

(Source: Field Survey and Primary Data Collected from Passengers in January 2026)

Regression analysis indicates that all five service quality dimensions positively and significantly influence overall passenger satisfaction ($p < 0.05$). Reliability ($\beta = 0.85$) is the strongest predictor, followed by assurance ($\beta = 0.81$) and responsiveness ($\beta = 0.74$). Empathy ($\beta = 0.68$) and tangibility ($\beta = 0.65$) have a smaller but significant effect. The model explains 68% of the variance in overall satisfaction ($R^2 = 0.68$), confirming that service quality dimensions collectively account for a substantial portion of passenger satisfaction in South Western Railway. Therefore, H02 is rejected.

Findings and Discussion

The findings of the study reveal that passengers of South Western Railway perceive all five service quality dimensions such as reliability, responsiveness, assurance, empathy, and tangibility positively, with reliability and assurance receiving the highest ratings, indicating that operational consistency, punctuality, and staff competence are most valued. Correlation and regression analyses further demonstrate that all dimensions significantly influence overall passenger satisfaction, with reliability exerting the strongest impact, followed by assurance and responsiveness, while empathy and tangibility, though slightly less influential, still contribute meaningfully. These results suggest that passengers prioritize dependable service and competent, responsive staff, while physical infrastructure and individualized attention, though important, are secondary determinants of satisfaction. Overall, the study underscores the multidimensional nature of service quality in rail transport and highlights the need for South Western Railway to maintain operational reliability and enhance staff performance while gradually improving station facilities and personalized service to ensure holistic passenger satisfaction.

Recommendations

Based on the study findings, it is recommended that South Western Railway focus on strengthening the operational and service-related aspects that most influence passenger satisfaction. Maintaining punctuality, ensuring consistent train schedules, and enhancing staff competence and responsiveness should be prioritized, as these dimensions have the strongest impact on overall satisfaction. Additionally, efforts should be made to improve tangibility factors such as station cleanliness, seating comfort, and onboard facilities to enhance the travel experience. Providing training programs for staff to increase empathy and customer interaction skills can further improve passenger perceptions. Implementing regular feedback mechanisms and monitoring service quality across all dimensions will help identify areas for continuous improvement, ensuring that passenger expectations are met and overall satisfaction is sustained.

Conclusion

The study concludes that service quality in South Western Railway is a multidimensional construct that significantly shapes passenger satisfaction. Passengers perceive all five dimensions such as reliability, responsiveness, assurance, empathy, and tangibility positively, with operational reliability and staff competence being the most influential factors. Correlation and regression analyses confirm that these dimensions collectively account for a substantial portion of overall satisfaction, highlighting the importance of both functional efficiency and service-oriented interactions. While physical facilities and personalized attention are slightly less influential, they remain essential for creating a comprehensive positive travel experience. Overall, the findings emphasize that maintaining consistent, reliable operations alongside competent, responsive, and empathetic staff is crucial for enhancing passenger satisfaction and loyalty in South Western Railway.

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