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SERVICE QUALITIES OF THE STANDARD GAUGE RAILWAY TRANSPORTATION IN NIGERIA

Summary. Poor service was one of the many reasons why Nigeria's railway transportation, which dates to the 18th century, became obsolete. This article examines the service quality dimensions of Nigeria's standard-gauge rail system. The objective is to identify the key service indicators for service quality dimensions that influence passengers' patronage of standard-gauge railway transport in Nigeria. A questionnaire was administered to 359 train passengers in Abuja, Lagos, and Ibadan using a random sampling technique to gather data for the study. Exploratory Factor Analysis (EFA) was used to analyze the data. The study highlighted departure and arrival times, ease of buying tickets, comfortability, ticket price, and availability of food/snacks on the train as indicators that do not contribute to the major service quality dimensions of the rail transportation in Nigeria. The main dimensions of service quality that affect passengers' experiences with Nigeria's standard rail system are tangibility, responsiveness, reliability, safety and security,

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and service orientation. The findings underscore the importance of maintaining high-quality services to ensure passenger satisfaction and increase rail transport patronage in Nigeria. The findings suggest creating and implementing policies that will consistently enhance Nigeria's rail transportation service delivery.

Keywords: service qualities, railway transport, standard gauge, service friendliness

1. INTRODUCTION

The rail transport industry plays a crucial role in providing mobility and efficiently distributing goods and services. It is assumed that rail transportation has the highest economic and social value among other modes due to its environmental friendliness and ability to transport large numbers of people at low cost [1]. According to Janic and Vleugel [2], railway transportation is widely accepted by policymakers, transport planners, and environmentalists as the best alternative to the dominant use of roads, which has been a significant contributor to urban transport problems [3]. Janic and Vleugel [2] also added that railway transportation reduces transport externalities in the transportation sector by 30%, including energy use, greenhouse gas emissions, noise, congestion, and accidents. Tsumura et al. [4] found that rail transportation plays a significant role in urban transportation by mitigating the negative growth in vehicle numbers and CO₂ emissions, due to its capacity to move large volumes of passengers and goods.

Economically, rail transport offers opportunities for increased revenue, job creation, and business expansion. Okoye et al. [5] stated that railway services increased short-term economic development in Northern Nigeria. Apanisile and Akinlo [6] found that rail transportation services enhance economic growth in Nigeria. Additionally, Soretire et al. [7] found that rail transport makes a significant contribution to local economic development in Nigeria. According to Soretire et al. [8], rail transport plays a vital role in global socio-economic development by facilitating passenger and freight movement. The railway is the transport mode with the most cost-effective, affordable, energy-saving, and environmentally friendly features. Despite the importance of railway transportation to the environment and economic development, the Nigerian railway industry became moribund for several years due to government neglect, inadequate infrastructure provision, management challenges, and poor service delivery [6] [8].

Importantly, a major problem facing the Nigerian railway transport system is the loss of patronage. The problem stems from poor service quality and the delivery of the rail transport system nationwide. The continuous persistence of the problem frustrated all categories of passengers and the need to transport agricultural products across the country. Obe et al. [9] identified the major problems of railway transport in Nigeria as late train arrivals, theft, poor sanitation around train stations and on trains, overcrowding, the menace of roof riders, and the proliferation of vendors. The problems identified by Obe et al. [9] are critical service qualities that affect railway patronage. As problems persisted, customers gradually withdrew from the railway and shifted to road transport, eventually leading to the decline and demise of railway services in Nigeria.

In 2015, the Nigerian Railway Corporation (NRC) commenced operations on the country's newly constructed standard-gauge rail network. Passenger patronage of railway services has increased due to the speed and safety offered, as well as the insecurity that prevails on roads. However, this paper concerns the need for continuous improvement in rail services in Nigeria. The improvement is necessary to achieve passenger satisfaction and loyalty to patronizing rail

service in Nigeria. A key question this study addresses is: What are the primary service qualities that influence passengers to patronize standard-gauge railway transportation in Nigeria? The goal is to identify the service quality dimensions that need strengthening to sustain the growth in railway passenger patronage in Nigeria. The objective of this study is to examine the service quality indicators of railway transportation in Nigeria, with a focus on passenger satisfaction.

The approach to achieving the paper's objective is to subject twenty (20) service quality indicators to exploratory factor analysis (EFA) to reduce and group them into a few factors, thereby identifying the major service quality dimensions that influence passenger patronage of railway transport, in comparison to Parasuraman [10]. The study contributes to existing knowledge by identifying the service quality indicators that passengers consider the most important in their choice to patronize the standard gauge railway in Nigeria.

The literature on rail transport services is vast, focusing on various aspects of the mode of transportation. The different focus areas include rail service and social media [11], service quality and customer satisfaction [12], train service quality and public interest [13], railway service quality attributes [14], passengers' perception of railway services [15], and others. The literature review suggests that service quality plays a crucial role in maintaining customer patronage of rail transportation. However, research focusing on the service quality dimensions in Nigeria is limited. To this end, this study fills a knowledge gap by examining the service quality elements that inform passengers' patronage of standard-gauge railway services.

The paper is structured so that, after this introduction section, Section 2 presents the literature review, Section 3 describes the methods adopted for the study, Section 4 presents the results and discussion, and Section 5 concludes with a summary and policy recommendations.

2. LITERATURE REVIEW

Rail transportation remains a critical component of national infrastructure, offering affordable, mass-transit options for passengers and freight. In Nigeria, the sector has undergone cycles of decline and revival, with recent investments in modernization and intercity connectivity. This rollercoaster performance has sparked renewed interest in rail service quality investigations, which remain a central determinant of passenger patronage, satisfaction, and the economic viability of rail services. This section presents the theoretical review of service quality and the empirical review of railway transport services.

2.1. Theoretical review

The SERVQUAL model, developed by Parasuraman et al. [10], remains the dominant theoretical lens for evaluating service quality in passenger transportation. It argues that service quality can be assessed by comparing customers' expectations with what they perceive they receive. Thus, it proposes five dimensions: tangibility, reliability, responsiveness, assurance, and empathy. In rail transport, tangible assets include the physical condition of rolling stock, stations, seating, and ticketing equipment. Reliability reflects punctuality and adherence to schedules. Responsiveness refers to the staff's willingness to assist passengers, particularly during disruptions. Assurance relates to safety, security, and staff competence, while empathy concerns how well operators understand passenger needs.

The core idea is that gaps between expectations and perceptions reveal specific areas where service delivery falls short, enabling organizations to target improvement. Although widely used, SERVQUAL has attracted strong criticism. For instance, Carman [16] and Buttle [17]

argue that the five dimensions are not universal and tend to shift across industries and cultural contexts. Similarly, Babakus and Boller [18] question the scale's reliability and highlight the need for empirical adjustments. Later reviews, such as Coulthard [19] and Ladhari [20], emphasise methodological weaknesses and the instability of customer expectations, noting that expectations are fluid and influenced by recent experiences, making them difficult to measure consistently. In addition, the model's heavy emphasis on the subjective customer viewpoint may overlook operational constraints and sector-specific performance standards [21] [22]. More recent reflections, such as Naylor [23] and Özispa [22], acknowledge SERVQUAL's enduring influence but argue that it must evolve to address contemporary service contexts. To address this, SERVQUAL models are often used with modifications tailored to specific industries. Generally, the model must be adapted, not merely imported [21] [22].

Another important theory is the Expectation-Confirmation Theory (ECT) propounded by Oliver [25] [26], which explains customer satisfaction as a product of the gap between expected performance and actual service delivery. Applied to rail transport, passengers develop expectations about travel time, comfort, and safety before boarding. When the journey meets or exceeds those expectations, satisfaction and loyalty increase. When performance falls short, dissatisfaction leads to a decline in patronage.

ECT has attracted significant criticism. For instance, the model simplifies consumer psychology by treating satisfaction as a rational comparison process while overlooking emotional, social, and situational influences that often shape real-world decisions [27]. Additionally, expectations are unstable and shift with experience, context, and cultural background, which makes them difficult to capture reliably [28]. Notably, ECT assumes a linear relationship between expectations, performance, and satisfaction, even though satisfaction can reshape future expectations in more complex feedback loops [26] [28]. These limitations have led to several refinements, including the Expectation-Confirmation Model (ECM) in information systems, which focuses on continued use decisions rather than one-off satisfaction [29]. More recently, scholars have extended ECT to incorporate trust and long-term relational dynamics, particularly in digital markets and e-commerce, where sustained engagement depends not simply on satisfaction but more on the evolution of consumer trust [30]. Such inclusions highlight that ECT is no longer confined to explaining one-off satisfaction judgments but is increasingly applied to contexts where expectations, performance, trust, and loyalty interact in complex, ongoing cycles.

ECT is particularly useful in transportation services where expectation-performance gaps are common due to chronic delays, equipment breakdowns, and inconsistent service schedules. Specifically, in Nigeria, the theory helps explain why passengers remain sceptical of rail improvements despite recent investments. Past experiences of poor performance shape their expectations, requiring consistent quality improvements to rebuild trust. ECT theory is relevant to this study, as it helps justify EFA, as rail transport passengers consider service quality indicators based on their expectations and service performance. This study is designed so that passengers rank the twenty (20) presented service quality indicators based on how they perceive rail transport services relative to their expectations. The twenty (20) indicators were subjected to EFA using the expected confirmation responses of the rail transport passengers to determine their service quality dimensions.

2.2. The Rail Transport Service Quality

Across the literature, service quality is generally viewed through the lens of accessibility, comfort, safety, reliability, punctuality, staff behavior, and affordability. In an international

context, Irfan et al. [31], examining Pakistan, found that passengers valued punctuality and affordability in rail service quality. Notably, Romero et al. [32] emphasized the importance of the availability and accuracy of public transport information, which significantly influences passengers' perceptions of service quality in suburban rail systems. While Shan et al. [33] assessed service quality in Eurasian rail transport and identified border delays, train speed, and reliability as key issues, Tadić et al. [34] examined how rail service quality affects intermodal transport, demonstrating that reliability and schedule integration are essential for seamless logistics. Vassilev and Velinov [35] also noted that continuous monitoring and evaluation frameworks improve service delivery by creating accountability and feedback loops. As such, Đorđević et al. [36] proposed a full consistency method for defining service quality criteria, emphasizing reliability, safety, comfort, and accessibility as universal benchmarks. Similarly, Fu et al. [37] developed a multi-level synthetic evaluation model for high-speed rail in China, noting the importance of passenger-centered metrics such as punctuality, convenience, and perceived value. Wu et al. [38] further demonstrated that service quality interacts with corporate image and customer satisfaction to shape behavioral intentions in Taiwan's high-speed rail system. These global models reflect the multidimensionality of rail service quality, often operationalized through frameworks such as SERVQUAL [10], which assesses tangibles, reliability, responsiveness, assurance, and empathy. Further, Wisutwattanasak et al. [39] combined the SERVQUAL model with the Health Belief Model to understand why passengers decide to use rail transport after the COVID-19 pandemic. Their approach revealed that while traditional service quality factors, such as reliability, responsiveness, and comfort, still matter, passengers now place even greater emphasis on health and safety. Concerns about illness, crowding, and cleanliness have become central predictors of whether people feel confident enough to use trains. In other words, good service quality alone was no longer enough; passengers also needed to believe that the rail environment protects their health before they chose to travel. As such, Lwesya and Jaffu [40] in their Tanzanian study applied the SERVQUAL model to rail transport, revealing gaps in reliability and communication, largely due to aging infrastructure and inadequate customer service training, which resonates with challenges in Nigeria, bedeviled by infrastructural decay and governance issues.

2.3. Railway Transport Services in Nigeria

Many researchers have devoted substantial time and effort to assessing the Nigerian rail transportation system. This is because long-term performance assessments help explain persistent concerns about service quality in Nigeria's rail transport. Ogochukwu et al. [41] examined rail operations between 1970 and 2010 and found that declining investment, aging rolling stock, poor maintenance, and governance challenges, such as corruption and policy inconsistency, led to operational inefficiencies and a decline in passenger volumes. Their analysis reveals that service quality issues are deeply ingrained and necessitate structural reforms rather than minor improvements. Omotayo [42] identified weak regulatory frameworks, inconsistent political commitment, and institutional fragmentation as major obstacles to improving service quality under Nigeria's public-private partnership (PPP) arrangements for rail transportation. Similarly, Onuchukwu [43] linked rail service quality to economic development in Lagos, showing that efficient rail systems reduce congestion, enhance productivity, and stimulate commerce. However, poor governance undermines these benefits, as inconsistent policies stall modernization projects. Furthermore, Ozohu-Suleiman and Oladimeji [44] found that PPP efforts struggled due to unclear risk-sharing mechanisms and low investor confidence, which directly affect service delivery by limiting investment in

maintenance, safety systems, and customer-oriented improvements. Other empirical studies in Nigeria have revealed a reliable and important interplay among safety, affordability, travel time, and institutional governance in shaping the quality of rail services.

For instance, Adanikin et al. [45] conducted a survey of 125 commuters in Lagos State and employed structural equation modeling to identify predictors of patronage. Their findings revealed that safety was the strongest determinant of customer loyalty, surpassing price and travel time, thus suggesting that Nigerian passengers prioritized personal security and accident prevention over other service attributes. However, earlier work by Agunloye and Oduwaye [46] found that in metropolitan Lagos, overcrowding, poor scheduling, and inadequate facilities were major constraints on the quality of rail transport services. Their study emphasized that service reliability and comfort were critical to passenger satisfaction yet consistently undermined by infrastructural neglect. Broadly speaking, the work of Mojeed and Ghadiri [47], who explored intercity rail services in Southwest Nigeria, revealed that passengers expected punctuality, affordability, and cleanliness. However, a clear mismatch was identified between expectations and actual service delivery, particularly regarding delays and poor maintenance. This expectation gap aligns with the Tanzanian-based findings of Lwesya and Jaffu [40], which identified reliability as the weakest dimension of service quality.

Rail line/route-based studies, such as Ojekunle et al. [48], which examined the Lagos-Kano rail line, identified punctuality, affordability, and staff responsiveness as key determinants of service quality in the study area. Their findings reinforced the importance of operational efficiency, particularly in the context of long-distance travel, where delays have a significant impact on passenger satisfaction. Yakasai and Gwarzo [49] provided recent evidence from Rigasa Station in Kaduna, demonstrating that service quality has a strong predictive relationship with customer satisfaction. Their study emphasized tangibles (station facilities, train cleanliness) and assurance (staff professionalism) as critical dimensions supporting the findings of Wu et al. [38] and Wisutwattanasak et al. [39], which suggest that service quality directly influences behavioral intentions.

This study focuses on identifying the significant service quality dimensions that passengers consider by measuring the individual service quality indicators. The study aims to group individual service quality indicators to understand the specifics of the service qualities that comprise the service quality dimensions of the rail transportation system in Nigeria.

3. DATA AND METHOD

The study adopted a survey research design to collect data for quantitative analysis. The philosophy guiding this study is positivism, a quantitative research method that focuses on measuring and analyzing observations. The goal is to collect information on passengers' perceptions of railway service qualities and subject it to quantitative analysis. The study area for this research is the Abuja-Kaduna and Lagos-Ibadan railway lines. The lines are the major standard gauge under the Nigerian Railway Corporation (NRC) operations. The study population size was considered infinite for the research, as the exact population of railway passengers could not be determined. Therefore, the study employed Cochran's [50] formula to determine sample size from an infinite population. The formula takes the form of:

$$no = Z^2 \cdot P(1 - P) / e^2 \quad (1)$$

where;

e – the desired level of error margin;

P – proportion of population;

Z – tabulated z-value;

no – sample size.

The formula's application resulted in a sample size of 384 for the study. This implies that the study should survey 384 railway transport passengers about their perceptions of the service quality of standard-gauge railway services in Nigeria. A total of 384 copies of the questionnaire were produced to collect data for the study. The survey was conducted using a simple random sampling technique to ensure that all respondents had an equal chance of being included. The survey data were collected over three (3) months, from March to May, in 2024.

The survey produced 359 valid responses, which serve as the study's data. The response represents a 93.5% success rate. The questionnaire was administered to respondents at railway terminals in Lagos, Ibadan, and Abuja, who were primarily passengers. Microsoft Excel was used to generate random numbers up to 384. The random numbers generated were assigned to the copies of the questionnaire before data collection. The survey ensures that only adult passengers who are independently responsible for their own choices are included in the data collection.

The questionnaire has two (2) sections. Section A contains demographic information, and Section B contains the service qualities that influence the passengers' choice of patronage. The service quality indices in Table 1 were presented in a 5-point Likert scale for the respondents to rank in order of significance. The service quality indices serve as the study's variables.

Tab. 1

Service quality indicators

S/N	Variable indicators
1	Departure and arrival time
2	Frequency of operation
3	Train speed and smoothness of ride
4	Parking space availability
5	Travelling time/waiting time
6	Condition of the arrival and departure rooms
7	Cleanness of coaches
8	Station facilities
9	Seat arrangement
10	Access to information
11	Compliant handling process
12	Accessibility to the station
13	Ease of buying a ticket
14	Customer service at the station
15	Customer service on the train
16	Comfortability
17	Ticket price
18	Safety level and security on the train
19	Safety level and security at the station
20	Availability of food/snacks on the train

The study comprises twenty (20) variables to examine passengers' perceptions of standard gauge railway services in Nigeria. The Likert scale to measure the responses was presented from 1 – Not Significant, 2 – Least Significant, 3 – Fairly Significant, 4 – Significant, and 5 – Strongly Significant for the respondents to rank. The ranking allows respondents to assign a weight to each item based on their perception of the railway service qualities. The data collected for the study were analyzed using exploratory factor analysis (EFA) to reduce the 20 variables to the minimum set necessary to explain the service quality dimensions of standard-gauge railway transport in Nigeria. The technique utilizes item variances to extract common factors that effectively explain passengers' perceptions of railway services in Nigeria. The EFA estimates the correlations between the items and determines their relationships with the unobserved variables.

The EFA technique employed Principal Axis Factoring and Varimax rotation to summarize the items into a few orthogonal ones that explain the significant service quality dimensions of railway transport. The application of EFA identifies a few unobserved variables, known as common factors, that explain the correlations among observed variables. These common factors were extracted by estimating the factor loadings of the observed variables and selecting factors with loadings greater than one eigenvalue.

4. RESULTS AND DISCUSSION

To ensure the certainty of the analytical results of the objective, prebuilt statistical options associated with the EFA were adequately selected, including Kaiser-Meyer-Olkin (KMO) and Bartlett tests, communalities, extraction of variance using principal axis factoring, correlation matrix, and factor rotation (Varimax) technique [51]. Based on the output values of both the Kaiser-Meyer-Olkin (KMO) measure of sample adequacy and the Bartlett test of sphericity, the adequacy and suitability of the data for the analysis are confirmed [51]. The KMO value is 0.875, indicating that the dataset is adequate for the statistical analysis. The Chi-square test result, with a value of 2997.345 and a p-value of 0.000, confirms that the data are suitable for analysis (See Table 2).

Tab. 2

KMO and Bartlett's Test of Railway Service Quality Indicators

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.875
Bartlett's Test of Sphericity	Approx. Chi-Square	2997.345
	Df	190
	Sig.	.000

Table 3 below presents the communalities estimate of the data. It indicates that the variance in the variables can be attributed to common factors. The communalities are estimates of each variable's variance. The sum of squared loadings for each variable, along with its initial and extracted values, forms the model's communalities.

Tab. 3

Communalities of the variables before and after extraction

	Initial	Extraction
Departure and arrival time	.339	.321
Frequency of operation	.395	.513
Train speed and smoothness of ride	.391	.409
Parking space availability	.379	.383
Travelling time/waiting time	.482	.621
Condition of the arrival and departure rooms	.523	.576
Cleanness of coaches	.560	.655
Station facilities	.577	.601
Seat arrangement	.563	.581
Access to information	.607	.679
Compliant handling process	.598	.690
Accessibility to the station	.355	.375
Ease of buying a ticket	.381	.380
Customer service at the station	.591	.708
Customer service on the train	.539	.618
Comfortability	.373	.376
Ticket price	.313	.314
Safety level and security on the train	.589	.743
Safety level and security at the station	.585	.690
Availability of food/snacks on the train	.114	.094

Extraction Method: Principal Axis Factoring

The construct variables were extracted using principal axis factoring, with an eigenvalue greater than one (1), and a rotation matrix was generated using the Varimax technique to identify the latent variables that form the construct factors. The rotated values were sorted by size and suppressed to a threshold coefficient that is equal to or greater than 0.500. The rotated factor matrix's output includes the model's solution, which identifies the latent factors that explain service quality in Nigeria's standard gauge rail system. Furthermore, the total variance loadings of the analysis indicate the percentage of the total variance explained by five factors with eigenvalues greater than 1.

These factors have eigenvalues that represent the percentage of the total variation in the data set that each construct factor explains or, at best, summarizes. According to the cumulative percentage of variance explained, all five variables collectively account for 63% of the total variance. Table 4 shows the rotated factor matrix of the five (5) construct factors. The results show that all variables distributed under each extracted factor have loadings above the 0.500 threshold.

There are five (5) of the twenty (20) items with load factors less than 0.500 in the analysis. Most of these factors have a communality of less than 0.500 in Table 3. It indicates that the factors will make little or no contribution to the common factors extracted after rotation. It is taken that the items be removed from the analysis. So, the result in Table 4 has only sixteen (16) items that are grouped to form the service quality dimensions for the standard rail gauge services in Nigeria. The items removed from the analysis are departure and arrival times, ease of buying tickets, comfortability, ticket price, and availability of food/snacks on the train. It implies that rail passengers do not enjoy the services associated with the service quality indicators removed from the analysis. The result implies that passengers do not have definite expectations about the

departure and arrival times of the train services. It also reveals the difficulties passengers face when buying tickets, as they must stand in long queues at train stations. Regarding comfortability, the result shows that passengers are not perturbed about the level of comfort they have on the train because of the present conditions of the new rail and coaches in use. The comfort level is generally good, as the trains offer clean, quiet, and modern amenities to enhance passengers' overall comfort. The result that the ticket price does not contribute to the extracted common factors indicates the advantage of rail transport as a cheaper public transportation option, given its capacity to carry large numbers of passengers. So, the passengers consider the ticket price easily affordable and, as such, do not place a high demand on it when determining their expected service quality indicator. The last indicator removed from the analysis was the availability of food/snacks on the train. The result indicates that passenger service quality will be enhanced if meals or refreshments are provided on the train.

Importantly, Table 4 presents the final analysis output, highlighting the service delivery indicators that comprise the service quality dimensions for passenger patronage of the standard rail gauge in Nigeria. The indicators were grouped accordingly and named as tangibility, responsiveness, reliability, safety and security, and service orientation (See Table 4). The major result of the analysis is that customer satisfaction with standard-gauge railway services is influenced by the service quality dimensions of tangibility, responsiveness, reliability, safety and security, and service orientation. That the result identifies safety and security as a significant service quality dimension indicates a strong motive for passengers' patronage of rail transportation in the country, given the rising insecurity on roads and the poor safety system of intercity road transportation due to infrastructure decay. This establishes the importance of safety and security as a factor influencing the service qualities of the rail transportation system.

Tab. 4

Rotated Factor Matrix^a of Railway Transport Service Indicators and Dimension

	Factor				
	1	2	3	4	5
Cleanness of coaches	.779				
Station facilities	.719				
Condition of the arrival and departure rooms	.680				
Seat arrangement	.673				
Compliant handling process		.786			
Access to information		.714			
Accessibility to the station		.544			
Travelling time/waiting time			.696		
Frequency of operation			.669		
Parking space availability			.533		
Train speed and smoothness of ride			.502		
Safety level and security on the train				.798	
Safety level and security at the station				.765	

Customer service at the station	.659
Customer service on the train	.615
Factor Names	Tangibility Responsiveness Reliability & Security Service Orientation

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations. (Absolute values for compression:0.50)

Tangibility refers to the availability of high-quality, functional physical infrastructure and equipment necessary to provide excellent customer service [52]. In addition, the analysis revealed that all four variables loading on tangibility have high loadings. The service quality indicators to measure tangibility in this study include the cleanliness of coaches and station facilities, the condition of arrival and departure rooms, and seat arrangement. According to Chou et al. [53], these service quality variables were found to be important to customers. The indicators relate to the provision and maintenance of rail transportation infrastructure and facilities. It implies that the condition of infrastructure and facilities for rail transport operations affects passenger service quality and thereby increases passenger patronage. This supports the findings of Olawole and Aloba [24] that improved infrastructure significantly enhances passenger satisfaction with rail services on the Abuja-Kaduna corridor.

The second factor is responsiveness, which refers to railway staff's receptiveness, openness, sensitivity, and awareness of passengers' demands [54]. It can also be defined as the railway staff's willingness to assist passengers when they need help. Three indicators that loaded well under responsiveness include a compliant handling process, access to information, and accessibility to the station. The result suggests that standard-gauge railway passengers are concerned about the staff's attitude towards their requests. These variables are essential to passengers [53]. The finding suggests that human interaction remains a critical component of quality service delivery, even in infrastructure-driven sectors such as the railway. The result aligns with Eboli and Mazzulla [60], who found that responsiveness was a significant determinant of perceived service quality in the public transport system.

Reliability implies the Nigerian Railway Corporation's ability to provide the service as promised. Customers considered the effectiveness and accuracy of service to be essential. As a result, customers will patronize a transport company that is consistent in the service [55]. Five indicators, namely travelling time/waiting time, frequency of operation, parking space availability, train speed, and smoothness of the ride, were loaded on Factor 3, named reliability. Previous studies, such as those by Ren et al. [56], have found that reduced travel time is a key incentive for passengers to patronize railway transport. According to Hayashi et al. [57], business activity and productivity have increased due to improvements in the salient features of the high-speed rail system, including reduced travel time, enhanced safety, comfort, and punctuality, as well as increased train frequency. Reliability of rail services is critical in Nigeria, as inconsistent service delivery has historically affected public perception of rail transport. In line with the finding, the study of Eboli and Mazzulla [60] found that reliability is a central determinant of rail passenger trust and system credibility.

Factor 4, named safety and security, refers to passengers' perceptions of their own safety and security, including their lives and belongings. Passengers often choose transport services they deem safer based on their experience. In this study, safety variables include safety level and security on the train, as well as safety level and security at the station. Safety and security are key criteria when considering a mode of transport. According to Eboli [58], personal safety on

the train and at the station was considered highly important to passengers. Nathanail [61] emphasized that safety is a fundamental dimension of rail service quality, influencing passenger confidence and satisfaction. In Nigeria, security concerns – especially along rail corridors – have heightened the importance of safety and security as a major service quality dimension. The finding indicates that rail transport passengers in Nigeria prioritize personal security as a core component of service quality, beyond traditional SERVQUAL constructs.

Service orientation refers to the quality of service provided by an organization or business, characterized by a welcoming and helpful attitude towards customers or clients. It encompasses various aspects, such as the service providers' courtesy, responsiveness, and attentiveness, as well as the overall ease and convenience customers experience when interacting with the service. This study identified service at the station and on the train as indicators of service orientation, aligning with Jomnonkwao et al. [59], who found that staff responsiveness to passengers' needs is strongly correlated with passenger satisfaction. While the traditional SERVQUAL has related constructs such as empathy and assurance, the emergence of service orientation as a standalone factor suggests that rail transport passengers in Nigeria perceive organizational culture and customer-centricity as distinct and critical attributes. This reflects a shift toward customer-centered service delivery in Nigeria's rail sector, where passengers increasingly expect quality interactions alongside efficient operations.

5. CONCLUSION AND POLICY RECOMMENDATIONS

The study aimed to examine the service qualities of standard-gauge railway services in Nigeria. The study answered a major question about the significant service qualities that passengers consider for patronizing the standard gauge railway in Nigeria. Data for the study were collected with a structured questionnaire administered to passengers at Lagos, Ibadan, and Abuja train stations. The data were subjected to exploratory factor analysis to identify the most significant service quality dimensions influencing passengers' patronage of the standard gauge railway service. The study found tangibility, responsiveness, reliability, safety, and service orientation as the significant service quality dimensions influencing passengers' patronage of the standard rail gauge in Nigeria. The finding implies that passengers would continue to patronize the standard gauge railway services as the service providers give attention to tangible elements of service delivery, proactively respond to passengers' needs, provide a reliable schedule of trips, ensure the safety and security of passengers and their goods, and provide a friendly environment to satisfy passengers. The results argue that the SERVQUAL model should be adapted to sector-specific conditions. For this study, the significance of safety and security and service orientation implies the need for a hybrid service quality model in the Nigerian rail transport industry. Also, the result revealed that rail transport service quality in Nigeria is multidimensional, combining traditional service quality dimensions with content-specific sector constructs such as safety, security, and customer orientation. The study highlights the importance of localized service quality frameworks for transport systems in developing economies.

For policy and practice considerations, the study's findings provide direction on the need to invest in railway service infrastructure to improve its tangible service quality. It highlighted the need to strengthen operational efficiency to improve reliability and enhance staff quality to improve responsiveness and service orientation for rail transport services in Nigeria. It finally highlighted the need to invest in security systems to address passengers' concerns.

To promote the growth of railway transportation in Nigeria, the study further recommends that the Nigerian Railway Corporation prioritize service delivery that meets passenger needs. This has to be implemented to increase passenger patronage of rail transport services. Specific attention should be given to maintaining consistent cleanliness in the railway environment, including coaches, seats, and stations. This is because a neat and clean environment enhances customers' attraction to a service point. To improve customer satisfaction towards increased patronage, prompt response to customers' complaints, and timely provision of relevant information about schedules and trips. The other focus for improving railway service quality is ensuring the safety and security of passengers and goods. The strategy to improve the delivery of railway services will be more easily promoted by the staff's friendliness towards customers.

The study's findings and recommendations are potentially relevant to similar developing-country rail contexts, pending further validation by research.

The need to improve service delivery in the rail transport industry is a global phenomenon aimed at enhancing railway passenger patronage amid competition from other modes. This study is limited to passenger perceptions of the standard-gauge railway service quality dimensions in Nigeria. The study is limited by its methodological design, which uses a Likert scale, a measure subject to ambiguity. The study also did not consider railway freight customers, focusing solely on passengers' perceived importance of service qualities rather than satisfaction.

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