

Assessment of Commercial Bus Service Quality, Travel Characteristics, and Commuter Satisfaction in Abuja, Nigeria

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DOI: <https://doi.org/10.51583/IJLTEMAS.2026.151000031>

Received: 12 October 2026; Accepted: 17 October 2026; Published: 31 October 2026

ABSTRACT

Commercial bus transportation plays a vital role in urban mobility in Abuja, Nigeria; however, concerns regarding service quality and operational efficiency persist. This study assessed commuters' travel characteristics, perceptions of service quality, and variations in waiting and travel times across major commercial bus terminals in Abuja. A questionnaire survey was administered to 383 commuters, and the data were analysed using descriptive statistics, independent-samples *t*-test, and one-way ANOVA. The findings revealed that 46.48% of commuters used bus terminals daily, while 43.6% travelled primarily for work-related purposes. Most respondents (60.1%) paid between ₦500 and ₦1,000 per trip, and 76.3% experienced delays frequently or very frequently. The overall mean score for service quality was 2.14, indicating general dissatisfaction with commercial bus services. The poorest-rated attributes were overcrowding ($M = 1.33$), seating availability ($M = 1.53$), ventilation ($M = 1.59$), and route information ($M = 1.59$). In contrast, drivers' politeness ($M = 2.94$) and safe driving ($M = 2.81$) received relatively favourable ratings. Statistical analysis showed a significant difference in waiting times between peak and off-peak periods ($t(104) = 5.039, p = .001$). Travel times also differed significantly among terminals ($F(7,375) = 8.196, p < .001$), with Nyanya recording the longest trips. The study concludes that improvements in reliability, passenger comfort, and terminal infrastructure are necessary to enhance public transport performance and commuter satisfaction in Abuja.

Keywords: Commercial bus services; Commuter perception; Service quality; Travel time; Abuja.

INTRODUCTION

Transportation is a critical component of urban development, facilitating access to employment, education, healthcare, and other socio-economic opportunities. Efficient public transport systems contribute significantly to urban productivity, social inclusion, and sustainable development by providing affordable and accessible mobility for urban residents (Acheampong et al., 2023; UN-Habitat, 2022). In many developing countries, commercial bus services constitute the backbone of urban public transportation because they offer flexible and relatively low-cost mobility options for a rapidly growing urban population. Consequently, the performance of commercial bus systems has become an important determinant of urban accessibility, economic efficiency, and quality of life.

Rapid urbanization across sub-Saharan Africa has intensified travel demand and placed considerable pressure on existing transportation infrastructure. As a result, many cities experience persistent challenges such as traffic congestion, unreliable services, overcrowding, long waiting times, and inadequate transport facilities (Lucas et al., 2022; World Bank, 2022). These challenges often reduce the efficiency of public transport systems and negatively affect commuters' travel experiences. Public transport users are increasingly concerned not only with the availability of services but also with service quality attributes such as reliability, comfort, safety, affordability, accessibility, and information availability, all of which influence travel satisfaction and patronage decisions (Eboli & Mazzulla, 2022; van Oort et al., 2023).

Abuja, the Federal Capital Territory of Nigeria, has undergone significant population growth and spatial expansion since its establishment as the nation's capital. The emergence and expansion of satellite settlements such as Nyanya, Zuba, Dei-Dei, Kubwa, and Lugbe have generated substantial commuter movements between residential and employment centres. Commercial buses remain the dominant mode of public transportation for a large proportion of residents owing to their affordability and extensive route coverage. However, increasing population pressure, traffic congestion, inadequate terminal infrastructure, irregular service schedules, and prolonged travel times have raised concerns regarding the effectiveness of the city's public transport system. Such conditions can adversely affect commuter productivity, increase travel stress, and limit access to socio-economic opportunities (Acheampong, 2021; Guzman et al., 2023).

Service quality has emerged as one of the most widely used indicators for evaluating the performance of public transport systems. Previous studies have demonstrated that reliability, comfort, safety, punctuality, vehicle condition, information provision, fare structures, and terminal facilities significantly influence commuters' perceptions and satisfaction with public transport services (De Vos, 2023; Eboli & Mazzulla, 2022). When commuters perceive public transport services as unreliable or inconvenient, they are more likely to experience dissatisfaction, increased travel burdens, and reduced confidence in the transport system. Therefore, understanding commuters' perceptions is essential for identifying operational deficiencies and developing strategies to improve service delivery and promote sustainable urban mobility.

Although public transportation has received considerable research attention in Nigeria, much of the existing literature has focused on modal choice, traffic congestion, travel behaviour, transport accessibility, and general mobility challenges. Studies that specifically examine commercial bus operations in Abuja have largely concentrated on isolated aspects of transport performance without simultaneously considering commuters' socio-economic characteristics, travel patterns, perceived service quality, waiting times, and travel-time variations across major terminals. Furthermore, limited empirical evidence exists on how differences in operational conditions across commercial bus terminals influence commuters' travel experiences and perceptions of service quality. This gap limits the availability of comprehensive evidence required for effective transport planning and policy formulation in Abuja.

To address this gap, the present study evaluates commercial bus transportation in Abuja through an integrated assessment of commuters' socio-economic characteristics, travel behaviour, perceptions of service quality, waiting-time performance, and travel-time variations across major commercial bus terminals. The novelty of the study lies in its holistic approach, which combines subjective assessments of service quality with objective indicators of transport performance within a single analytical framework. By examining both commuter perceptions and operational characteristics across multiple terminals, the study provides location-specific evidence capable of informing targeted interventions aimed at improving service reliability, passenger comfort, accessibility, and overall transport efficiency. The study therefore contributes to the growing body of literature on urban public transportation in developing cities while providing practical insights for policymakers, transport operators, and urban planners seeking to enhance the sustainability and effectiveness of commercial bus services in Abuja.

MATERIALS AND METHODS

Study Area

The study was conducted in Abuja, the Federal Capital City (FCC) of Nigeria. Abuja is a planned city characterized by a radial transportation network centred on the Central Area, where major administrative, commercial, and economic activities are concentrated. The city has experienced rapid population growth and urban expansion, particularly towards satellite settlements such as Nyanya, Zuba, Kubwa, and Dei-Dei, resulting in increased demand for public transportation services.

Commercial buses constitute one of the most widely used modes of public transportation within the city, providing mobility for daily commuters traveling between residential areas, business districts, educational institutions, and government offices. The study focused on eight major commercial bus terminals, namely

Nyanya, Zuba, Dei-Dei, Berger, Utako, AYA, Eagle Square, and Area 1, selected because of their strategic importance and high passenger traffic volumes within the Abuja transportation network.

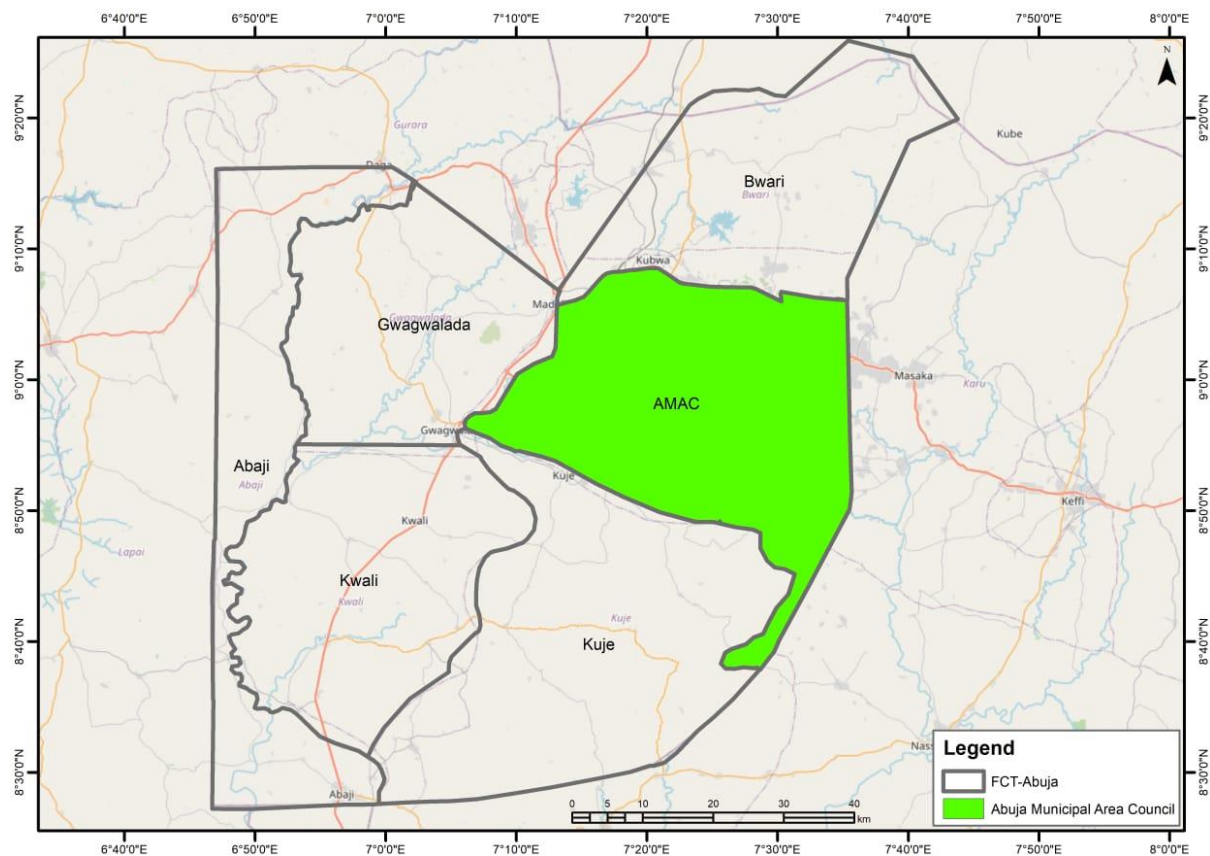


Figure 1: Map of the Federal Capital Territory Abuja, showing AMAC

Research Design

A cross-sectional survey design was adopted to assess commuters' perceptions of commercial bus service quality and travel characteristics in Abuja. The study employed a quantitative approach involving questionnaire administration and field observations. In addition, spatial data were collected using Global Positioning System (GPS) devices to identify and map the locations of major commercial bus terminals within the study area.

Population, Sample Size and Sampling Technique

The target population comprised commuters who regularly utilize commercial bus services within Abuja. Based on projected estimates of commercial bus users in the city, the commuter population was estimated at 692,116 in 2025. The sample size was determined using the Krejcie and Morgan (1970) sample size table, which yielded a sample size of 383 commuters. Additionally, 30 bus drivers and operators were purposively selected to provide supplementary information on bus operations and service delivery.

A purposive sampling technique was employed to select respondents at the identified bus terminals. Only commuters with regular experience using commercial bus services and operators actively involved in bus transportation were included in the survey.

Data Collection

Primary data were collected through the administration of structured questionnaires, field observations, interviews with selected bus operators and transport union officials, and GPS coordinate acquisition. The questionnaire consisted of sections covering respondents' socio-economic characteristics, travel behaviour,

service quality perceptions, waiting times, travel times, and operational challenges. Service quality attributes were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Secondary data were obtained from relevant journals, books, government publications, transport reports, Google Earth imagery, and OpenStreetMap datasets. GPS coordinates of the selected terminals were collected and integrated into a Geographic Information System (GIS) database for spatial analysis and mapping.

Data Analysis

Data were analysed using the Statistical Package for Social Sciences (SPSS) version 26 and ArcGIS 10.8.2. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize commuters' socio-economic characteristics, travel characteristics, and perceptions of service quality.

An independent-samples *t*-test was used to determine whether significant differences existed in mean waiting times between peak and off-peak travel periods. One-way Analysis of Variance (ANOVA) was employed to examine variations in travel times across the selected commercial bus terminals. Where significant differences were identified, Tukey's Honestly Significant Difference (HSD) test was performed for post hoc comparisons. Statistical significance was evaluated at the 5% level ($p < 0.05$).

Spatial analysis was conducted in ArcGIS 10.8.2 using GPS coordinates collected from the terminals. The coordinates were projected to Universal Transverse Mercator (UTM) Zone 32N and overlaid on administrative boundaries and road network datasets to generate maps illustrating the spatial distribution of major commercial bus terminals within Abuja.

Presentation of Results

The results were presented using tables, charts, descriptive summaries, and GIS-generated maps. Frequencies and percentages were used to describe categorical variables, while means and standard deviations were used for continuous variables. Inferential statistical results were presented using *t*-test and ANOVA outputs to facilitate interpretation of differences in waiting and travel times among commuters and terminals.

RESULTS

Socio-Economic Characteristics of Commuters

A total of 383 commuters participated in the survey. Males constituted 55.87% of the respondents, while females accounted for 44.13%. The largest age group was 31–40 years (39.69%), followed by 41–50 years (22.45%) and those above 50 years (19.06%). Respondents with tertiary education represented the largest educational category (39.69%). By occupation, private-sector employees constituted the largest group (26.89%), followed by self-employed/business owners (24.54%) and civil servants (23.76%). Monthly income was concentrated mainly within the ₦101,000–₦200,000 category (48.30%), followed by ₦51,000–₦100,000 (31.33%) (Table 1).

Table 1. Socio-economic characteristics of commuters (n = 383)

Variable	Category	Frequency	Percentage (%)
Gender	Male	214	55.87
	Female	169	44.13
Age	Below 18 years	42	10.97
	18–30 years	30	7.83

	31–40 years	152	39.69
	41–50 years	86	22.45
	Above 50 years	73	19.06
Education	No formal education	34	8.88
	Primary	71	18.54
	Secondary	87	22.72
	Tertiary	152	39.69
	Technical education	39	10.18
Occupation	Student	53	13.84
	Civil servant	91	23.76
	Private-sector employee	103	26.89
	Self-employed/business owner	94	24.54
	Unemployed	17	4.44
	Others	25	6.53
Monthly income (₦)	Below 50,000	39	10.18
	51,000–100,000	120	31.33
	101,000–200,000	185	48.3
	201,000–500,000	34	8.88
	Above 500,000	5	1.31

Source: Field Survey (2025).

Travel characteristics of commuters

Nearly half of the respondents (46.48%) used commercial bus terminals daily, while 29.50% used them 2–3 days per week. Work or office travel was the predominant trip purpose (43.6%), followed by business/shopping (20.9%) and school/education (14.6%).

Regarding travel duration, 35.0% of respondents reported one-way journeys of 30–60 minutes, while 30.0% travelled for 61–90 minutes and 19.8% for more than 90 minutes. Most commuters (60.1%) paid ₦500–₦1,000 per trip, whereas 22.2% paid more than ₦1,000. Travel was concentrated during evening peak hours (41.0%) and morning peak hours (31.6%) (Table 2).

Table 2. Travel characteristics of commuters (n = 383)

Variable	Category	Frequency	Percentage (%)
Terminal use	Daily	178	46.48
	2–3 days/week	113	29.50
	4–6 days/week	45	11.75
	Once a week	15	3.92
	Occasionally	32	8.36
Trip purpose	Work/office	167	43.6
	Business/shopping	80	20.9
	School/education	56	14.6
	Visiting	46	12.0
	Others	34	8.9
One-way travel time	Less than 30 min	58	15.1
	30–60 min	134	35.0
	61–90 min	115	30.0
	Above 90 min	76	19.8
Payment per trip	Less than ₱500	68	17.8
	₱500–₱1,000	230	60.1
	Above ₱1,000	85	22.2
Travel period	Morning peak	121	31.6
	Midday	93	24.3
	Evening peak	157	41.0
	Night	12	3.1

Source: Field Survey (2025).

Frequent delays were reported by 76.3% of commuters, comprising 45.2% who experienced delays often and 31.1% who experienced them very often. This indicates a substantial level of perceived unreliability in bus movement.

Perceived Quality of Commercial Bus Services

The overall mean score for perceived commercial bus service quality was 2.14. The lowest scores were recorded for overcrowding (M = 1.33, SD = 0.49), seating availability (M = 1.53, SD = 0.63), ventilation/air

conditioning ($M = 1.59$, $SD = 0.61$), route and schedule information ($M = 1.59$, $SD = 0.81$), assistance to vulnerable passengers ($M = 1.70$, $SD = 0.48$), and on-time arrival ($M = 1.75$, $SD = 0.56$). Terminal facilities also received a low score ($M = 1.95$, $SD = 0.62$). In contrast, drivers' and conductors' politeness and helpfulness recorded the highest mean score ($M = 2.94$, $SD = 1.23$), while perceived safety from crime while waiting and safe driving recorded mean scores of 2.80 and 2.81, respectively (Table 3).

Table 3. Commuters' perception of commercial bus service quality

Service attribute	Mean	SD	Interpretation
Buses depart according to a reliable schedule	2.11	0.87	Disagree
Buses arrive on time at destination	1.75	0.56	Strongly disagree
Bus frequency is adequate throughout the day	2.04	0.72	Disagree
Fare is affordable compared with income	2.75	1.16	Disagree–Neutral
Fares are consistent and transparent	2.36	1.01	Disagree
Terminal/stop is easily accessible	2.2	0.67	Disagree
Enough bus routes serve the area	2.06	0.84	Disagree
Safety from crime while waiting	2.8	1.01	Neutral
Safety from crime/theft inside the bus	2.53	0.71	Disagree
Drivers drive safely	2.81	0.88	Neutral
Bus is not usually overcrowded	1.33	0.49	Strongly disagree
Seats are comfortable and in good condition	1.84	0.67	Strongly disagree
Bus is clean	2.11	0.75	Disagree
Adequate ventilation/air conditioning	1.59	0.61	Strongly disagree
Drivers and conductors are polite and helpful	2.94	1.23	Neutral
Terminal facilities are adequate	1.95	0.62	Strongly disagree
Vulnerable passengers are properly assisted	1.7	0.48	Strongly disagree
Route and schedule information is clearly displayed	1.59	0.81	Strongly disagree
Seating availability is adequate	1.53	0.63	Strongly disagree
Overall mean	2.14		

Source: Field Survey (2025).

Differences in waiting and travel times

An independent-samples *t*-test showed a significant difference in waiting time between peak- and off-peak periods. Mean waiting time was 26.48 ± 9.50 minutes during off-peak periods compared with 21.46 ± 8.36

minutes during peak periods, $t(104) = 5.039$, $p = .001$ (Table 4).

Table 4. Waiting time during peak and off-peak periods

Period	n	Mean waiting time (min)	SD
Off-peak	105	26.48	9.50
Peak	278	21.46	8.36

Independent-samples t-test: $t(104) = 5.039$, $p = .001$.

Source: Author's Analysis (2025).

Mean one-way travel time differed significantly across the eight terminals, $F(7, 375) = 8.196$, $p < .001$. Nyanya recorded the highest mean travel time (73.89 ± 20.90 min), followed by Zuba (65.76 ± 21.05 min), whereas Area 1 recorded the lowest (49.63 ± 20.21 min). Tukey HSD comparisons showed significant differences between Nyanya and Area 1, AYA, Berger, Eagle Square, and Utako, as well as between Zuba and Area 1 (Table 5).

Table 5. One-way travel time across major commercial bus terminals

Terminal	n	Mean travel time (min)	SD
Nyanya	75	73.89	20.90
Zuba	43	65.76	21.05
Dei-Dei	27	61.78	22.22
Berger	72	59.13	19.85
Utako	35	56.76	19.12
AYA	39	55.94	19.92
Eagle Square	39	54.81	19.21
Area 1	53	49.63	20.21
Overall	383	61.24	21.46

One-way ANOVA: $F(7, 375) = 8.196$, $p < .001$.

Source: Author's Analysis (2025).

DISCUSSION

Socio-Economic Characteristics of Commuters

The socio-economic profile of commuters suggests that commercial bus transport primarily serves economically active adults who depend on public transport for routine mobility. The predominance of respondents within the working-age category and the high proportion of individuals with tertiary education indicate that commercial buses remain an essential transport option even among relatively educated urban residents. This finding supports the argument that public transport systems in rapidly growing cities constitute

a critical mobility mechanism for both low- and middle-income populations, particularly where private vehicle ownership remains constrained by economic considerations (Agyemang et al., 2022; Abubakar & Aina, 2023).

The substantial representation of private-sector employees, civil servants, and self-employed individuals further highlights the central role of public transport in facilitating access to employment opportunities and economic activities. According to Oyesiku and Olujimi (2021), efficient public transportation systems are indispensable for enhancing labour productivity because they connect workers with employment centres and reduce mobility barriers. Similar observations have been reported in several African cities where growing urban populations continue to rely heavily on public transport despite rising income levels (Acheampong et al., 2023).

The dominance of middle-income earners among commuters suggests that commercial buses remain relatively affordable compared with private transport alternatives. Nevertheless, dependence on public transport among economically productive groups also implies that deficiencies in service quality may have wider implications for economic efficiency, commuting stress, and quality of life. Existing studies have shown that unreliable urban transport systems disproportionately affect workers by increasing commuting time, reducing workplace productivity, and elevating daily travel costs (Lucas et al., 2022; Guzman et al., 2023).

Travel Characteristics of Commuters

The observed travel patterns underscore the importance of commercial bus terminals as major mobility hubs within the metropolitan transport network. The high frequency of terminal usage demonstrates the dependence of urban residents on public transport for daily activities. Such travel behaviour is consistent with findings from developing cities where public bus systems constitute the backbone of urban mobility due to affordability and extensive route coverage (UN-Habitat, 2022; Salahuddin et al., 2023).

The predominance of work-related trips reflects the strong relationship between urban transport demand and employment activities. According to Jain et al. (2022), commuting flows in metropolitan regions are largely influenced by the spatial separation between residential and employment locations, leading to intensive peak-period travel demand. The concentration of trips during morning and evening peak periods observed in this study aligns with the traditional daily work-travel cycle reported in many developing-world cities (Tirachini & Cats, 2020).

The prevalence of moderate to relatively long trip durations suggests challenges associated with urban sprawl, congestion, and route inefficiencies. Rapid urban expansion without commensurate transport infrastructure improvements often results in increased travel times and reduced accessibility (Acheampong, 2021). Extended commuting durations have been associated with reduced passenger satisfaction, travel fatigue, and declining overall well-being among urban commuters (Lättman et al., 2021).

The widespread reporting of delays indicates deficiencies in service reliability, one of the most important determinants of public transport attractiveness. Reliability is frequently considered more important than speed because passengers experience uncertainty and anxiety when transport services fail to operate predictably (van Oort, Sparing, & Brands, 2023). Inconsistent operations often discourage public transport patronage and can contribute to modal shifts toward less sustainable transport options.

Perceived Quality of Commercial Bus Services

The generally low assessment of service quality indicates significant shortcomings in the provision of commercial bus services. Service quality literature identifies reliability, comfort, accessibility, information provision, and safety as key dimensions influencing passenger satisfaction (Eboli & Mazzulla, 2022). The negative perceptions recorded across several service attributes suggest that current services do not adequately meet commuter expectations.

The poor evaluations of overcrowding, seating availability, and thermal comfort reflect capacity constraints and inadequate vehicle conditions. Overcrowding has consistently been identified as one of the strongest sources of dissatisfaction among public transport users because it reduces physical comfort, increases stress levels, and can elevate safety concerns (Tirachini, Hensher, & Rose, 2021). Similarly, inadequate ventilation and poor onboard environmental conditions have been associated with declining passenger well-being and reduced willingness to use public transport (De Vos, 2023).

The low ratings for route information and schedule communication suggest weaknesses in passenger information systems. Modern public transport systems increasingly rely on accurate and accessible information to improve service usability and reduce travel uncertainty (Cats, West, & Eliasson, 2022). Where information is absent or unclear, passengers experience greater difficulty in planning trips, particularly during disruptions and peak-demand periods.

The negative perception of terminal facilities and assistance provided to vulnerable users points to concerns regarding inclusiveness and accessibility. Contemporary transport planning emphasizes universal accessibility, requiring transport systems to accommodate elderly passengers, persons with disabilities, and other vulnerable groups (United Nations, 2023). Limited support for such users can contribute to transport exclusion and reduced mobility opportunities.

Despite these challenges, relatively favourable perceptions of driver behaviour and personal security indicate that commuters maintain some confidence in operational personnel and safety conditions. Previous studies have shown that courteous staff interactions significantly enhance perceptions of service quality and can partially offset dissatisfaction arising from operational shortcomings (Eboli & Mazzulla, 2022). Similarly, safety remains a fundamental determinant of public transport acceptance and continued patronage.

Overall, the findings suggest that physical and operational aspects of service quality require greater improvement than interpersonal dimensions. This pattern has been widely observed in developing-country transport systems where personnel performance may be acceptable, but infrastructural and operational investments remain inadequate (Adeniji & Obikaeze, 2022).

Differences in Waiting Time Between Peak and Off-Peak Periods

The significant variation in waiting times between travel periods highlights important operational characteristics of the bus system. Shorter waiting times during peak periods may be explained by increased vehicle deployment and higher service frequency in response to elevated passenger demand. Transport operators often adjust supply during peak hours to maximize revenue opportunities and accommodate larger passenger volumes (Ceder, 2021).

Conversely, longer waiting durations during off-peak periods may result from reduced service frequency and lower operational efficiency. Similar patterns have been documented in urban public transport systems worldwide, where operators concentrate resources during periods of highest demand while reducing service levels during less profitable periods (Currie & Delbosc, 2021).

Waiting time constitutes a critical component of perceived travel cost because passengers often view time spent waiting as more burdensome than time spent in motion. According to Wardman (2022), commuters generally assign a higher disutility to waiting than in-vehicle travel, making reductions in waiting time an important strategy for improving passenger satisfaction. Therefore, efforts to maintain reasonable service frequencies throughout the day could substantially enhance commuter experiences.

Variations in Travel Time Across Commercial Bus Terminals

The significant disparities in travel times among terminals suggest differences in spatial location, traffic exposure, network connectivity, and operational conditions. Terminals located farther from major activity centres are more likely to experience longer travel durations due to greater travel distances and exposure to congestion-prone corridors (Litman, 2023).

The longer travel times recorded at peripheral terminals may reflect the influence of urban expansion and suburbanization. As cities grow outward, commuters increasingly travel longer distances between residential areas and employment centres, resulting in extended journey times (Acheampong et al., 2023). Such patterns are particularly evident in rapidly urbanizing African cities where transportation infrastructure development often lags behind urban growth.

Traffic congestion is another plausible factor contributing to differences in travel times across terminals.

Congestion remains a major challenge in metropolitan regions and has been linked to productivity losses, increased fuel consumption, environmental degradation, and reduced quality of urban life (World Bank, 2022). Routes serving densely populated corridors frequently experience delays arising from traffic bottlenecks, roadside activities, and inadequate road capacity.

The significant differences observed between specific terminals further indicate unequal levels of accessibility within the urban transport network. Accessibility disparities can create social and economic inequalities by affecting opportunities for employment, education, healthcare, and other essential services (Pereira, Karner, & Schwanen, 2023). Consequently, improving connectivity and reducing travel time disparities should constitute a major priority for urban transport planning.

Overall, the findings demonstrate that travel experiences vary substantially across different parts of the city, emphasizing the need for targeted interventions such as route optimization, traffic management measures, infrastructure upgrades, and integrated transport planning. Such improvements would contribute to increased service reliability, enhanced passenger satisfaction, and more sustainable urban mobility outcomes.

CONCLUSION

This study assessed commuters' perceptions of commercial bus services across major bus terminals in Abuja and examined variations in waiting and travel times. The findings demonstrate that commercial buses remain an indispensable mode of transportation for a large proportion of urban residents, particularly economically active individuals who rely on public transport for work, business, educational, and other daily activities. This underscores the critical role of commercial bus services in supporting urban mobility and sustaining socio-economic activities within the city.

Despite their importance, the study revealed widespread dissatisfaction with several dimensions of service quality. Reliability-related attributes, including punctuality, schedule adherence, and service frequency, received unfavourable assessments, indicating persistent operational inefficiencies. Similarly, comfort-related factors such as overcrowding, inadequate seating, poor ventilation, and insufficient terminal facilities emerged as major concerns among commuters. These conditions negatively influence passenger satisfaction and reduce the attractiveness of public transport services. However, relatively positive evaluations of driver conduct and perceived personal safety suggest that passengers maintain some confidence in operational staff and security conditions, although these strengths are insufficient to offset broader service deficiencies.

The study further established significant differences in waiting times between peak and off-peak periods, highlighting inconsistencies in service provision across different periods of the day. Additionally, travel times varied significantly among terminals, reflecting disparities in accessibility, route characteristics, traffic congestion, and spatial location within the metropolitan area. These variations indicate that commuters experience unequal levels of transport efficiency depending on the routes and terminals they use.

Overall, the findings suggest that the quality of commercial bus services in Abuja falls short of commuter expectations in several key areas. Improving service reliability, increasing vehicle capacity, enhancing passenger comfort, upgrading terminal infrastructure, strengthening information systems, and implementing effective traffic management measures are essential to improving the commuting experience. Such interventions would not only enhance passenger satisfaction but also contribute to greater accessibility, reduced travel burdens, and the development of a more efficient and sustainable urban transport system. The

study therefore provides valuable empirical evidence for transport planners, policymakers, and operators seeking to improve public transport performance and promote sustainable urban mobility in Abuja.

Conflict of Interest

The authors declare no conflict of interests

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