

ASSESSMENT OF PUBLIC TRICYCLE OPERATORS' UNSAFE BEHAVIOR IN KADUNA STATE, NIGERIA.

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Abstract

Intermediate public transport (IPT), particularly commercial tricycles, plays a crucial role in urban mobility in Kaduna North, Kaduna State, Nigeria. However, concerns persist regarding the safety and efficiency of tricycle operations. This study addresses the issue of unsafe riding behaviors and poor regulatory compliance among commercial tricycle riders. The aim is to examine factors influencing these behaviors, assess adherence to traffic laws, and identify operational challenges. A sample of 103 riders was selected using stratified random sampling, and data were collected through questionnaires at various terminals, then analyzed using Microsoft Excel. Findings reveal widespread unsafe practices: 67% of riders exceed speed limits, 92% use mobile phones while riding, and 71.9% overload passengers. Key causes include economic pressure (37.9%), lack of training (30.1%), and poor road conditions (11.7%). Alarming, 61.17% of respondents have been involved in at least one accident, with speeding over (36.9%) and fatigue (30.1%) as primary causes. Regulatory compliance is low 52.43% lacking valid permits and only 40.8% obeying traffic signals. Common violations include overloading (49.11%) and driving the wrong way (23.21%). Major challenges include high running costs (28.2%), inadequate parking (55.3%), insecurity (17.5%), and limited access to training (39.8%).

Keywords: Tricycle riders, rider behavior, traffic compliance, operational challenges, intermediate public transport, Kaduna Metropolis, road safety policy

Introduction

Enhancing transport systems that efficiently link resources to destinations and promote mass mobility can improve cities' economic and environmental performance (Etukudoh et al., 2024). However, uncontrolled and

careless driving is still a major factor in road accidents in Nigeria, where transportation is still largely characterized by this behaviour (Akanmu et al., 2023). Additionally, a lot of transport companies block roadways, encroach on pedestrian walkways, and regularly break traffic laws by stopping to

pick up passengers at non-designated locations (Barau, 2023).

Intermediate public transport (IPT) systems, such as commercial tricycles, also known as "Keke Napep" in Nigeria, are a vital part of urban mobility in rapidly expanding places like Kaduna North. These vehicles provide convenient, reasonably priced, and flexible transportation for commuters in both official and unofficial urban areas. However, despite these benefits, urban transport is essential for maintaining accessibility, mobility, and economic development. However, the transport systems in many Nigerian cities are characterized by ineffectiveness, lax regulations, and dangerous behaviors that compromise service delivery and safety. According to recent studies, transport operators frequently disregard safety requirements, infringe on pedestrian areas, and break traffic laws (Akanmu et al., 2023; Barau, 2023). These challenges not only worsen congestion but also expose passengers and other road users to risks.

Commercial tricycles, sometimes referred to as Keke Napep, have emerged as a leading form of intermediate public transportation in this regard. There have been conflicting results since their implementation in Kaduna North. On the one hand, they offer flexible

and reasonably priced mobility, filling the void created by insufficient official public transit infrastructures. Their quick expansion, however, has led to additional urban issues like pollution, traffic jams, and an increase in the number of accidents (Aderibigbe & Ibrahim, 2020; Ogunbodede, 2008; Onokala & Olajide, 2021).

The conduct of tricycle riders is the root cause of these issues. Over-speeding, driving against traffic, arbitrary halting, and disregard for fundamental safety regulations are among the risky behaviors displayed by many operators. Transportation authorities and the general public have increasingly criticized such actions (Aderibigbe & Ibrahim, 2020; Nelson et al., 2024; Ameen et al., 2025). These trends indicate that unsafe riding practices, a lack of training, and lax regulation are undermining the advantages of tricycles as an alternate form of transportation. Numerous factors, such as insufficient training, financial strain, and a lack of strict enforcement of regulations, contribute to the disregard for traffic signs (Salami & Azeez, 2016; Yange et al., 2020; Ameen et al., 2025). Improving road safety and the effectiveness of public transport in Kaduna Metropolis requires an understanding of the underlying causes of

risky riding behavior as well as an assessment of the degree of adherence to traffic laws.

In developing nations, public transport systems that are informal and intermediate are crucial for urban mobility. In Nigeria, tricycles, also known as keke, have become a prevalent type of intermediate public transportation (IPT), particularly in peri-urban and urban regions. They are a practical option for many city dwellers due to their affordable price, agility in crowded traffic, and capacity to reach confined spaces (Adewumi & Akinyele, 2020).

Tricycles have been more popular as a form of public transportation in Kaduna North, one of Kaduna State's largest cities. But there have not been any behavioral or regulatory measures to keep up with this increase in demand. There are worries regarding the influence of many tricycle riders' actions on road safety and the quality of transportation services since they include overloading, poor road etiquette, contempt for traffic laws, and risky activities (Abdullahi et al., 2024; Nsemba et al., 2022). The overall performance of the public transport system is significantly influenced by the actions of its operators. Perceived behavioral control, attitudes, and subjective norms all have an impact on an individual's behavior, according

to the theory of planned behavior (Ajzen, 1991).

Literature Review

Intermediate Public Transport (IPT) encompasses transport modes that operate between private vehicles and formal mass transit systems. According to Gwilliam (2003), IPT includes tricycles, motorcycles, taxis, and minibuses that typically function on flexible routes in semi-formal or informal settings. In Nigeria, tricycles popularly known as *Keke Napep* have become a vital component of urban transportation due to their affordability, accessibility, and ability to navigate congested and poorly maintained roads (Adewumi & Akinyele, 2020; Abdullahi et al., 2024). Introduced as part of government initiatives to tackle unemployment and improve urban mobility, tricycles now play an essential role in meeting daily commuting needs.

However, the sector remains largely unregulated, resulting in safety challenges, fare inconsistency, poor route discipline, and frequent road accidents (Nsemba et al., 2022; Ameen et al., 2025). In Kaduna State especially in urban LGAs such as Kaduna North tricycle operations have expanded rapidly, providing critical transport links in areas underserved by buses. Yet, this growth

has been accompanied by reckless driving, disregard for traffic rules, and increasing accident rates (Nelson et al., 2024; Alatishe-Muhammad et al., 2025).

Driver behavior plays a central role in shaping road safety outcomes. The Theory of Planned Behavior (Ajzen, 1991) emphasizes that attitudes, social norms, and perceived behavioral control influence individuals' actions. For tricycle riders, behaviors such as overloading, ignoring traffic signals, and neglecting safety gear are often driven by informal norms, financial pressures, and weak law enforcement (Omoke, 2021; Yange et al., 2020). Studies also reveal that most riders lack formal training, relying instead on peer learning and experience (Akinpelu, 2022; Abdullahi et al., 2024). Consequently, unsafe habits such as abrupt stopping, reckless overtaking, and fatigue-induced errors are common. Despite the establishment of tricycle unions and local licensing programs, enforcement remains inconsistent. Unions often act as informal regulators but lack the authority and capacity to enforce compliance effectively (Nsemba et al., 2022). Therefore, there is a pressing need for empirical research examining the behavioral patterns, safety practices, and operational challenges of tricycle riders in Kaduna North to guide policy formulation,

safety interventions, and sustainable transport planning.

Methodology

This study employed a structured questionnaire to collect data from the tricycle riders operating across the four terminals within Kaduna North. A purposive sampling technique was employed to identify the terminals where the research work was carried out. Krejcie and Morgan's table was used to obtain the sample size, which included 95 respondents in total. To guarantee impartial and equitable representation, structured questionnaires were distributed to respondents using a random selection technique for each respondent from these terminals. To ensure the consistency and validity of the instrument, the questionnaire underwent pre-testing with a limited cohort of respondents before extensive deployment. The data were analyzed using descriptive statistics via the Microsoft Excel Package. The map of Kaduna State is designed to identify the study areas using Quantum Geographic Information System (QGIS).

Study Area

This study focuses on Kaduna North Local Government Area (LGA) in Kaduna State,

Northwestern Nigeria. As one of the major urban centers within the Kaduna metropolis, Kaduna North serves as both a residential and commercial hub, encompassing key neighborhoods such as Kawo, Badarawa, Ungwan Dosa, Malali, and Ungwan Sarki (Kaduna State Government, 2021; NBS, 2020). The area is characterized by rapid urbanization, high population density, and an ever-growing demand for intra-city mobility (Aderibigbe & Ibrahim, 2021). Due to limited formal mass transit options, tricycles commonly referred to as *keke napep* have emerged as the dominant mode of short- and medium-distance transport (Ogunbodede, 2020; Bello & Olayinka, 2022). They are

favoured for their affordability, accessibility, and ability to navigate narrow and poorly maintained roads (Akinlade, 2021). However, the rapid expansion of tricycle operations has also led to growing challenges such as traffic congestion, frequent accidents, reckless riding, and weak regulatory oversight (Ikechukwu & Olawale, 2020; FRSC, 2023). Kaduna North was selected for this study because it provides a representative urban setting for assessing tricycle riders' behavior. Findings from the area are expected to guide transport policy, safety regulation, and behavioral interventions across other urban LGAs in Kaduna State and beyond (Ahmed & Musa, 2021).

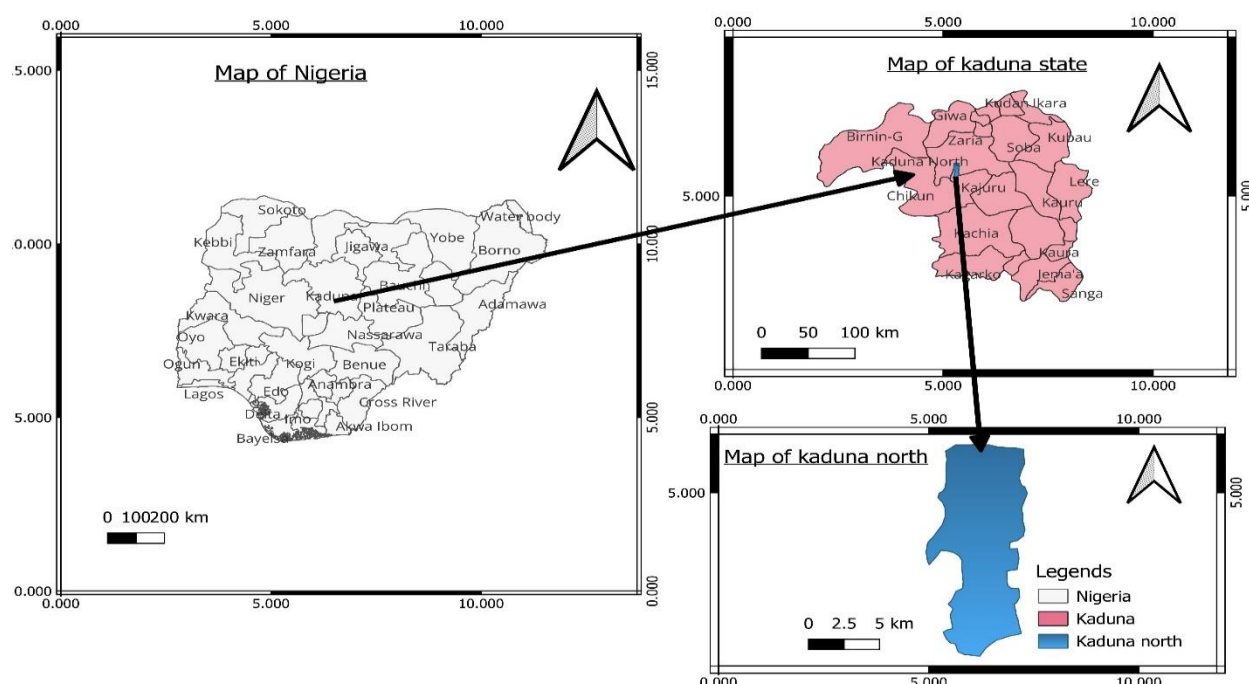


Fig. 1 Map of Kaduna State**Table 1: Analysis of Drivers' Compliance with Speed Limits in Kaduna Metropolis**

Speed Limit Compliance	frequency	Percentage (%)
Always exceed the speed limit	32	32.04
Sometimes exceeds the speed limit	35	34.95
Rarely exceed the speed limit	26	26.21
Never exceed the speed limit	7	6.80
Total	100	100.00

Source: Author's Fieldwork 2025

According to the data, oversteering is a common driving behaviour among drivers in Kaduna Metropolis. About 67% of respondents specifically stated that they either frequently or occasionally go over the speed limit. This suggests a poor compliance culture among drivers as well as a general disdain for traffic laws. According to the findings, speeding has become commonplace in the local transportation environment. This could be due to a number of causes, including insufficient road signs, poor enforcement of

speed limits, time constraints, and a lack of understanding about the risks associated with excessive speed.

Despite some drivers' best efforts to adhere to speed restrictions, there are still instances of infractions, as seen by the 26.21% of respondents who said they rarely go over them. A small percentage of respondents (6.8%) said they have never gone over the speed limit, indicating that complete compliance is uncommon.

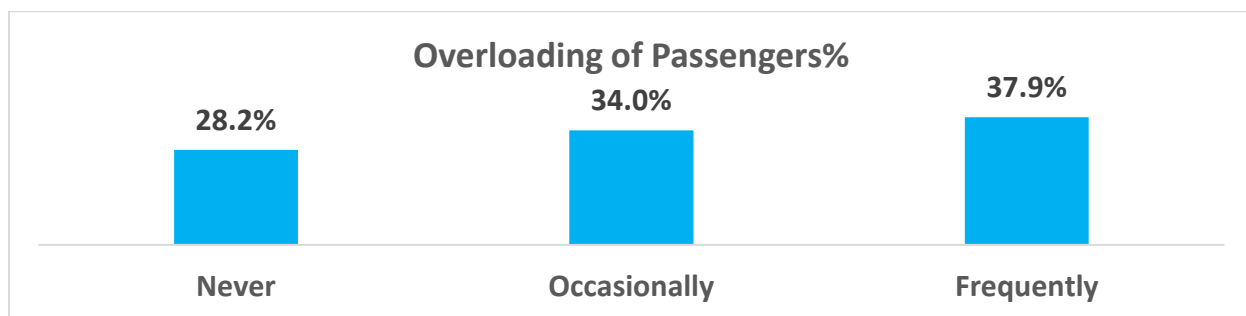
Table: 2 Phone Used While Riding

Phone Used While Riding	Frequency	Percentage (%)
Never	7	7.8%
Rarely	23	25.2%
Sometimes	27	30.1%
Always	33	36.9%
Total	90	100%

Source: Author's Fieldwork 2025

There is a concerning trend of riders becoming distracted, according to data on phone use while riding. The majority of respondents reported using their phones while driving, with a noteworthy 67% (sometimes 30.1% and always 36.9%) admitting to this unsafe behavior that jeopardizes road safety. The prevalence of phone use among cyclists indicates that many of them are unaware of the risks of distraction, including slowed reaction times,

losing control, and a higher chance of being involved in an accident. The tiny percentage of respondents (7.8%) who said they never use their phones while riding shows a lack of commitment to safe riding habits and may indicate a lack of knowledge about the safety or legal ramifications. The 25.2% of people who use their phones infrequently are a population that may occasionally give in to distractions in specific situations, suggesting uneven adherence to safety regulations.



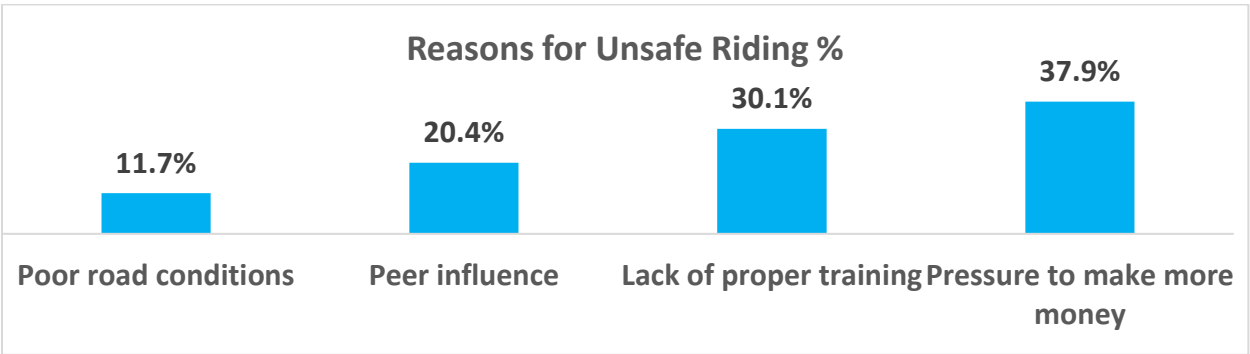
Source: Author's Fieldwork 2025

According to the research, passenger overloading is a common and ingrained behavior among the participants. A significant 37.9% of respondents said they often overload their cars, which means that almost 40% of drivers routinely transport more people than is allowed. This conduct presents significant safety risks, including decreased vehicle control, a higher likelihood of an accident, accelerated vehicle

deterioration, and more severe injuries in the case of an accident. According to 34.0% of respondents, they occasionally overbook passengers. Although they may not often break loading limits, drivers in this group do so under certain situations, such as during rush hours, when there is a high passenger demand, or when they are attempting to maximize their profits. This discrepancy implies that both economic pressure and lax

enforcement are factors in the sporadic violations of safety laws. Only 28.2% of drivers, on the other hand, said they had never

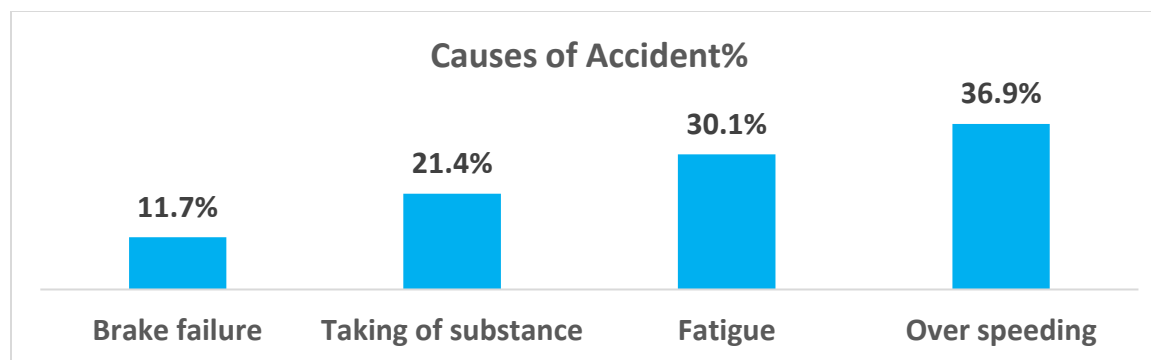
loaded their cars. This little percentage stands for people who strictly follow traffic laws and put safety before convenience or money.



Source: Author’s Fieldwork 2025

The findings indicate that systemic and economic pressures are the main drivers of risky riding behavior among tricycle riders in Kaduna North. The leading factor, financial pressure (37.9%), compels riders to prioritize income over safety, resulting in overspeeding, overloading, and long working hours to maximize earnings. This reflects the unstable economic conditions and lack of financial support in the transport sector. Additionally, inadequate training (30.1%) emerged as a major cause of unsafe practices, showing that many riders operate without

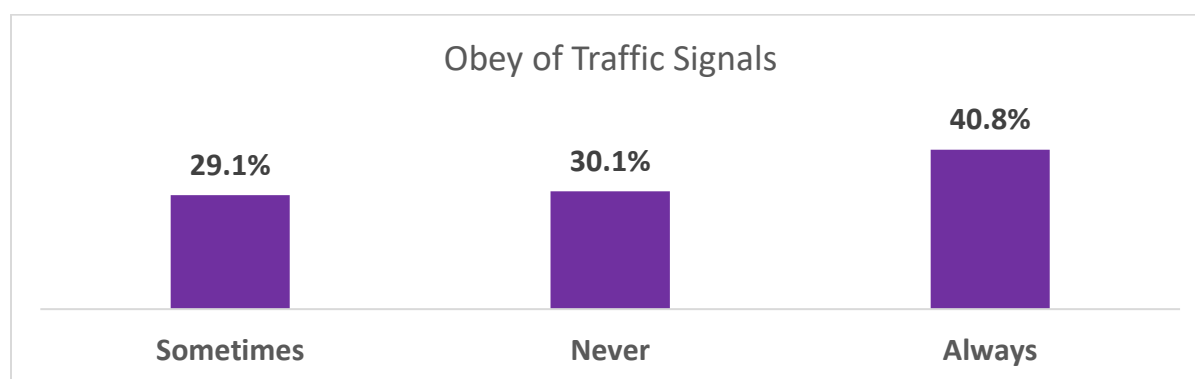
formal education on traffic laws or defensive driving. Mandatory certification and structured safety training are therefore essential. Peer influence (20.4%) also contributes significantly, as riders often emulate unsafe behaviors encouraged within their social groups. Lastly, poor road conditions (11.7%) exacerbate accident risks, particularly in urban areas with potholes and inadequate infrastructure. Addressing these issues requires combined economic, educational, and infrastructural interventions to improve safety and professionalism.



Source: Author's Fieldwork 2025

The data reveals that speeding (36.9%) is the leading cause of tricycle accidents in Kaduna North, showing riders' frequent disregard for speed limits due to the urge to maximize income through more trips. This calls for stricter enforcement, the use of speed monitoring devices, and public education on the dangers of speeding. Fatigue (30.1%) ranks second, as many riders work excessively long hours under financial pressure, leading to poor concentration and slower reaction times. Implementing rest-hour regulations and awareness on fatigue

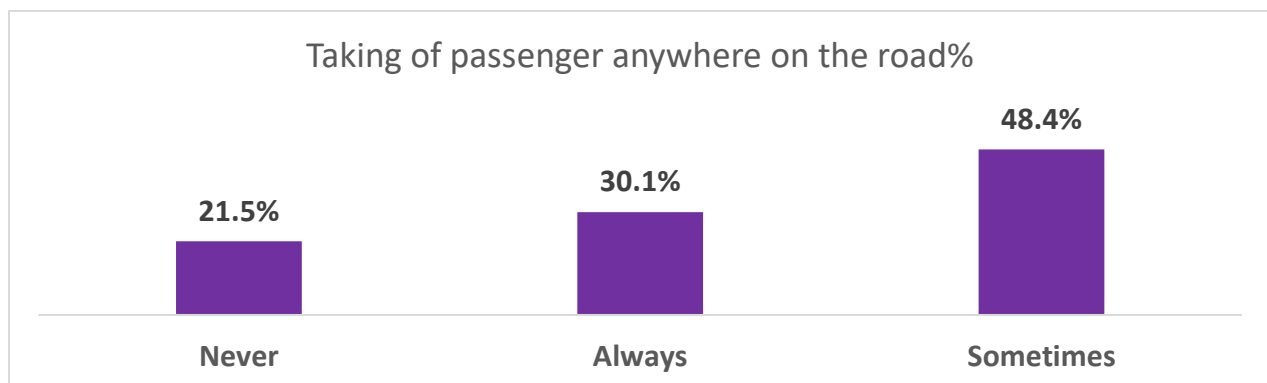
management is essential. Substance use (21.4%) also contributes significantly to accidents, as some riders rely on drugs or alcohol to cope with stress and exhaustion, impairing judgment and coordination. Routine screening and zero-tolerance policies are vital. Finally, brake failure (11.7%) highlights a poor maintenance culture driven by financial constraints and a lack of technical skills, underscoring the need for mandatory inspections and basic mechanical training to enhance roadworthiness and safety.



Source: Author's Fieldwork 2025

Findings show that traffic discipline remains a major challenge among tricycle riders in Kaduna North. Only 40.8% of respondents reported always obeying traffic signals, indicating moderate but insufficient compliance. A further 29.1% stated that they obey signals occasionally, suggesting conditional adherence influenced by factors such as law enforcement presence or traffic conditions. This inconsistent behavior reflects a weak internalized safety culture. Alarming, 30.1% admitted they never

observe traffic signals, highlighting habitual disregard for road laws and increased risks of accidents and congestion. Such non-compliance suggests gaps in safety awareness, ineffective enforcement, and a prevailing perception of impunity. Overall, the data reveal that without stronger enforcement, continuous education, and behavioral reorientation, traffic indiscipline among tricycle riders will persist as a critical safety concern in Kaduna North.



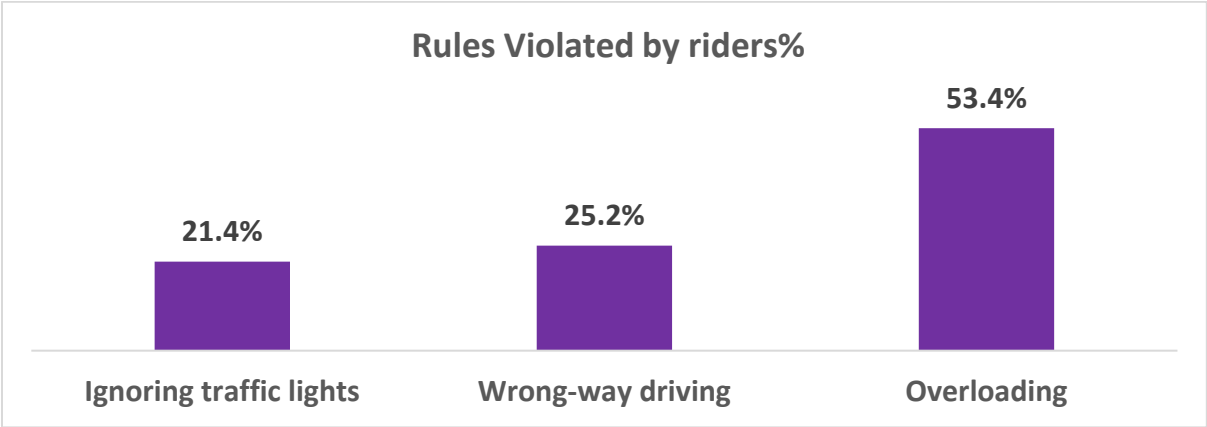
Source: Author's Fieldwork 2025

Findings indicate that unsafe roadside stopping is a common practice among tricycle riders in Kaduna North, increasing accident risks and traffic congestion. About 48% of respondents admitted to occasionally stopping to pick up or drop off passengers, prioritizing profit or convenience over traffic safety. This reflects both weak enforcement and the absence of designated loading or

unloading terminals. Additionally, 30.1% of riders reported always stopping on the road, showing a persistent disregard for safety laws and endangering passengers through abrupt halts and roadside boarding. Only 21.5% stated that they never stop while driving, representing a small group adhering to proper operational standards. These findings emphasize the urgent need for structured

terminals, stricter enforcement of road regulations, and enhanced rider education programs. Strengthening institutional monitoring and improving infrastructure

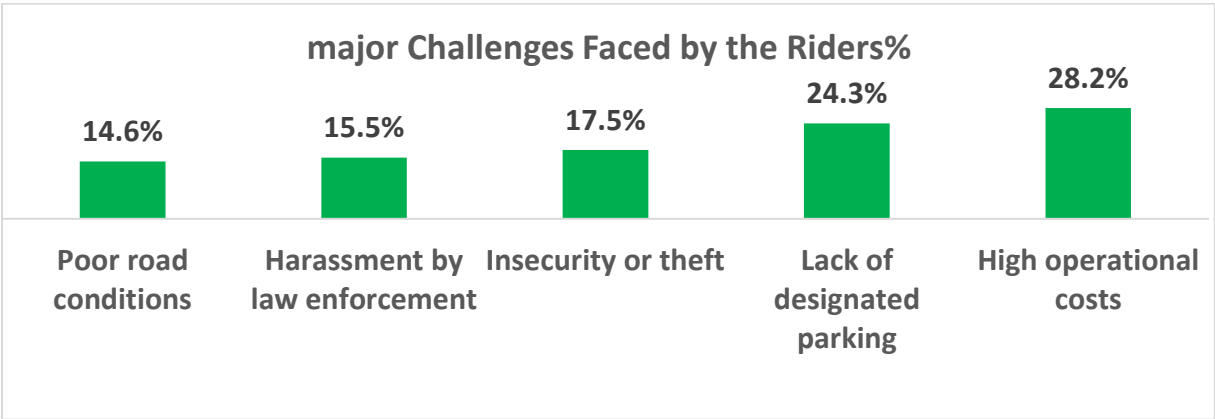
could help reduce such risky behavior and promote safer, more organized tricycle transport within Kaduna North.



Source: Author’s Fieldwork 2025

The most frequently broken rule, according to over half of the respondents, is overloading (49.11%). It directly jeopardizes vehicle stability and passenger safety and is a reflection of both economic pressure and a lack of enforcement. Nearly one in four riders drives against traffic, frequently in an attempt to save time, which poses a major safety

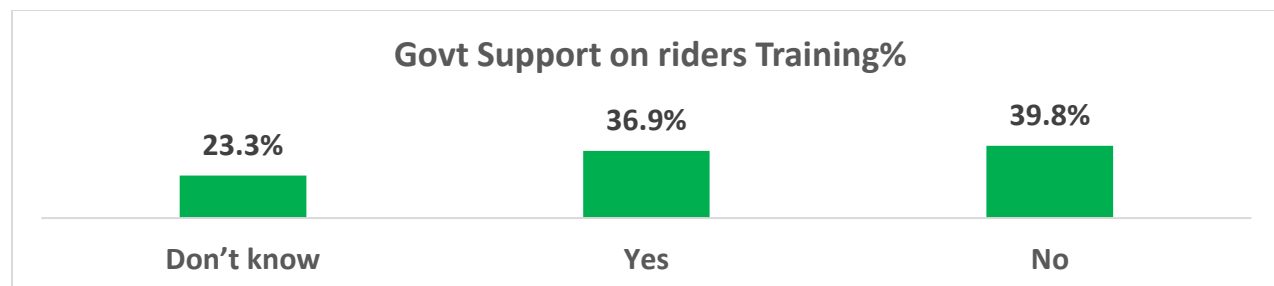
concern (23.21%). Head-on collisions are more likely as a result of this behavior. Ignoring traffic lights (19.64%): Almost one out of five respondents acknowledged breaking the law, despite the risk. This is consistent with previous research showing that just 37.5% of respondents always follow traffic signals.



Source: Author’s Fieldwork 2025

Findings show that high operating costs (28.2%) are the most pressing challenge faced by tricycle riders in Kaduna North. Rising fuel prices, frequent repairs, and expensive spare parts have created significant financial strain, often pushing riders to engage in risky practices such as overloading, speeding, and working excessively long hours to meet daily income targets. This reflects the broader economic pressure in the transport sector, where safety and compliance are often compromised for profit. Another major issue is the lack of designated parking or terminal spaces (24.3%), forcing riders to stop along busy roads, increasing congestion, and heightening accident risks. Theft and

insecurity (17.5%) also pose serious concerns, particularly for those operating at night or in isolated areas, leading to economic instability and safety fears. Furthermore, 15.5% of respondents reported harassment by law enforcement, including unfair treatment, extortion, and arbitrary fines, which erodes trust and promotes informal operations. Poor road conditions (14.6%) remain a critical challenge, contributing to frequent vehicle damage, fatigue, and accidents. Overall, these issues highlight the urgent need for financial support, improved infrastructure, transparent regulation, and stronger security measures to enhance tricycle operations and rider welfare in Kaduna North.



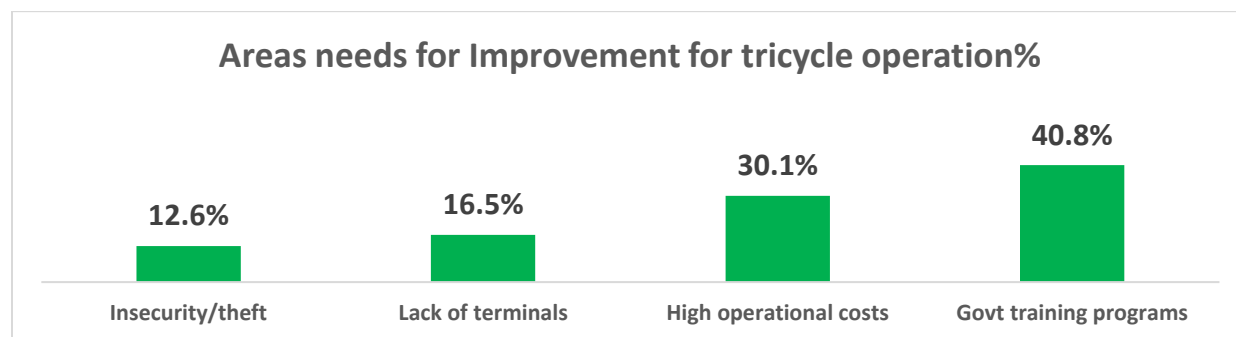
Source: Author's Fieldwork 2025

Findings indicate a major gap in government involvement with tricycle riders in Kaduna North. About 39.8% of respondents reported no access to government training or support, showing weak institutional participation in rider safety education and regulation. This

lack of oversight contributes to unsafe behaviors and poor traffic law compliance. Meanwhile, 36.9% reported receiving some form of government training, suggesting that while programs exist, they are inconsistent and limited in scope. Access often depends on

union affiliation or local initiatives rather than a unified policy framework. Additionally, 23.3% of respondents were unaware of any government efforts, highlighting poor communication and low awareness. These results underline the need

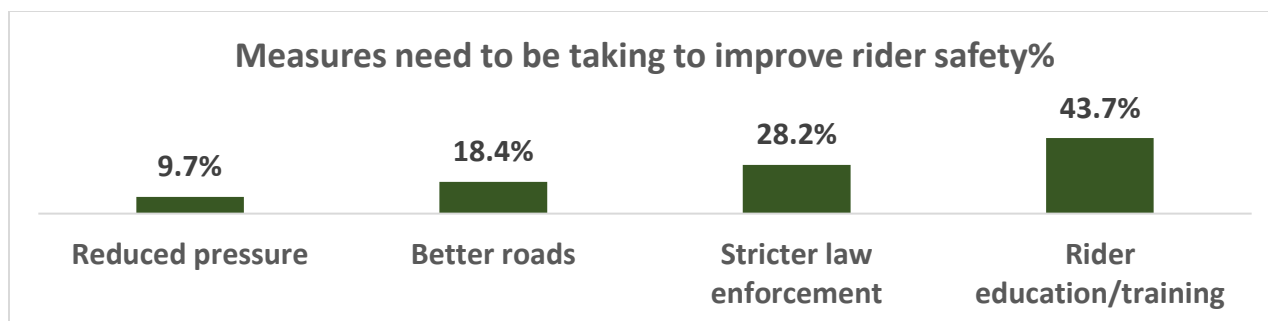
for consistent, well-structured government engagement focused on standardized training, safety awareness, and effective enforcement to improve tricycle operations and road safety across Kaduna North.



Source: Author's Fieldwork 2025

The findings reveal that 40.8% of tricycle riders strongly desire government-led training programs to enhance safety awareness, professional conduct, and compliance with traffic laws. This reflects their recognition that consistent, formal training is essential for reducing unsafe practices and improving overall operational standards. Riders also expressed confidence in government agencies to deliver lasting and effective safety initiatives. High operational costs (30.1%) were identified as a major challenge affecting safe and efficient service delivery. Rising fuel prices, spare part costs, and maintenance expenses have placed significant financial pressure on riders, often

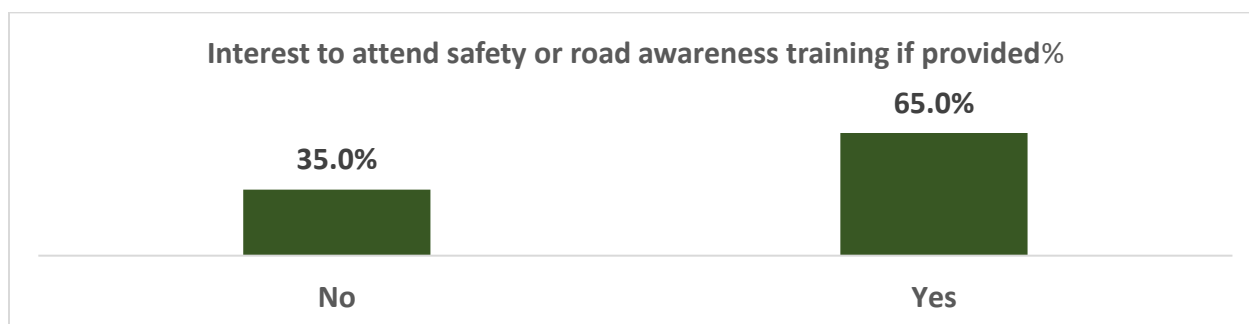
leading to overloading, overspending, and extended work hours. Many respondents suggested government support through tax reliefs, fuel subsidies, or microcredit schemes to reduce economic strain. Additionally, 16.5% of respondents cited inadequate terminal infrastructure as a barrier to organized transport management, leading to congestion and unsafe parking along major roads. Properly constructed terminals would improve traffic flow and safety. Lastly, 12.6% highlighted insecurity and theft as persistent threats, especially during late operations. They called for stronger policing, community patrols, and safety enforcement.



Source: Author's Fieldwork 2025

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Source: Author's Fieldwork 2025

The findings show that while most tricycle riders in Kaduna North have some exposure to safety training, significant gaps remain in coverage and effectiveness. About 65% of respondents reported participating in safety training programs, suggesting that government agencies, unions, or private bodies have made efforts to promote safer riding practices. However, mere attendance does not guarantee behavioral change, as many riders still fail to consistently apply safety principles such as obeying speed limits, using protective gear, or observing traffic signals. Conversely, 35% of riders indicated they had never received any safety training, revealing a substantial knowledge and capacity deficit within the sector. This lack of formal instruction increases the likelihood of poor traffic compliance, unsafe driving habits, and higher accident risks. Overall, while progress has been made, there is a pressing need for more comprehensive, practical, and continuous safety education for tricycle operators.

Discussion of Findings

The study revealed widespread noncompliance with traffic regulations among tricycle riders in Kaduna North. Many riders admitted to unsafe practices such as turning without signaling, abrupt stopping,

ignoring traffic lights, and speeding. These behaviors demonstrate poor knowledge of traffic rules and a lack of commitment to safety standards. This supports Oyesiku and Odufuwa (2021), who found that informal transport operators often violate safety rules due to weak enforcement and inadequate monitoring. Regulatory agencies like the Federal Road Safety Corps (FRSC) and the Kaduna State Traffic and Environmental Law Enforcement Agency (KASTLEA) were found to lack sufficient resources and consistency in enforcement. This has made traffic compliance largely optional, normalizing risky riding behavior. Although many riders belong to unions, membership did not improve safety compliance. Most unions serve administrative and financial functions rather than acting as regulatory or training bodies. Strengthening unions to provide safety education and enforce peer accountability could enhance safer practices. Most riders learned through informal apprenticeship or observation rather than formal driving instruction. This aligns with Adewumi and Akinyele (2022), who noted that informal learning fosters risky behavior among public transport operators. Poor understanding of defensive driving and maintenance practices reduces riders' control over safety decisions, as explained by Ajzen's

(1991) Theory of Planned Behavior. Passengers also reported poor customer service, fare manipulation, and dangerous pickup or drop-off practices, which increase congestion and accidents while reducing public trust in tricycle transport. Economic hardship further contributes to unsafe conduct, with riders over-speeding and overloading to meet daily remittance or income targets. This supports Gbadamosi (2020), who linked financial strain to reckless behavior among transport operators.

Recommendations

The study proposes several key measures to improve tricycle rider behavior and enhance the safety and regulation of intermediate public transport in Kaduna North.

- i. The government, in partnership with transport unions and road safety agencies (such as FRSC and KASTLEA), should introduce compulsory rider education programs covering traffic laws, defensive driving, vehicle maintenance, and passenger handling.
- ii. Enforcement agencies should intensify patrols in high-risk areas and strictly penalize violations such

as overloading, reckless driving, and neglect of safety equipment.

- iii. Unions should move beyond revenue collection to actively regulate their members. Government can support this through accreditation, setting behavioral standards, enforcing sanctions, and encouraging regular sensitization programs.
- iv. All tricycle riders should be formally registered and provided with identification numbers or uniforms to enhance traceability, accountability, and passenger safety.
- v. The government should repair and maintain roads, improve signage, and provide proper loading and parking spaces to reduce unsafe riding behaviors.
- vi. To reduce economic pressures that cause risky behavior, government and financial institutions should provide soft loans to help riders purchase their own tricycles, encouraging more responsible conduct.
- vii. The Kaduna State Ministry of Transport should establish a formal policy guiding tricycle operations, including approved routes, passenger limits, inspection schedules, and

integration into the wider transport system.

Conclusion

According to the findings, tricycle riders contribute significantly to urban transportation, yet their actions are frequently typified by a lack of formal driver training, overloading, arbitrary fare practices, poor customer relations, and poor adherence to traffic laws. Economic pressures, bad road conditions, a lack of safety knowledge, and lax enforcement of regulations all have an impact on these behavioral patterns. The study also discovered that trike riders may embrace safer and more professional behaviors with the right training, continuous enforcement, and institutional backing, despite the obstacles. The behavior and service performance of the few riders who had received training or were active members of unions were comparatively better. Therefore, a comprehensive strategy including public awareness, infrastructure development, regulation, and training is needed to improve trike riders' behavior. Tricycle operations in Kaduna North might become safer, more effective, and more seamlessly integrated into the urban transportation system if these suggestions were put into practice.

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