Open Access
Check for updates
International Journal of Medical Science and Dental Health (ISSN: 2454-4191)
Volume 11, Issue 06, June 2025,
Doi https://doi.org/10.55640/ijmsdh-11-06-11

Causes and Measures for Reducing Road Traffic Accidents Along the Kaduna-Abuja Expressway, Kaduna State, North-West, Nigeria.

Pannan I. Da'ap
Department of Obstetrics and Gynaecology Jos University Teaching Hospital Jos, Plateau State, Nigeria.

Panshak R. Dafil
Wacot Rice Limited, Argungu, Kebbi State, Nigeria.

Plangji S. Cinjel
Department of Obstetrics and Gynaecology Jos University Teaching Hospital Jos, Plateau State, Nigeria.

Corresponding author: Pannan I. Da'ap, Department of Obstetrics and Gynaecology Jos University Teaching Hospital Jos, Plateau State, Nigeria. P.M.B 2084

Received: 27 April 2025, **accepted:** 24 May 2025, **Published Date:** 17 June 2025

ABSTRACT

Background: Globalization has led to increasing motorization with a resultant increase in the frequency and severity of morbidity and mortality among road traffic accident (RTA) victims. This makes it important that the attention of all drivers especially commercial drivers be drawn to the causes of RTA and measures that can be taken to reduce road traffic accidents.

Methods: A descriptive cross-sectional research was carried out among 366 commercial vehicle drivers plying the Kaduna-Abuja expressway with the aim of finding their views on the causes and measures capable of reducing road traffic accidents along the Kaduna-Abuja expressway.

Results: Overspeeding had the highest frequency 102 (27.9%) of all the causes of RTA among the respondents, followed by bad roads 79 (21.6%), drivers' impatience 62 (16.9%), dangerous overtaking 36 (9.9%), burst tire 25 (6.8%), driving under the influence of drugs or alcohol (DUI) 20 (5.5%), armed robbers/kidnappers attack 14 (3.8%), failed brake 10 (2.7%), sleeping while driving 9(2.5%) and others 9 (2.5%). Concerning measures to reduce RTA, road expansion had the highest frequency 137 (37.4%), this was followed by training of drivers on road signs and road safety measures 70 (19.1%), obeying traffic rules 69 (18.9%), regular road maintenance 65 (17.8%), effective markings of road safety signs 11 (3%), a campaign against driving under the influence of drugs or alcohol 7 (1.9%), enough rest periods for drivers 4(1.1%), and regular vehicle maintenance 3(0.8%).

Conclusion: the study has noted overspeeding, bad road networks, burst tires, dangerous overtaking, driver's impatience, driving under the influence of drugs or alcohol, sleeping while driving, armed robbers/kidnappers attacks, and failed brake as the main causes of road traffic accident along the Kaduna-Abuja expressway and measures to reduce RTA include campaign against driving under the influence of drugs and alcohol, effective markings of road safety signs, enough rest periods for drivers, expansion of the road network, regular road maintenance, regular vehicle maintenance, training of drivers on road signs and safety measures, and obeying traffic rules. It was therefore recommended that strict enforcement of traffic laws regular road and regular vehicle maintenance are key to reducing or eliminating RTA along the Kaduna-Abuja expressway.

KEYWORDS
Road traffic accidents, causes, road safety measures, traffic rules.

INTRODUCTION

Globalization has led to increasing motorization with a resultant increase in the frequency and severity of morbidity and mortality among road traffic accident victims. This makes it important that the attention of all drivers especially commercial drivers be drawn to the causes of road traffic accidents and measures that can be taken to reduce road traffic accidents. Any occurrence that leads to damage, injury, or harm to the environment, property, or people is referred to as an accident; with a road traffic accident as an example. A Road Traffic Accident is any mishap that takes place on the highway resulting in injuries and/or death.[1] Road traffic injuries (RTIs) are a global public health epidemic.[2] The need to reduce road traffic accidents as a preventable cause of death is very crucial and paramount to a developing nation like Nigeria. Roads form an integral part of our lives, enabling the free movement of goods, services, and people within countries and across borders. Without them, the world would grind to a halt. The need to move from place to place requires in most cases, commercial vehicular movements. Thus, attention must be paid to commercial transport, especially those involved in passenger transport.[3] The majority of people in many developing and low-income countries of the world rely greatly on commercial road transport for commuting between and within cities and towns. This reliance on commercial drivers makes operators of commercial vehicles an important component of the socioeconomic development of society.[4]

RTAs most of the time involve a vehicle colliding with another vehicle, animal, pedestrian, cyclist, motorcyclist, road debris or a tree, utility pole, or building, leading to fatalities, injuries, disabilities, and hospitalizations. Such accidents usually involve side-impact collisions, rear-ending collisions, head-on collisions, vehicle rollovers, single-car accidents, sideswipe collisions, and multiple-vehicle pileups.[1] A very sound knowledge of the dynamics of road traffic accidents is key in informing decision-making on how to prevent these events from occurring in day-to-day activities. Globally, 5 million people die from injuries annually; a quarter (approximately 1.25 million) of which are due to road traffic injuries.[4] Road traffic injuries are projected to become the 7th leading cause of mortality worldwide by the year 2030 and are currently the leading cause of morbidity and mortality in people aged 15 - 29 years worldwide.[4] It has been projected that 90% of the global road traffic injury burden will be borne by Low- and Middle-Income Countries (LMICS), including those in sub-Saharan Africa.[5]

As many as 50 million people are injured and about 1.2 million are killed in road crashes each year Worldwide.[2] Road traffic injuries globally account for 41.2 million (2.7%) Disability Adjusted Life Years (DALYs) with 7.2 million (1.9%) DALYs, occurring in the African Region.[2] The overall road traffic injury rate from a population-based survey on RTIs in Nigeria was 41 per 1,000 population (95% CI 34 to 49), with a mortality of 1.6 per 1,000 population (95% CI 0.5 to 3.8).[6] The Federal Road Safety Corps (FRSC), Lagos State Sector Command, in 2007, reported that 4291 RTAs occurred in Lagos State alone, 33% of which involved buses/minibusses with a fatality of 212/1000.[7] Different studies on road traffic accidents over the years have tried to explain road traffic accidents as regard the causes, economic burden, and strategies needed to curb road traffic accidents.[8, 9,10] Agebure, Amedorme, and Johnson[1] reported human errors, road conditions, environmental conditions, and faulty vehicles as the main cause of RTA in the Bongo district of Ghana. Nantulya and Reich[11] reported over-speeding and poor enforcement of traffic regulations as major reasons for the high burden of RTIs. The problem of limited research on causes and risk factors for road safety has been recognized in developing countries.[2] This study therefore aimed to ascertain commercial drivers' views on the main causes of road traffic accidents along the Kaduna-Abuja expressway and to find out drivers' views of measures capable of reducing road traffic accidents on the same road. A deeper understanding of these objectives will help to inform the recommendation of cost-effective measures tailored towards improving overall safety on roads in Kaduna state and Nigeria as a whole.

METHODOLOGY

Study Area: The Kaduna-Abuja expressway is a 4-lane-2-way divided road which is currently undergoing reconstruction. It runs from Kaduna to Abuja and measures a distance of about 163km. The road passes through several settlements and communities within Kaduna and Niger states. It is one of the major roads that connects northern Nigeria to southern Nigeria. It is a busy road as it has very heavy traffic all days of the week. Most of the settlers along the road are either into farming or petty trading. It has prominent features such as hospitals and schools. Among the vehicles that ply the road are commercial drivers conveying goods and people from one part of the country to another. The author's experience working in a healthcare facility along the road has shown high accident rates among commuters necessitating this study.

Study Population: Selected commercial drivers plying the Kaduna-Abuja Expressway, i.e. commercial drivers registered with the National Union of Road Transport Workers (NURTW), of selected motor parks along the Kaduna-Abuja Expressway. These parks were: Abuja Junction Park in Kaduna, Katari Park, Dikko Junction Park, and Zuba Park.

Study Design

A descriptive cross-sectional survey was carried out among 366 commercial vehicle drivers registered with the National Union of Road Transport Workers, (NURTW), of the four parks selected for the study on the awareness of the causes and measures for reducing road traffic accidents along the Kaduna- Abuja Expressway. Only commercial drivers with at least 1-year experience on the road and registered with the NURTW) of the selected parks took part in the study.

Sample Size Determination

The sample size was calculated using the formula,[12] $n = z^2 pq/d^2$ to arrive at a sample size of 372 and a Two-stage sampling technique was applied to get the distribution of participants in each of the selected motor parks.

Stage 1: Selection of motor parks: Four motor parks were purposively selected.

Stage 2: Selection of respondents which was done based on proportionality to their number in each park using the formula $n_1 = n/N \times S$.[13]

Where n_1= number (population) of persons or items to be selected from the stratum.

n= number (population) of persons in the stratum.

N = total number (population) of persons or items in the strata.

S = Total number of samples (sample size) to be selected or stratified.

Allocation to Abuja Junction Park, Kaduna = 130/500 x 372 = 96.72 = **97**

Allocation to Katari Park = 120/500 x 372 = 89.28 = **89**

Allocation to Dikko Junction Park = 100/500 x 372 = 74.4 = **74**

Allocation to Zuba Park = 150/500 x 372 = 111.6 = **112**

Instrument of Data Collection

Semi-structured questionnaires were used to collect data for the study. All participants were assured of confidentiality of the information they provided which created trust and gave them confidence to attempt every question to the best of their ability and knowledge. Sets of both closed and open-ended questions were posed to all of them. The drivers' perception of the main causes and best measures for reducing road traffic accidents along the Kaduna- Abuja Expressway was inquired by the study participants. It was pre-tested among a few commercial drivers in a park in Jere which was not part of the study population before finally using it to obtain data for the study.

Data collection processing and analysis

The questionnaires were administered only to drivers second or third in line to load passengers so that they could pay full attention to giving the information to the best of their knowledge without losing focus by the fact that they will soon be called upon to load. To prevent non-cooperation, they were given the assurance that the information obtained would be shared with relevant bodies to be used to

effect changes that will make the road safer for all road users. Drivers who were already interviewed in other parks were not interviewed again.

The data were sorted out manually. A total of 372 questionnaires were filled, with 366 questionnaires correctly and completely filled which were then coded using numbers, recorded in an Excel spreadsheet, and filled for analysis using the International Business Machine Corporation Statistical Package for Social Sciences (IBM SPSS version 23, Armonk, NY, USA). After frequency distribution tables were used to present the findings.

Ethical Clearance

Ethical clearance was obtained from the Health Research Ethics Committee of the Ahmadu Bello University Teaching Hospital (ABUTH), Shika, with the ABUTH Ethics committee assigned number **ABUTHZ/HREC/G30/2019,** and verbal consent was obtained from the officials of all the motor parks and also from each participant before they participated in the study.

RESULTS

Table 1: Socio-demographic Characteristics of the Commercial Drivers (n=366)[14]

Characteristic	n (%)
Age group (years)	
Young (18-<39)	262(71.6)
Middle-aged (40-<59)	104(28.4)
Gender	
Male	366(100)
Female	0(0.0)
Educational Status	
Never Been to School	61(16.7)
Primary	126(34.4)
Secondary	136(37.2)
Tertiary	43(11.7)
Marital Status	
Married	339(92.6)
Single	27(7.4)

The majority of the commercial drivers fell in the young age group category 262 (71.6%) and middle-aged group category 104 (28.4%). Three hundred and thirty-nine (92.6%) of the 366 respondents were married while only 27 (7.4%) were singles. All 366 (100%) of the respondents were males.

Table 2: Causes of Road Traffic Accidents Along the Kaduna-Abuja Expressway (n=366)

Item	n (%)
Over Speeding	102 (27.9)
Bad Road	79 (21.6)
Drivers' Impatience	62 (16.9)
Dangerous Overtaking	36 (9.9)
Burst Tyre	25 (6.8)
DUI*	20 (5.5)

Armed Robbers/Kidnappers Attack	14 (3.8)
Failed Brakes	10 (2.7)
Sleeping While Driving	9 (2.5)
Others	9 (2.5)
Total	**366(100)**

*Driving under the Influence of Drugs and alcohol

Overspeeding had the highest frequency 102 (27.9%) of all the causes of RTA among the respondents, followed by bad roads 79 (21.6%), drivers' Impatience 62 (16.9%), dangerous overtaking 36 (9.9%), burst tires 25 (6.8%), DUI 20 (5.5%), armed robbers/kidnappers attack 14 (3.8%), failed brake 10 (2.7%), sleeping while driving 9(2.5%) and others 9 (2.5%)

The other causes included animal crossing, lack of compliance with road signs, lack of road signs, overloading, road diversion, and stationary trucks.

Table 3: Measures to Reduce Road Traffic Accidents Along the Kaduna-Abuja Expressway (n-366)

Item	n (%)
Expand road	137 (37.4)
Training of drivers on road signs/Safety measures	70(19.1)
Obeying traffic rules	69 (18.9)
Regular road maintenance	65(17.8)
Effective markings of road safety signs	11(3.0)
Campaign against driving under the influence of drugs and alcohol	7(1.9)
Enough rest periods for drivers	4(1.1)
Regular vehicle maintenance	3(0.8)
Total	**366 (100)**

Road expansion had the highest frequency 137 (37.4%) among all the measures for reducing RTA according to the respondents, this was followed by training of drivers on road signs and road safety measures 70 (19.1%), obeying traffic rules 69 (18.9%), regular road maintenance 65 (17.8%), effective markings and safety signs 11 (3%), campaign against driving under the influence of drugs and alcohol 7 (1.9%), enough rest periods for drivers 4(1.1%), and regular vehicle maintenance 3(0.8%)

DISCUSSION

The majority of the commercial drivers plying the Kaduna-Abuja expressway were young people, married and all were males. This is probably because commercial driving is exclusively a male job in northern Nigeria where men are mostly the breadwinners of most homes.

Concerning the causes of road traffic accidents, almost a third of commercial drivers identified overspeeding as a cause of road traffic accidents. This was followed by a bad road, which more than twenty percent of the drivers identified to be a major cause of RTA along the studied road. Other causes of RTA identified by this study include burst tires, dangerous overtaking, driver's impatience, sleeping while driving (fatigue), armed robbers/kidnappers attacks, failed brakes, and driving under the influence of drugs or alcohol. A similar study on causes and preventive measures of RTA in Nigeria identified similar causes in addition to other causes such as indiscriminate use of sirens, distracted driving, unqualified drivers, and poor environmental conditions such as rain and mist.[15] Another study in the Bongo District of Ghana on causes and strategies for reducing RTAs, found that the main causes of road traffic accidents emanate from human error such as low driving skills, excessive speeding, poor vision of driver, poor road

Conditions like bad road networks, poor road markings, and signs, faulty vehicles with causative factors such as defective tires, brakes, and lights, and environmental conditions such as bad weather and stray animals.[15] Similarly, Okafor and colleagues[3] in a research carried out in Benin City, Nigeria noted common causes of road traffic accidents to include careless driving, speed violation, brake failure, traffic violations, faulty overtaking, burst tires, bad roads, alcohol use, and armed robbery attack.

Accordingly, commercial drivers identified measures that can be implemented for safety along the Kaduna-Abuja expressway. About forty percent of the study participants opined that expanding the road could reduce the frequency of RTA. In as much as this may create more space and reduce vehicle collisions, it may make room for overspeeding causing more RTA if the speed limit regulation is not obeyed. About twenty percent of the drivers further identified Training of drivers on road signs and road safety measures as another strategy for reducing road traffic crashes. This may be possible if law enforcement agencies ensure that all drivers are educated on all traffic regulations before being licensed to ply Nigerian roads and retrained periodically or at points of renewal of driving license. This assertion was corroborated by Anebonam[16] who agreed with the notion that enforcement of traffic laws is needed to reduce road accidents when he stated that sensitization and enforcement of safe road rules among commercial vehicles and car drivers was necessary for curbing road accidents. He further cited that training and orientation of drivers on road signs and rules before issuing driving licenses was key in combatting road accidents. This can only work if the drivers obey what they have been taught, as about twenty percent of the study participants identified obeying traffic rules as one of the measures of reducing RTA along the road Kaduna-Abuja expressway. Ensuring effective road markings, and regular road and vehicle maintenance were also identified as safety measures to reduce or prevent RTA. Other road safety measures identified by the study included a campaign against driving under the influence of drugs and alcohol and drivers getting enough rest before any journey to prevent sleeping while at the wheel (fatigue).

Most of the factors identified in this study as being causes of RTA are human factors which may be a result of lack of enforcement of the traffic laws by the law enforcement agencies along the Kaduna-Abuja expressway. Changes in human behavior and strict enforcement of traffic laws will reduce significantly the incidents of RTA on the Kaduna-Abuja expressway. Heydari et al.[17] have also acknowledged the idea that obeying traffic rules was key to eliminating road traffic accidents when they noted that inspiring attitudinal and behavioral changes involving enforcement of safe driving practices, respecting traffic signs and signals, and dispiriting hazardous driving behaviors are key to combatting road traffic accidents.

CONCLUSION AND RECOMMENDATION

The study has noted bad road networks, burst tires, dangerous overtaking, driver's impatience, driving under the influence of drugs or alcohol, overspeeding, sleeping while driving, armed robbers/ kidnappers attacks and failed brakes as the main causes of road traffic accident along the Kaduna-Abuja expressway and measures to reduce RTA include expansion of the road network, regular road maintenance, regular vehicle maintenance, training of drivers on road signs and safety measures, obeying traffic rules, campaign against driving under the influence of drugs and alcohol, effective markings of road safety signs, and enough rest periods for drivers.

It is therefore, recommended that strict enforcement of traffic laws will reduce RTA caused by human factors and regular road maintenance including proper road signs and markings and regular vehicle maintenance are key to reducing or eliminating RTA along the Kaduna-Abuja expressway.

Acknowledgments

We acknowledge all the commercial drivers who provided all the information used for this research and the executive committee members of the different motor parks selected for this study who mobilized

their members during the entire data collection process.

Funding

None

REFERENCES

1. Agebure BA, Amedorme SK, Johnson AN. Causes and Strategies for Reducing Road Traffic Accidents in the Bongo District of Ghana. J Eng Res Reports. 2023;25(9):166–78.
2. Okafor IP, Odeyemi KA, Dolapo DC. Knowledge of commercial bus drivers about road safety measures in Lagos, Nigeria. Ann Afr Med. 2013;12(March):34– 9.
3. Okafor KC, Azuike EC. The causes and prevalence of road traffic accidents amongst commercial long-distance drivers in Benin City, Edo State, Nigeria. Niger J Med. 2017;26(3):220–30.
4. Peden M, Scurfield R, Sleet D, Mohan D, Hyder AA, Jarawan E, et al. World report on road traffic injury prevention. World Heal Organ. 2004;
5. Bonnet E, Lechat L, Ridde V. What Interventions Are Required to Reduce Road Traffic Injuries in Africa? A Scoping Review of the Literature. PLoS One. 2018;13:e0208195.
6. Labinjo M, Juillard C, Kobusingye OC, Hyder AA. The burden of road traffic injuries in Nigeria: Results of a population-based survey. Inj Prev. 2009;15:157– 62.
7. Federal Road Safety Commission (FRSC) LSSC. Lagos State road traffic accident data. 2007.
8. Jia SG, Fan JG. The causes and countermeasures of traffic accidents in. China Occup Saf Heal. 2014;3:40–3.
9. Mohammed AA, Ambak K, Mosa AM, Syamsunur D. A review of the traffic accidents and related practices worldwide. Open Transp Journal. 2019;132(1):65–83.
10. Tilaye H. Human injury causing road traffic accident at Debre Markos Town. J Vet Heal Sci. 2021;2(1).
11. Nantulya M V, Reich MR. The neglected epidemic: Road traffic injuries in developing countries. Br Med J. 2002;324:1139–41.
12. Charan J, Biswas T. How to calculate sample size for different study designs in medical research? Indian J Psychol Med. 2013;35(2):121–6.
13. Taofeek I. Research Methodology and Dissertation Writing for Health and Allied Health Professionals. 1st Editio. Abuja, Nigeria: Cress Global Link Limited Publishers; 2009. 70–75 p.
14. Da'ap PI, Cinjel PS, Nden JJ, Okeme KO, Shehu AU. Factors associated with knowledge of road signs and history of road traffic accidents among commercial drivers plying the Kaduna-Abuja expressway, Nigeria. Jos J Med. 2024;18(1):43–58.
15. Agbonkhese O, Yisa G, Agbonkhese E.G, Akanbi D.O, Aka, E.O, Mondigha EB. Road Traffic Accidents in Nigeria: Causes and Preventive. Civ Environ Res. 2013;3(13):90–100.
16. Anebonam U, Okoli C, Ossai P, Ilesanmi O, Nguku P, Nsubuga P, et al. Trends in road traffic accidents in Anambra State, South Eastern Nigeria: Need for targeted sensitization on safe roads. Pan Afr Med J. 2019;321:12.
17. Heydari S, Hickford A, McIlroy R, Turner J, Bachani AM. Road safety in low-income countries: state of knowledge and future directions. Sustainability. 2019;11(22):6249.