Original Research Article

Prevalence and Factors causing Road Traffic Accidents in Lagos State, Nigeria

Abstract

This cross-sectional study was conducted to investigate the prevalence and factors causing road traffic accidents in Lagos State, Nigeria. A purposive sampling technique was adopted to select a total of 384 commercial drivers in Lagos State. The primary sources of data were structured questionnaire. Out of the 384 drivers, 337 responded correctly to the questionnaire showing a response rate of 87.76%. Data were analysed using Mean, ANOVA and Pearson Correlation. Mean score of 2.50 was used as a criterion to accept or reject results. Findings of the study showed that; there was a high prevalence (68%) of road traffic accident among the commercial drivers in Lagos State. More so, age was an important demographic characteristic in contributing to RTAs. In addition, driver factor, vehicle factors and environmental factors all contributed to RTAs with the driver factors being responsible for more than 58% of the road traffic accident reported in the study. It is recommended amongst others that; safety measures should be put in place to mitigate the effect of the identified factors that contribute to the prevalence of RTAs among drivers in Lagos State.

Key words: Prevalence, Driver, Vehicle, Environmental, Road, Traffic, Accident

1. Introduction

"According to data from the Nigerian Federal Road Safety Commission (FRSC), the country has the highest rate of death from motor accidents in Africa; leading 43 other nations in the number of deaths per 10,000 vehicle crashes" (FRSC, 2006; Obinna, 2007). "Nigeria is followed by Ethiopia, Malawi and Ghana with 219,183 and 178 deaths per 10,000 vehicles, respectively" (Daramola, 2003).

FRSC disclosed that 1,349 people were killed in road accidents between January 1 and April 12, 2023 (ICIR, 2023). According to the FRSC, the crash involved 3,965 vehicles conveying 16,102 people. Out of that number, 1,349 people were killed, while 7,744 got injured (ICIR, 2023).

Consequences of road traffic accidents range from the physical, social, and economic impact it has on man to the economic impacts it has on the national economy and the impact it has on the vehicle itself. Road transport has had a modest contribution to the Gross Domestic Product of the economy over the years.

"Road accidents appear to occur regularly at some flash points such as where there are sharp bends, potholes and at bad sections of the highways. At such points over speeding drivers usually find it difficult to control their vehicles, which then result to fatal traffic accidents, especially at night" (Atubi, 2009). "Cases of fatal road traffic accidents are reported almost daily on the major highways in Lagos State. Traffic experts are always looking for ways to identify the major causes of road crashes, these attempts are showing there are three main contributing factors: human, road and vehicles. The human factor has a direct effect on 93% of crashes, which make human behavior as the main cause of incidents" (Sehat *et al.*, 2012). There have been several

studies conducted in recent years in order to reveal the role of human in car crashes based on different aspect of human behavior and their influence on driving behavior of drivers.

Human factors are responsible for most road accident (Tribune, 2019) and account for 95% of accidents investigated (FRSC, 2008). "These human factors include actions like inappropriate and excessive speed; presence of alcohol, medicinal or recreational drugs; fatigue and poor eyesight of road users. These human factors are related to the knowledge of drivers concerning their health status and road safety" (Watkins, 2009).

"Drivers especially in developing countries may be unaware of the need for periodic fitness assessment while practice of medical fitness is commonly incidental" (Oladehinde *et al.*, 2007). "Commercial drivers are not aware of the importance of fitness in relation to road safety. This is as a result of poor public enlightenment on the need for a fit driver and poor enforcement of the provisions of the high way code concerning visual screening before issuance of driver's license and absence of legislation on driver's fitness in Nigeria" (Oladehinde *et al.*, 2007; Adekoya *et al.*, 2009). This lack of awareness will most likely translate to poor practice.

"In Nigeria, visual screening and normal alcohol levels are mandatory for drivers licensing. Yet, majority (84%) of commercial drivers had no visual examination done before issuance of a driver's license" (Oladehinde *et al.*, 2007). "This raises questions on the level of implementation of road safety codes. About 15% of commercial bus drivers are unfit to drive this because they were either unaware of it or had a wrong perception of what constitutes an adequate fitness for driving when using Visual Acuity (VA) as a measure" (Adekoya *et al.*, 2009). "Most (80.4%) of them believed their vision was good enough to drive a commercial vehicle. This presents a great risk towards road traffic crashes occurrence in Nigeria" (Oladehinde *et al.*, 2007; Adekoya *et al.*, 2009).

"The increasing rate of accidents on the highway roads in Nigeria has a severe adverse effect on its socio-economic development" (Oyeyemi, 2018). "A report from the lead-traffic agency in Nigeria explains a yearly average of 1,457 cases and a monthly average of 121 crashes involving mini-buses with passengers and trucks on Nigerian roads, and other low-income countries increasing the morbidity and mortality rates" (Mock *et al*., 1999). "Road traffic accidents have become everyday affairs in which lives are lost every day in Nigeria" (Ovuwori *et al*., 2010).

Given that there is increase in the number of road traffic accidents experienced in Lagos State, Nigeria and these causes are based on a number of factors; there is no comprehensive and complete information based on actual recorded data on the prevalence and the grouping of these factors in Lagos, Nigeria. The purpose of this study was to evaluate the prevalence of accident occurrence and determining the factors causing road traffic accidents in the Lagos State, Nigeria in order to provide correction and control strategies towards accident prevention.

2. Research Methodology

2.1 Research Design

This cross-sectional study was conducted to investigate the prevalence and factors causing road traffic accidents in Lagos State, Nigeria. The study employed cross-sectional survey research method for data collection. Survey research, according to Lodico *et al*. (2006) utilizes a pre-established instrument for data collection of samples selected from grand population or group to allow findings to be generalized back to the group. The present study utilized a questionnaire developed similar to literature reviewed to collect data on driver, vehicle and environmental factors causing road traffic accidents in Lagos Sate, Nigeria.

2.2 Study Area

According to the 2006 census conducted by the National Population Commission (NPC), Lagos has a population of over nine million, of a national estimate of 150 million. The population growth has a rate of about 600,000 per annum, with a density of approximately 4,193 persons per sq. km. In the urban areas of the Lagos metropolis, the average population density is over 20,000 people per sq. km.

"The popular Oshodi bus station and Mile 2 bus stop were the site locations in Lagos. Lagos, which doubles as a port and "business" city, was Nigeria's capital since its amalgamation in 1914 and until 1991, when it was replaced by Abuja as planned to bring all of the various tribes, religions and ethnic groups together. Lagos State generates 25% of Nigeria's total Gross Domestic Product (GDP). Lagos is estimated to have now 14,368,332 populations, with a density of 12,267 km^2, a growth rate of 3.34%, and land-area of 1,171.28km^2 (452,23 square miles). In 1950, Lagos, which is now the most populous city in Nigeria, had a population of 325,218 in 1950 (seventy years ago). One of the eight fastest growing cities globally to have a population of 20,600,156 with a 3.73% growth rate double its population in 2050" (UNO, 2020).

Lagos States was chosen as a case study area due to the numbers and volume of motor vehicles especially where commercial buses are a model of transportation, the pattern of population and the increase in exposure to the risk in road traffic safety which was termed "societal benefit and societal cost" (WHO, 2009).

2.3 Participants of the Study

The participants for this study included commercial drivers in Lagos State, all of whom gave their consent before the start of the study. The sample was composed of participants, ranging in

age from 19 to 55 years old. Participants' years of driving experience and education level were taken.

2.4 Sample and Sampling Techniques

The study adopted a purposive sampling technique. A purposive sample is a type of non-probability sampling method where the sample is taken from a group of people easy to contact or to reach. This type of sampling is also known as grab sampling or availability sampling. There are no other criteria to the sampling method except that people be available and willing to participate. In addition, this type of sampling method does not require that a simple random sample is generated, since the only criterion is whether the participants agree to participate.

2.5 Data Collection

A total of three hundred and eighty-four (384) questionnaires were distributed to the sampled drivers for the study. All the questionnaires were filled and returned to the researcher. However, after collection and assessment of the returned questionnaires, only three hundred and thirty-seven (337) questionnaires were fit for analysis which gave a response rate of 87.76%.

2.6 Data Analysis

Data were analyzed by using the statistical software XLSTAT 2016. First, descriptive statistics, such as the mean score, frequencies, etc. were used. Furthermore, the inferential statistics included analysis of variance (ANOVA) and correlation analysis.

3. Results

3.1 Demographic Distribution of Participants

Figure 1 displays the demographic distribution of the drivers sampled in the study. Forty-nine (49) respondents were aged between 20-29 years, one hundred and twenty-three (123) respondents were aged between 30-39 years. One hundred and seven (107) respondents were aged between 40-49 years and fifty-seven (57) respondents were aged 50 years and above. Fifty-two (52) drivers had 1-5 years of driving experience, eighty-seven (87) drivers had 6-10 years of driving experience, One hundred and fifteen (115) drivers had 11-15 years of driving experience, fifty-one (51) drivers had 16-20 years of driving experience and thirty (30) drivers had 21 and above years of driving experience. Forty-nine (49) respondents who were ages 20-29 years had 1-5 years of driving experience. Among the one hundred and twenty-three (123) respondents who were 30-39 years of age, sixty (60) had 6-10 years of driving experience, sixty-three (63) had 11-15 years of driving experience. For respondents between ages 40-49 years, three (3) had 1-5 years of driving experience, twenty-four (24) had 6-10 years of driving experience, forty-eight (48) had 11-15 years of driving experience, twenty-six (26) had 16-20 years driving experience and five (5) had 21 and above years of driving experience.

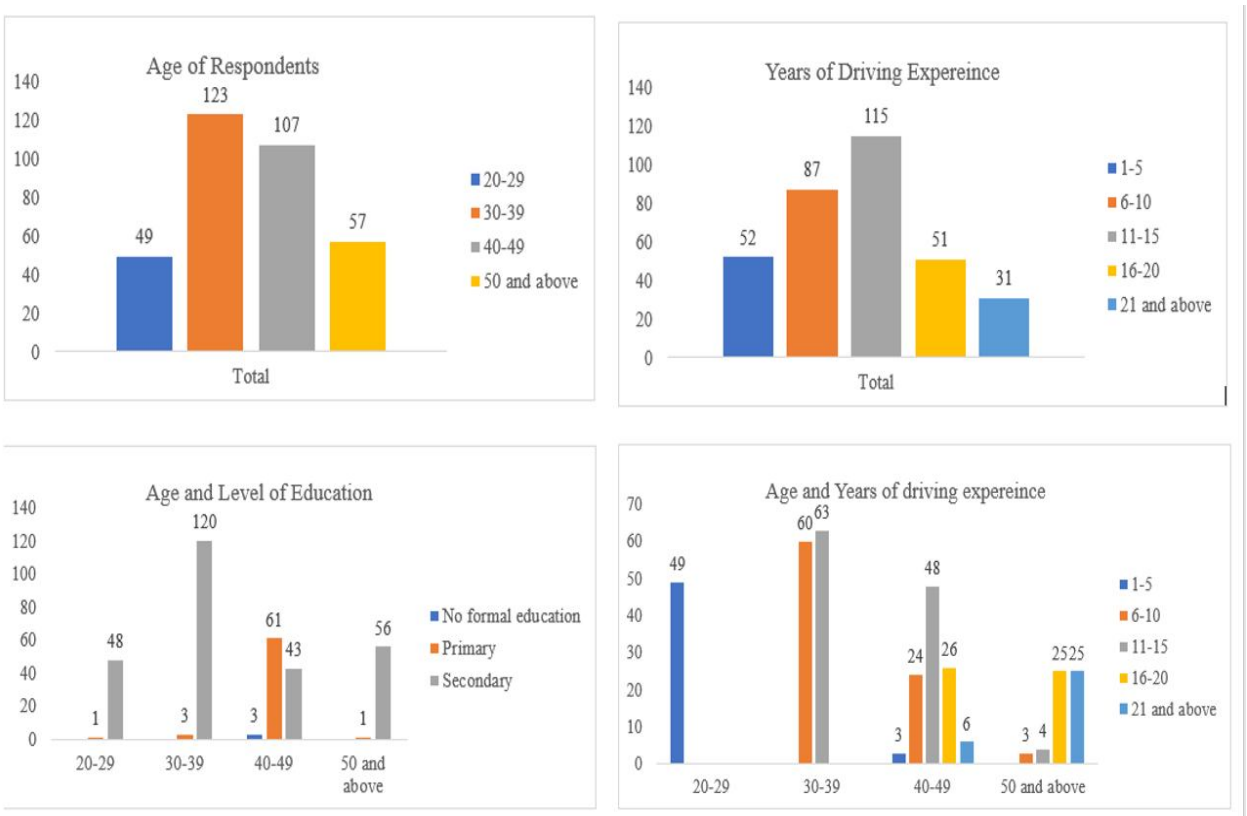

Figure 1: Demographic distribution of drivers

3.2 Prevalence of Road Traffic Accident

From Figure 2, a total of two hundred and twenty-nine (229) respondents confirmed to have experienced road traffic accident in the past 12 months of their driving career while one hundred and seven (107) respondents said they had not experienced any road traffic accidents in the past 12 months of their driving career.

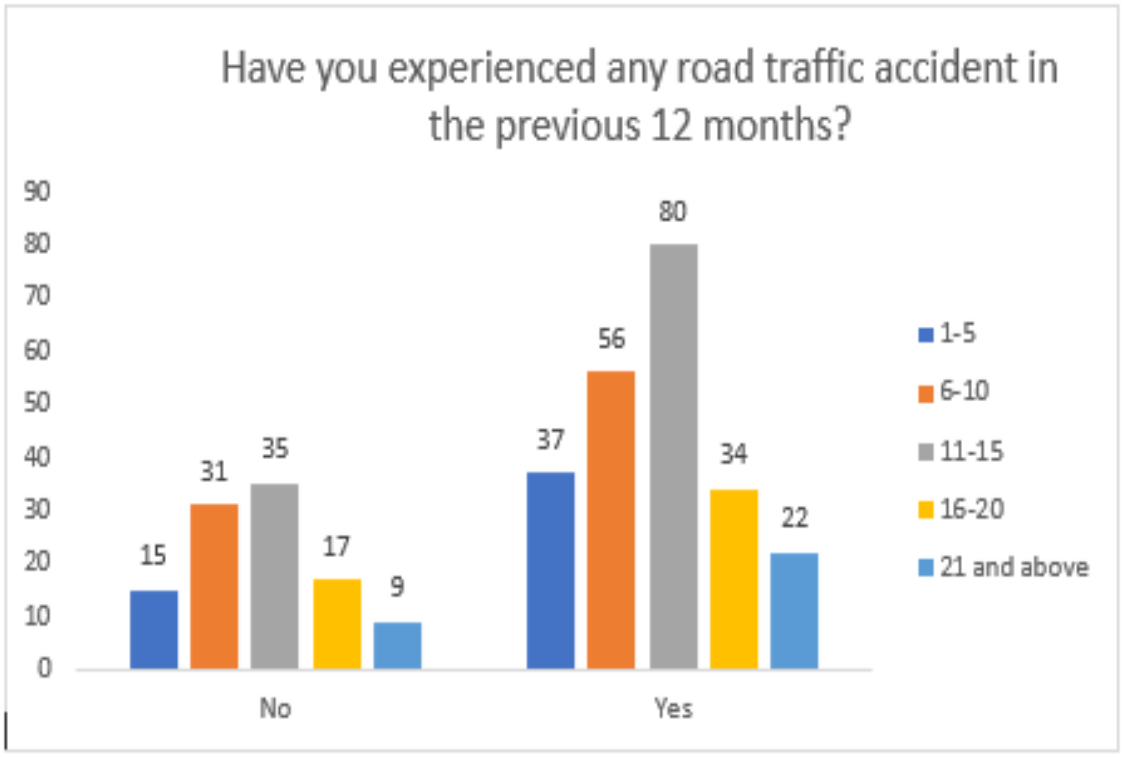

Figure 2: Prevalence of accident occurrence among Lagos drivers

3.3 Factors causing Road Traffic Accidents

The driver factors that contribute to road traffic accidents were measured in Table 1. Ten (10) items were developed for the measurement and they all tested above the mean criterion mark of 2.50.

Table 1: Driver factors causing road traffic accidents

S/N	Driver Factors	SA Strongly Agree	A Agree	D Disagree	SD Standard Deviation	Mean	Remark
1	Drink driving and/ or driving under the influence of drugs can lead to accident	139	197	0	0	3.41	Accepted
2	Prevalent disregard of road traffic signs by road users can potentially cause accident	131	205	0	0	3.39	Accepted
3	Lack of proper training of drivers can be a potential cause of accident	28	308	0	0	3.08	Accepted
4	When a driver is inexperienced and incompetent, it could lead to accident	211	124	0	0	3.63	Accepted
5	Over speeding, dangerous driving and total disrespect of traffic regulations especially concerning speed limits can lead to accident	191	145	0	0	3.57	Accepted
6	Lack of respect / consideration for other road users is a potential cause of	125	211	0	0	3.37	Accepted

	accident						
7	Impatience and negligence can lead to accident on the road	68	268	0	0	3.20	Accepted
8	Overloading of vehicles could be a potential cause of accident	90	243	0	0	3.27	Accepted
9	Fatigue can lead a driver into a road traffic accident	18	318	0	0	3.05	Accepted
10	Poor vision of the driver could lead to an accident	191	145	0	0	3.57	Accepted
					Mean score	**3.35**	Accepted

Table 2 displays the items used in measuring the vehicle factors that can cause road traffic accidents. Seven (7) items were developed for the measurement and they are tested above the mean criterion mark of 2.50.

Table 2: Vehicle factors causing road traffic accidents

S/N	Vehicle Factors	SA Strongly Agree	A Agree	D Disagree	SD Standard Deviation	Mean	Remark
1	Brake failure can cause accident on the road	202	134	0	0	3.60	Accepted
2	Use of fake spare parts is among the vehicle factors causing accident on the road	78	258	0	0	3.23	Accepted
3	Failure of the engine can cause road traffic accident	132	204	0	0	3.39	Accepted
4	Defective dazzling lights is a potential cause of road traffic accident	155	181	0	0	3.46	Accepted
5	Poorly maintained vehicle can cause road traffic accident	238	98	0	0	3.71	Accepted
6	Defects in tyres are potential causes of road traffic accident	25	311	0	0	3.07	Accepted
7	Load design of a vehicle can cause accident	8	324	1	0	3.02	Accepted
					Mean	**2.86**	**Accepted**

Table 3 shows the five items developed for measuring environmental factors contributing to road traffic accidents and they are tested above the mean criterion mark of 2.50.

Table 3: Environmental factors causing road traffic accident

S/N	Environmental Factors	SA Strongly Agree	A Agree	D Disagree	SD Standard Deviation	Mean	Remark
1	Bad road is an environmental factor causing road traffic accident	116	176	44	0	3.40	Accepted
2	Weather conditions is an environmental factor causing road traffic accident	132	204	0	0	3.39	Accepted
3	Dangerous bend can cause accident on the road	114	222	0	0	3.34	Accepted
4	Animals on the road can cause accident on the road	156	180	0	0	3.46	Accepted
5	Obstruction on the road is a potential cause of accident on the road	13	322	1	0	3.04	Accepted
					Mean Score	**3.33**	**Accepted**

In Table 4, the ranking of the studied factors causing road traffic accident is displayed. Based on their mean scores, driver factors were ranked first with a mean score of 3.35, environmental factors were ranked second with a mean score of 3.33 while the vehicle factors were ranked third with a mean score of 2.86. however, the mean scores for these factors were all above the mean criterion mark of 2.50. hence, they were all accepted.

Table 4: Ranking of the factors causing road traffic accident

S/N	Factors	SA Strongly Agree	A Agree	D Disagree	SD Standard Deviation	Mean	Remark
1	Driver factors	119	217	0	0	3.35	First
2	Vehicle factors	120	216	0	0	2.86	Third
3	Environmental factors	106	221	9	0	3.33	Second

4. Discussion

On the factors causing road traffic accidents in Lagos State findings showed that drivers factors, vehicle factors and environmental factors were the factors causing road traffic accidents in Lagos State. Among the driver factors, over speeding, dangerous driving, total disrespect for traffic regulations, poor vision, drink driving and driving under the influence of drugs were the identified issues enhancing the driver's factors in causing road traffic accidents. This finding is supported by Agbonkhese *et al*. (2013) that, "the attitude of the Nigerian driver to driving code and etiquette is the single most important contributing factor as driver factors solely contributes to about 57 % of road traffic accidents and 93% either alone or in combination with other factors". More so, the finding agrees with Panou *et al*. (2007) that, "road users do not always comply with traffic regulations which in extreme circumstances may lead to critical situations which may cause traffic crashes". Among the vehicle factors, poorly maintained vehicle, use of fake spare parts and brake failure were the identified issues that contributed to the occurrence of road traffic accident among Lagos drivers. The finding is supported by Agbonkhese *et al*. (2013) that, "the vehicle itself is a key factor when analyzing the remote causes of a traffic accident and it is incorporated with gadgets like, the horn, side mirrors, wipers, braking system, trafficators, headlights and break-lights so as to avoid road accident. Malfunction of any vehicle parts such as tyres, engines, braking systems, light systems can cause road traffic accidents". Among environmental factors, wandering animals on the road, bad road and poor weather conditions were identified as the major issues contributing to road traffic accidents. This finding agreed with a study carried out by Agbonkhese *et al*. (2013) and Isa and Siyan (2016) that, "environmental related conditions such as fog, sunrays, mist and rain in no small measure contributes greatly to the rate of road traffic accident in Nigeria today".

Upon ranking the factors to assess which factor had the most significant influence in causing road traffic accident among drivers in Lagos State, driver factors were ranked first followed by environmental factors and vehicle factors came in third. This high rank of driver factor was confirmed in a study carried out by Agbonkhese *et al*. (2013) that, "the attitude of the Nigerian driver to driving code and etiquette is the single most important contributing factor as driver factors solely contributes to about 57 % of road traffic accidents and 93 % either alone or in combination with other factors and these driver-related issues include; speed and indiscriminate use of Sirens, drink-driving and use of drugs, distracted driving, inexperience and unqualified drivers, non-use of safety device and negligence of duty by government established agencies".

5. Conclusion

The study concluded that there was a high prevalence of road traffic accident among the commercial drivers in Lagos State. Driver factors such as over speeding, dangerous driving, total disrespect for traffic regulations, poor vision, drink driving and driving under the influence of drugs were the identified issues enhancing the driver's factors in causing road traffic accidents. Vehicle factors such as poorly maintained vehicle, use of fake spare parts and brake failure were the identified issues that contributed to the occurrence of road traffic accident. Environmental factors such as wandering animals on the road, bad road and poor weather conditions were identified as the major issues contributing to road traffic accidents. Among these identified factors, driver factors were responsible for more than 58% of the road traffic accident reported in the study.

References

Adekoya, B. J., Owoeye, J. F. A., Adepoju, F. G., & Ajaiyeoba, A. I. (2009). Visual function survey of commercial intercity vehicle drivers in Ilorin, Nigeria. *Canadian journal of ophthalmology*, *44*(3), 261-264.

Agbonkhese, O., Yisa, G. L., Agbonkhese, E. G., Akanbi, D. O; Aka, E. O., & Mondigha, E. B. (2013). RTAs in Nigeria: Causes and preventive measures. *Civil and Environmental Research*. ISSN 2224-5790 (Paper), ISSN 2225-0514.

Atubi, A. O., & Onokala, P. C. (2009). Contemporary analysis of variability in RTAs in Lagos State. *African Geographical Review, 28*, 11–41.

Atubi, A.O. (2010). Road traffic accident variations in Lagos state Nigeria: a synopsis of variance. *Journal of Africa Research Review, 4*(2), 197-218.

Daramola, A. Y. (2003). Innovative options for financing transport infrastructures in Nigeria. IN NISEREEL *The magazine of the Institute of Social and Economic Research*, NDS 4 & 5. December 2003. Ibadan. Nigeria.

Federal Road safety Corps (2006). *Flying vehicles on Nigerian Roads. A publication of the Policy, Research and Statistics Department of the Federal Road Safety Corps, Nigeria*.

Federal Road Safety Corps (2008). Available at: http://frsc.gov.ng/frsc2008

International Centre for Investigative Reporting (2023), *1349 people died, 7744 injured in road accidents in 2023 – FRSC.* Available at: https://www.icirnigeria.org/1349-people-died-7744-injured-in-road-accidents-in-2023-frsc/ (Accessed 20/04/2023)

Isa, M. N. & Siyan, P. (2016). Analyzing factors responsible for RTAs along Kano-Kaduna-Abuja Dual Carriageway Nigeria. *Journal of Economics and Sustainable Development, Vol.7*, No.12, 2016 156.

Lodico, M.G., Spaulding, D.T. and Voegtle, K.H. (2006) *Methods in Educational Research: From Theory to Practice. John Wiley, San Francisco.*

Mock, C., Amegeshi, J., & Darteh, K. (1999). Role of commercial drivers in motor vehicle related injuries in Ghana. *Injury Prevention, 5*:268-271. IN: Peden, M. (Ed). (2004). World

report on road traffic injury prevention. World Health Organization. Geneva, Switzerland. ISBN 92-4-159131-5.

Obinna, C. (2007). *"Road traffic crashes kill 0.4m youths every year."* Vanguard, April, 24, p. 35.

Oladehinde, M. K., Adeoye, A. O., Adegbehingbe, B. O., & Onakoya, A. O. (2007). Visual functions of commercial drivers in relation to road accidents in Nigeria. *Indian journal of occupational and environmental medicine*, *11*(2), 71.

Ovuwori, O., & Asalor, J.O. (2010). *Road traffic accident in developing countries. Lagos*, Joja Press ISSN: 2052-6350 (Online).

Oyeyemi, B. O. (2018). *Road safety management policy and strategy develop: The Nigerian Experience. The road traffic pandemic in Nigeria*. July 2018 Retrieved online 07/06/2019: https://www.ssatp.org/sites/ssatp/files/2018_Annual_Meeting_Abuja/Day3/RS/Abuja.pdf

Panou, M., Bekiaris, E., & Papakostopoulos, V. (2007). *Modelling driver behaviour in European Union and international projects*. In C. Cacciabue (Ed). Modelling Driver Behaviour in Automotive Environments (pp. 3-25), Italy, Springer.

Sehat M, Naieni KH, AsadiLari M, Foroushani AR, Malek-Afzali H. (2012). Socioeconomic status and incidence of traffic accidents in metropolitan Tehran: A population-based study. *Int J Prev Med. 3*:181-90

Tribune (2019), Human *factors responsible for most road accidents*. Available: *https://tribuneonlineng.com/human-factors-responsible-for-most-road-accidents-—-frsc/*. (Accessed on 20/04/2023)

UNO (2020). *UN World urbanization prospects. Bangkok Population World Population Review*. https://worldpopulationreview.com/world-cities/bangkok-population/(Accessed on 13/07/2020)

Watkins, K. (2009). The world is turning a blind eye. In: Ward, D. (Ed.), Make Roads Safe: A Decade of Action for Road Safety. Commission for Global Road Safety, London.

World Health Organisation (2015). Global Status Report on Road Safety 2015. Available at: http://who.int/violence_injury_ prevention/road_safety_status/2015/en/

World Health Organization (2009). Global Status Report on Road Traffic. Time for Action. http://whqlibdoc.who.int/publications/2009/9789241563840_eng.pdf (accessed 23.01.19).