
STRATEGIES FOR CURTAILING MOTOR VEHICLE ROAD ACCIDENTS IN GOMBE STATE

By

Yakubu Salihu

Automobile Technology Department

School of Technical

FCE (T) Gombe

ysggadam@gmail.com

ABSTRACT

The study determines the ways for minimizing as a preventive measure, rampant cases of vehicle accidents in Gombe State. Two research questions were formulated to guide the study. A structured questionnaire comprising of 20 items in section A and B having a four point rating scale was used. Data collected from the instrument was analyzed using mean to answer the research questions and standard deviation to identify the level of dispersion from the mean by the respondents' opinion. The finding reveals that the respondents accept the strategies provided which includes the enforcement measure in the use of scanners, electronic sensors, alcohol intake level scanners and drug detectors by road traffic officers. Recommendations were made based on findings.

INTRODUCTION

Road traffic accidents are leading cause of death in developing countries due to rapid motorization, poor road condition and traffic infrastructures (Nantulya and Reids, 2002). Road accident results in 1.2 million death yearly worldwide (World Health Organization (WHO), 2013) Accident as an unpleasant event happens. Mostly motor vehicles serve as a means for the occurrence of accidents within our cities, drivers as the sole operators of vehicles, causes most of such conditions. Human factor is seen as a way in promoting accident. Drivers' attitude, behaviors influence on the total control when driving, the driver controls the vehicle through the steering, he steers, brakes, accelerate, and decelerate. These operations demands competent person that can use the brain and other psychomotor activities, that is hands and the entire body in driving. According to Khisky and Kantlall, (2010) an interaction between human being and machines in the transport sector require a competent person in his true senses to effectively perform these operations.

Nader, (1997) observed that vehicles play a dominant role on the road, mechanical deficiencies in vehicles causes major source of most traffic accidents. The fact is that no vehicles operating on our roads are safe, moreover the second hand vehicles that are imported as "Tokumbo". Various vehicle manufacturers stressed on maintenance in promoting minimal effect of road accidents caused by vehicle operation failure. Stringent majors are imposed on vehicles with faulty brakes, poor lighting, bad tires and the entire body structure because they serve as the fundamental operational components for control of a vehicles when in operation.

Similarly, the nature and condition of the roads which largely depends on the design of the roads provides smooth traffic flow or otherwise. Traffic performance pavements and pedestrian spaces affect in the cause or prevention of accidents. Slippery pavement can cause vehicle accidents by skidding. Different pavement design requires good tire adhesion and adequate skills for control (Kadiyali, 2010). Road is

regarded as a basic element that promotes and prevent in accidents by drivers of various types of vehicles. Lay (1986) observed that human, vehicle and environment serve as the three main elements of the road. Drivers require adequate training in promoting the utilization of knowledge, attitude and skills for effective performance in vehicle control. Vehicles should be maintained in accordance with manufacturers specifications, such maintenance consist of both preventive and corrective to ensure optimum performance. Environment have some attributing conditions of the roads, traffic congestion, traffic performance by traffic operators and plays a major role in abating accidents.

Road Safety awareness programmes, which consist of the use of engineering, education, and enforcement known as the 3e's must be considered to enhance safety otherwise road accidents are bound to occur. (Federal Road Safety Commission (FRSC) 2014). Traffic accident caused by vehicles is describe as failure in performance of one or more of the driving components resulting in bodily injury, damage of property and even death (Sabey, 1980). Road accidents rate in the urban density resulting in traffic concentration and congestion.

Rumer, (1985) conducted a study of road accidents in British and American states the study reveals that 57% of road accidents is caused by drivers factors 27% is caused by roadways condition and drivers factor. 6% is caused by vehicle and driver factor, while the remaining 10% is caused by vehicle and roadways. It can be seen that human factor constitutes a major percentage of road accidents.

Human factor in vehicle road accidents include all factors related to drivers and other road user that contribute to road accidents. Such human factors by drivers consist of behavior, visual problem and auditory, ability and reaction to speed. Reckless and dangerous driving, alcoholism, faulty pedestrian attitude constitute major cause of road accidents in Nigeria (Ezenwa, 1986

and Odera, 1998). In the same vein, Hajar, David and Hamburger, (2000) observed that a high proportion of road traffic accidents can be apportioned to unsafe human act of drunk driving.

Vehicle accidents can result from failure of the mechanical components of the vehicle which comprises of brake, steering and tyre failure. It can also result from defects on the road like slippery surfaces and potholes. Traffic violations like excessive speeding, aggressive driving and drug abuse by drivers. Accidents may involve personal injury, fatal casualty, damage to properties and even death. The objectives of enacting, regulation, enforcing traffic rules and educating the general public on them is to ensure safety of lives and properties. It is amazing to note that with all these laws put in place, accidents continue to occur at an alarming rate. Drivers tend to be reckless in performing their duties despite public awareness on road safety. Public roads seem to be neglected by authorities concerned. Such actions endanger lives and properties. Consequently, leads loss of lives and properties. These devastating effects of vehicle accidents call for a rethink for new ways of tackling the problem.

Vehicle accidents can be minimized through engineering, enforcement and education measures. Road design for safe and efficient movement of traffic is a priority in minimizing vehicle accident. Defective vehicles are maintained to safe guard accidents. A regular check on vehicle for defects enhances safe and efficient movement of traffic. Scanners are used on vehicle to detect defects hidden in the vehicles enabling engineer to put the vehicle in a safe working condition. Regulatory laws as measures for accidents prevention are categorize in to speed control measure, traffic control measures and training to educate and create awareness (Kadiyali, 2007) high speeds are means of accidents, regulating speed through speed detectors, recorders and if need be provides speed limiters an vehicles and even on the road. Traffic control devices and signal

system for traffic control are enforcement measures for controlling accidents prevention. Frequent inspection, training of drivers and embarking on medical checks for drugs alcohol, vision serve as preventive measures in preventing accidents. The use of electronic sensors on vehicles for breath test on alcohol, though more complex, serve as a measure for controlling drivers from driving when drunk.

Based on the observed human factors that cause almost more than half of the entire vehicle accidents worldwide, vehicle and traffic environment are other attributes in causing vehicle accidents. Measures in the prevention of accidents are very vital in safeguarding lives, property and promote safe and comfortable ride. Therefore there is need to provide ways in which the Gombe state government will, through vehicle inspectors, road workers union and road safety workers should promotes in minimizing motor vehicle accidents in Gombe state.

Purpose of the Study

The main purpose of the study was to determine strategies for the minimizing of vehicle accidents in Gombe state. Specifically, the study sought to determine:

- i. Strategies for minimizing motor vehicle accidents caused by human factor in Gombe state
- ii. Strategies for minimizing motor vehicle accidents caused by vehicle and roadways in Gombe state.

Research Questions

The following research questions were formulated to guide the study;

- i. What are the strategies for minimizing motor vehicle accidents

caused by human factor in Gombe state?

- ii. What are the strategies for minimizing motor vehicle accidents caused by vehicle and roadways as a factor in Gombe state?

METHODOLOGY

A descriptive survey was used in the research design. This provides responses on strategies that were considered in the prevention of road accidents in Gombe state, the choice of survey design was to conduct the research using a controlled sample size from a larger population for generalization (Nworgu, 1997). Two research questions were developed and answered. Stratified random sampling was used to select 60 out of a total population of 148 respondents, which comprises of Federal Road Safety Commission Officers (FRSC), Vehicle Inspector Officer (V.I.O), and Ministry of works civil engineers, Police Motor Traffic Division (MTD), and National Union of Road Traffic Works (NURTW). A structured questionnaire comprising of a four point rating scale consisting of highly needed (HN) Needed (N), Not Needed (NN), Highly Not Needed (HNN) with corresponding value of 4, 3, 2, and 1 respectively. Two experts validated the structured questionnaire from Federal Road Safety Commission and FCE (T) Gombe. A reliability coefficient of 0.80 was recorded using Cronbach Alpha reliability test. Mean and standard deviation were used in answering the research questions. A four point rating scale with a mean of 2.50 and above was regarded as needed as not needed at 0.05 level of significance.

Research Question 1

What are the strategies for minimizing motor vehicle accidents caused by human factor of in Gombe state?

Table 1: Mean ratings and standard deviation on strategies for minimizing motor vehicle accidents caused by human factor in Gombe State.

S/N	ITEMS	Mean Rating (\bar{x})	SD	REMARK
1.	Use of handheld electronic speed tracking device by officers to over speeding drivers	3.28	0.78	Needed
2.	Education for drivers during application for Driving licence on adherence to accident prevention	3.07	0.80	Needed
3.	Use of age detecting device for drivers	3.17	0.74	Needed
4.	Used of drug addict electronic detecting device On drivers on the road	3.50	0.77	Needed
5.	Use of Alcohol handheld electronic device On drivers.	3.45	0.81	Needed
6.	Public education to other road users	2.88	0.87	Needed
7.	Enforcement of law by confiscation of driving licence by government officers on the road on			
8.	offences committed by drivers	2.40	0.74	Needed
9.	Regular conduct on eye test for drivers on the road	3.37	0.72	Needed
10.	Periodic checks on certificate of medical fitness of drivers by Road officers.	3.15	0.88	Needed
11.	Enforcement of strict penalty on drivers without a driving licence	3.25	0.81	Needed

Table 1 revealed that the mean responses on all the 10 strategies on minimizing motor vehicle accidents caused by human factor ranges from 2.88 to 3.40. This showed that the mean were above the cut-off point of 2.50, indicating that the strategies were needed for minimizing vehicle road accidents in Gombe State. The study showed that the standard deviation ranged from 0.72 to 0.88, indicating that the respondents were not

too far from the mean and from the opinion of one another.

Research Question 2

What are the strategies for minimizing motor vehicle accidents caused by vehicle and roadways in Gombe State?

Table 2: Mean responses and rating on strategies for minimizing motor vehicle accidents caused by vehicle and roadways as factor in Gombe State.

S/N	ITEMS	Mean	SD	REMARK
1.	Imposition of speed limiter on all types of vehicles to reduce over speeding	3.30	0.74	Needed
2.	Provision of danger signals on roadways that are dangerous	3.28	0.78	Needed
3.	Use of electronic scanners on vehicle for checking defects	3.25	0.81	Needed
4.	Impounding of faulty vehicles that are Dangerous to both roadway and passengers	2.68	0.91	Needed
5.	Periodic checks on vehicles subjecting them To electronic test	3.28	0.78	Needed
6.	Frequent placement of warning signs on faulty roadways	3.15	0.88	Needed
7.	Urgent attention on repairs of dangerous road ways	3.30	0.74	Needed
8.	Periodic technical orientation on major vehicle faults to vehicle users	3.17	0.71	Needed
9.	True road worthiness should be enforced On vehicles	2.88	0.87	Needed
10.	Joint partnership in enforcement of law and order between vehicle mechanics and road officers on vehicle operation	3.37	0.72	Needed

Table 2 revealed that the mean responses on the strategies for minimizing vehicle accidents caused by vehicles and roadways ranged from 2.68 to 3.37. The results showed that the entire mean were above the cut-off point of 2.50, the result indicates that all the strategies were needed in order to minimize vehicle road accident caused by vehicle and roadways in Gombe State. The table revealed that the standard deviation of the statement items ranged from 0.72 - 0.91, indicating that the respondents were too close from the mean and from the opinion of one another.

DISCUSSION

It was found that the ten (10) strategies for minimizing vehicle accidents caused by human factor are needed. They include the use of electronics devices such as sensors for detecting drunk drivers, scanners for drug addicted drivers, over speeding drivers and reckless drivers. Also, education is also needed to create awareness to both drivers and other road users in making the road safer. These results are inconsonance with the assertion made by Lay,(1986) that majority of vehicle accidents are caused by human factor, which require attention. In the same vein, Human factor constitutes more than 50% of road accidents and are attributed to recklessness, dangerous driving,

alcoholism as observed by Ezenwa, (1986) and Odera (1998). This result is in agreement with FRSC, (2014) that stressed that engineering and education as part of road safety should be considered to enhance safety.

The result in table 2 showed the data of respondents on the strategies on minimizing vehicle accidents caused by vehicle and roadways the strategies are all needed by road safety officers, vehicle inspectors and union of road traffic workers they include imposition of speed limiters on all types of vehicles to reduce over speeding, installation of signals/ reflectors on damaged roadways, scanning of vehicle defects electronically and many others. Mechanical defects on a vehicle as the vehicle perform on the road as observed by Nader, (1997) need to be scanned to ascertain their roadworthiness. Similarly as pointed out by Kidiyali (2007) that measures for accidents prevention includes speed control, traffic control, and training. Training as indicated in the statement items comprises periodic technical orientation on major faults on vehicles that vehicle users should be conversant with. Joint partnership in order to enforce law and order between practicing mechanics and road officers regarding vehicle roadworthiness is also emphasized.

CONCLUSION

Accidents may involve personal injury, fatal casualty, damage to property and even death. Human factor, vehicle and traffic environment are attributing factors in causing vehicle accidents. Measures in minimizing accidents are essential in safeguarding lives, property and promote a comfortable ride. Based on the findings, it was concluded that all the strategies developed considering human factor, vehicle and roadways are upheld. The respondents, which comprise road officers, i.e. road safety officers, vehicle inspectors, members of the union of transport workers and ministry of works (civil engineers) are of the view that the strategies are needed.

RECOMMENDATIONS

The following recommendations were presented to guide the study.

- i. Federal road safety as an agency of Government should consider those strategies in its policy in minimizing accidents as a preventive measure.
- ii. State vehicle inspector officers should consider the incorporation of those identified strategies in overcoming the rampant motor vehicle accidents prevention.
- iii. National union of road transport workers should use the strategies to serve as vanguards in creating awareness to most commercial drivers in their union in promoting safety to minimize accidents rate caused by commercial vehicles operating in Gombe state.

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