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Assessement of Human Factors as Determinants of Road Traffic Accidents among Commercial Vehicle Drivers in GbonyinLocal Government Area of Ekiti State, Nigeria.

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Abstract: *The study examined the assessement of human factors as determinants of road traffic accidents among commercial vehicle drivers in Gbonyin Local Government Area of Ekiti State. 210 structured questionnaires were administered to commercial vehicle drivers at motor parks in selected towns in the study area. The descriptive statistics of frequency counts and simple percentage was used to analyze demographic data of the respondents while inferential statistics of linear regression was used to analyze data collected. Findings indicated that about 60% of the drivers were below 45 years while over 70% of them have no more than secondary education-out of which 16% have no formal education while 11% had primary school certificate. Also, it was revealed that driving under the influence of alcohol was the most significant determinant of road traffic accidents among others with F-ratio 2.506, p<0.05; excessive speeding F-ratio was 1.342, p<0.05; indiscriminate parking F-ratio was 1.414, p<0.05; impressionistic-driving F-ratio was 1.014, p<0.05; and sleepiness F-ratio was 1.454, p<0.05. The paper call for eradication of all alcohol sellers at every parks and proactive drivers' education and training as well as effective law enforcement in order to reduce the level of carnage on Nigerian.*

Key words: *Human factors, Accidents, Commercial, Driving.*

I. Introduction

Road traffic accidents which are generally unintended and preventable are common risk to every day life of people that can happen to almost every one, any where.It is important to note that road traffic accidents contribute to poverty in Nigeria by causing deaths, injuries, disability, grief, lost of productivity, pains, destruction and materials damages. **[2]** claimed that about 70% of these deaths resulting from vehicle crashes occur in developing countries. He stressed further that since driving car is a necessary part of our life nowadays, it is inevitable that the population of car users continue to grow every year. **[28]** indicated that more people die on the road than malaria worldwide, and that road traffic accidents cause about 1.2 million deaths in the world.Causes of road traffic accidents have been grouped into three broad categories, namely, the human, vehicle,and environmental conditions. Unsafe vehicle design represents the vehicle factor while poor design and road environmental conditions represent the environmental factors **[25; 15; 3].**

[27; 23] reported that excessive speeding, reckless driving, driver impatience, over confidence, dangerous overtaking and disregard for traffic rules are among the common causes of road traffic accidents in developing countries. However, the human factor plays the most prominent role in the relationship among these three factors. Human factors is defined as the application of scientific data to make the world compatible with human abilities, fitting the product to the sensory, formation processing and motor attributes of the users**[7]**. Human factors in road traffic accidents include all factors related to drivers and other road users that may contribute to a collision, these include driver behavior, visual and auditory acuity, decision-making ability, reaction speed, over confidence, lack of concentration, tiredness, impressionistic-driving, dangerous overtaking, passengers distraction, nonchalant attitude, poor vehicle care, and driving under the influence of alcohol and drugs **[4**]. The Federal Road Safety Commission (FRSC) has said over 80% of road traffic accidents that occur on Nigeria roads are usually caused by what it described as "Human Factors". Avoidable aggression and road rage which manifest in excessive speeding, overloading, sleepiness, dangerous overtaking, and lack of consideration for other road users were identified by the commission as human factors responsible for the high rate of road traffic crash on the nations roads **[14].**

Lagos state sector commander of the FRSC also mentioned that among the human factors were drunkenness, poor quality drivers, indiscriminate parking, over speeding by drivers, bad attitude and culture of driving as well as the attitude of policemen and other uniform men that left their duty of controlling traffic for the money they would get in their pockets, mobile phone use while driving, old age, fatigue, poor eyesight, adding that if precautionary measures were not put in place more deaths could still be recorded on our roads **[11]**. The economic and social consequences of road traffic accidents include costs of prolonged medical care, loss

of family breadwinner, loss of income due to disability, increase in debts, withdraw from normal activities, stigmatization, inferiority complex and loss of property which together often push families into poverty **[31].**

Most studies on road traffic accidents has focused exclusively on urban transportation **[30; 5; 8]** effect of road traffic accident in Niger Delta **[4]** traffic accidents in Kuwait **[33]** determinants of road traffic accidents occurrences in Lagos State **[6]** as well as on some other indices on road traffic accidents. Few studies have attempted to view the human factors as determinants of road traffic accidents among commercial vehicle drivers. This paper picks some salience human factors variables for assessment such as driving under the influence of alcohol, excessive speeding, indiscriminate parking, impressionistic-driving and sleepiness among others.

1.1 Statement of problem

The cost of fatalities, injuries and death due to road traffic accident have a tremendous impact on societal well-being and socio economic development. Road traffic accidents are among the leading causes of death and injury world wide, causing an estimated 1.2 million deaths and 50 million injuries each year **[32].** In Gbonyin Local Government Area of Ekiti State, road traffic accidents are common among people of the economically active age group of 15-45 due to human factors such as excessive speeding, disobeying traffic laws, aggressiveness, phone use, passenger distraction among others. General hospital Ijan Ekiti records showed that from January-Deccember, 2012, 374 road traffic accident victims were attended to. Of the 374 victims, 104 sustained majorinjuries while 270 were treated for minor injuries **[13]**. Commercial vehicle drivers were the cause of death of 29 (16.9%) of 80 deaths resulting from road traffic accidents recorded in year 2012 in the hospital. It was observed that most of the commercial vehicle drivers takes alcohol in the morning which would make them drive under influence, and give them extra energy, motivation, and fearlessness to speed limit, and this inevitably put the lives of the passengers at risk of possible elimination, working parents are killed or injured, many women have turned to premature widows, parents lost their wards in road traffic accident as a result of excessive speeding and indiscriminate parking at the blind spot leaving children who relied solely on these deceased persons for sustenance.

1.2Hypotheses

1. Driving under the influence of alcohol will not be a significant determinant of road traffic accidents among commercial vehicle drivers in Gbonyin Local Government Area of Ekiti State.
2. Sleepiness will not be a significant determinant of road traffic accidents among commercial vehicle drivers in Gbonyin Local Government Area of Ekiti State.
3. Indiscriminate parkingwill not be a significant determinant of road traffic accidents among commercial vehicle drivers Gbonyin Local Government Area of Ekiti State.
4. Excessive speeding will not be a significant determinant of road traffic accidents among commercial vehicle drivers in Gbonyin Local Government Area of Ekiti State.
5. Impressionistic-driving will not be a significant determinant of road traffic accidents among commercial vehicle drivers in Ekiti State .

II. Research Design and Methodology

2.1Research design

The descriptive survey research technique was adopted for the study. This research design helps in gathering data about belief, opinion, attitude, behavior and records of event that can be analyzed and interpreted to measure relationship between variables. It also helps in collecting data on and describing it in a systematic manner, the characteristics, feature or facts about a given population **[22].**

2.2Population

The population of this study included all commercial vehicle drivers in Gbonyin Local Government Area of Ekiti State.

2.3Sample and Sampling Procedure

The sample for this study was 210 respondents selected from Gbonyin Local Government Area of Ekiti State. Proportionate sampling technique was used to select 50% (210) of commercial vehicle drivers from existing and functioning 420 registered as commercial vehicle drivers at (7) parks in the study area. The selected motor parks were those with the highest number of registered drivers with National Union of Road Transport Workers (NURTW). This is shown diagrammatically below.

			Total no of respondents selected at each parks.							
Total no of commercial vehicle drivers in Gbonyin Local Government Area of Ekiti State	% of commercial vehicle drivers selected	No of parks	Ijan Ekiti	Iluomoba Ekiti	Aisegba Ekiti	Agbado Ekiti	Ode Ekiti	Egbe/Iro Ekiti	Imesi Ekiti	Total no of respondents used.
			62	60	62	60	60	58	58	
420	50%	7	31	30	31	30	30	29	29	210

Table 1:

2.4Description of research instrument

The major instrument for this study was the questionnaire called " Assesment of Human Factors as Determinants of Road Traffic Accidents among Commercial Vehicle Drivers Questionnaire" (AHFDRTACVDQ) designed by the researcher in line with the variable under study. The questionnaire was in two sections A and B. Section A focused on the demographic data of the respondents such as age, marital status, educational level, religion, year of experience and ownership of the vehicle. Section B examined the variables selected for this study

2.5Validity of instrument

The content and construct validity approach was adopted in which the self-structure questionnaire was referred to three experts in the area of accidents analysis, injury prevention, and urban and regional planning for vetting so as to determine its appropriateness, relevance and clarity.

2.6 Reliability of instrument

To ascertain whether the instrument used was effective, reliable or not, the test-retest technique was applied. The interval between the tests was two weeks, 10 (ten) commercial vehicle drivers who are not part of the final sample of this study was selected from Ekiti East (Omuo) Local Government Area of Ekiti State. After computing the reliability, a co-efficient of .88 was derived which indicated a high reliability level of the instrument.

2.7 Administration of the instrument

Copies of Assessment of Human Factors as Determinants of Road Traffic Accidents among Commercial Vehicle Drivers Questionnaire were personally administered to the respondents. The respondents were fully briefed on the purpose of the research and this increased the acceptability of the questionnaire.

2.8 Procedure for Data Analysis

The completed questionnaire forms were collated, coded and analyzed using both descriptive and inferential statistics. Descriptive statistics of frequency counts and simple percentage was used to analyse Demographic data (section A) while inferential statistics of linear regression was used to test the hypotheses at 0.05 level of significance

III. Result and Discussions

Section A : Demographicdata.

The age distribution of drivers indicates that 21.8% of them are between the ages of 16-30 years, 35.5% between 31-45 years and 27.3% between 45-60 years old. Only 15% of the respondents are above 60 years of age. Similar pattern was observed in all the towns. More than 55.2% of commercial vehicle drivers were married. The high percentage of married drivers is expected because most of them are school drop-outs or have secondary school education who immediately upon graduation got married, 33% of them were single while 11.8% of them were separated. The educational background of the respondents indicated that more than 72.2% of them had no more than secondary education-out of which 16% of them had no formal education while 11.8% of them had primary school certificate. The large percentage of drivers (72.2%) who are illiterate has implications for traffic safety in the study area. It means that many of them may not be able to read road signs and markings correctly thereby increasing accident risk on the roads. Further investigations revealed that most of the drivers have other professional jobs besides driving**[8].**

Hypothesis 1: Driving under the influence of alcohol will not be a significant determinant of road traffic accidents among commercial vehicle drivers in Gbonyin Local Government Area of Ekiti State.

Table 2: Driving under the influence of alcohol among commercial vehicle drivers.

Model	Sum of squares	Df	Mean squares	F	Sig.
Regression	12.649	4	1.330	2.506	.001[a]
Residual	178.997	206	.521		
Total	199.646	210			

Table 2 above shows the hypothesis 1 result on driving under the influence of alcohol among commercial vehicle drivers. The calculated F-ratio was 2.506 which is higher than the level of significance. Therefore, the hypothesis was significantly determinants of road traffic accidents among commercial vehicle drivers. The outcome of the study is similar to the result of the research carried out by **[24]** which revealed that, high rates of alcohol use by drivers involved in crashes producing both fatal and non-fatal injuries. **[18]** submitted that, in the Nigeria environment alcohol drivers are predominance of commercial rather than private vehicle, 64% of all intoxicated drivers were commercial vehicle drivers including taxi, bus and truck.

Hypothesis 2: Excessive speeding will not be a significant determinant of road traffic accidents among commercial vehicle drivers in Gbonyin Local Government Area of Ekiti State.

Table 3: Excessive speeding among commercial vehicle drivers.

Model	Sum of squares	Df	Mean squares	F	Sig
Regression	8.805	5	1.100	1.342	.013[a]
Residual	174.997	205	.531		
Total	183.802	210			

Table 3 above shows hypothesis 2 result on excessive speeding among commercial vehicle drivers. The F-ratio was 1.342 while level of significance was 0.05, then the hypothesis was rejected. This means that excessive speeding will be a significant determinant of road traffic accidents among commercial vehicle drivers. This is an agreement with **[23; 27]** that excessive speeding is an important factor in one third of all fatal crashes or accidents on our roads. **[5]** opined that road traffic accidents appear to occur regularly at some flash points such as where there are sharp bends, potholes and at bad sections of highways, excessive speeding drivers usually find it difficult to control their vehicles which than result to fatal accidents especially at night.

Hypothesis 3: Indiscriminate parking will not be a significant determinant of road traffic accidents among commercial vehicle drivers in Gbonyin Local Government Area of Ekiti State.

Table 4: Indiscriminate parking among commercial vehicle drivers.

Model	Sum of squares	Df	Mean squares	F	Sig
Regression	5.017	5	1.201	1.414	.002[a]
Residual	201.629	205	.524		
Total	206.646	210			

Table 4 shows the hypothesis 3 result on indiscriminate parking among commercial vehicle drivers. The calculated F-ratio was 1.414 while level of significance was 0.05, that shows F-ratio was higher than level of significance. Hence, indiscriminate parking will be a significant determinant of road traffic accidents among commercial vehicle drivers. This finding corroborate earlier findings of **[1]** that lack of parking lots in individual and corporate premises and lackadaisical attitude of our people in terms of non-prompt removal of broken down vehicles on the roads are some of the causes of road traffic accidents. **[14]** affirmed that drivers parking a vehicle in the middle of the road just to change a tyre or because of engine problem is among the causes of road traffic accidents especially at night or around a sharp bend or close to the crest of a hill where the vehicle cannot be seen faroff by road user.

Hypothesis 4: Impressionistic-driving will not be a significant determinant of road traffic accidents among commercial vehicle drivers in Gbonyin Local Government Area of Ekiti State.

Table 5: Impressionistic-driving among commercial vehicle drivers.

Model	Sum of squares	Df	Mean of squares	F	Sig
Regression	10.017	4	1.376	1.014	.005[a]
Residual	178.997	206	.521		
Total	189.014	210			

Table 5 above shows the result of hypothesis 4 on impressionistic-driving among commercial vehicle drivers. F-ratio was 1.014 which was higher than level of significance. This shows that impressionistic-driving will be a significant determinant of road traffic accidents among commercial vehicle drivers. This opinion was in line with earlier findings of**[17]** that young drivers typically engage in impressionistic-regulated driving and reckless behavior because they are less able to perceive rick. They have difficulty of identifying hazards that could lead to road traffic accidents and often overestimate their ability to handle the hazards they do identify.**[**

19; 20; 26] opined that impressionistic-drivers also tend to bring along passengers that distract them from driving and encourage them to participate in reckless speeding, racing or driving games.

Hypothesis 5: Sleepiness will not be a significant determinant of road traffic accidents among commercial vehicle drivers in Gbonyin Local Government Area of Ekiti State.

Table 6: Sleepiness drivers among commercial vehicle drivers.

Model	Sum of squares	Df	Mean square	F	Sig
Regression	10.579	5	1.393	1.454	.065[a]
Residual	182.772	205	.524		
Total	193.351	210			

Table 6 shows hypothesis 5 result on sleepiness among commercial vehicle drivers. The calculated F-ratio was 1.454 which also greater than level of significance. This means that sleepiness will be a significant determinant of road traffic accidents among commercial vehicle drivers. This was an agreement with findings of **[10]** that acute periods of short sleep are a major cause of sleep-related accidents. **[12; 29]** submitted that chronic sleepiness due to a habitual lack of sleep is as dangerous as acute sleep loss, especially it impairs perception of one's level of sleepiness. **[16]** affirmed that accidents caused by drivers falling asleep are likely to be fatal or involve serious injuries. **[9]** opined that sleeping driver will not make any corrective actions and the impact speed will be high, and the higher the impact speed, the higher the risk of injury.**[21]**pointed out that falling asleep is the natural end result of fatigue, death is frequently the natural end result of falling asleep while driving.

IV. Summary and Conclusion.

The research study is on assessment of human factors as determinants of road traffic accidents among commercial vehicle drivers in Gbonyin Local Government Area of Ekiti State, Nigeria. The paper assesses the variables of driving under the influence of alcohol, excessive speeding, impressionistic-driving, indiscriminate parking and sleepiness in relation to road traffic accidents. Results from the study indicated that about 60% of the drivers were below 45 years of age while 50% of them were married, over 70% of them have no more than secondary education-out of which 16% have no formal education while 11% of them had primary school certificate. All hypotheses formulated and tested were the determinants of road traffic accidents among commercial vehicle drivers in Gbonyin Local Government Area of Ekiti State in which driving under the influence of alcohol was the predominant causes of road traffic accidents shown by linear regression analysis. The paper call for eradication of all alcohol sellers at every parks in order to minimize direct access to alcohol taking by drivers and proper education of commercial vehicle drivers through the establishment of training institutes, effective enforcement of traffic laws as well as stringent penalties for erring drivers.

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