PSYCHOLOGICAL FACTORS AS CORRELATES OF ACCIDENT RISK BEHAVIOUR AMONG COMMERCIAL DRIVERS IN ONDO STATE, NIGERIA

Adegboyega, Joseph Afolayan
Department of Human Kinetics & Health Education,
Faculty of Education, Ekiti State University, Ado-Ekiti

&

Adelusi, Joseph Olusegun
Department of Physical and Health Education,Adeyemi College of Education, Ondo

Abstract
Road traffic accident is one of the leading causes of death in Nigeria as human factors seem to occupy a very high rate in the causative index of road traffic crashes. It is against this background that this study investigated psychological factors as correlates of accident risk behaviour among commercial drivers in Ondo State, Nigeria. It examined the psychological factors as well as the accident risk behaviour. The study determined the relationship between psychological factors and accident risk behaviour. The study adopted the descriptive research design of survey type. The population for the study consisted of commercial drivers who were domiciled in Ondo State, Nigeria. A total of three hundred and sixty (360) respondents were sampled using the multistage sampling procedures. Data were collected with the use of a validated self-developed questionnaire. Test-retest reliability was carried out on the instrument and a coefficient of 0.81 was obtained. Data collected were analysed using frequency count, simple percentages and mean scores to answer the research questions raised while Pearson Product Moment Correlation (PPMC) analysis was used to test the hypotheses at 0.05 level of significance. The findings revealed that anxiety, anger, impatience and sensation seeking are psychological factors that can lead to accident risk behaviour. The results showed that alcohol consumption, excessive speed, dangerous overtaking, use of cell phones and driving without head light at night are risks behaviour that could lead to the occurrence of road traffic accidents. The findings further revealed a significant relationship between psychological factors and accident risk behaviour among the commercial drivers. Based on these findings it was therefore recommended that Ondo State government in collaboration with the Federal Road Safety Corps and health educators should organize seminars, workshops, and motor park rallies on road safety for commercial drivers in Ondo State.

Keywords: Accident, Risk behaviour, Touting, Tailgating, Drinking-driving.

Introduction

Traveling by road is one of the most appealing means of transportation today. It is convenient and more flexible when compared with other means of transportation. Road transportation facilitates movement and other activities but, in terms of vehicle crashes, it causes pains, destruction, injury, loss of lives and valuable properties. For instance, World Health Organization (2018) asserted that 70% of deaths occurring from vehicle

crashes are caused by commercial vehicle drivers who travel by roads. Similarly, it has been found that traffic injuries account for over 85% of deaths in developing countries and over 50% of road traffic fatalities worldwide occur in developing nations involving young adult aged 15-44years (World Health Organization, 2018).

It has been observed that automobile accidents usually occur whether in a developing or developed nations because several road users especially, commercial vehicle drivers exhibit risky behaviour and fail to observe traffic rules and regulations, perhaps due to some factors that impact human behaviour (World Health Organization, 2015). In Ondo State, Nigeria, a large number of movement of persons and goods are by road and most of the commercial drivers appear to exhibit accident risk behaviour and the outcome of which seems to be the rate of traffic accidents and the attendant causalities on the highway which is alarming with a high percentage involving the youths in the productive age who are frequently mobile (Gidado, 2010).Some of the human factors that may cause accidents according to WHO (2015) are psychological in nature. Among the psychological factors that may predispose accident risk behaviour are anxiety, sensation seeking, anger and impatience.

Risk behaviour is a lifestyle activity that places a person at a risk of suffering a particular condition such as injury, loss of property or incapacitation (Robert, 2004). Risk behaviour are those that potentially expose people to harm, or significant risk of harm which will prevent them from reaching their potential. It is also described as ill-advised practices and actions that are potentially detrimental to a person's health or general wellbeing (Keyes & Ryff, 2010). For instance, a driver who drives in the night without the use of head lamps is displaying an accident risk behaviour, the consequence of which may be head-on-collision with another vehicle, running into a ditch or bumping into a stationary vehicle or a pedestrian crossing the road. Other driving risk behaviour that appear to be more common among commercial vehicle drivers and which are the focus of this study are the use of cell phones while driving, indiscriminate overtaking, alcohol/drug consumption and over speeding.

The seeming impact of psychological factors on accident risk behaviour cannot be over emphasized. Certain psychological factors like anxiety, anger, impatience, and sensation seeking, are seemingly associated with driving risk behaviour (Ergstrom, Gregerson, Hernetkoski, Kesikine& Nyberg, 2013).Anxiety is a psychological factor which is a feeling of being too much worried about some things such as events, occurrences, actions or even skills. Anxiety is an emotion characterized by an unpleasant state of inner turmoil, often accompanied by nervous behaviour, such as pacing back and forth, somatic complaints and rumination. It is a feeling of uneasiness and worry, usually generalized and unfocused as an overreaction to a situation that is only subjectively menacing. It is often accompanied by muscular tension, restlessness, fatigue and problems of concentration. It may have impact on driving performance of a driver (Adaramaja, 2012).

Another relevant human factor relating to traffic accidents is anger while driving. This human element has been found to have a negative impact on cognitive variables such as attention, information processing and perceptions; cognitive variables such as these are essential to driving (Herrero-Fernandez, 2018; Chan, Wang, Lacka & Zhang, 2016). Anger is a powerful emotion, which is associated with negative feelings directed towards the cause of the anger; muscle tension and arousal of the nervous system accompanies this emotional state

(Chan, Wang, Lacka & Zhang, 2016). They found that anger mostly occurs in response to a disruption in behaviour or as a response to an actual or perceived threat. This emotional state has been found to be more frequently experienced in the driving environment than in non-driving environments (Chan, Wang, Lacka & Zhang, 2016). Anger on the road constitutes a very complex problem, considering that it is influenced by a large number of variables, including, stress, hot arguments, fighting, and disagreement with commuters or union leaders.

Impatience appears to be one of the factors responsible for risk behaviour among commercial vehicle drivers. One common reason for road traffic accidents has been described as impatience (Jonanovic, Lipovac Stanojevic & Stanojevic, 2011). Being impatient can cause drivers to take unnecessary risks and act aggressively. Often times, these behaviour results in serious accidents. In fact, a National Highway Traffic Safety Administration (2010) found that researchers reviewed impatient and aggressive drivers as number one danger on the road. Impatient drivers might more likely engage in dangerous maneuvers such as in tailgating and overtaking, thereby increasing the likelihood of causing road traffic accidents. It has been observed that impatience results in road rage most often from which aggressive driving ensues.

Impatience can cause a distraction, making the driver so upset with getting to his destination that he may fail to notice the actions of other motorists around him. According to Hauer (2010) impatience behind the wheel can also lead to over speeding, weaving in and out of traffics and overtaking vehicles that have stopped for pedestrians and cyclists. Driving with impatience or in haste appear to be very prominent amongst commercial vehicle drivers in Ondo State, Nigeria. The hustling to catch up with intending commuters and the number of trips they hope to make per day are some of the reasons for being impatient. Seasons of the year and events such as a particular celebration sometimes seem to determine how commercial drivers perform their driving tasks. On weekends, and festive periods such as Christmas and some particular months of the year like April and December, commercial drivers drive with impatience.

Impairment by alcohol is an important factor influencing both the risk of a road crash as well as the severity of the injuries that result from crashes (Mishra, Sinha, Sukla & Sinha, 2010). Drinking alcohol and driving has been found to be number one contributor as factors in approximately 30% of fatal crashes in Queensland (Australian Transport Safety Bureau, 2005). The case in Ondo State, Nigeria might not be different. Alcohol depresses the central nervous system and therefore increases the response time of the user, making less responsive to the challenges of driving particularly to coping with emergencies on the road (Akongbota, 2011). It also causes inhibition, impulsiveness and increased tendency to risk taking behaviour. A study which assessed alcohol and fitness to drive in Spanish medical driving test Centre found a significant association between use of alcohol and traffic infractions (Carman del Rio & Alvarez, 2001).

The use of mobile telephones can adversely affect driver behaviour-as regards physical tasks as well as perception and decision-making. The process of dialing influences a driver's ability to keep to the course on the road. From the results of studies on distraction and mental load, Farmer, Bratiman and Lind (2016) showed that driver's reaction times are increased by 0.5-1.5 seconds when talking into a mobile telephone. Earlier studies by Wilson and Stimpson (2010) have shown that drivers' performance is particularly affected in maintaining the correct lane position and the headway between two vehicles

travelling one behind the other, in keeping to an appropriate speed, and in judging and accepting safe gaps in the traffic. There are some evidences from studies that drivers who use mobile telephones while driving face a risk of a crash four times higher than the risk for drivers who do not use mobile telephones (Federal Road Safety Corps, 2012).

Despite the recommendation of several road safety agencies that drivers should put on their head lights from sunset until sunrise, some commercial drivers would not put on their headlight until thick darkness appears (Neumann, 2014). According to Salawu, (2008), driving at night is a lot more difficult than driving during the daytime. It is darker, and the driver may not be able to see the road ahead clearly well. Headlights make driving at night easier and safer, and nearly every driver use them but some psychologically risk-prone drivers still disobey the rule of "don't drive at night without headlight on."

Majority of traffic roads in Nigeria are one-track two-lane road that are not always conducive for smooth overtaking of vehicle ahead while driving on dangerous roadway curves. Accidents involving passing maneuvers are important problems on rural two-lane roads where one vehicle wants to overtake a slower vehicle moving ahead in the same direction. The danger occurs when passing vehicle traveling in the opposing lane does not have enough sight distance in such passing situation (Jeon and Kim, 2016). In most of this kind of driving circumstance, the driver who is overtaking the vehicle ahead without a good distance sight of the vehicle coming from the opposite direction may either end in a head-on collision with the on-coming vehicle, crash into the vehicle being overtaken or run-over the edge into the edge into the ditch in other direction. An impatient angry driver will risk overtaking indiscriminately even on this kind of roads.

The speed of motor vehicle is at the core of the road traffic injury problem. Speed influences both crash risk and crash consequences. The physical layout of the road and its surroundings can both encourage and discourage speed. Crash risk increases as speed increases, especially at road junctions and while overtaking- as road users underestimate the speed and overestimate the distance of an approaching vehicle. Driver's speed choice as reported by (Afolabi & Gbadamosi, 2017) is influenced by a number of factors which included anxiety, anger, impatience and over excitement.

It appears that psychological factors which are mostly human factors have relationship with driving behaviour which often may result in road traffic accidents. Few studies undertaken on road traffic accidents in Nigeria have generally limited their scope to focusing on causes and prevention. None of the few studies carried out in Ondo State covers the relationship between psychological factors and accident risk behaviour among commercial drivers. It is against this background that this study investigated psychological factors as correlates of accident risk behaviour among commercial drivers in Ondo State, Nigeria.

Research Questions

The following research questions were raised to guide the study:

1. What are the psychological factors that can lead to accident-risk behaviour among commercial drivers in Ondo State?
2. What are the risk behaviour that can lead to the occurrence of road traffic accidents among commercial drivers?

Research Hypotheses

1. There is no significant relationship between anxiety and accident risk behaviour among commercial drivers in Ondo State.

2. There is no significant relationship between anger and accident risk behaviour among commercial drivers.
3. There is no significant relationship between impatience and accident risk behaviour among commercial drivers.
4. There is no significant relationship between sensation seeking and accident risk behaviour among commercial drivers.

Methods

The descriptive research design of survey type was used for this study. This design was considered appropriate as it enabled the researchers to describe the existing situation regarding psychological factors and accident risk behaviour among commercial vehicle drivers in Ondo state, Nigeria.

The population for this study consisted of commercial drivers who make use of motor parks for their loading and offloading in Ondo state, Nigeria. The sample for the study consisted of three hundred and sixty (360) respondents who were commercial vehicle drivers from Ondo state making use of multistage sampling procedures. The first stage involved a simple random sampling technique of the fishbowl type to select three Local Government Areas from the three senatorial districts. At the second stage, simple random sampling technique was used to select four motor parks from each of the three Local Government Areas. The third stage involved the use of simple random sampling technique of the balloting type to select 30 respondents from each motor park. A total of 360 respondents participated in the study.

The instrument used for this study was a self-developed questionnaire by the researchers. The questionnaire was in three (3) sections. Section A was designed to elicit information on the demographic characteristics of the respondents such as age, level of education, marital status and driving experience with options for respondents to tick. Section B items was designed to elicit information on psychological factors of accident risk behaviour. The items were rated using Always (3), Occasionally (2), Never (1). Section C was structured to gather information on accident risk behaviour which appear common among commercial drivers. It was rated with scales of: Always (3), Sometimes (2), Not at all (1).

The instrument was administered to commercial vehicle drivers at the sampled motor parks with the assistance of 2 research assistants. Administration was done on the drivers' meeting days which gave them ample opportunity to patiently attend to the researchers and responded appropriately. Copies of the questionnaire were retrieved, coded and analyzed making use of descriptive statistics of percentages and mean scores to answer the research questions. The criterion means are set for the study was 2.0. The hypotheses were tested using Pearson Product Moment Correlation analysis at
0.05 level of significance.

Results

Research Question 1: What are the psychological factors that can lead to accident-risk behaviour among commercial drivers in Ondo State?

Table 1 presents the psychological factors which could lead to accident risk behaviour. The results are presented in table 1.

Table 1: Psychological factors associated with accident risk behaviour

Psychological factors	**Always**		**Occasionally**		**Never**		$\overline{X}$
	N	**%**	**N**	**%**	**N**	**%**	
Anxiety	155	43.1	119	33.0	86	23.8	2.20
Anger	186	51.6	106	29.6	67	18.8	2.33
Sensation Seeking	193	53.5	99	27.7	67	18.8	2.35
Impatience	153	42.4	216	30.0	99	27.6	2.15

Table 1 showed the responses on psychological factors are above the criterion mean of 2.0. This is a clear indication that anxiety ($\overline{X}$ = 2.20), anger ($\overline{X}$ = 2.33), sensation seeking ($\overline{X}$ = 2.35) and impatience ($\overline{X}$ = 2.15) are factors that can lead to accident risk behaviour among the respondents.

Research Question 2: What are the risks behaviour that can lead to the occurrence of road traffic accidents among commercial drivers?

Table 2 presents the accident risk behaviour among commercial drivers

Table 2: Accident risk behaviour among commercial drivers

Accident Risk Behaviour	**Always**		**Occasionally**		**Never**		***X***
	N	**%**	**N**	**%**	**N**	**%**	
Alcohol Consumption	168	46.7	129	35.8	63	17.5	2.29
Excessive Speed	138	38.4	127	35.4	94	26.2	2.12
Dangerous Overtaking	159	44.1	116	32.3	85	23.7	2.21
Use of cell Phones	194	54	103	28.8	62	17.2	2.37
Driving without headlamp at night	212	59	88	24.6	59	16.4	2.43

Table 2 showed the risk behaviour that can lead to the occurrence of road traffic accidents among the respondents. Using a cut-off $\bar{X}$ = 2.00 as a criterion, all the items had $\overline{X}$ scores above the cut-off point. Thus, alcohol consumption ($\bar{X}$ = 2.29), excessive speed ($\bar{X}$ = 2.12), dangerous overtaking ($\bar{X}$ = 2.21), use of

cell phones ($\bar{X}$ = 2.37), driving without headlight at night ($\bar{X}$ = 2.43). This implies that alcohol consumption, excessive speed, dangerous overtaking, use of cell phones and driving without headlamp at nights are risks behaviour that can lead to the occurrence of road traffic accidents among the respondents.

Hypotheses Testing

Hypothesis 1: There is no significant relationship between anxiety and accident risk behaviour among commercial drivers in Ondo State.

Table 3: Pearson Product Moment Correlation on anxiety and accident risk behaviour

Variables	**N**	**Mean**	**SD**	**r_{cal}**	**P**
Anxiety	360	5.420	1.275	0.316	0.000
Accident risk behaviour	360	18.113	8.90		

***p<0.05**

Table 5 showed that anxiety has significant relationship with accident risk behaviour(r = 0.316, P<0.005) at 0.05 level of significance. The null hypothesis is thereby rejected. Thus, there was a significant positive relationship between anxiety and accident risk behaviour among the respondents. This implies that as the anxiety increases, the accident risk behaviour also increases.

Hypothesis 2: There is no significant relationship between anger and accident risk behaviour among commercial drivers. Table 4 presents anger and accident risk behaviour among vehicle commercial drivers.

Table 4: Pearson Product Moment Correlation on anger and accident risk behaviour among commercial drivers

Variables	**N**	**Mean**	**SD**	**r_{cal}**	**P**
Anger	360	4.179	1.305	0.356	0.000
Accident risk behaviour	360	18.113	4.45		

***p<0.05**

Table 4 showed a significant positive relationship between anger and accident risk behaviour and anger (r = 0.356, p<0.005). The hypothesis is therefore rejected. Thus, there was a significant relationship between anger and accident risk behaviour among the respondents. This implies that as the anger demonstrated by driver increases, the accident risk behaviour increases.

Hypothesis 3: There is no significant relationship between impatience and accident risk behaviour among commercial drivers in Ondo State.

Table 5 presents impatience and accident risk behaviour.

Table 5: Pearson Product Moment Correlation Analysis on impatience and accident risk behaviour among commercial vehicle drivers

Variables	N	Mean	SD	r_{cal}	P
Impatience	360	4.628	1.55	0.337	0.000
Accident risk behaviour	360	18.113	4.45		

***p<0.05**

Table 5 showed a significant positive relationship between the impatience and accident risk behaviour (r = 0.337, p<0.005). Hence the null hypothesis is rejected. Thus, there was a significant relationship between impatience and accident risk behaviour. This implies that as the impatience by the driver increases, the level of accident risk behaviour increases.

Hypothesis 4: There is no significant relationship between sensation seeking and accident risk behaviour among commercial drivers in Ondo State.

Table 6 presents sensation seeking and accident risk behaviour.

Table 6: Pearson Product Moment Correlation Analysis on sensation seeking and accident risk behaviour among commercial drivers

Variables	N	Mean	SD	r_{cal}	P
Sensation seeking	360	3.305	1.8	0.363	0.000
Accident risk behaviour	360	18.113	4.45		

***p<0.05**

Table 6 showed a significant positive relationship between sensation seeking and accident risk behaviour (r = 0.363, p<0.005). The null hypothesis is rejected. Thus, there was a significant relationship between sensation seeking and accident risk behaviour among the respondent. This implies that as sensation seeking by the driver increases, the accident risk behaviour increases.

Discussion

The findings of the study corroborate the discoveries of some previous studies. The findings of this study showed that there was a significant relationship between anxiety and accidents risk behaviour among commercial vehicle drivers. This finding is in consonance with the opinion of Drews, Pasuphati and Strayer (2008) who found out that anxious drivers do engage in variety of fear-related

behaviour that may be considered reckless, inappropriate or dangerous. The findings also conformed with earlier study of Ulleberg (2002) who found out in his study of exploring driving outcomes among Norwegian motorists, that anxiety related driving is functionally detrimental. Individuals identified in his research showed evidence of low ratings of perceived driving skill, greater endorsement of risky driving behaviour and high levels of accident involvement. However, the findings of this study is in contrast to that of Deffenbacher, Huff, Lynch, Oeting and Salvatore (2000) who in their model of anxiety postulated that elevated anxiety may decrease the threshold for aggressive response to dangerous traffic condition.

The findings of this present study showed that there was a significant relationship between anger and accident-risk behaviour among commercial vehicle drivers. This finding is in line with the works of Zhang and Chan (2019) who postulated that anger is positively associated with the possibility of causing traffic accidents, making such behaviour relevant to road safety and of course to the study of road crashes explained by human factors. These authors also agreed that anger has been found to have a negative impact on cognitive variables such as attention, information processing and perceptions which are all essential to safe driving.

The findings of this study also showed that sensation seeking is significantly related to accident-risk behaviour. In agreement with this, Jonah (2007) found out that there was a very close relationship between sensation seeking and driving risk behaviour as sensation seekers may involve in alcoholism, speeding and dangerous overtaking. In conformity with the findings of this study, Arnett (2009) reported that persons with high level of sensation seeking had an acute aversion to routine and tend to enjoy experiences that are intense, unpredictable or that have an edge of danger to them. In the same vein, Ulleberg (2002) had previously shown that drivers with a tendency to violate traffic laws or those who are error-prone possess higher levels of monotonous, selective attention and sensation seeking than those who have low level of violations and errors.

The findings of this study further revealed that impatience was significantly related to accident risk behaviour among commercial drivers. In concordance with this findings, Haver (2010) and Janick and Lisa (2013) revealed that impatience and time pressure are determining factors for

traffic rule violations and risky behaviour exhibited by commercial drivers. Similarly, Afolabi and Gbadamosi (2017) agreed that impatience and emotional situations are contributory factors to driving risk behaviour in Nigerian traffic roads. These findings also juxtapose the findings of the present study that impatience is a psychological factor which induces risky driving behaviour among commercial drivers.

Conclusion

Based on the findings of this study, it was concluded that anxiety, impatience, anger and sensation seeking have significant relationship with accident-risk behaviour among commercial drivers in Ondo State, Nigeria. In addition, alcohol consumption, excessive speed, dangerous overtaking, use of cell phones, and driving at night without headlamp are accident risk behaviour exhibited commercial drivers in Ondo State.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. Anxiety disorder and emotional tests should be conducted on commercial drivers before drivers licenses are issued to them and such tests should be administered to commercial drivers on quarterly basis.
2. The use of the Global Positioning System, a satellite navigation monitoring system; and telematics should be enforced to monitor the actions of drivers while in motion. This could be enforced by the joint effort of the Ministry of Transportation and the Traffic Law Enforcement Agents.
3. Road Safety Corps and the Traffic Division of the Nigeria Police Force in conjunction with the Federal Ministry of Transport should organize from time to time, seminars and workshops for commercial drivers on driving code of conduct, adverse effects of alcohol consumption between driving, consequences of over-speeding and traffic rules violations. This will assist in the reduction of driving risk behaviour that emanate from the psychological factors identified in the study.

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