

THE CAUSES AND PREVALENCE OF ROAD TRAFFIC ACCIDENTS AMONGST COMMERCIAL LONG DISTANCE DRIVERS IN BENIN CITY, EDO STATE, NIGERIA.

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ABSTRACT

The prevalence of road traffic accidents is on the rise, thus contributing to morbidity and mortality. In the year 2000, road traffic injuries was the 11th leading cause of death globally, currently, it is the 9th leading cause of death. Despite the tragedy behind the loss of life and injuries due to road traffic crashes, there is less mass media attention and public awareness than other less frequent types of tragedy. This study was done to assess the causes and prevalence of road traffic accidents among commercial long distance drivers in Benin City.

A descriptive cross sectional study design was used, and data was collected from 315 commercial long distance drivers and their vehicles. Study was done from January to October, 2013. Respondents were recruited using systematic random sampling technique. Study instruments included structured interviewer administered questionnaires and focus group discussion guide.

The results showed that 114 (36.2%) were within the age group of 31-40 years. Ninety-one (28.9%) were in the 41-50 years age group while 18 (5.7%) fell within the 61-70 years age group. Most of the respondents 272 (86.3%) were married, 28 (8.9%) were single, 10 (3.2%) were cohabiting, while 2 (0.6%) were separated. Almost all the respondents 311 (98.7%) were males while 4 (1.3%) were surprisingly females. More than half of the respondents 172 (54.6%) had a secondary level of education, 112 (35.6%) had a primary level of education while 12 (3.8%) had no formal education. The study showed a prevalence of road traffic accidents of 47.9% in Benin City occurring more in day time and the common causes of road traffic accidents include careless driving, speed violation, brake failure, traffic violations, faulty overtaking, burst tyre, bad roads, alcohol use and armed robbery attack. Thus measures should be made to ensure proper maintenance of the roads to ensure the risk of RTA due to bad road is reduced and also provide adequate security for road users to prevent armed robbery attacks.

KEYWORDS: Road traffic accidents, determinants, crashes

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INTRODUCTION

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. This 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.¹ The majority of people in many developing and low income countries of the world rely greatly on commercial mode of 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 the society.^{2,3,4} And thus they constitute a large proportion of the road users and are most implicated in road traffic accidents. Road deaths and injuries despite being largely preventable are massively wasteful, destroying lives beyond those of the actual victims, limiting future productivity and draining money from economies. The current deficit and losses from road traffic crashes, including spending on road traffic related events has reduced the funds available to national governments for other sectors like health service and education. Road mishaps are the single biggest non-natural killer of children and young people, thus there is a need to prioritize strategies and approaches to integrating road safety into public health, developing 'place-based' approaches and accessing expertise and funding.⁵⁻⁷ Road safety can form a unique bond between the public, private and voluntary sectors in tackling one of

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the major social ills – preventable road deaths and injuries.⁶

In developed, high-income countries, an established set of interventions have contributed to significant reductions in the incidence and impact of road traffic injuries.^{1,8,9} These high income countries utilized strategies like the enforcement of legislation to control speed and alcohol consumption, mandating the use of seat-belts and crash helmets, fitness to drive assessment and the safer design and use of roads and vehicles.^{1,2,8,9}

The prevalence of road traffic accidents is on the rise, thus contributing to morbidity and mortality. In the year 2000, road traffic injuries was the 11th leading cause of death globally, currently, it is the 9th leading cause of death. If nothing is done to stem this tide, by 2030, it will be the 5th leading cause of death.^{2, 10,11} Drivers carelessness is responsible for 63% of road traffic injuries^{12,13} while drivers wrong decision, over speeding and drunkenness caused 21%, 14%, 2.6% of road traffic injuries respectively.

More than half of the people killed in traffic crashes are young adults aged between 15 and 44 years, about 73% of all global road traffic fatalities are males,¹²⁻¹⁴ often the breadwinners in a family. These deaths have reduced the amount of productive workforce; thus reducing the economic viability of nations. Many families are driven into poverty by the cost of prolonged medical care, the loss of a family breadwinner, or the extra funds needed to care for people with disabilities. Road crash survivors, their families, friends and other caregivers often suffer adverse social, physical and psychological effects.¹² Thus, deepening economic losses, while worsening poverty and hunger.^{1,11}

Furthermore, 90% of road traffic deaths occurred in low- income and middle-income countries, where 81% of the world's population live and own about 20% of the world's vehicles. This indicates that countries in Africa are the hardest hit and bear a heavy burden in both direct and indirect costs from RTC, as it consumes massive financial resources that countries and communities can ill afford.^{5,7} These road traffic crashes cost low income and middle-income countries between 1% and 2% of their gross national product, which is more than the total development aid received by these countries. In 2012, the UN Decade of Action for Road safety revealed that road crashes will cost developing countries \$100 billion each year, if not handled properly.¹² This loss will further deepen the already existing economic challenges faced by developing nations.^{1,8,9,14}

Despite the tragedy behind the loss of life and injuries due to road traffic crashes, there is less mass media attention and public awareness than other less frequent types of tragedy. People tend to individualize the consequences of RTA, thereby obscuring a view of the big picture.^{15,16} Findings from this study could serve as a basis for formulating advocacy tools for a clearer policy direction on fitness to drive backed by appropriate legislation as well as, increase awareness on the need for fitness to drive assessment among commercial drivers. This study was done to identify the causes and prevalence of road traffic accidents amongst commercial long distance drivers, and factors affecting it.

Methodology

A descriptive cross-sectional study was carried out between January to October, 2013 among 315 selected commercial long distance drivers in Benin City.

A systematic random sampling technique was used in selecting the respondents for this study.

Step 1: A list of registered parks was obtained from the Ministry of Transport, Edo state. All 17 registered parks with a total of 1022 drivers involved in long distance transportation were used for this study.

Step 2: Sampling interval calculation, $k = N/n$:
 Total No of commercial drivers in Benin City (N) = 1022 = 3
 Sample Size (n) 305

Step 3: Sampling Frame; A sampling frame consisted of the nominal roll of all drivers (as presented by the management of each park) involved in long distance driving in each of the registered park involved in long distance travels in Benin City.

Step 4: The first unit (driver) was selected using simple random sampling between driver 1 and driver 3 on the sampling frame. Then, using the sampling interval (k) of 3 as calculated above, every third (kth) driver on the list of drivers was recruited from each transport company until the sample size of 305 was achieved. For example, if a driver with serial number 1 was selected using simple random sampling, the next driver was the driver with serial number 4 ($1 + 3 = 4$), then 7th, 10th, 13th, 16th, 19th, 22nd, 25th driver and so on.

Data collection tools were pre-tested among selected commercial long distance drivers operating in Auchi, Estako West Local Government Area of Edo State. The location is about 200km from Benin City. Collected quantitative data was entered and analyzed using Statistical Package for Scientific Solution (SPSS) version 20. Descriptive and inferential analysis was

carried out in line with the objectives of the study. The focus group discussion sessions were transcribed and typed. The content of the sessions were analysed using thematic analyses to identify recurrent themes. Systematic reading, coding and re-categorisation of the transcripts of focus group discussion sessions were carried out.

Quantitative variables that are normal in distribution such as age and weight were expressed as means \pm standard deviation. Qualitative data like gender, educational status, and marital status were presented as diagrams and percentages. Logistic regression was used to identify predictive variables for Road traffic accidents. Statistical test of association, were carried out using a 95 percent confidence interval.

Ethical approval was obtained from the ethical committee of the University of Benin Teaching Hospital. Permission was obtained from the community leader and youth leaders, while parents gave assent for questionnaires to be administered. Individual informed consent was attached to each questionnaire and the respondent gave his or her consent before the questionnaires were filled.

RESULTS

More than a third of the respondents 114 (36.2%) were within the age group of 31-40 years. Ninety-one (28.9%) were in the 41-50 years age group while 18 (5.7%) fell within the 61-70 years age group. Most of the respondents 272 (86.3%) were married, 28 (8.9%) were single, 10 (3.2%) were cohabiting, while 2 (0.6%) were separated. Most of the married respondents 247 (90.8%) were in monogamous marriages and 242 (76.8%) had nuclear families. Almost all the respondents 311 (98.7%) were males while 4 (1.3%) were surprisingly females. More than half of the respondents 172 (54.6%) had a secondary level of education, 112 (35.6%) had a primary level of education while 12 (3.8%) had no formal education. One hundred and sixty nine (53.3%) respondents were Benin, 48 (15.1%) were Esan, 21 (6.6%) were Igbo, 19 (6.0%) were Urhobo while smaller proportions were Etsako 15 (4.8%), Yoruba 9 (2.9%), Isoko 8 (2.5%), Owan 7 (2.2%) and Itsekiri 7 (2.2%), Ukwuani 7 (2.2%) and Ibibio 3 (1.0%). Most of the respondents 300 (95.2%) were Christians, 10 (3.2%) were traditional in their beliefs while 5 (1.6%) were Muslims. Two hundred and ninety three (92.7%) of the respondents were resident in Edo state, 7 (2.3%) were resident in Lagos, 7 (2.3%) in Delta, while smaller proportions were resident in Oyo, Kwara and Rivers [(0.6%) each]. (Table 1)

Prevalence of Road traffic accidents (RTA)

The prevalence of road traffic accident is 47.9% as 151 (47.9%) respondents had reported been previously

involved in a road traffic accident while 164 (52.1%), had not. Most of the respondents 107 (70.9%) had a single RTAs in their driving career while 44 (29.1%) had multiple RTAs. In the previous 12 months, more than half of the respondents 89 (58.9%) had no RTAs, 58 (38.5%) had a single RTAs and 4 (2.6%) had more than one. (Range = 1- 6 RTAs) Six (4.0%) of the respondents declared that there were deaths in their previous accidents while 145 (96.0%) claimed that there were none in their previous RTAs. Thirty three (21.9%) had injuries to occupants. A higher proportion of the respondents 62 (41.1%) stated that their previous RTAs occurred in the morning, 56 (37.1%) stated in the afternoon, 23 (15.2%) stated evening while 10 (6.6%) stated night. More than a quarter of the respondents 40 (26.5%) who had previously been involved in an RTA claimed that it was due to careless driving, 23 (15.2%) claimed that it was due to speeding limit violation, an equal proportion claimed it was due to brake failure while 12 (7.9%) claimed that it was due to their violation of traffic rules. Bad roads 9 (6.0), burst tyre was responsible for 6 (3.9%), wrong overtaking 6 (3.9%), alcohol 2 (1.3%), motorbike 2 (1.3%), and pedestrians 2 (1.3%). (Table 2)

Determinants of RTA occurrence

Respondents more than 50 years old 42 (50.0%) have had more RTAs, when compared with those less than 50 years old 109 (47.2%). This association was not statistically significant ($p = 0.703$). More female 2 (50.0%) than males 149 (47.9%) have been involved in RTA, this was not statistically significant ($p = 0.999$). More Christians 150 (50.0%) than non-Christians 1 (20.0%) have been involved in RTA. Occurrence of road traffic accident was increased among Christians, this was statistically significant ($p = 0.001$). A higher percentage of drivers with tertiary level of education 14 (73.7%), than those with secondary 83 (48.3%), primary 51 (45.5%) and no formal education 3 (25.5%) had been involved in RTA. Occurrence of RTA increased as the level of education increased, this was statistically significant ($p = 0.050$). More respondents with driving experience greater than 20 years 55 (46.5%) had less RTA than those less or equal to 20 years 96 (48.7). This was not statistically significant. (Table 3)

There was no statistically significant association between frequency of stress and occurrence of RTA. ($p = 0.263$). Occurrence of RTA decreased as practice FTD increased. This finding was statistically significant ($p = 0.040$), majority of drivers with poor practice of FTD 126 (51.2%) had been involved in RTA, 15 (50.0%) with fair practice and 10 (29.4%) with good practice had been involved in RTA. A higher percentage of drivers with abnormal ESS 3 (55.2%) had been involved in RTA, while 99 (46.5%) with normal ESS had been involved in RTA. This was not statistically significant ($p = 0.379$).

Most drivers who drank alcohol had been involved in RTA, while 32 (33.3%) those who did not consume alcohol had been involved in RTA. This was statistically significant ($p = 0.001$). More respondents who were positive for Hazardous use of alcohol 25 (59.5%) were involved in RTA than those who were negative 94 (53.1%). Also, more of those who were positive for alcohol dependence 16 (59.2%) and harmful alcohol use 16 (59.2) had RTA than those who were negative 103 (53.6%). Majority of respondents who sleep for more than 6 hours 50 (49.0%) were involved in RTA, while 2 (16.7%) who sleep for < 4 hours were involved in RTA. As number of hours of sleep by the driver increases there is an increased RTA ($p = 0.001$). A greater proportion of drivers whose usual speed was > 100km/hr 114 (52.8%) were involved in RTA. As usual speed of driver increase, it increases occurrence of RTA. This was statistically significant ($p = 0.028$). (Table 4)

The predictors in the model were responsible for 34.2% to 46.1% of the variation observed in the outcome variable (had road traffic accident). The statistically significant predictors of occurrence of RTA were level of education, religion, practice of fitness to drive, speed of drivers and alcohol use. As age of the respondents increases, the likelihood of having had an RTA increases ($B = 0.241$) by odds of 1.273. This was not statistically significant ($p = 0.381$). The respondents who were females were more likely ($B = 0.061$) to have had an RTA compared to those who were males with odds of 1.940. This was not statistically significant ($p = 0.959$). Respondents who have been driving more than 20 years were more likely to have had an RTA compared to those driving for 20 years or less ($B = 0.347$) with by odds of 1.415. This was not statistically significant ($p = 0.333$). The respondents with no formal education were less likely ($B = -1.418$) have had an RTA compared to those who had formal education by odds of 0.242. This was statistically significant ($p = 0.046$). Drivers practicing other religions were less likely ($B = -2.718$) have had an RTA compared to those who were Christians by odds of 0.066. This was statistically significant ($p = 0.010$). The respondents who had poor practice of fitness ($B = 0.870$) were more likely to have had an RTA compared to those who had good practice of fitness to drive with an odds of 2.387. This was statistically significant ($p = 0.037$). Respondents who usually drive at a speed of >100km/hour ($B = -0.706$) were more likely to have had an RTA compared to those who drove at ≥ 100 km/hour with an odds of 0.494. This was statistically significant ($p = 0.009$). Respondents who consume alcohol ($B = -0.808$) were more likely to have had an RTA compared to those who did not consume alcohol with an odds of 2.244. This was statistically significant ($p = 0.002$). (Table 5)

Focus group discussion

Concerning previous involvement in road traffic accident and cause, most drivers had been involved in RTA. Some causes were Stress and fatigue, trailer, brake failure, bad road, unclear vision due to rain, wrong overtaking. Some comments were,

"Yes, I was driving from Benin to Sokoto. Wetin cause am na stress, I arrive Sokoto that day, I was suppose to rest for 2 days but the next day I was asked to load because there a lot of passenger so as I was driving now I wanted to overtake but the vehicle before me swerved. I was not alert so i ran into it. I had a fracture, others had serious injuries, but nobody died we came back to Benin alive." ... A 47 year old driver with 20 years driving experience

"Yes, what caused the accident was brake failure luckily nobody died" ... A 34 year old driver with 10 year driving experience

"Yes, I have been involved when I was at my former company what happened was that it was raining I was coming thank God I was not running (on high speed) I was on 40/50km/hour, it was heavily raining so nobody could even run (on high speed) and you know the road is not too good and there was this "Mack" trailer that was navigating. But, unknown to him I was very close and when he saw me he was trying to avoid me and instead of hitting the trailer face on. I swerved and as I was trying to return my steering the vehicle somersaulted but thanks be to God nobody died. That is the only accident I have ever been involved in my whole life." ... A 42 year old driver with 12 years driving experience

TABLE 1: Socio-demographic characteristics of the respondents

Variable	Frequency (n = 315)	Percent
Age (Years)		
21-30	26	8.3
31-40	114	36.2
41-50	91	28.9
51-60	66	20.9
61-70	18	5.7
Marital status		
Single	28	8.9
Married	272	86.3
Cohabiting	10	3.2
Separated	2	0.6
Divorced	3	1.0
Marriage type (n = 272)		
Monogamous	247	90.8
Polygamous	25	9.2
Family type		
Nuclear	242	76.8
Extended	73	23.2
Sex		
Male	311	98.7
Female	4	1.3

Level of education		
No formal education	12	3.8
Primary	112	35.6
Secondary	172	54.6
Tertiary	19	6.0
Ethnic group		
Benin	169	53.7
Esan	48	15.2
Igbo	21	6.7
Urhobo	19	6.0
Etsako	15	4.8
Yoruba	9	2.9
Isoko	8	2.5
Owan	7	2.2
Itsekiri	7	2.2
Ukwuani	7	2.2
Ibibio	3	1.0
Others ^a	2	0.6
Religion		
Christianity	300	95.2
African traditional religion	10	3.2
Islam	5	1.6
State of residence		
Edo	293	93.0
Lagos	7	2.3
Delta	7	2.3
Oyo	2	0.6
Kwara	2	0.6
Rivers	2	0.6
Others ^b	2	0.6
Duration of driving (years)		
0-10	84	26.7
11-20	113	35.9
21-30	63	20.0
31-40	49	15.6
41-50	6	1.8

TABLE 2: Respondents' RTA characteristics

Variables	Frequency	Percent
Ever involved in a RTA (n = 315)		
Yes	151	47.9
No	164	52.1
Number of accidents in driving career (n = 151)		
1	107	70.9
>1	44	29.1
Mean = 1 ± (1.025), range = (1 - 6 RTAs)		
Number of accidents in the past 12 months (n= 151)		
0	89	58.9
1	58	38.5
>1	4	2.6
Mortality in Last RTA (n = 151)		
Yes	6	4.0
No	145	96.0

Injury to occupants (n = 151)		
Yes	33	21.9
No	114	78.1
Time of crash (n = 151)		
Morning	62	41.1
Afternoon	56	37.1
Evening	23	15.2
Night	10	6.6

Causes of last RTA* (n = 151)		
Careless driving	40	26.5
Speeding violation	23	15.2
Brake failure	23	15.2
Traffic violations	12	7.9
Bad roads	9	6.0
The fault of the other driver	8	5.3
Faulty overtaking on road	6	3.9
Burst tyre	6	3.9
Armed robbery incident	5	3.3
Alcohol/drug use	2	1.3
Bike (Okada)	2	1.3
Pedestrians	2	1.3
Mechanical fault	1	0.7

Multiple response***Table 3: RTA and socio-demographic variables.**

Variable			Test statistics	p value	
	Yes n (%)	No n (%)			
Age group (years)	≤50	109 (47.2)	122 (52.8)	χ ² = 0.195	0.703
	> 50	42 (50.0)	42 (50.0)		
Sex	Male	149 (47.9)	162 (52.1)	Fisher's exact= 0.007	0.999
	Female	2 (50.0)	2 (50.0)		
Religion	Christianity	150 (50.0)	150 (50.0)	Fisher's exact= 12.229	0.001*
	Islam	1 (20.0)	4 (80.0)		
	ATR	0 (0.0)	10 (100.0)		
Level of education	No formal	3 (25.0)	9 (75.0)	χ ² = 7.703	0.050*
	Primary	51 (45.5)	61 (54.5)		
	Secondary	83 (48.3)	89 (51.7)		
	Tertiary	14 (73.7)	5 (26.3)		
Driving experience	<20	96 (48.7)	101 (51.3)	Fisher's exact= 0.133	0.728
	>20	55 (46.6)	63 (53.4)		

Table 4: Respondents involvement in RTA and predictive variables

Variables		Previous RTA (n= 315)			Test statistic	p value
		Yes n (%)	No n (%)	Total n (%)		
Frequency of Stress	Rarely	78 (48.4)	83 (51.6)	161 (100.0)	$\chi^2= 5.226$	0.263
	Sometimes	61 (47.7)	67 (52.3)	128 (100.0)		
	Always	12 (46.2)	14 (53.8)	26 (100.0)		
Practice of FTD	Poor	126 (51.2)	125 (49.8)	251 (100.0)	$\chi^2= 5.262$	0.040*
	Fair	15 (50.0)	15 (50.0)	30 (100.0)		
	Good	10 (29.4)	24 (70.6)	34 (100.0)		
Epworth sleepiness scale	Normal	99 (46.5)	114 (53.5)	213 (100.0)	$\chi^2= 1.962$	0.379
	Borderline	15 (42.9)	20 (57.1)	35 (100.0)		
	Abnormal	37 (55.2)	30 (44.8)	67 (100.0)		
Alcohol consumption	Yes	119 (54.3)	100 (45.7)	219 (100.0)	$\chi^2= 11.799$	0.001*
	No	32 (33.3)	64 (66.7)	96 (100.0)		
Hazardous alcohol use	Positive	25 (59.5)	17 (40.5)	42 (100.0)	$\chi^2= 0.563$	0.494
	Negative	94 (53.1)	83 (46.9)	177 (100.0)		
Alcohol dependence	Positive	16 (59.3)	11 (40.7)	27 (100.0)	$\chi^2= 0.301$	0.682
	Negative	103 (53.6)	89 (46.4)	192 (100.0)		
Harmful alcohol use	Positive	16 (59.3)	11 (40.7)	27 (100.0)	$\chi^2= 0.301$	0.682
	Negative	103 (53.6)	89 (46.4)	192 (100.0)		
Number of hours of sleep	< 4 hours	2 (16.7)	10 (83.3)	12 (100.0)	$\chi^2= 21.829$	0.001*
	4-6 hours	100 (49.8)	101 (50.2)	201 (100.0)		
	>6hours	50 (49.0)	52 (51.0)	102 (100.0)		
Usual driving speed	< 80 km/hr	0 (0.0)	4 (100.0)	4 (100.0)	Fisher's exact= 8.533	0.028*
	80-100 km/hr	32 (38.6)	51 (61.4)	83 (100.0)		
	>100-120 km/hr	114 (52.8)	102 (47.2)	216 (100.0)		
	>120 km/hr	5 (41.7)	7 (58.3)	12 (100.0)		
Fitness to drive	Fit to drive	54 (53.5)	47 (46.5)	101 (100.0)	$\chi^2= 1.505$	0.228
	Unfit to drive	97 (45.3)	117 (54.7)	214 (100.0)		

Significant*

TABLE 5: Determinants of occurrence of road traffic crashes among respondents

Predictors	B (regression coefficient)	p-value	Odd Ratio	95% C.I.for Odd ratio	
				Lower	Upper
Age (years)	.241	.381	1.273	.742	2.183
Sex					
Female	.061	.959	.940	.093	9.508
Male**			1		
Driving experience					
≤20 years	.347	.333	1.415	.701	2.857
>20 years* *			1		
Level of Education					
No formal	-1.418	.046*	.242	1.338	3.765
Formal**					
Religion					
Others	-2.718	.010*	0.066	0.008	0.518
Christianity**					
Knowledge of FTD					
Poor	-.247	.319	.781	.480	1.270
Good**			1		
Practice of FTD					
Poor	-.870	.037*	2.387	1.055	5.399
Good**					
Drivers Speed					
≤100km/hr	-.706	.009*	.494	.291	.837
>100km/hr**			1		
Alcohol Use					
No	-.808	.002*	2.244	1.338	3.765
Yes**			1		
Hours of Sleep					
<7 hours					
≥7 hours**	.035	.889	1.035	.638	1.680
Constant	-1.658	.192	0.190		

**reference category, R2 = 34.2% - 46.1%, Significant*, C.I = confidence interval

DISCUSSION

The study found that more than a two-third of the respondents were less than 50 years which is congruent to findings in Ile- Ife^{17,18} Ilorin,^{19,20} Jos,²¹ Nigeria and Dares Salaam, Tanzania.²² This age group constitutes the relatively economically viable workforce. The driving profession is tasking and laborious, thus requires persons who are still strong and quite active. As drivers increase in age, their ability to drive long distances dwindles. Thus, they tend to exit the profession, while younger drivers are recruited to

replace them.

Almost all the respondents were males, revealing the fact that driving is a male dominated occupation. Similar trends were observed in four cities in Nigeria, Ile Ife,^{17,18} Ilorin,^{19,20} Ibadan,^{23,24} and Jos²¹ and in Cape Coast, Ghana.¹⁰ Also, a study done in Australia²⁵ showed 1.4% of the drivers were women. The finding of the afore mentioned studies are not totally strange considering the fact that commercial driving is strenuous and the nature of the job keeps the drivers

away from home for long periods. Strikingly, in Africa, women are commonly known to be gifted as home builders and makers, thus, females may not be willing to take up a job that will see them stay away from their families for long periods and commercial driving may not be culturally acceptable for women.

Most of the commercial drivers were married. This is akin to findings from studies done in Ile Ife,¹⁸ Ibadan.²³ Accounting for this may be factors related to perceived notion that marriage promotes responsibility which is necessary to drive a vehicle on commercial basis, also, 91.7% of the drivers were above 30 years thus above the median age for marriage in men (22- 59 years) in Nigeria currently at more than 26 years.²⁶ Also, majority were in monogamous marriages with nuclear families. This may be due to socioeconomic difficulty of catering for more than one wife and having extended families which adds to the cost of fending for their dependents. This however might have implications in terms of the burden of financial responsibility families would have to bear, including the cost to the family in event of morbidity or mortality of the driver.

More than half of the respondents that had completed secondary level of education. Similarities were shown in a study done in Ile Ife.¹⁷ This contrasts with studies done in Ibadan^{23,24} and Ilorin^{19,20} where most drivers had primary school education and no formal education. Contrasting were studies done in Cape Coast Municipality, Ghana¹⁰ and Dar es Salaam, Tanzania²² where over a third of the drivers had primary level of education. This may be attributable to the gross attendance rates for secondary school in Edo State being higher (80%) than that in Oyo (75%), Osun (77%) and Kwara State (62%) as documented in the 2010 Nigeria Education Data Survey (NEDS).²⁷ Also, Edo State has a higher literacy level in English language (73.5%) than Oyo (62.6%), Osun (58.9%) and Kwara States (36.1%).²⁸ This fact can be leveraged upon to health educate the drivers on the need for good health while on the job, and ensuring they comply with road safety standards.

The predominant tribe in this study was Benin, which is the major tribe in the Benin metropolis. Christianity was the predominant religion of drivers in the study, constituting 95.2% of all religions in the study. This is not unexpected as the study was carried out in the southern part of Nigeria where Christians are predominant. This is consistent with a study done in Ile Ife.¹⁸ A greater percentage of the respondents were resident in Edo state, others were resident in different destination towns. This may be due to the fact that the headquarters of their motor parks are located in Benin with other branch motor parks in their travel destinations. And, it is a lot cheaper to hire drivers resident in the locality, so as to avoid the challenges of

relocation.

Bad roads, wrong overtaking and mechanical problems also contributed to RTAs. This is similar to findings from studies in Rwanda,²⁹ Ilorin²⁰ while higher fractions were seen in Jos²¹ and Ibadan.²³ This may be attributable to the nature of the roads used by the different drivers as at the time of the study. Potholes, slippery surfaces can lead to road accidents. A strange dimension to the occurrence of RTA is armed robbery attacks which were also echoed in Ibadan²³ and Sagamu, Ogun State.³⁰ It can be assumed that these crashes occur when drivers attempt to escape and avoid armed robbers on the high way. This presents a security challenge as lives can be lost if RTA occur during such attacks. About a quarter of drivers and passengers had injuries in the previous accidents. Studies in Kenya and Tanzania³¹ reported similar (28%) injury cases. Higher values were observed in Ghana³² (35.5%). Most of the injuries among passengers and drivers were limb injuries; few drivers reported head and neck injuries. This was similar to a study done in Osun.³³ These injuries prove costly to manage and may eventually lead to complications that may permanently incapacitate the victims or lead to their death. A greater percentage of the injuries required hospital care while mortality occurred in 4.0% of the road traffic crashes, similar to 5.4% mortality which was found in Kenya.³⁴ But, Tanzania³¹ recorded 17.2% mortality; Ghana³² reported 10.9%. Most RTAs destroy properties and valuables adding up to the economic and social cost of road traffic crashes.

Most road traffic accidents occurred among respondents above 50 years. Even though, this association was not statistically significant, it contrasts with that done in Kigali²⁹ where 50.7% of the RTA occurred in the less than 30 year age group and a Jos study³⁵ which further stated that two thirds of deaths due to RTA occurred in reproductive age group 21-40 years. It however corresponds to a study done in Ibadan²³ where RTA was common among the older age group above 50 years, while those below 50 years accounted for only 7.3% of the RTAs. This similarity may be due to the fact that the Ibadan study was done among drivers employed in the civil service who may show a similar age distribution with those in commercial transport, also, self-reported accidents would be higher based on their years on the job. Consequently, adults and young persons are at risk of death from road traffic crashes.

Although more female than males have been involved in RTA, this was not statistically significant. This rather strange finding corresponds to research done at the University of Michigan Transport Institute³⁶ where women had more tendencies to have vehicular crashes; however they explained that this could be due to

differential gender exposure to different scenarios, differential gender capability to handle specific scenarios, or differential expectations of actions by other drivers based on gender. Female involvement in long distance commercial driving is relatively new, so their exposure and experience is insufficient, besides, male drivers have better control and composure when faced with danger. More Christians than other religions have been involved in RTA. Unexpectedly, the increased occurrence of road traffic accident among Christians was statistically significant. Religion was also a predictor of RTA. This effect of religion was also noted in studies done in Ibadan.²³ It can be put forward that churches could be an ideal point for awareness on the need for road safety. This finding may be due to the fact that most respondents in this study were Christians. Also, many Christian denominations do not forbid alcohol like is done in other religions like Islam, thus, it can be suggested that RTAs can occur more among Christians. This can be a pointer for further research. It was rather surprising that, a greater proportion of drivers with tertiary level of education had been involved in RTA, than those with secondary, primary and no formal education. Occurrence of RTA increased as the level of education increased. This finding was statistically significant. Education is also a predictor of occurrence of road crashes. A similar finding was observed in a study done in Ibadan.²³ It would be expected that with a higher level of education, commercial drivers should demonstrate more safety concerns than those who are much less educated. Driving is a skill that can be acquired by those without formal education, thus higher levels of education may not provide any advantage to driving safely. Occurrence of RTA decreased as practice of FTD increased. This finding was statistically significant. Majority of drivers with poor practice of FTD had been involved in RTA. This is not surprising as drivers who do not practice fitness to drive are more likely to drive vehicles when they have poor vision, too sleepy, driving under the influence of alcohol and other unsafe practices. It is worthy to note that the practice of fitness to drive plays a critical role in the prevention and control of road traffic accidents. Also, Road traffic accident was associated with alcohol consumption, hours of sleep of the drivers and speed of >100km/hour.

CONCLUSION AND RECOMMENDATION

The study showed a prevalence of road traffic accidents of 47.9% in Benin City occurring more in day time and the common causes of road traffic accidents include careless driving, speed violation, brake failure, traffic violations, faulty overtaking, burst tyre, bad roads, alcohol use and armed robbery attack.

The following recommendations were made based on the findings:

1. The transport companies should establish small scale occupational health services to cater for driver's health via retainership with private hospital or utilize group occupational health services.
2. Organize periodic and random alcohol test for drivers before their departure as a precautionary measure to mitigate alcohol consumption before driving.
3. Ensure the approved transport schedule is not exceeded, so as to avoid fatigue and sleepiness.
4. Promote and ensure drivers compliance with traffic rules.
5. Government should maintain the roads to ensure the risk of RTA due to bad road is reduced and also provide adequate security for road users to prevent armed robbery attacks.

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