



ROAD TRAFFIC ACCIDENT CHARACTERISTICS IN NIGERIA: A SIX YEARS REVIEW

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Abstract

This paper presents road traffic accident (RTA) as a violence the public should worry about due to its economic and social cost. It goes further to analyse crash data to show the trend in RTA in Nigeria over a period between 2011 and 2016. From the analysis, it was also found that male and adult were over represented amidst crash victims. A review of the causes of accident showed that human error contributes over 82% to RTA while road and environmental condition contributed less than 3%. The paper concludes by admitting that while available data might still be inadequate in providing extensive information about road safety for appropriate modelling and predictions, it still offers sufficient information for policy makers to be guided on where to pay attention to.

1.0 Introduction

Each year nearly a million people die and more millions are injured or disabled as a result of road traffic crashes (Abdulbari, 2007). The vast majority (over 90%) of all road traffic deaths and injuries occur in low-income and middle-income countries (FRSC, 2012; WHO, 2007a). In high-income countries, most of those killed or injured in road traffic crashes are drivers and passengers of four-wheeled vehicles. In low-income and middle-income countries, however, “vulnerable road users” – pedestrians, cyclists and motorcyclists and users of public transportation – constitute a higher proportion of road users, and consequently make up a larger proportion of those injured or killed on the roads. In Africa and Asia there is a noticeable higher rate of road traffic injury (Söderlund and Zwi, 1995). Of significant concern is the projected trend in road traffic fatalities in low and middle-income countries over the next few years. It is estimated that fatalities will increase by 67 percent by the year 2020 accounting for 2.3 million deaths annually. Road fatalities are projected to increase by 80 percent in low-income countries but decrease by about 30 percent in high-income countries. South Asia is expected to record the largest growth in road traffic deaths with a dramatic increase of 144 percent with India not expected to see a decline in road traffic deaths until around 2042 (Ponnaluri, 2012).

The above is not without its economic implications. It has been estimated that the annual economic cost of road traffic injury globally is approximately \$US518 billion which is approximately 2 percent of the gross national product in high-income countries. For low-income countries, the estimated economic loss from road traffic injury is approximately \$US100 billion, an amount that is twice as much as all overseas development assistance provided to these countries. These economic losses perpetuate poverty, particularly when those aged 15 to 44 years are over-represented in road traffic

injuries. This is because in many low-income countries, injuries to individuals in this age group tend to affect productivity severely, particularly amongst the lowest income groups where exposure to risk is greatest and where earning capacity is most likely to rely on physical activity (WHO, 2007b). Road traffic accident is indeed a destructive evil.

The above has led to the question of whether traffic injury is inevitable or not. However, (STAYS SAFE, 2004) describes the principle of “vision zero” which shows that the ethical approach to traffic injury reduction is rejection of the notion that injuries are an inevitable consequence of mobility. It notes that mobility is a human need with huge benefit: maintaining mobility while adapting the environment to it benefits everyone. An attempt to reduce mobility in order to reduce crash losses would result in a net loss to the society. Any road traffic system is very complex and potentially hazardous to human health. Elements of the system include the motor vehicles, roads and road users, and their physical, social and economic environments. A safe road traffic system is one that accommodates and compensates for human error and vulnerability. This is rarely available in many developing countries. Nevertheless, collection and analysis of data on road safety is one of the ways to increase awareness on the need for improved road system. This is the aim of this study.

2.0 Study objectives

This retrospective study was designed to provide information about the current state of RTA as recorded by FRSC.

3.0 Materials and Method

The data used for this analysis was obtained from the Federal Road Safety Corps (FRSC) official website. . The FRSC is the government agency responsible for promoting road safety in Nigeria. Its activities include promoting road safety, providing supports for accident victims, as well as keep data on road safety. Balogun and Aberejoje (1992) earlier indicated that the establishment of FRSC brought about a noticeable fall in the number of RTA victims. Road traffic casualty data for the period between 2011 and 2016 was extracted. The analysis involved evaluating various indices of road traffic crashes as a ratio of a 100,000 population. Similar ratio has previously been used in other research (Adeloye et al., 2016). The population of Nigeria adopted for this analysis is 180,000,000. This value is considered appropriate for the period covered by the data.

4.0 Results

4.1 Accident by type

From the analysis shown in table 1, it is shown that fatality per 100,000 population in Nigeria ranged from between 1.09 in 2012 and 1.82 in 2013. The average value over the six year period considered in this work is 1.55 fatal accident per 100,000 population.

Similarly, serious accident per 100,000 population ranged from between 1.73 in 2012 to 4.77 in 2013. The average rate of serious accident per 100,000 population is put at 3.53 serious accidents per 100,000 population. Minor accidents per 100,000 population ranged from between 0.47 in 2015 to 1.11 in 2011 with the average of 0.75 minor accidents per 100,000 population over the six years.

The number injured per 100,000 population per year ranged from 11.53 in 2012 to 22.87 in 2011. The average rate was put at 18.02 persons injured per 100,000 population. Number killed in road traffic casualty per 100,000 population ranged from 2.37 in 2012 to 3.64 in 2013. The average over the six year period is 3.09 persons killed per 100,000 population.

Table 1: Accident by type

Year	Fatal		Serious		Minor		Injured		Killed	
	Aggregate	/100,000 population	Aggregate	/100,000 population	Aggregate	/100,000 population	Aggregate	/100,000 population	Aggregate	/100,000 population
2016	2638	1.47	5633	3.13	1423	0.79	30105	16.73	5053	2.81
2015	2854	1.59	6039	3.36	841	0.47	30478	16.93	5440	3.02
2014	3117	1.73	6356	3.53	907	0.50	32063	17.81	5996	3.33
2013	3294	1.82	8589	4.77	1700	0.94	40057	22.25	6544	3.64
2012	1953	1.09	3106	1.73	1210	0.67	20757	11.53	4260	2.37
2011	2840	1.57	8357	4.64	1999	1.121	41165	22.87	6054	3.36
Average		1.55		3.53		0.75		18.02		3.09

(Source: Author; data from FRSC 2016 Annual Report; available at <http://frsc.gov.ng/publications>)

4.2 Year 2016 in perspective

For the year 2016, table 2 shows that 93.83% (28,250) of the number injured were adult while the remaining 6.16% (1855) were children. Similarly, as shown in table 3, male accounted for 75.42% (22,705) of the number injured while female accounted for the remaining 24.58%. In addition, 92.93% (4696) of those killed in the year were adults while the remaining 7.07% (357) were children. Male accounted for 78.57% (3970) of those killed while the remaining 21.43% (1083) were female.

Table 2: Accident type by age

		Injured	Killed
1	Adult	28250 (93.83%)	4696 (92.93%)
2	Children	1855 (6.16%)	357 (7.07%)
	Total	30105	5053

(Source: Author; data from FRSC 2016 Annual Report; available at <http://frsc.gov.ng/publications>)

Table 2: Accident type by sex

		Injured	Killed
1	Male	22705 (75.42%)	3970 (78.57%)
2	Female	7400 (24.58%)	1083 (21.43%)
	Total	30105	5053

(Source: Author; data from FRSC 2016 Annual Report; available at <http://frsc.gov.ng/publications>)

With respect to vehicles involved, table 4 shows that motorcycles accounted for 19.91% of vehicles involved while cars accounted for 33.86%. The proportion of mini buses involved was 18.35% while trucks accounted for 10.44% of vehicles involved in road accidents. When vehicle use is considered, private vehicles accounted for 41.58% (6,521) of vehicles involved in road crashes while commercial vehicles accounted for 56.60% (8,876). This is shown on table 5.

Table 4: Vehicle type frequency in crashes

	Vehicle type	Frequency
1	Motorcycle	3123 (19.91%)
2	Car	5310 (33.86%)
3	Minibuses	2877 (18.35%)
4	Truck	1637 (10.44%)
5	Others	2735 (17.44%)
	Total	15682

(Source: Author; data from FRSC 2016 Annual Report; available at <http://frsc.gov.ng/publications>)

Table 3: Vehicle use frequency in accident

	Vehicle type	Frequency
1	Private	6521 (41.58%)
2	Commercial	8876 (56.60%)
3	Government	270 (1.72%)

(Source: Author; data from FRSC 2016 Annual Report; available at <http://frsc.gov.ng/publications>)

Finally, it was shown that a total of 11,363 possible causes of accidents were identified in the accidents investigated by officials. Of this number, 33.9% were directly due to over-speeding. In addition, only 2.94% of the causes found were relating to road and weather condition, as shown in table 6. 14.37% were related to vehicle failure while to rest (82.69%) can generally be attributed to human error, including over-speeding, wrongful overtaking, dangerous driving and the likes.

Table 4: Accident causation element

	Accident causation	Percentage contribution
1	Road and Weather condition	2.94%
2	Mechanical Fault	14.37%
3	Human error and mistakes	82.69%

(Source: Author; data from FRSC 2016 Annual Report; available at <http://frsc.gov.ng/publications>)

5.0 Discussion

The length of time over which this data is collected may not be adequate to satisfactorily tell the trend of road traffic casualty in Nigeria. Generally, the data gives an impression of a mild condition of traffic crashes. These rates are, however, lower than values found in some other studies (Adeloye et al., 2016). Possible reason for this are many. FRSC has a low coverage of roads in Nigeria and usually operates main on Federal roads. Traffic crashes on State and Local government roads may not be well covered in the data bank of FRSC. In addition, FRSC operates mostly during the day and may not cover many of the traffic crashes that occur at night. Moreover, it is more usual to report road crashes to the Police rather than FRSC as police posts are more accessible to the populace than FRSC offices. Lastly, registry-based data source such as FRSC website have been found to underreport cases, are varied in quality, and report questionable values and trends (Adeloye et al., 2016). Population based data sources, which are usually more reliable, are rarely available in Nigeria.

Furthermore, the data shows that minor accidents are under reported, being much less than fatal accidents in the data. This may be partly because it is cheaper for victims to settle amicably than to invite the police to intervene and thus have a record of it. In addition, since minor accidents are usually damage-only with little or no hurt to persons involved, it may be possible to overlook the damages. This possibility to under report have been noted by other authors too (Hyder et al., 2008; Odero et al., 2003)

Moreover, the data shows that adults are over represented in traffic crashes compared to children. This is not unusual as adults make more trips than children. The data source does not, however, provide any age definition for adults or children. This was emphasised in Adeloye et al. (2016:517) who observed that registry-based data often lack appropriate case definition for traffic incidences and crash estimates are often incomplete in their breakdown. Nevertheless, Odero et al. (1997) have also previously observed this difference between adults and children. Similarly, male are over represented compared to their female counterpart. Usually, males generally make more outings than females who are culturally expected to be more domestic. They are also more involved in earning activities that are strenuous and may require mobility (WHO, 2007b). This is partly the reason for the result. In

addition, a comparison between female and children shows that females (across all ages) are generally more likely to be involved in crashes than children.

The type of vehicles involved in traffic crash underline the nature of traffic composition. It shows that motorcycles account for about 20% of vehicles involved in accident. This is consistent with earlier studies on the percentage of motorcycles involved in road crashes (Aluko, 2014). Motorcycles are widely used for commercial service and are prominent in traffic, thus their 20% share in traffic crashes. Cars account for 33% being the largest constituent in traffic composition. According to WHO (2004b), four-wheelers (including cars) are widely used for commercial services and this may be partly responsible for their high percentage in the data. Minibuses are the most commonly used vehicle type for public transport. They travel several million kilometres and have higher occupancy than cars and motorcycles. While they are less frequent than cars and motorcycles in traffic incidence, their capacity for more passengers per mile travelled can mean much higher persons involved than these other vehicle types. Their lower representation in crashes should therefore not be taken to mean lower casualty figure. No mention is made of pedestrians in the data. This may be partly due to the poor data breakdown consistent with registry-based data as well as the fact that crashes involving pedestrians are recorded as vehicular crashes (Adeloye et al., 2016; Aidoo, et al., 2013).

Finally, the data support the well known observation that human errors contributes the most to traffic crashes, being at 82% in this study. Promoting measures that are more tolerant to drivers' error may be an additional area that FRSC needs to address and be innovative about.

6.0 Conclusion

From what has been shown in this study, road traffic crashes still account for several death and injuries annually. It also points out the over representation of adults and male as accident victims. In addition, it points out the high representation of motorcycle in crashes and the need to improve the safe operation of minibuses to reduce the number of accident victims. While poor recording systems known to characterise most developing countries have made accurate estimation of the magnitude of traffic crashes difficult to establish, this work has established that road traffic crashes still significantly impact on Nigeria's population. More therefore needs to be done to improve safety.

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