

PATTERN OF PRESENTATION OF ROAD TRAFFIC ACCIDENT INJURIES AT BENUE STATE UNIVERSITY TEACHING HOSPITAL MAKURDI, NORTH CENTRAL NIGERIA.

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ABSTRACT

Background: Road traffic accidents are emerging as a global public health concern but not enough attention is given to it in terms of public health enlightenment and strategic policies by governments to achieve sustained control. **Objective:** This study is aimed at identifying the characteristics of injuries presenting in this new teaching hospital following road traffic accidents (RTAs) and determining the common causes of these crashes. **Methods:** This was a prospective study designed for all patients who presented to the Accident and Emergency Department of Benue State University Teaching Hospital following RTA over 12 months (July 2012 to June 2013). A questionnaire was filled at presentation and completed at the time of discharge from the hospital. **Results:** There were a total of 58 patients 31 males and 27 females giving a ratio of 1.1:1. The mean age was 33.25 ± 14.90 (Range 2 – 82years). Most 37(63.8%) of them were within the age range 21 to 40 years. The month of July 2012 recorded the highest number of patients 14(24.1%). Most of the accidents 35(60.3%) resulted from vehicle-vehicle collision and buses 24(41.4%) were the commonest vehicles involved in road traffic crashes followed by motorcycles 18(31.1%) and cars 14(24.1%). Majority of the patients were passengers 33(56.9%) and multiple injuries were recorded in 32(55.2%) followed by lower limbs only in 12(20.7%). Fractures occurred in 44(75.6%) of the patients followed by lacerations 9(15.5%), dislocation 2(3.2%) and others 3(5.2%). Complete recovery occurred in 32(55.2%) and were discharged. Eight (13.8%) were referred, 5(8.6%) recovered but with some residual deformity at the time of discharge, 3(5.4%) patients died and 8(13.8%) discharged against medical advice (DAMA). *Thirty three* patients had multiple injuries with an average injury severity score (ISS) of 13.7 range (2-32). Major injuries with ISS > 15 occurred in 16 patients. **Conclusions:** Fractures and lacerations were the commonest injuries sustained following RTA. Most of the patients had multiple injuries leading to death in 3 patients. There is need to further equip and prioritize the resources available to the hospital to cater for the growing percentage of multiply injured patients.

KEYWORDS: Road Traffic Accidents, Multiple injuries, Epidemiology.

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INTRODUCTION

Trauma care research in Nigeria is still evolving with few documented data mostly in the southern part of the country. There are no institutional and regional trauma registries¹ so obtaining data on some of these injuries can be challenging.

According to the WHO, worldwide each year, 1.2 million people are killed and 50

million are injured in road traffic accidents. The cost to low income countries is approximately 1% of their gross national product, more than the total development aid received by these countries². This shows that close attention has to be paid to this epidemic by governments and non governmental agencies especially in the developing world in order to reduce morbidity and mortality from road traffic accidents. Developing countries bear the brunt of the fatalities and disabilities from road traffic crashes accounting for more than 85 per cent of the world's road fatalities and about 90 per cent of the total disability adjusted life years (DALYs) cost due to road injuries³.

Also in Africa, it has been estimated that 59,000 people lost their lives in road traffic crashes in 1990 and that this figure rose to 144,000 people by 2010, a 144 per cent increase⁴. Statistics has shown that mortality in road traffic accidents is very high among young adults in their prime and who also constitute the workforce.^{5,6}

The establishment of law enforcement agencies in some countries has not significantly helped the situation. In Nigeria for example, the mandate of the Federal Road Safety Commission established in 1988 includes ensuring law enforcement, collecting road accident statistics, revising traffic legislation, promotion of road safety education, ensuring adequate provision of medical facilities for traffic injury victims, undertaking research in road safety and coordination of all road safety activities. At the first African Road Safety Congress in Nairobi in 1989, Nigeria was ranked ahead of other African countries in the mortality

rate on its highways with “the chances of a vehicle killing someone in Nigeria being 47 times higher than in Britain”⁷. It is also evident that Nigeria is worse than most other countries in terms of traffic accidents, in spite of her relatively good road network. As at 2004 World Bank report asserts “from the view – point of road development, Nigeria would no longer be regarded as a developing country”. But unlike in most countries where improved road development and vehicle ownership (as barometers of economic advancement) is accompanied by better traffic management, higher road safety awareness, and a relative decrease in the number of motor accidents, the opposite is true of Nigeria⁸

According to the Nigerian Federal Road Safety Corps (2006), between 1970 and 2001, Nigeria recorded a total of 726,383 road traffic accidents resulting in the death of 208,665 persons and 596,425 injuries. In that period, each succeeding year recorded more accidents, deaths and injuries. Also between 1997 and 2002, Lagos State alone recorded a total of 39,141 road accidents resulting in the death of 10,132 persons and 18,972 injuries⁹. The Nigerian accident pattern seems to suggest that the better the road, the higher the accident and fatality rate as well as the severity and non-survival indices because of driver noncompliance with speed limits.^{10,11,12}

This study was conducted to ascertain the injury pattern following road traffic accidents presenting at the Benue State University Teaching Hospital and to ascertain the common causes of these accidents.

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MATERIALS AND METHODS

This was a prospective study recruiting all patients who presented to the Accident and Emergency Department of Benue State University Teaching Hospital following RTA over a 12 months period (July 2012 to June 2013) with major injuries (requiring admission).

A questionnaire was filled at presentation by the attending medical officer after resuscitation and completed at time of discharge or referral from the hospital. The data included age, sex, the status of victim (driver, passenger or pedestrian), the event that led to the accident (vehicle-vehicle collision, burst tyre, vehicle-pedestrian collision), the vehicles involved, the injuries sustained, the body regions involved and the outcome after treatment. The data was analyzed using SPSS 16. Ethical clearance for the study was obtained.

RESULTS

There were a total of 58 patients 31 males 27 females giving a ratio of 1.1:1. The mean age was 33.25 ± 14.90 years (Range 2-82 years). Most 37 (63.8%) of them were within the age range of 21 to 40 years (FIGURE 1). The month of July 2012 recorded the highest number of patients 14 (24.1%) because of a mass casualty situation in that month involving 7 members of National Youth Service Corps (NYSC) after orientation camp in the state.

Most of the accidents 35 (60.3%) resulted from vehicle-vehicle collision. This was followed by loss of control 20 (34.5%) and burst tyre 2 (3.4%). Buses 24 (41.4%) were the commonest vehicles involved in road traffic crashes followed by motorcycles

18 (31.1%) and cars 14 (24.1%) (FIGURE 2). Majority of the patients were *passengers* 33 (56.9%) (TABLE 2) and multiple injuries were recorded in 32 (55.2%) followed by lower limbs only in 12 (20.7%) (FIGURE 3). Fractures occurred in 44 (75.6%) of the patients followed by lacerations 9 (15.5%) dislocation 2 (3.2%) and others 3 (5.2%) (FIGURE 4). *Thirty two* (55.2%) recovered completely and were discharged, 8 (13.8%) were referred, 5 (8.6%) recovered but with some residual deformity at the time of discharge, 3 (5.4%) patients died and 8 (13.8%) discharged against medical advice (DAMA).

Thirty three patients had multiple injuries with an average injury severity score (ISS) of 13.7 range (2-32). Major injuries with ISS > 15 occurred in 16 patients.

TABLE 1: Age Distribution

Age	Frequency	Percent
11-20	6	10.3
21-30	23	39.7
31-40	14	24.1
41-50	7	12.1
51-60	4	6.9
61-70	1	1.7
71-80	1	1.7
81-90	56	96.6
Not indicated	2	3.4
Total	58	100.0

TABLE 2: Status of Patients and the Type of Vehicles Involved.

		TYPE OF VEHICLE				
		Car	Bus	Motorcycle	others	Total
Status of Patient	Driver	3(5%)	1(1.7%)	15(25.8%)	0(0%)	19(31.9%)
	Passenger	8(13.8%)	22(38%)	2(3.4%)	1(1.7%)	33(56.9%)
	Pedestrian	3(5%)	1(1.7%)	1(1.7%)	1(1.7%)	6(11.2%)
Total		14(23.9%)	24(41.5%)	18(31%)	2(3.6%)	58(100%)

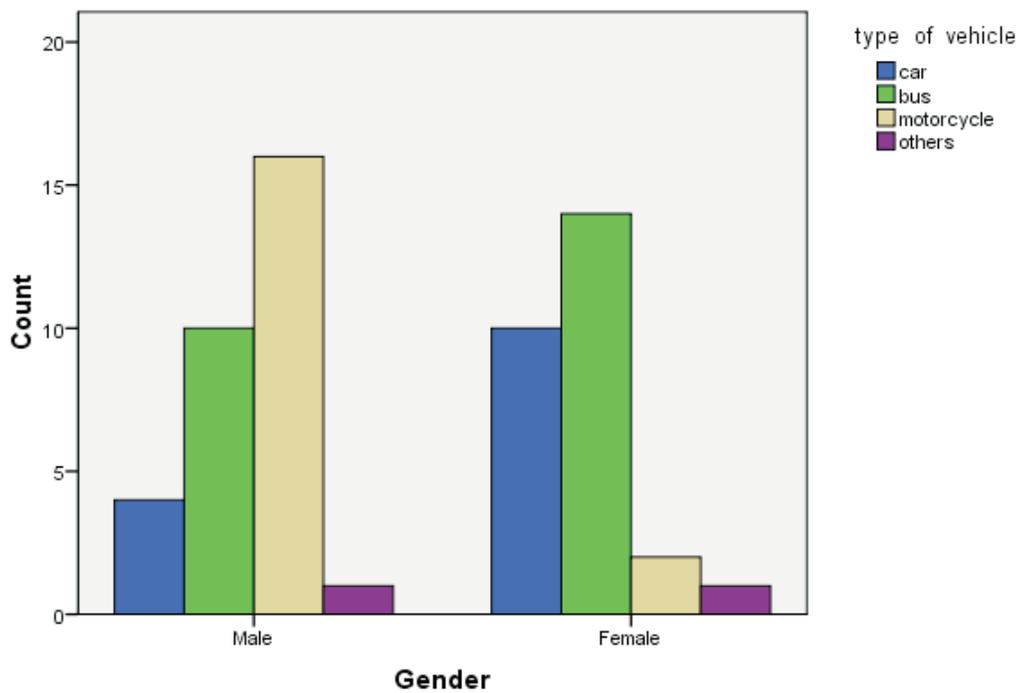


FIGURE 1: Vehicles Involved In Road Traffic Accidents by Gender.

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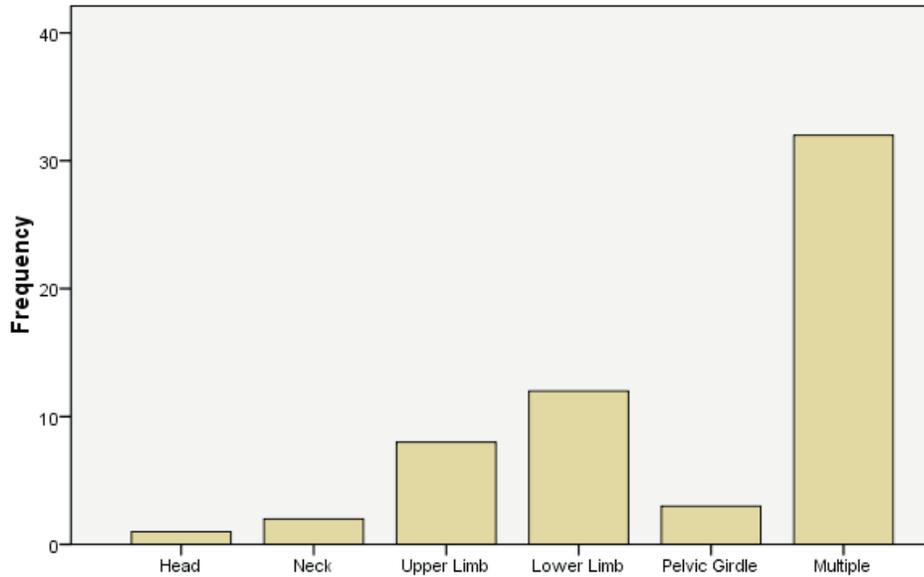


FIGURE 2: Anatomical Regions Injured

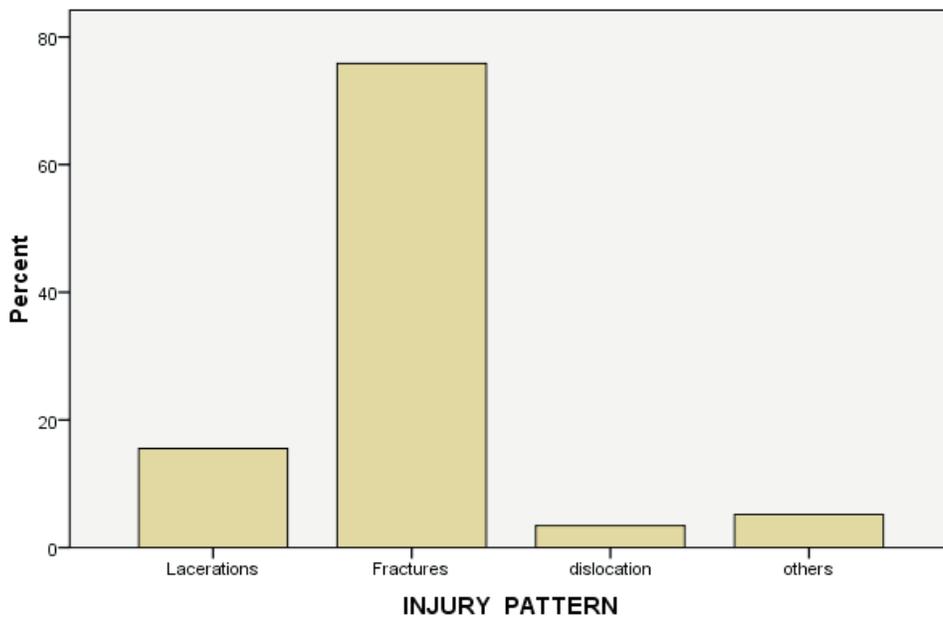


FIGURE 3: Pattern of Injuries

DISCUSSION

Our result shows that buses 24 (41.3%) were the commonest vehicles involved in accidents in our environment. This may not be unconnected with the fact that they are mostly used for intercity travels and are relatively cheaper than cars in terms of transport fare. Similar findings have been documented in an earlier study by Thanni et al in which mini buses were responsible for 63.9 % of the accidents in their series. The drivers of these vehicles are sometimes not well trained and engage in driving under the influence of alcohol and other stimulants.

Our study also found that Vehicle-Vehicle collision was the commonest mechanism of the accidents. Madubueze et al documented that 38.8% of RTA in their series was due to head-on collisions. They suggested that this may be due to the poor state of our roads causing drivers to swerve to avoid potholes. They also asserted that poor driving techniques coupled with impatience of drivers could be major causative factors.

The male to female ratio was 1.1:1. This does not show the glaring male predominance seen in other studies where 1.5:1, 2.2:1 and 2.5:1 were recorded^{1,13,14}. This may be due to higher female involvement in both intercity and intra city travels and possibly fending for the family as well in the study area.

The mean age was in the third decade. The age group most involved in RTA as observed in this study is 21 to 30 years. This is the vibrant and productive age for the community. Most of them are bread winners' in their families and sudden incapacitation from road traffic injuries

takes a toll on financial and social well-being of the family. Similar results have also been documented in earlier studies.^{1,13} Fractures occurred in 75% of the patients. This is higher than 62.5%, 25.3% and 18.7% recorded by Thanni et al, Solagberu et al and Madubueze et al respectively^{1,14,15}. This may be due to the fact that the teaching hospital is the main referral hospital within a radius of 70km that has the facilities to routinely treat fractures. Most of the referrals are usually from peripheral hospitals.

Some of the patients were discharged against medical advice (DAMA). Most of those that were DAMA had fractures. This is higher than 12.7% documented by Madubueze et al.¹⁵ This shows that there is still patronage of traditional bone setters in our environment. Some patients come back for orthodox care after developing complications at the traditional bone setter's place. There is need to continue enlightenment of the populace on dangers of traditional bone setting in our environment.

More than half of the patients sustained multiple injuries. This is higher than what was obtained in other similar studies.¹⁵ Buses were mostly involved in the crashes in this study implying higher energy transfer to the patients. Furthermore, the other tertiary institutions in the state triage and refer the more severely injured patients to the teaching hospital Mortality rate of 3(5.4%) is within the internationally documented rate of 0.5 to 6%¹⁵.

In conclusion vehicle-vehicle collision is the commonest cause of RTA in our environment. Buses have been observed to be mostly involved in these accidents and

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multiple injury is the commonest pattern of presentation. There is need for prioritization of resources to cater for the rising number of multiply injured patients. Government agencies and non-governmental organizations who have the responsibility of enlightening the populace should intensify their efforts in order to reduce injuries sustained on our roads. ■■■

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