

## Research Article

## Socio-Demographic Pattern in Patients Presenting with Injuries in Trauma Unit in a Tertiary Institution in North-Western Nigeria

Mohammed Danfulani<sup>1\*</sup>, Dahiru Mohammed<sup>2</sup><sup>1</sup>Department of Radiology, Faculty of Clinical Sciences, Usmanu Danfodiyo University Sokoto<sup>2</sup>Department of Radiography, Faculty of Allied Health Sciences, Usmanu Danfodiyo University Sokoto**Article History**

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**Abstract: Introduction:** Trauma-related injuries are one of the leading causes of death and disability in young adult throughout the world. Road traffic accident is the main cause of trauma among the younger one. Aims and Objective: To determine the prevalence and the cause of traumatic injuries and the particular part of the body where trauma mostly affected. **Materials and Method:** A retrospective study of 400 patients (radiographs) of age group of 26-35years, with suspected cases of traumatic injuries referred to radiology department UDUTH during a period of 10 months (January 2017 to October 2017) were included in this study. **Result:** From 400 patients studied 282(70.5%) were male and 118 (29.5%) were female. The mean age of the participants was (45.4), and majority of victims are within the age group of 26–35years accounted for 134 (33.5%) and Head is the common body part affected accounts of 149 (37.3%). Road traffic accidents (RTA) were the predominant cause of trauma injury among the patients accounting for (44%) of the cases, followed by assault patients accounted for only (22.5%) and domestic violence/accidents was the least cause of trauma with (5.8%) of the cases. Radiological assessment has played a vital role in identifying the actual region affected and the type of injury. **Conclusion:** Trauma is one of the major referral cases that come to the radiology. However, radiology is a second home to trauma cases apart from the trauma centre. Trauma is a major health challenge because it is one of the leading causes of death and disability among younger age group.

**Keywords:** Socio-demographic, Pattern, Trauma, Radiographs.

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### INTRODUCTION

Radiography is the art and science of application of various forms of radiant energy on human being in order to promote health, treat diseases and produced various diagnostic images [1]. However, a radiography technique has been used to identify and evaluate traumatic-related cases. The word Trauma is defined as a severe injury or damage to the body caused by an accident or violence. Victims of trauma require immediate and specialized care, which is commonly provided in larger hospitals within a specialized unit, termed the emergency department (ED) [2]. Physicians and many nurses specialize in trauma care. Imaging professionals are essential to the diagnosis of the injuries sustained during traumatic events, so extra study in this area of imaging is necessary [3]. Therefore, by this definition, trauma is a common case which occurs in radiology department and it goes beyond the case of just road traffic accident (RTA), as it may be perceived by common man. But to includes cases like intestinal obstruction, testicular torsion, falls, natural disaster and the injuries sustained in violence or war. It can affect different parts of the body with no age limit. Most countries of the world are experiencing an

epidemic of trauma, but the most spectacular increase has been in the developing countries. Proliferation of roads and use of vehicles has led to a rapid increase in injuries and deaths and many peripheral medical facilities find themselves faced with multiple casualties from bus crashes or other disasters. Severe burns are also common in both urban and rural areas [4]. Trauma is the leading cause of death in young patients, and the fifth leading cause of death in those older than 65years [4]. In 2007 unintentional injuries accounted for 120,000 deaths and over 26 million disabling injuries in the United States with an estimated economic impact of \$684.4 billion [5].

Trauma-related injuries affect persons in all age ranges. trauma incidence by age and gender, as reported by the American College of Surgeons' National Trauma Database (NTDB) 2008 annual report. The database contains greater than 3 million records from more than 400 hospitals and has received information from across the United States. These data show that trauma patients most commonly are male, ranging in age from teenagers to early adults and the distribution of trauma injuries by cause, with the most common being motor vehicle accidents (MVAs).

Firearms rank next to last as a cause of injury; however, the 2008 NTDB report also shows that firearms have the highest fatality rate. The data showed the most common trauma patients and mechanisms of injury, but the imaging professional who chooses to work in the ED must be prepared to care for patients from every age range exhibiting a vast array of injuries [6]. Traumatic injury is the major public health problem globally that is frequent cause of death and disability in young people. This was also the same in our locality [7].

Pi-yun C, Jen-dar C *et al.* [8] conducted a research in 2016 on Clinical Assessment of the Diagnostic Value of Facial Radiography in Facial Trauma Patients at the Emergency Department the findings shows that among 100 cases of facial trauma with mid-facial fractures, zygomatic arch fractures or orbital fractures included in this study, 81 patients showed evidence of facial fracture on CT, but 19 patients didn't. On facial radiographs, fracture was detected in only 74 cases. Of the 81 cases with fracture shown on CT, 73 (90%) showed fracture on facial radiographs. However, of the 19 cases without any fracture on CT, only one case showed fracture on facial radiograph. Therefore, the facial radiograph in detecting fracture showed the sensitivity of 90%, the specificity of 94.7%, the positive predictive value of 98.6%, the negative predictive value of 69%, and the accuracy of 91%. They concluded that traditional facial radiography has an important role in the emergency department. It is a valuable imaging tool for the diagnosis of facial fractures. In addition, up to 16% of the patients with facial fractures showed on CT [8].

## METHODOLOGY

This study is a retrospective study; the data was obtained from records unit of Radiology Department UDUTH. This study was conducted on radiology referral traumatic patients for x-ray examination, only traumatic patient who underwent radiography investigation in radiology department UDUTH; non traumatic patients who underwent radiographic examination at radiology department UDUTH were excluded.

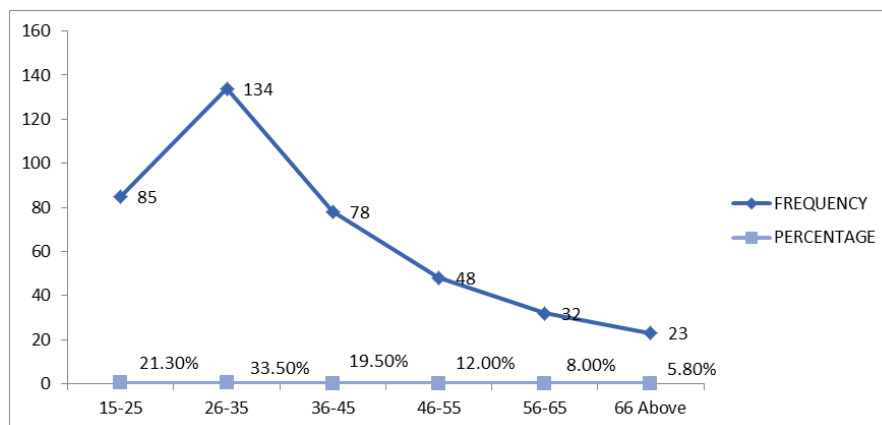
Data was collected from request card of patients in the records unit of Radiology Department UDUTH from January 2017 to October 2019. The instrument used was data capture sheet and the data was analyzed using statistical package for social science SPSS (version 20) based on finding, prevalence, sex and age. Results were presented on frequency and percentage tables. Ethical clearance was obtained by ethical committee of the hospital

## RESULTS

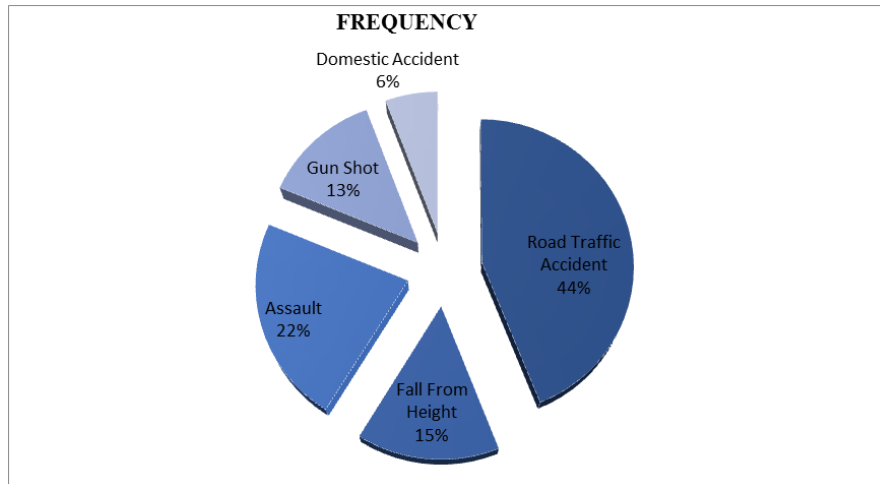
**Table-1: Sex frequency and percentage distribution of traumatic injuries**

| SEX     | FREQUENCY | PERCENTAGE |
|---------|-----------|------------|
| Males   | 282       | (70.5%)    |
| Females | 118       | (29.5%)    |
| Total   | 400       | (100%)     |

TABLE: 4.1 Shows that out of the 400 patients that were recruited, males has the highest percentage which were 282(70.5%) and that of females were 118(29.5%).



**Fig-1: Shows that trauma occurred mainly among patients with the age range of 26-35 years 134 (33.5%), followed by those within the age range of 15-25 years 85 (21.3%) and it rarely occurs in patients within the age range of 66 years above 23 (5.8%)**



**Fig-2: Road traffic accidents (RTA) was the predominant cause of traumatic injury among the patients accounting for (44%) of the cases. Followed by assault patients accounting for only (22.5%) and domestic violence/accidents was the least cause of trauma with 5.8% of the cases**

**Table-2: Frequency and percentage distribution of body parts affected by trauma**

| Body part   | Frequency | Percentage (%) |
|-------------|-----------|----------------|
| Skull       | 149       | (37.3%)        |
| Chest       | 77        | (19.3%)        |
| Spine       | 36        | (9.0%)         |
| Abdomen     | 22        | (5.5%)         |
| Extremities | 116       | (29.0%)        |
| Total       | 400       | (100%)         |

Table 2. Skull injury was the predominant part of the body mostly affected by trauma seen in 149 patients constituting (37.3%). There were 77 cases of Chest injury which constituted (19.3%). Spine lesions also was detected in 36 patients accounted (9.0%). abdomen accounted for 22 (5.5%). There were 116 cases of extremities which was found as (29.0%)

## DISCUSSION

There was a review of a total of 400 patients who had undergone x-ray examination in Radiology Department as a result of traumatic injury and had adequate clinical history. The result showed that patients age ranged from 15-65 years; above with mean age of 45.4%. All the participants are above the age of 15 years which shows less trauma encounter in patient below the age of 15 years also the most affected age group was 26-35years accounted of 134(33.5%). The study showed that a large percentage of the patients who had trauma were male with 70.5% compare to females counterpart with 29.5%. Male are the preponderance for traumatic injury is because of their high exposure to the outdoor activities and a more mobile lifestyle than women such as driving and working as laborers among others [9].

One of the major objectives of this study was to determine the commonest cause of trauma in this environment. Our findings revealed that Road traffic accidents (RTA) was the predominant cause of traumatic injury among patients which accounted for

(44%) of the cases. Followed by assault patients accounting for only (22.5%) and domestic violence/accidents was the least cause of trauma with 5.8% of the cases. This research was in agreement with another study conducted by [9], on Plain X-ray findings among chest trauma patients in Lagos, which stated that the mean age of the participants is 42.6years, the major cause of traumatic chest injury are as follows, Road traffic accidents, gunshot injury and stab wound injury. And most common radiograph finding was rib fracture [9]. However, another study conducted by [10] on Epidemiology of Trauma Deaths reported that mean age of patients was 36.8 years. Predominant injury mechanisms were gunshot wounds in 121 (42%), motor vehicle accidents in 75 (38%) and falls in 23 (8%) cases.

A research was conducted by [11] on incidence and challenges of traumatic injuries in a tertiary hospital, south east Nigeria, The study showed that the number of trauma cases within this period was insignificant in relation to general routine examinations of all the body parts. Although, it is imperative to handle any case of trauma as urgently as possible with great care. Based on this study, it showed that chest trauma occurred most with the total of 227 (4.24%), skull with the total of 145 (2.71%) and the spine with a total of 101 (1.89%). While the incidence of the abdominal trauma and that of the extremities were relatively small. And also narrated the most common challenges encountered by radiographers is patients' non-cooperation to instructions. This may be as a result of traumatic brain injury (TBI) sustained during the trauma. This study also, showed that trauma of the spine was the most challenging anatomical part, particularly to the cervico-thoracic junction (C7/T1). Trauma is one of the cases that come to the radiological unit often. In fact, radiology unit is a second home to trauma cases apart from the trauma centre or accident and emergency. Managing critically injured patients is challenging as most victims of major trauma often present with a host of complications including inability

to precisely locate the site and nature of injury, therefore, the need for an urgent diagnosis and resuscitation [11].

According to this study, the most common body part affected by trauma was Skull injury seen in 149 patients constituting (33.3%). There were 77 cases of Chest injury which constituted (19.3%). Spine lesions also was detected in 36 patients accounting (9.0%). abdomen accounting for 22 (5.5%). There were 116 cases of extremities injuries which accounted for (29.0%).

## CONCLUSION AND RECOMMENDATION

Trauma is one of the major referral to the radiological unit. However, radiology unit is a second home to trauma cases apart from the trauma centre or accident and emergency unit. Trauma is a major health challenge because it is one of leading cause of death and disability among the younger age group. Road traffic accident (RTA) was the most common cause of trauma which accounted for (44%) of cases followed by fall from height (14.80%), assault (22.50), gunshot (13.00%) and domestic accident (5.80).

Since, the head is that most common body part affected by trauma, therefore there is need for enlightenment campaign from government to ensure motor cycle riders wear helmet to protect them in order to minimize the rate of head injuries among Okada riders.

There is need for government to construct and maintain the existing road and to establish driving speed limit so as to avoid or minimize road traffic accidents

There is need to provide radiographic imaging modalities in all government hospital (X-ray machines, CT and MRI machines) in order to improve service delivery.

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