

Epidemiology of Trauma Presenting to the Emergency Medicine Department of the University of Port Harcourt Teaching Hospital

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Edward¹**ABSTRACT****Background:** Trauma is a global burden increasing worldwide.**Objective:** To determine the epidemiology of trauma at the emergency medicine department (ED) of the University of Port Harcourt Teaching Hospital (UPTH).**Method:** A prospective descriptive cross-sectional study design was utilized, and it was conducted over 6 months, from September 2025 to February 2026.**Result:** The study included 459 trauma patients, of whom 317 (67%) were male; 426 (92.8%) were conscious; and 450 (98.0%) were named (i.e., had a form of identity). The majority of the patients were aged 21-30 years, 125 (27.2%). The most common mechanism of injury was road traffic Accident (RTA), 213 (46.4%), and assault, 107 (23.3%). Most of the RTA victims were pedestrians, 128 (60.1%). Most of the RTAs were car/bus – car/bus 18 (21.2%), motorcycle – motorcycle 17 (20.0%), and the vehicle car, bus, motorcycle, and tricycle did not hit anything 17 (20.0%), and the lower limb 109 (21.1%) was the most common part of the body that sustained injury. Most of the patients, 195 (42.5%), were discharged within 24 hours, and sadly, 8 (1.8%) died.**Conclusion:** Males were more frequently affected by trauma than females, and the majority of trauma victims were young adults. RTAs were the most common mechanism of injury. Most of the injuries sustained were in the lower limbs, and most of the patients were discharged home within 24 hours.**Keywords:** Injury Patterns, Incidence, epidemiology, Road Traffic Accident

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Yvonne. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Citation: Dabota Yvonne and Barile Edward. Epidemiology of Trauma Presenting to the Emergency Medicine Department of the University of Port Harcourt Teaching Hospital. PAJEC.2026; 4(2): page number 1-13.**1. Introduction**

Injuries are a public health

problem of concern worldwide.⁽¹⁻⁴⁾ The burden of trauma is irrespective of the level of socio-economic development and the trauma system available.⁵ Although in modern societies it has been overlooked and neglected, especially in low-resource settings^(5,6), including developing countries like Nigeria, where there is no comprehensive system.⁽⁷⁻⁹⁾ The prevalence of trauma differs from country to country. Annually, more people die from injuries than HIV, tuberculosis, and malaria combined, and the majority of these deaths occur in low- and middle-income countries.⁽¹⁰⁾ The burden, disability, morbidity, and mortality from trauma are highest in sub-Saharan Africa.⁽¹¹⁾ Globally, five million people die after sustaining diverse forms of injury every year⁴, which accounts for 9% of all mortalities globally.⁷ Trauma ranks as the sixth leading cause of death, with injury is 11:2/100,00.⁷ Humans are involved in several activities that can result in injury with physical, psychological, economic, and social impacts. Injuries are a significant cause of socioeconomic burden to the victims.^(12,13)

A common cause of morbidity and mortality in Africa is trauma. However, in developing countries, the systems for the management of trauma are deficient.⁽¹⁴⁾ The ED is a critical aspect of the health facility involved in the management of trauma.¹⁵ The risk factors attributed to injuries are linked to the behavior of man as well as cultural, sociosanitary, occupational, economic, and political variables.⁽¹⁶⁾ The growing incidence of trauma, including road traffic accidents, in developing countries has been associated with urbanization⁽¹⁷⁾, industrialization, and increased motor vehicles.^(5,18) Ballistic injuries resulting from conflicts and wars.⁽¹⁹⁾ The outcome measures help to assess the impact of the mechanisms of trauma on the health of the patient and the healthcare system.

It is important to conduct trauma epidemiological population-based studies to identify the types of traumas, their causes, and dynamics. Results of such studies may help to facilitate prevention, develop optimal trauma systems, formulation of optimal policies, formulate optimal policies, and support strategic planning, and reduce the morbidity, disability, and mortality associated with it.^(15,20) It is important in developing strategies for the prevention of trauma^(7,21), decision-making, and improvement in the management of trauma⁽⁶⁾, and identification of populations at risk to enable the development of protocols in trauma management.⁽²¹⁾ However, in Nigeria, there is a lack of epidemiological data on trauma. This has been linked to poor record-keeping and accident reporting. Hence, this study aims to investigate the mechanism of injury, injury pattern, and outcome of patients with trauma.

2. Method

This is a descriptive cross-sectional study conducted at the ED of UPTH. It is a census, as all patients with a history of trauma were recruited into the study. The study population was all patients with a history of trauma presenting at the ED of UPTH. The World Health Organization (WHO) Emergency Trauma Form was adapted for data collection. Data were collected for over six months, from September 2025 to February 2026. The Cochrane sample size determination formula was used to calculate the sample size. A prevalence of 24.3% was used, which was derived from a study conducted in Enugu, eastern Nigeria.⁽²²⁾ This gave a sample size of 73. The data were collected on an Excel sheet. It was then transferred into SPSS and analyzed. The data were then utilized, and the results were presented using charts and tables. The inclusion criteria were patients with a history of trauma, irrespective of their gender or age. The study was limited to the ED of UPTH; hence the limitation, as patients with burns, which is a type of trauma, were not incorporated into the study. This is because patients

with burns go directly to the regional burns Centre within the premises of UPTH. Also, the patients recruited into the study were not followed up after leaving the ED.

Inclusion and Exclusion Criteria: The inclusion criteria are patients presenting at the University of Port Harcourt Teaching Hospital with trauma, irrespective of their age, while the exclusion criteria are patients with burns. This is because patients with burns go directly to the Burns Centre located within the premises of UPTH.

Operational definition of terms:

Trauma can be defined as any physical injury that occurs when an external force impacts the body.^(10,23)

Section 252 of the Criminal Code Act of Nigeria defines assault as a person who strikes, touches, moves, or otherwise applies force of any kind to

the person or another, either directly or indirectly, who by any bodily act or gesture attempts, or threatens to apply force of any kind to the person.⁽²⁴⁾

The emergency department is a clinical unit in UPTH that attends to patients with medical emergencies and trauma irrespective of age.

3. Result

Data for this study were collected for over 6 months from September, 2025 to February 2026. It comprised 459 patients. The number of patients who presented at the ED over the study period was 2957. The prevalence of trauma at the ED of UPTH is 15.5%. There was a reduced number of patients in November 2025 due to the industrial action by the National Association of Resident Doctors (NARD), and later by another group of health workers. The number of patients with a history of trauma included in this study was 459.

Table 1: Socio-demographics of the study participants

Variable	Frequency N= 459	Percent
Age Range		
≥10	25	5.4
11-20	60	13.1
21-30	125	27.2
31-40	91	19.8
41-50	66	14.4
51-60	34	7.4
61-70	22	4.8
71-80	7	1.5
81 and above	7	1.5
Unknown age, but an adult	22	4.8
Gender		
Male	317	69.1
Female	142	30.9
Level Of Consciousness		
Conscious	426	92.8
Unconsciousness	33	7.2
Patient's Identity		
Named	450	98.0
Unknown	9	2.0
Month		
September 2025	85	18.5
October 2025	117	25.5

November 2025	33	7.2
December 2025	70	15.3
January 2026	69	15.0
February 2026	85	18.5
Total	459	100

The ages of the patients ranged from 10 months to 92 years. The unknown patients were brought to the hospital by bystanders, good Samaritans, law enforcement agents, military, and paramilitary personnel. Table 1 shows the sociodemo-

graphic characteristics, level of consciousness, and identity of the study participants. The majority of the patients were 21-30 years (27.2%. All the unknown patients were adults.

Table 2: Mechanism Of Injury

S/N	Mechanism	N	z	%
1.	Road traffic accident	213		46.4
2.	Assault	107		23.3
3.	Slipped and fell	37		8.1
4.	Domestic accident	22		4.8
5.	Animal bite	20		4.4
6.	Fall from height	18		3.9
7.	Industrial/occupational accident	13		2.8
8.	Sports accident	7		1.5
9.	Gunshot injury	7		1.5
10.	Fell off a moving bus with the door open	3		0.7
11.	Fireworks were thrown at the patient	2		0.4
12.	Fell off a moving motorcycle	2		0.4
13.	Others	8		0.1
	Total	459		100

Table 2 shows the mechanism of the injury; 213(46.4%) had a road traffic accident, and 107(23.3%) were victims of assault. For patients

who had animal bites, 60% were bitten by a dog, 20% by a snake, 15% by a cat, and 5.0% by a scorpion.

Table 3: For Assault, the assailant

S/N	Person Who Assaulted the Patient	N	%
1.	Neighbour	40	37.4
2.	Armed Robbers	23	21.5
3.	Colleague	7	6.5
4.	Kidnappers	6	5.6
5.	Vigilante	5	4.7
6.	Relative	5	4.7
7.	Boyfriend/Husband	5	4.7
8.	Mop	3	2.8
9.	Bus Conductor/Driver	3	2.8
10.	Communal Conflict	2	1.9
11.	Others	8	7.2
	Total	107	100

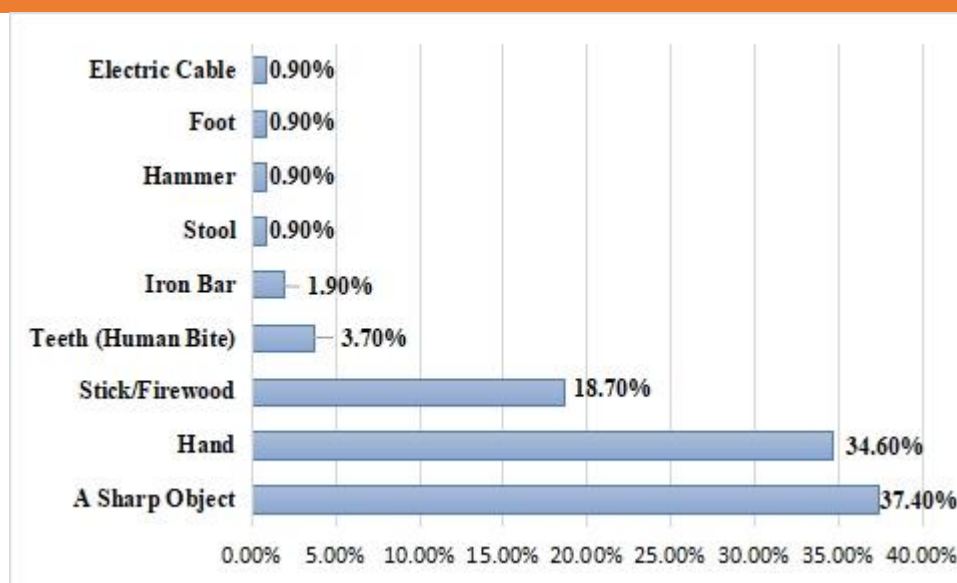


Figure 1: Object used in assaulting the patient

Four (3.7%) of the patient were bitten by their assailant.

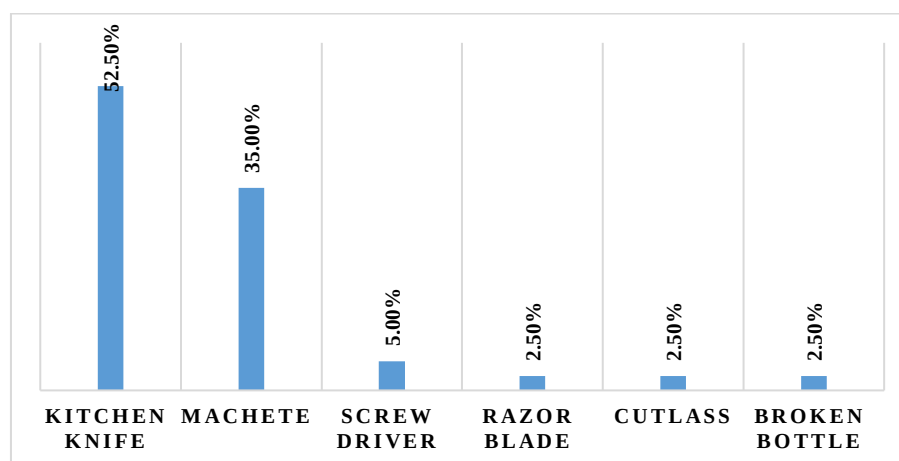


Figure 2: Sharp object used in assaulting the patient

The sharp objects used in assaulting the patient are shown in Figure 2.

Table 4: Part Of the Body Affected

Part Of the Body Affected	N= 517	Percent
Head, Face And Neck	152	29.4
Lower Limb	109	21.1
Soft Tissue	90	17.4
Upper Limb	88	17.0
Chest	41	7.9
Abdomen	17	3.3
Spine and Spinal Cord	13	2.5
Genitals	4	0.8
The Entire Body	2	0.4

No Bodily Injury	1	0.2
Joint Dislocated	N=38	Percent
Shoulder	12	31.6
Knee	9	23.7
Temporomandibular	5	13.2
Ankle	4	10.5
Wrist	2	5.3
Elbow	2	5.3
Sternoclavicular	1	2.6
Acromioclavicular	1	2.6
Metatarsal	1	2.6

Hip 12.6

The patients sustained several degrees of injury; some patients had injuries to more than one part of the body. The number of injuries is more than the number of patients because some patients sustained more than one injury. The head, face, and neck were injured in 29.4% of patients, while the lower limb was injured in 21.1% of patients. Injuries to the head and neck involved the scalp, various types of traumatic brain injury (mild, moderate, and severe), and injuries to the face, neck, eyes, nose, and ears. Injuries to the eye,

Table 5: Bone Fractures

Bone Fractured	N	%
Tibia and Fibula	33	33.0
Ulnar and Radius	15	15.0
Femur	11	11.0
Humerus	9	9.0
Skull	7	7.0
Mandible	7	7.0
Pelvic Bone	5	5.0
Spine	4	4.0
Ribs	2	2.0
Zygomatic Bone	2	2.0
Patella	2	2.0
Clavicle	2	2.0
Metatarsal	1	1.0
Total	100	100

Table 5 shows the bone fractures. Some of the patients had fractures in more than one bone

abdomen, and chest were either blunt or penetrating. One patient did not sustain any bodily injury. Table 4 shows the part of the body affected and the joint dislocated, while Table 5 shows the bones fractured. Some patients had more than one bone fractured: 33 (33.0%) had fractures of the tibia and fibula, 15(15.0%) of the ulna and radius, and 11(11.0%) of the femur. The shoulder was the most commonly dislocated joint, occurring in 12 (31.6%) patients, followed by the knee joint in 9 (23.7%) patients.

fractured, which is why the number of bones fractured exceeds the population in the study.

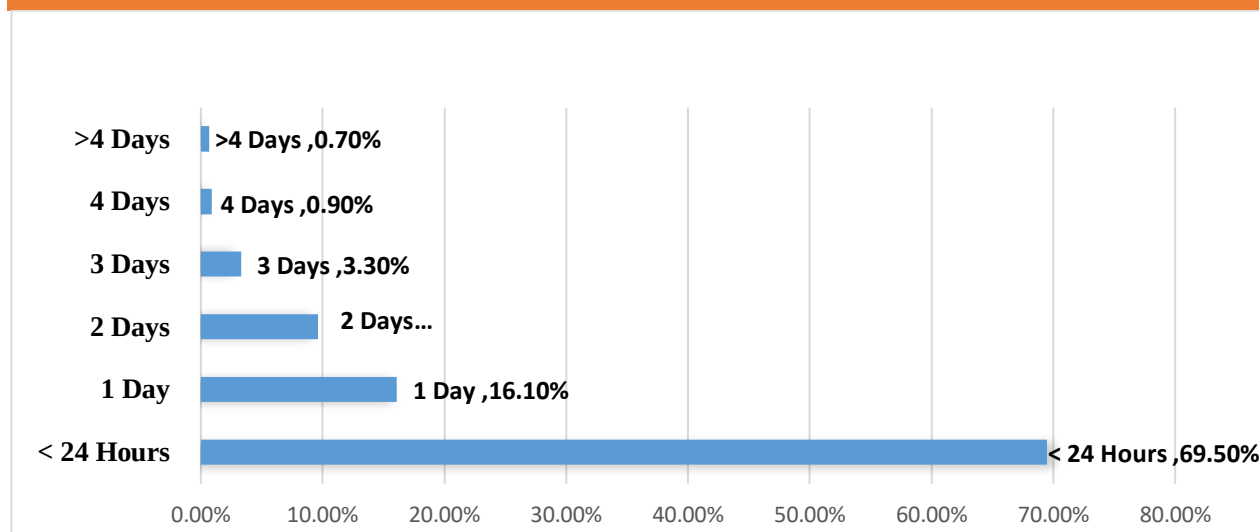


Figure 3: Length of stay in the emergency Department

Figure 3 shows the length of stay in the ED, while Figure 4 shows the outcome. The length of stay of the trauma patients in the ED ranged from < 24 hours to 11 days. Most of the patients spent less than 24 hours in the ED. Concerning the patients

who refused admission, one patient left during physical examination, one patient in haemorrhagic shock refused blood transfusion, while one patient refused suturing of the laceration sustained.

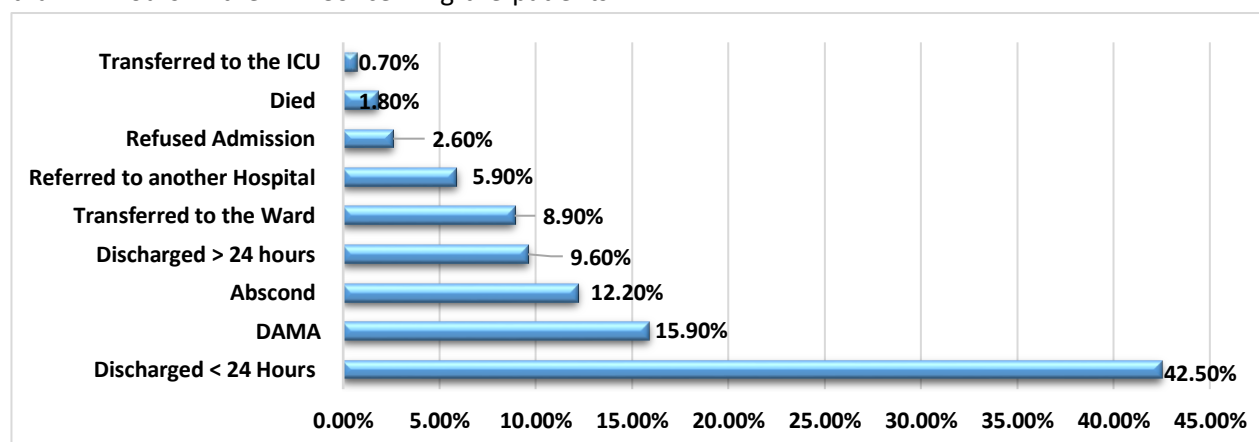


Figure 4: Outcome of Patients with Trauma

4. Discussion

The age range and majority of the patients are similar to a study conducted in Prayagraj, India, where the majority of the patients were aged 11-40 years. It is postulated that young adults are prone to accidents because they are involved in outdoor activities. Some abuse hard drugs and are involved in illicit drug use.⁽⁵⁾ There were more males in the study because males tend to be risk-takers. Also, in Nigerian culture, men are the breadwinners of their families; hence, they are

also sometimes away from home on the road. The majority of the patients who sought medical care at the ED of UPTH are non-trauma cases. This agrees with a study conducted among major hospitals, where the prevalence of trauma at the ED was 9.13%.⁽¹⁴⁾ The cause of death in this study was haemorrhagic shock and severe traumatic brain injury. This correlates with other studies conducted in northern Ghana and other studies.^(17,23) This may be because the blood lost needs to be replaced immediately. Also, haemorrhagic

shock gets worse and becomes irreversible if it is not promptly managed. There is an increase in mortality in trauma patients with traumatic brain injury.⁽²⁵⁾ More males were victims of trauma, which was similar to other studies where more males sustained injuries following trauma, like studies conducted in Ghana^(17,23), National Trauma Centre, Abuja, Nigeria⁽²⁶⁾, Nepal⁽¹⁵⁾, and Haiti⁽²⁷⁾. In other studies, conducted in Ethiopia⁴, Tanzania⁽¹⁴⁾, Nepal⁽²⁵⁾, and India.⁽⁵⁾ Even in studies in various hospitals in Nigeria, in Jos⁽²⁸⁾, Makurdi⁽²⁹⁾, and Ilorin.⁽²¹⁾ This has been linked to the adventurous nature of males.⁽³⁾ The majority of the patients were conscious. As in the Tanzanian study¹⁴, males are also known to take risks and, on the road, to make money to cater for their families, especially as the extended family system is practiced in Nigeria.

Most of the patients were known and named; that is, they had an identity, while a few were unknown. The unknown patients were brought to the ED by bystanders who were around the place of the incident, law enforcement agents, military, and paramilitary personnel. Most of the unknown patients were young adults.

The most common mechanism of injury was RTA, followed by assault. This finding is consistent with several studies conducted globally, which have similarly reported RTAs as the leading cause of traumatic injuries.^(18, 25, 30, 31) This is due to civilization, modernization, and industrialization, with the transformation in the various vehicles used for transportation.^(3,32) There is an increased use of vehicular modes of transportation. The age range of trauma patients in this study is similar to other similar studies.^(8,17,18) Young people are adventurous and also tend to be involved with reckless driving and the use of psychoactive substances, which may interfere with concentration while driving.

Regarding assault-related injuries, most assailants were individuals known to the victims, including neighbors, colleagues, relatives, intimate part-

ners, friends, sons, siblings, supervisors, and community members. The study did not investigate the type of neighborhood the patient was residing in to know if it was a shared apartment known as "face-me-I-face-you" in Nigeria, where the occupants share a common toilet or bathroom. This sometimes leads to conflict in maintaining the cleanliness of the shared sanitary facilities. Most of the injuries are inflicted on the patient using a sharp object, commonly a kitchen knife. Some others were bitten by animals, including domestic animals (cats and dogs), reptiles (snakes), and scorpions. The most common animal bite was by a dog. Some patients suffered more than one type of injury, and some more than one part of the body was affected. The result of this study is in contrast to a study where armed robbers were the common assailants. The head was a common organ affected in previous trauma studies.^(14,15,19,20) It is different from a study conducted in Haiti, where the upper limb was where most of the trauma patients sustained injuries.^(11,19) The result was similar to a Sierra Leonean trauma study, where the head and lower limb were the commonest parts of the body affected.¹¹ The commonest bones were the long bones of the upper and lower limbs, while the shoulder joint was the most dislocated. Most of the patients were discharged and went home within 24 hours. All the patients who died had severe traumatic brain injury and hemorrhagic shock. Patients who were transferred to another tertiary hospital presented during an industrial strike. This is similar to a systematic review where hemorrhage and injury to the head were the cause of mortality⁷ and also in other studies.⁽²⁰⁾

Traumatic brain injuries remain a leading cause of mortality in trauma patients.⁽³³⁾ Only one patient in the cohort did not sustain any form of injury. There is a clear need for preventative strategies to reduce the incidence and severity of such trauma. There should be injury prevention strategy education of the populace.⁽³⁴⁾

Limitations

The study was limited to the ED of UPTH, as patients with burns, which is a type of trauma, were not recruited into the study. This is because patients with burns go directly to the regional burns Centre located within the premises of UPTH. Hence, this is not a true occurrence of trauma in the UPTH. Patients recruited into the study were not followed up after leaving the ED. This is a single-Centre study, but it does not tell the true epidemiology of trauma in Port Harcourt. It is difficult to determine the exact epidemiology of trauma in Nigeria and Port Harcourt because some accidents are not reported; there is also poor record-keeping in Nigeria.

Conclusion and Recommendation

Various mechanisms of trauma were reported, with road traffic accidents (RTAs) being the most common. Males sustained a greater proportion of injuries than females, and young adults were the most commonly affected age group. The injuries sustained affected different parts of the body, but most commonly the head and lower limb. The long bones were mostly fractured. Only one patient in this study did not sustain any injury after an accident or trauma. Most of the patients were discharged within 24 hours. A few patients died. Mortality occurred in patients with severe traumatic brain injury and haemorrhagic shock.

The results of this study can be used for health promotion and trauma education. Most of the accidents were preventable, especially RTAs. Therefore, a trauma registry should be established at UPTH and in Rivers State. The government and the Federal Road Safety Corps should regularly educate road users and drivers on the prevention of RTAs. Also, there should be constant education, public enlightenment, and campaigns on the prevention of accidents. There is a need for pre-hospital emergency care to be strengthened in Rivers State. There is therefore a need to establish regional and national trauma

registries to determine the true epidemiology of trauma (2,6). There is a need to conduct multi-centre studies collaborating with doctors in other health facilities.

Abbreviations

DAMA: Discharge against Medical Advice

ED: Emergency Medicine Department

UPTH: University of Port Harcourt Teaching Hospital

RTA: Road Traffic Accident

Author Contributions

DYB conceptualized the study and collected the Data; DYB and EBI wrote the manuscript and proofread the final draft.

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Competing interests

Authors declare there was no competing interest

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