

**Original Article**

## **A cross sectional study; age related traumatic injuries in Karachi.**

*Aisha Asad, Parisa Sanawar, Zurraya Fasih & Kulsoom Qutb.*

Jinnah Sindh Medical University.

Email of corresponding author: aisha\_asad92@yahoo.com

### **Abstract**

Traumatic injury is one of the major health problems in our city due to its frequency, prevalence, costs and treatment. Traumatic injuries of sudden onset and severity may require immediate resuscitation and interventions. Serious traumatic injuries have the potential to cause prolonged disability or death. The aim of this paper is to review the frequency and types of injuries in different age groups. This paper provides a quick method to receive a primary understanding of common causes of traumatic injuries. To determine incidence, pattern and implication of injuries in different age groups. A cross sectional study was performed on a sample of 150 patients, within a period of 6 months (October 2014 - March 2015). It was taken through non probability purposive sampling, in orthopaedic surgery department of Jinnah Postgraduate Medical Centre, Karachi. An informed verbal consent was taken and pilot study was conducted to assess the validity of questionnaire. A structured questionnaire was filled; data was analysed by SPSS version 16. The study conducted on 150 people, contained 103 males (68.7%) and 47 females (31.3%). Injuries were common in middle age group (40 to 60 years). Most traumas occurred on road (61.3%). Majority of people were travelling at time of injury (54.7%). Major cause of injury was found to be transport accidents (48.7%). All the victims were not provided with first aid care in transportation. Severity at emergency room of patients was mainly moderate (52.7%). Majority of young adults suffered with hip dislocation and femur fracture (10.0%) while head injury was prevalent among (6.0%) of people. Incidence of traumatic injuries and accidents is increasing day by day. The study proved that Road traffic accident is the major cause of injury in traumatic patients. Ambulances and other emergency medical services need to upgrade their facilities during transportation. Strict laws should be made to wear seat belts/helmets during travelling. Appropriate medical care facilities (including trauma centres) need to be established at district level, sub-divisional level to provide good and quality care to trauma patients.

### **Keywords**

Trauma, Transport accident, Violence, Self-inflicted injuries, Unintentional injuries.

### **Introduction**

Trauma can be defined as an unpleasant experience which causes mental, social and psychological problems usually for a long time. Medically, it can be defined as a serious injury to a person's body (Merriam Webster dictionary). According to National Trauma Institute in US, traumatic injuries accounted for 30% of all life years lost in the 2009.

Trauma is considered as a third leading cause of death among all age groups and the mortality rate is exceptionally high particularly among young age group (El-Menyar, 2014). Over 90% of the World's fatalities on the roads occur in low-income and middle-income countries, which have only 48% of the world's vehicles.

Pakistan is a developing country where a large number of people die every year because of the road-side accidents. Death among people belonging to lower socioeconomic class is more prevalent. Ratio of death is higher among pedestrians and motorcyclists. Recent studies have also shown that pedestrians and motorcyclists have the highest rates of injury in Asia.

In Pakistan Incidence of road traffic injuries was 15.0 (including minor injuries) per 1000 persons per year (Khan, 2012). In a city like Karachi, homicide, suicide and unintentional injuries accounted for nearly 60 per cent of all deaths among persons aged 1–34 years. A small percentage of people are also suffering violence injuries like firearms, burns and explosions. (Anderson, R., 2001)

Roads carry wide number of users including heavy vehicles like Lorries, trucks to bicycles, motorcycles, cars and pedestrians without any proper management. Road traffic accidents (RTA) are a significant, cause of any disability, death and economic loss in developing countries like Pakistan (Khan, 2012). This is due to the multiplication and increasing number of roads and motor vehicles, many of which are old and not road-worthy. The phenomenal increase in use of motorcycles particularly for commercial service is very concerning in this regard. The bike riders must be considered as unprotected vehicle users and their injuries are usually severe because this transport is very unsafe. (Chalya, P., 2010)

Treatment of patients with multiple traumas requires additional resources that often are unavailable in small community hospitals. Treatment provided in trauma centre has been also documented to improve the care and survival of patients. The initial management of patients directly affect the hospital stay and treatment cost. The best management, in terms of quality of care and economics, of patients with many injuries is transfer to a facilitated trauma unit as soon as possible. This research paper is important because it will systematically rule out which type of injury is more common in different age groups and what measures should be taken to reduce them.

### Method

A cross sectional study was performed in a tertiary healthcare unit Jinnah Postgraduate Medical Centre, situated in Karachi, Pakistan. The study was conducted on a sample of 150 patients taken through non probability purposive sampling. This descriptive study was conducted from 7th Oct 2014 to 20<sup>th</sup> March 2015, within a period of 6 months. It consisted of all relevant data of traumatic patients reporting to different wards of Orthopaedic Surgery A questionnaire especially designed for this purpose was used. The information collected consisted of general epidemiological data of trauma patients, place and time of injury, cause and severity of injury. An informed verbal consent was taken and pilot study was conducted to assess the validity of questionnaire. The questionnaire comprises of two major parts:

- Part 1 is designed to measure sociodemographic data for instance age, gender, place of injury, time of injury and cause of injury.
- Part 2 is about the details of vehicles involved, first aid care and type of injury (diagnosis).

A structured questionnaire was filled. Respondents who were admitted in the wards and emergency department were included and those who were not giving consent were excluded. Data was analysed using software of statistical package of social sciences (SPSS version 16). Descriptive pattern study was run to determine the mean and standard deviation for continuous variable, frequency and percentage. Our research has been approved by the Ethical Review Board.

### Result

The study conducted on 150 people, contained 103 males (68.7%) and 47 females (31.3%). Trauma and

accidents are found more common in males than females. Maximum injuries occurred in age group of 60 years (8%), in 40 years (7.3%) and in 18 years (6.7%). In children around 8 years (3.3%) injuries were found common. Most injuries occurred during day time of 12.00 pm (10.7%). By occupation most were found to be students (23.3%) and other (28.0%). Most trauma occurred on road (61.3%) and other occurred in home (22.7%). Majority of people belonged to the city Karachi (92.7%) and were travelling at time of injury (54.7%).

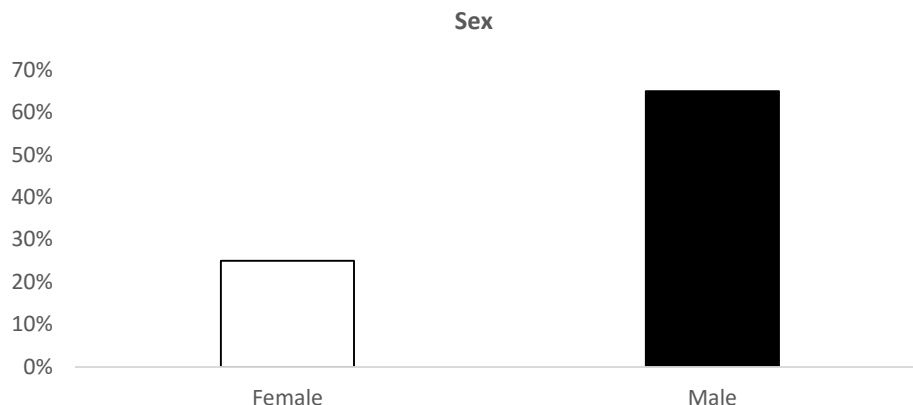
The significant cause of injury was found to be transport accidents (48.7%) and rest was due to other causes (42.0%) (Table 1). This paper shows that cause of injury in majority of patients was Road Traffic Accident (48.7%) followed by other causes (42.0%) violence, blast injury and fire arm injury.

The majority of patients were pedestrians. The Vehicle involved in most cases was motorcycle (22.7%), bus (8.7%), car (10.0%), three wheelers (8.0%) and trucks (6.0%) (Table 2). In road user, pedestrians were (19.3%), drivers (19.3%) and passengers were (10.7%). Other than transport injuries specific causes of injuries were found to be firearm (8.0%) and explosion (0.7%). Type of violence contained war/conflict (3.3%). Also others included (2.0%), unknown (2.0%) and interpersonal conflicts (1.3%), fall from level (17.3%) and fall from height (15.3%).

Majority of patients (44.7%) was not wearing seat belts or helmets at the time of accident while (4.0%) used it. Many patients were transported to hospital through emergency medical service (48.0%) and private vehicles (32.0%).

All of victims were not provided with first aid in transportation, no breathing care, no bleeding care, no iv fluids and no splints/slabs. Severity at emergency room of patients was mainly moderate (52.7%) while severe condition was suffered by (32.0%) of patients and mild (14.7%).

According to the patients, victims didn't consume alcohol (96.7%). Out of 150 people, majority suffered with hip dislocation and femur fracture (10.0%). Others suffered from ankle, arm, dislocation of elbow joint, fracture of radius and ulna (1.3%), while head injury was prevalent among (6.0%) of people. (Table 3)



**Graph 1: Sex ratio between males and females**

The total number of patients were 150 among which include 103 (68.7%) males and 47 (31.3%) females.

<b>Table 1:</b> Causes of Injury		Frequency	Percent	Valid Percent	Cumulative Percent
	Transport accidents	73	48.7	48.7	48.7
	Violence	13	8.7	8.7	57.3
	Self-inflicted injuries	1	.7	.7	58.0
	Other accidents	63	42.0	42.0	100.0
	Total	150	100.0	100.0	

**Table 1: Causes of injury**

This table shows the correlation between the common causes of injuries like transport accidents, violence, self-inflicted injuries and other accidents.

<b>Table 2:</b> Vehicles involved		Frequency	Percent	Valid Percent	Cumulative Percent
	Car	10	6.7	13.5	13.5
	Bus	13	8.7	17.6	31.1
	Motorcycle	34	22.7	45.9	77.0
	Three wheeler	8	5.3	10.8	87.8
	Pickup/truck	6	4.0	8.1	95.9
	Lorry	1	.7	1.4	97.3
	Other	2	1.3	2.7	100.0
	Total	74	49.3	100.0	
Missing	System	76	50.7		
	Total	150	100.0		

**Table 2: Vehicles involved**

This table represents the correlation between different vehicles involved during the trauma. According to it Motorcycles, bus, three wheeler and cars are the more common vehicles involved in most cases in Karachi.

<b>Table 3:</b> Diagnosis of injury		Frequency	Percentage	Cumulative Percentage
	Femur and hip dislocation	15	10.0	10.0
	Head trauma	9	6.0	6.0
	Others	2	1.3	1.3

**Table 3: Diagnosis of Injury**

This table shows the frequency of most common injuries in Karachi due to trauma like femur and hip dislocation, head trauma and others. Others include ankle, arm, dislocation of elbow joint, fracture of radius and ulna.

## Discussion

Trauma varies in nature and can be attributed to multiple factors, having adverse effects on the wellbeing of an individual. A host of problems have surrounded the dynamics of Karachi among which accidents of different sorts are certainly not an exception. These accidents paralyse the life of an individual physically as well as psychologically. In the light of our findings we can see that the prevalence rate of trauma varies in both gender as well as age groups.

The result of our study demonstrates that trauma is most prevalent among old individuals and in late adulthood. Males are affected more often than females. Lamentably, road traffic accidents appear to be one of the leading cause. Plenty of them were due to negligence of motorcyclists. A plethora of young individuals also suffered from road traffic accidents.

Apart from motorcyclists, pedestrians were largely involved as well. Lack of road discipline and ethics resulted in casualties on large scale varying in severity from minor injury to lifelong disability. However, pathological fractures as another foremost cause of trauma among elderly people cannot be disregarded. Fall from level among elderly occurs frequently and the consequence is fractures and head injury. Considerably, femur fractures and hip dislocation cases were diagnosed in trauma patients. Hence, trauma is fifth leading cause of death in geriatric patients.

According to our study, ratio of trauma due to transport accidents exceeds trauma due to violence. Injuries of violence mainly consisted of firearm injuries and explosions. Unavailability of basic health facilities in emergency vehicles further complicates the condition. Sufferers were not provided with first aid during their transportation to hospitals. Breathing care, bleeding care, iv fluids and splints/slabs, the basic support for patients was not provided. Due to lack of these basic facilities in our setup, patients mostly presented with moderate to severe condition in emergency departments.

Our finding that motor vehicle injuries are a major reason of trauma followed by falls among older individuals replicates the finding of Valley and colleagues who showed that the leading mechanisms of injury were in decreasing order; motor vehicle crashes, falls, and auto-pedestrian injuries. (Jooma, R.,2008) Likewise, Rashid Jooma, Sabeena Jalal Khan and Junaid Abdul Razzak's study reflect a similar finding that motorcyclist and pedestrians are predominantly. (Valley, V., 1994) Other studies also

show similar results. Rob Gowing and Minto K. Jain's study also showed fall and motor vehicle collision as an important cause. (Gowing, R.,2007)

The clinical relevance of our findings is that a lot heed needs to be paid on outcomes of trauma. Its health and socioeconomic repercussions are of great concern. Ambulances and appropriate medical services need to upgrade their first aid care during transportation of patients to hospital. Emergency vehicle needs to be well equipped as to provide timely and proper immediate care to patient. Drivers should be encouraged to use helmet, seat belts, take other precautionary measures and follow traffic rules. In addition, supportive measures should be taken to protect from falls which occurred during work places. The government should focus on establishment of provincial safety committee, motorcycle helmet campaign, vehicular seat belt campaign, traffic rules and its injury prevention in schools and pre- hospital care system.

## Conclusion

There is no strict implication of traffic rules in our city and none of the passengers were following proper safety rules.

And on the other hand our tertiary care government hospitals are lacking basic facility of first aid in ambulances which effects the primary care of trauma patients. Therefore, Ambulances and other emergency medical services need to upgrade their facilities to provide all the patients with better medical care and first aid care during transportation. Incidence of traumatic injuries and road accidents are increasing day by day so Sindh government should arrange public awareness programs to control reckless driving in Karachi plus the government should enforce strict laws to wear seat belts/ helmets during travelling for the safety of citizens. Moreover, appropriate medical care facilities and more trauma centres are need to be established to provide good and quality care to all trauma patients.

## Conflict of Interest

None of the authors have any conflict of interest with our research work.

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