

ROAD TRAFFIC ACCIDENTS AND THEIR ASSOCIATED FACTORS: A RETROSPECTIVE STUDY AT HEAVY INDUSTRIES TAXILA HOSPITAL, TAXILA CANTT

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ABSTRACT

Objective: To determine the frequency, type of injury and association of age and gender in the pattern of road traffic accident (RTA) injuries.

Study Design: Retrospective study

Study Place: Heavy Industries Taxila Hospital, allied hospital of HITEC-IMS (Heavy Industries Taxila Education City-Institute of Medical Sciences)

Duration Of Study: 3 months

Methods: This retrospective study was conducted by the Department of Forensic Medicine and Toxicology HITEC-IMS from 15 Oct 2022 to 15 January 2023. Data were obtained from the accident and emergency record register of Heavy Industries Taxila Hospital. The record contained 172 road traffic accident cases. Data from these cases were entered into an approved and pre validated injury surveillance questionnaire recommended by the World Health Organization (WHO). The questionnaire included information such as demographic data for example age, sex and various factor associated with road traffic accidents such as role of human intent, place of occurrence, activity, nature of injury, mechanism of injury and time of injury. Statistical analysis was performed by SPSS version 23.

Results: A total of 172 RTA cases were reported in these two years with minor injuries making 52% of total cases. Accidents were most commonly seen in males in the age group of 15-30 years. Most of the road traffic accident victims were commuting via motorcycle/cycle to or from work in the evening hours (12pm to 8pm). The number of cases reported in winter months was greater. Most of the accident cases reported had occurred accidentally without any element of suicide. Patients were then given treatment in hospital and discharged except those requiring continuous care.

Conclusion: Road traffic accidents causing minor injuries are frequently reported in Heavy Industries Taxila Hospital, moreover, there might be an association of road traffic accident occurrence with male gender and age group (15-30 years).

Keywords: Bruises, Injuries, Lacerations, Road Traffic Accidents

INTRODUCTION

The term road traffic accident has been defined as a collision or incident that may or may not lead to injury, occurring on a public road and involving at least one

moving vehicle; while the respective injuries have been defined as either fatal or non-fatal injuries incurred as a result of a road traffic accident.¹ Today, Road traffic accidents are a very common problem with rates three times higher in low and middle income countries. It is estimated to be the main cause of death in youngsters (5-20yrs of age) worldwide and resulted in approximately 1.35 million deaths in 2016.² According to WHO report of 2018, RTA accounts for 14.3 deaths per 100,000 population in Pakistan.³ Unfortunately, despite the

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increase in traffic crashes 90% of passenger and goods transport still occurs by road in Pakistan and this owes to our improper railway transport system,⁴ therefore, further increasing the risk of road accidents. As a result of these accidents, a significant time delay has been seen which directly affects the effectiveness of roadway network, productivity of public and almost 3% loss of gross domestic product.^{5,6}

Several studies have been conducted in the past showing the epidemiological characteristics of Road Traffic Accident cases, in which the data has been collected from accident & emergency department of hospitals, ambulance records and police files.⁷⁻¹⁰ Study conducted in Karachi has used medico legal autopsies for analysis of RTA cases including different factors such as the cause of death, time since death.¹¹ A study conducted in Rawalpindi assessed the pattern of RTA injuries using standard surveillance methods and concluded that 31.7% of total patients presented in Emergency room were because of RTA, among which the proportion of males was more than females.¹²

RTA cases are very common in the Rawalpindi district and in its tehsils, resulting in multiple injuries and fatalities, however, very few studies have been done in this regard. This study was conducted to investigate the frequency of RTA cases, to determine the main cause of injuries and find its association with age and gender. This data could help the traffic police of the respective area, by which traffic injuries can be avoided.

METHODOLOGY

This retrospective study was conducted in HIT hospital Taxila Cantt, which is the allied hospital of HITEC-IMS Taxila. The sample size included all RTA cases reported in the years 2021 and 2022 at HIT hospital. All individuals who had experienced road traffic accidents, irrespective of age and gender from January 2021 to December 2022 were included while those road traffic accident cases with incomplete data were excluded. The data were collected from morbidity and mortality register of the hospital on a set and approved questionnaire. The questionnaire used was recommended and approved by World health organization (WHO)¹³ and included questions such as demographic details, place, mechanism, human intent and outcome of injury. The data were analyzed by SPSS software version 23.

RESULTS

In our study, 172 cases of road traffic accidents were reported from 1st January 2021 to 31st December 2022. The collected data were entered on SPSS and frequency was determined. The maximum RTA cases were reported in the age group of 15-30 years (n=73,42.4%), while the minimum cases were reported in the age group of < 15years (n=17, 9.9%) table I. Most of the subjects involved in road traffic accidents were males, i.e. 149(86.6%) males and 23(13.4%) females. Thus, most of the injuries occurred in males aged 15-30 years.

Table I: Frequency and percentage of road traffic accidents in various age groups and genders

Age Range	Frequency	Percent	Gender	Frequency	Percent
0-14	17	9.9%	Male	149	86.6%
15-30	73	42.4%	Female	23	13.4%
31-45	45	26.2%	Total	172	100.0%
45 above	37	21.5%			
Total	172	100.0			

RTA cases were reported with different frequency in each of the years (i.e. 17.6% in 2021 and 82.4% in 2022) which is because of inability of people to approach the hospital secondary to security reasons (Figure1). Also, most of the cases were reported in winter months.

Most of the cases were reported in the evening from 12pm to 8pm (n=95, 55.2%) as compared to morning or nighttime (22.7% and 21.8%). Also, most of the cases reported were those which either occurred within Heavy Industries Taxila Cantt or its surroundings (table II).

Table II: The site of accidents and their frequency.

Site of Accident	Frequency	Percent
Within HIT and its surrounding	104	60.5
GT Road	57	33.1
Unknown	11	6.4
Total	172	100.0

The most common cause of injuries was the collision of vehicles as seen in 88 cases while 80 cases out of 172 were reported to be hit by object/animal. Most of these people were travelling for work (n=126, 73.3%) and were on motorcycle/cycle (n=111, 64.5%).

Assessment of the injuries revealed that most of them were minor (bruises, lacerations, minor cuts) in nature (52.3%), followed by moderate (45.3%) and severe (2.3%) as shown below in figure 2; and all were unintentional.

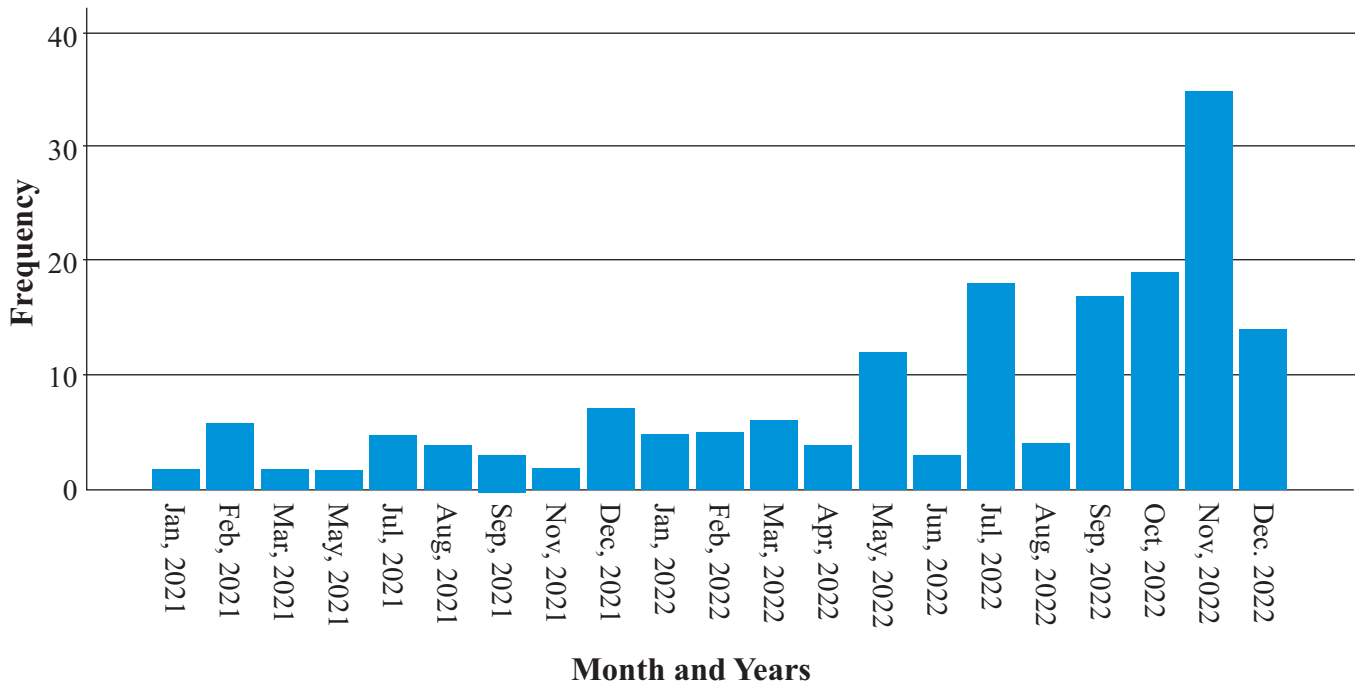


Figure 1: Bar chart showing the frequency of road traffic accidents over the span of two years (2021 & 2022)

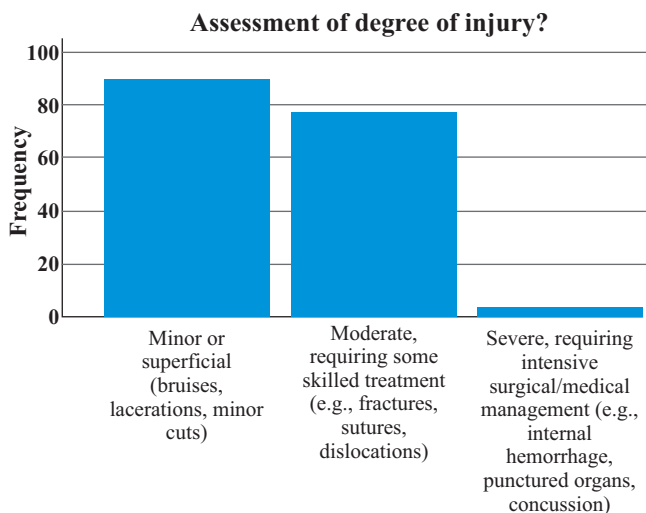


Figure 2: Frequency of minor, moderate and severe road traffic injuries

DISCUSSION

The current study showed a higher frequency of road traffic accidents among men as compared to women. The results showed that 86.6 % of road traffic accident victims were men and 13.4 % were women. A study conducted in southern Europe showed a higher risk of serious and fatal road traffic injuries in men as compared to women.¹⁴ A hospital based cross-sectional study also showed higher frequency of male road traffic accident victims.¹⁵ A study conducted on the pattern and severity of road traffic injuries revealed a higher percentage of male victims.¹⁶ Out of 172 road traffic accident cases 73

occurred in the 15 to 30-year age group. A study conducted in UAE concluded that young individuals were at a higher risk of road traffic injuries.¹⁷

As far as the cause of accidents is concerned 88 out of 172 cases were caused due to direct collision of vehicles. A study conducted in Iran revealed similar results.¹⁰ However, a retrospective study stated that the major cause of road traffic accidents was the presence of pedestrians and animals on the road.¹⁸ The conflicting results might be due to differences of environments and road conditions in both studies.

The percentage of minor, moderate and severe injuries was 52.3%, 42.3% and 2.3% respectively. A similar study has shown that lacerations and abrasions were most common followed by bruises. External limb injuries and right sided fractures were also common.¹⁶

The data of 172 people showed that men were more likely to be involved in a road traffic accident as compared to women and in individuals aged 15 to 30 years. This finding correlates with the fact that there are more male drivers in Pakistan as compared to female drivers.

Young men are predominantly handling various vehicles whether trucks, cars, motorbikes thus resulting in relatively higher accident rates in men particularly in the 15 to 30 years age group. Research on RTAs in Rawalpindi city stated that women aged 15 to 24 were less likely to suffer from RTA injuries.¹² Moreover, WHO Global Status Report 2018 concluded that most victims

were pedestrians, cyclists & motorcyclists between ages of 5 to 29 years.¹³ RTAs were common during 12 pm to 8 pm time period which includes rush hours during which the number of vehicles on roads is increased, substantially raising the risk of RTAs. Most of the RTAs occurred during the winter months, i.e. October to December, which may be due to reduced visibility due to heavy fog. Research conducted on the contribution of environmental factors has also established the link of different weather conditions like rainfall and fog with the incidence of RTAs.¹⁹ In contrast to our study, another research paper has concluded that majority of road traffic accidents occur at night and on holidays and has also revealed that serious road traffic accidents were more likely to occur during off peak hours rather than peak hours because of moderate speed of vehicles and vigilance of traffic personnel during these hours.⁶

In our study, out of 172 cases 126 RTAs involved work related travel which included either traveling to or from the workplace. Most of the accidents involved a direct head-on collision between two vehicles. The most commonly involved vehicle was the motorbike. The second leading cause was collision with an animal, since there are stray dogs, jackals, boars etc. in the surrounding areas. These animals were specially encountered on roads that linked to adjoining villages.

CONCLUSION

RTA injuries reported in HIT hospital were mostly those which occurred either within HIT or surroundings areas despite the good traffic system and condition of roads. Most of the accidents have occurred in evening during rush hours in young males riding motorcycles and travelling to and from work.

Moreover, the number of cases reported in winters was more as compared to warmer months.

LIMITATIONS OF STUDY

Mortality rate could not be calculated.

Conflict of interest: The authors declared no conflict of interest.

Authors' Contributions:

Maria Sattar: Conception of study / Designing / Planning, Experimentation / Study Conduction, Analysis / Interpretation/Discussion, Manuscript Writing

Rubace Fatima: Analysis / Interpretation / Discussion, Manuscript Writing

Muhammad Asif Shahab: Critical Review, Material Analysis

Romana Masood: Critical Review, Material Analysis

Jawaria Sattar: Analysis/Interpretation / Discussion, Manuscript Writing

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