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## CHARACTERISTICS OF ROAD TRAFFIC ACCIDENTS CAUSES, INJURIES AND OUTCOMES ENCOUNTERED IN FAISALABAD BETWEEN 2016-2019

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### ABSTRACT:

**BACKGROUND & OBJECTIVE:** Road traffic accidents are the ninth leading cause of death worldwide, contributing significantly to global disease burden. Emergency Medical services(EMS) play a role in minimizing the morbidity and mortality. Our objective was to determine the characteristics of injury pattern and causes encountered in Road Traffic crashes (RTCs) managed by 1122 in Faisalabad Pakistan and to access the outcome of these accidents.

**METHODOLOGY:** All Road Traffic crashes and victims in Faisalabad city of Pakistan which were initially managed by Rescue 1122 between 2016 to 2019 were included in the study. Total sample size was 101995. It is descriptive cross-sectional study which includes patients of different ages, sex and motor-vehicles accidents having different injury sites.

**RESULTS:** During the study period there were total 101995 RTCs victims to whom emergency medical services (EMS) were provided. Gender wise 80.73% male victims and 19.27% female victims. Major age groups were between 21-30 years (25.917%). The major risk factors of accidents were over-speeding (56.8%) followed by carelessness (18.32%), wrong turn (8.69%), u-turn(5.84%), one wheeling(0.008%), tyre burst (0.117%) and others(10.14%). The injuries frequently encountered are minor which accounts for (44.68%), Single fracture (23.25%), Multiple fracture (16.62%), Head injury (12.40%) and Spinal injury(3.03%). Outcome of RTCs in our study was alive & unstable (54.47%), alive & stable (44.7%) and dead (0.83%).

**CONCLUSION:** This study showed that Road Traffic Accident are the major public health problem in our society and contributes markedly to high morbidity and mortality. Urgent Preventive measures including community education should be established to reduce the risk of their outcome.

**KEYWORDS:** RTCs, Road traffic crashes, Characteristics injury pattern, Rescue 1122 Faisalabad 2016-2019 data.

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**INTRODUCTION:**

Road traffic accidents are serious and ignored issue in Pakistan<sup>[1]</sup>. Road traffic accidents are ninth major cause of death worldwide contributing significantly to global disease burden. Accidents are the major cause of killing among younger people<sup>[2]</sup>. According to the latest World Health Organization (WHO) report around 1.35 million people died from road traffic injuries in 2018 and another 20 to 50 million sustained non-fatal injuries as the result of road traffic collisions or crashes. Global picture of road traffic accidents is quite alarming as they justifiably have been one of the most imperative concerns for WHO for last four decades<sup>[3]</sup>.

According to latest WHO data published in 2017 Road Traffic Accident death reached 27,081 or 2.2% of total deaths. Recently in Lahore we have seen a dramatic increase in the traffic load. About 132,504 victims of road traffic accidents have been reported in between 2005-2010<sup>[4]</sup>. An epidemiological survey of Karachi Pakistan largest city reported 1130 road traffic accidents fatalities in 2013<sup>[5]</sup>. Several studies indicate that use of phones during driving results in road traffic accidents<sup>[6]</sup>. According to Pakistan Bureau of Statistics (PBS) 10779 cases were reported to police in 2018-19, out of which 5932 died and in Punjab 4823 cases were reported and 3423 people died.

Weather is also important factor and driving should be a matter of great concern in bad weather<sup>[7]</sup>.

The disability and death rate is more common in males approximately 83% due to road traffic crashes. Economic loss in developing countries due to road traffic accidents estimated to cost 1 to 4 % of country's GNP per annum. It is projected that globally in 2020 RTCs will cause 20 million deaths and will be upgraded from rank ninth to third leading cause of death and 10 to 30% of Hospital admissions<sup>[8]</sup>.

However very few studies have been conducted in our setting about RTA outcomes and importance of post-crash or prehospital care in preventing the disabilities and fatalities. Therefore this research will focus on preventable injuries, their characteristics and associated factors encountered by RTA victims. It will help medical professionals to reduce RTA

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related fatalities and disability and will also enable policy maker to develop better strategies to minimize the human loss and preventable injuries by improving the road safety measures. It may also increase general awareness about pre-Hospital care.

**METHODOLOGY:**

All Road Traffic crashes and victims in Faisalabad city of Pakistan which were initially managed by Rescue 1122 between 2016 to 2019 were included in the study. Total sample size is 101995. The data collected was registry base and collected from rescue 1122 control room. It is descriptive cross sectional study. Pedestrians were not included in this study. All males and females having vehicle accident due to over speeding carelessness, wrong U turn, tyre burst and one wheeling which were having spinal cord, head, minor major fracture injuries are included. Data is presented through excel version 2016.

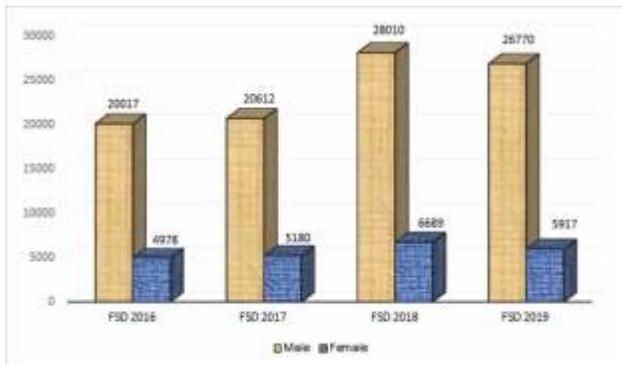
**RESULTS:**

The total 101995 RTCs were reported to Rescue 1122 Faisalabad in between 2016 to 2019. The number of reported and responded cases were 21180 in 2016 rose to 21654 in 2017, 30068 in 2018 and 29093 in 2019 as shown in (Table-I) of the total 118173 victim of these RTCs there were 20017 males and 4978 females in 2016, 20612 males and 5180 females in 2017, 28010 males and 6689 female in 2018 and 26670 males and 5917 female in 2019. The total male percentage 80.73% and total female percentage is 19.27% as shown in (Figure-I).

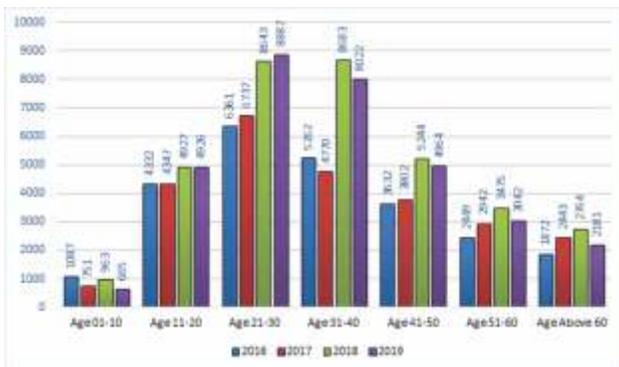
The most affected age group were people aged 21-30 (25.917%) followed by people who were in age group 31-40 (22.625%), 11-20 (15.68%), 41-50 (14.92%), 51-60 (10.07%) and above 60 (7.83%) as shown in (Figure-II).

**Table -I: Yearly reported cases to Rescue 1122.**

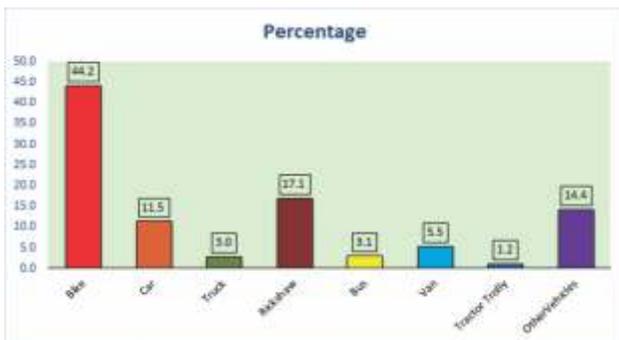
Year	No of RTCs	Percentage
2016	21180	20.76
2017	21654	21.23
2018	30068	29.47
2019	29093	28.52
<b>Total</b>	<b>101995</b>	<b>100</b>



**Figure-I: Sex distribution among RTCs victims reported to Rescue1122.**

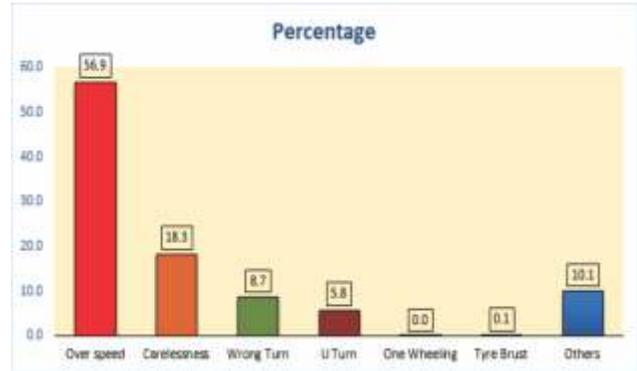


**Figure-II: Age group involved in RTCs reported to Rescue1122.**



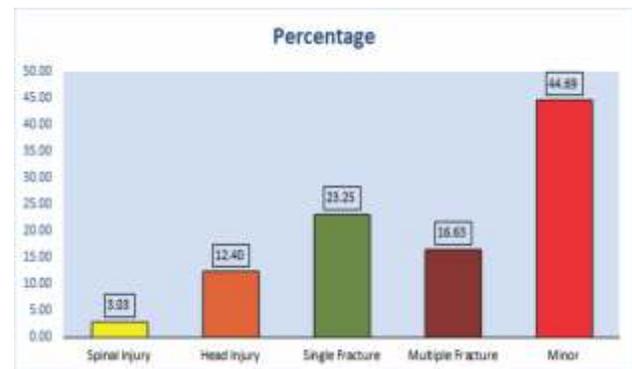
**Figure-III: Types of vehicle involved in RTCs reported to Rescue1122**

The mostly involved vehicle in RTCs is motorcycle (44.2%) followed by other vehicle (14.4%), car (11.5%), van (5.5%), Bus (3.1%), Truck (3.0%), tractor trolley (1.2%), and rickshaw (17.1%)



**Figure-IV: Causes of RTCs reported to rescue1122.**

The most common cause involved in RTCs is over speeding (56.8%) followed by Carelessness (18.32%), Others (10.14%) wrong turn (8.69%), U turn (5.84%) One wheeling (0.008%) and Tyre burst (0.117%).



**Figure-V: Injury pattern reported to Rescue 1122.**

**Figure-V:** The most common injury encountered in RTCs is Minor injury (44.68%) followed by Single fracture (23.25%), Multiple fracture (16.62%), Head (12.4%) and Spinal (3.03%).

**Table-II: Outcome of RTCs reported to Rescue1122.**

Outcome	Frequency	Percentage
Dead	984	0.83
Alive & Stable	52818	44.7
Alive & Unstable	64371	54.47
Total	118173	100

The mostly outcome of RTCs is Alive & unstable (54.47%), followed by Alive & stable (44.7%) and Dead (0.83%).

### DISCUSSION:

This study focused on injuries encountered by Road traffic crashes victims and their outcomes reported to Rescue1122 in Faisalabad. This study and its finding can be used as a window to preview into high alarming situation of RTCs in Faisalabad and its periphery. Males suffered from accidents more than females similar to previous studies conducted in other region of world like in Ethiopia<sup>[9]</sup>.

Most prevalent age group injured in our study between 21-30 years. This is also in correspondence with studies conducted in Tanzania and other country<sup>[10,11]</sup>. This is the most energetic yet inexperienced age group of population. Several factors like rash/reckless driving, one wheeling bike races on main road are commonly observed in young people. Motorcyclists are commonly effected<sup>[12]</sup>. They are highly indulged in dangerous activities than any other age group. Our study showed that over speeding is the most common cause of RTCs (56.8%). Although it has not been mentioned in our study but alcohol is an important factor and associated with a lot of casualties<sup>[13,14]</sup>.

Motorcyclists were the most injured of the road user group in this study. This finding is also similar to researches conducted in developing countries like Tanzania<sup>[15]</sup>. The use of motorcycles in our country strikingly increased in last few decades as motorcycle being the fastest and cheapest mean of transportation. But this two wheeled vehicle is unstable as hamlet use is also very minimal in motorcyclists it increases the risk of RTCs and puts the rider's life on stake.

However a study conducted in Karachi few years

ago showed higher incidence of head injuries in RTCs victims contrary to pattern observed in our research<sup>[16]</sup>.

Most of the accidents occur as the result of collision with another vehicle which is consistent with the result of a research conducted in Yemen<sup>[17]</sup> due to haphazard driving seen in the road users in haste to reach their destination as soon as possible neglecting many road rules. This is the preventable factor since laws can be made to control traffic and its flow especially in developed countries but unfortunately these rules are not followed in our country.

Musculoskeleton injuries are more prevalent in study with fractures are most common injury encountered. Minor and single fractures are more common injuries in our study. A research conducted in Lahore show similar results in this regard fracture and musculoskeletal injuries being highest in RTCs victims they studied<sup>[18]</sup>.

Accidents are increasing year by year as our research shows a 0.4% increase in accidents as compared to 2016, that was rose to 12.5% in 2019. This result also correlates with the research conducted in Lahore<sup>[16]</sup>. Several studies indicates that developing countries are affected more due to cultural issues and road conditions<sup>[19,20]</sup>.

Although some people lost their lives while others suffered from permanent disability but outcome of our research showed that most people were alive but unstable. This study has few limitations; the reported RTCs did not include pedestrian, cyclist or the severity. Therefore various proportions of victims and their attributes may not represent the full picture of RTCs in Faisalabad.

**CONCLUSION:**

The burden of RTCs emergencies attended by the Faisalabad Rescue1122 ambulance services is increasing with the passage of time and this research has provided important information about the causes and its associated factors. Most of them are preventable and policy makers should make and enforce proper laws to ensure proper safety. Helmet use must be ensured in motorcycle users to prevent head injuries and traffic rules should be strictly followed.

Pre-Hospital care has been proved an important factor in preventing the fatalities as result step should be taken to provide this facility in every setting. First aid education should be given in every institute. This will help in improving the quality of life in causality victims.

Data from the ambulance services, if appropriately collected, can provide valuable epidemiological information to monitor RTCs in developing countries. Furthermore there should be coordination among the public and private health service delivery departments and Rescue facilities for data collection to document all reported RTCs.

**ACKNOWLEDGMENT:**

Rescue 1122 Faisalabad office has given the detailed data regarding the road traffic accident characteristics injuries, causes and their outcomes encountered in Faisalabad in between 2016-2019.

**CONFLICT OF INTEREST:** All authors disclose no conflict of interest.

**GRANT SUPPORT & FINANCIAL DISCLOSURE:** None.

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#### Author's Contribution

**Nazim Hayat:** Designed the study, collaborate with 1122.

**Samia Rasool Tabassum:** Topic selection, computer writing.

**Yasir Riaz Gillani:** Topic selection, computer writing.

**Nadia Bano:** References & proof reading.

**Irshad Ahmed:** References, figures, tables.

**Saira Saleem:** Topic selection, figures, table, references.

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