



## Original Research Article

## Pattern of fatal road traffic accidents in a tertiary care hospital-a medico legal analysis

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## ABSTRACT

Road traffic accidents (RTAs) are a major public health concern causing thousands of injuries and premature deaths each year. The purpose of this study to find out the fatal injuries and correlation of injuries with different epidemiological parameters and to find out the measures for the prevention of their causative factors. The present study was conducted on dead bodies sent for post mortem examination involved in road traffic accidents at mortuary of Nizamabad, Govt. Medical College Hospital (Telangana State) during period from January 2017 to December 2018. During the study period out of 1180 of post mortem examinations 208 (17.62 %) were due to RTA. Our study shows that among these 179 (86.05%) victims were males and 29 (13.95%) were females, major victims involved were Pedestrians 64 (30.76%) followed by occupants of four wheelers 63(30.30%) and motor cyclists 54(25.96%). Maximum victims were died due to head injury 103(49.51%) followed by multiple injuries, chest and abdomen injuries.

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### 1. Introduction

Road traffic accidents are recognized as a major health problem in developing countries accounting for the maximum morbidity and mortality following trauma. Globally, RTAs result in an estimated 1.35 million deaths and further 50 million injuries per year (WHO, 2004). Road traffic accidents leading cause of death by injury and the ninth-leading cause of all deaths globally now make up a surprisingly significant portion of the worldwide burden of ill-health. And if present trends continue, road traffic injuries are predicted to be the third-leading contributor to the global burden of disease and injury by 2020(WHO 2004).<sup>1</sup> Accidents represent a major epidemic of non-communicable disease in the present century.

Road traffic accidents can be defined as involves personal injury occurring on the public highway (including footways) in which at least one road vehicle or a vehicle in collision

with a pedestrian, Passenger is involved.

Some people are more prone to accidents than others and susceptibility is increased by the effect of alcohol and other drugs as well as physiological state such as fatigue. Lastly majority of accidents are preventable.<sup>2</sup>

In 2001, an estimated 1.26 million people died due to RTA worldwide 90% of them in low and middle income countries. Mortality rate was 20.8 per 100000 populations.<sup>3</sup>

In India RTAs are one of the five leading causes of death, in every 6 minutes one die and 6 injured on Indian roads.<sup>4</sup>

Throughout the world, roads are shared by cars, buses, trucks, motorcycles, mopeds, pedestrians, animals, taxis, and other travelers. Travel made possible by motor vehicles supports economic and social development in many countries. Yet each year, vehicles are involved in crashes that are responsible for millions of deaths and injuries. Rapid urbanization, motorization, lack of appropriate road engineering, poor awareness levels, nonexistent injury prevention programmes, and poor enforcement of traffic laws has exacerbated the situation.

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The objective of this study was to investigate and evaluate prospectively the socio demographic profile and pattern of injuries in victims of RTA and to find out the measures for the prevention of their causative factors.

## 2. Materials and Methods

The present prospective study was conducted in department of Forensic Medicine, Govt. Medical College Hospital, Nizamabad, Telangana State, on dead bodies referred for post mortem examination which results from RTAs from period January 2017 to December 2018. During this period total 1180 post mortem examinations were conducted out of which 208 cases of fatal Road Traffic Accidents were selected for the present study. The relatives of the victims of accidents and accompanying police were interviewed to obtain the information about the circumstances leading to accident. A proforma specially designed for this purpose was used at the time of autopsy. The information collected consisted of age, sex, time and date of incident, type of victim, type of vehicles involved in accidents and cause of death. Post mortem findings were also recorded in different case sheets and analyzed.

## 3. Results

Total numbers of post mortem examination done during the study period were 1180 out of which deaths due to RTA were 208 (17.62%). (Table 1)

Most of the victims involved in RTA were males 86.05% (179) and 13.95% (29) were females, with male to female ratio being 6.17:1. (Figure 1)

The age range of the autopsied victims was from 2 to 80 years, maximum 116 (55.77%) cases were observed in the age group of 21-40 years, followed by 31(14.90%) in the age group of 41-50 years. (Table 2)

It was observed that most of the victims involved in fatal RTA were pedestrians 64(30.76%) followed by four wheelers 63(30.30%), and motorcyclists 56(26.92%). (Figure 2)

The maximum number 94(45.20%) of accidents took place between 6am to 12pm, followed by 71(34.13%) occurring between 12pm to 6pm. (Table 3)

Most of the injuries due to RTA 103 (49.51) found on the head, followed by multiple injuries i.e. Polytrauma 49(23.55%) and 25(12.01%) account of chest injuries in RTA. Type of victim verses cause of death shown in (Table 4).

Thus 208 cases of road accident deaths were studied which comprised of 85(40.86%) in rainy season followed by summer 52(25%) and spring season 37(17.80%). Least cases observed in winter season 34(16.34%). (Figure 3)

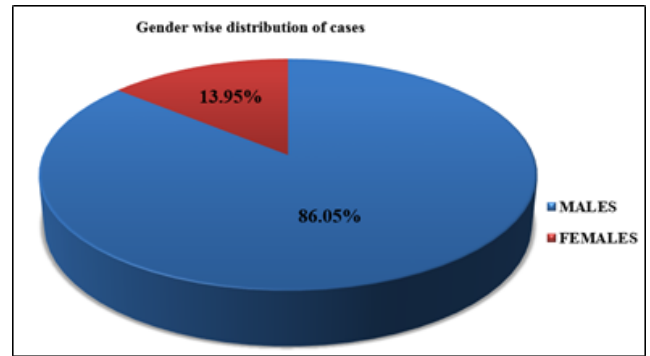


Fig. 1: Gender wise distribution of cases

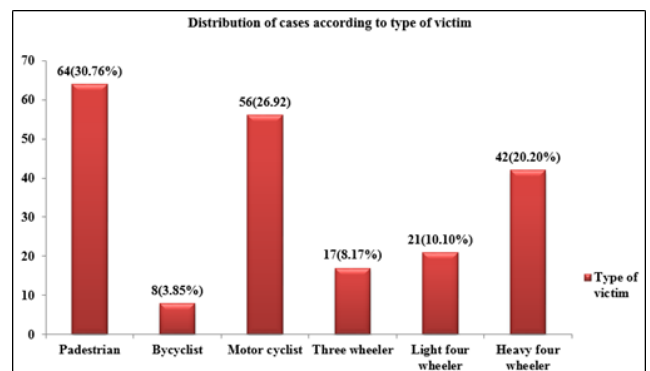


Fig. 2: Distribution of cases according to type of victim

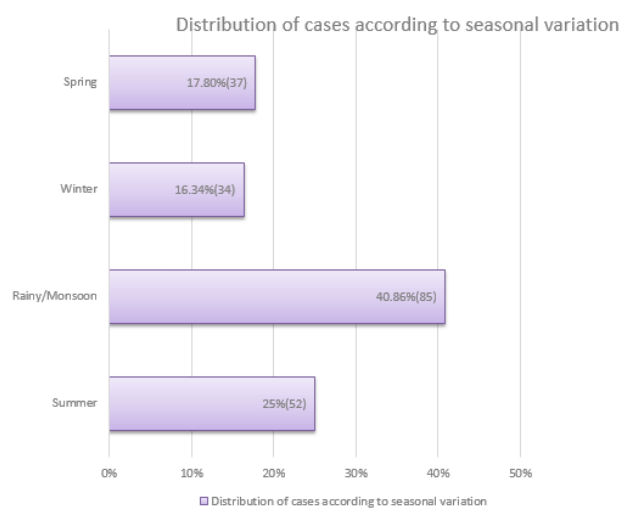


Fig. 3: Distribution of cases according to seasonal variation

**Table 1:** Total no of autopsies vs RTA

Total no of autopsies:	RTA	Percentage(%)
1180	208	17.62%

**Table 2:** Age wise distribution of cases

Age	No. of cases	Per (%)	Male	Per (%)	Female	Per (%)
1-10 years	9	4.33	8	88.88	1	11.12
11-20 years	17	8.17	16	94.11	1	5.89
21-30 years	69	33.17	57	82.60	12	17.40
31-40 years	47	22.60	39	82.97	8	17.03
41-50 years	31	14.90	28	90.32	3	9.68
51-60 years	14	6.73	13	92.85	1	7.15
> 60 years	21	10.10	18	85.71	3	14.29

**Table 3:** Time wise distribution of cases

Time	No. of cases	Per (%)	Male	Per (%)	Female	Per(%)
12am-6am	17	8.17	16	94.12	1	5.88
6am-12pm	94	45.20	79	84.04	15	15.96
12 pm-6pm	71	34.13	60	84.50	11	15.50
6pm -12am	26	12.50	24	92.30	2	7.70

**Table 4:** Type of victim vs causeof death in RTA

Cause of death	No.of cases	Per (%)	Padestrian no. (64)	Per (%)	Motor cyclist no. (56)	Per (%)	Bicyclist no.(8)	Per (%)	Occupants of 3 and 4 wheelr no. (80)	Per(%)
Head injury	103	49.51	37	35.92	38	36.90	5	4.85	23	22.33
Multiple injuries	49	23.55	17	34.70	15	30.61	2	4.08	15	30.61
Chest injury	25	12.01	5	20	2	8	1	4	17	68
Abdomen injury	17	8.17	3	17.65	1	5.88	0	0	13	76.47
Chest +Abdomen injury	14	6.73	2	14.28	0	0	0	0	12	85.72

#### 4. Discussion

Out of 1180 autopsies done during the study period 208(17.62%) were due to road traffic accidents these results are more or less same with study of Satyasi panda et al<sup>5</sup> (21.67%) and Y.N. Singh et al<sup>6</sup> (23.84%), deaths due to road traffic accidents increasing every year, it may be due increased urbanization and industrialization has led to tremendous growth in transport sector and inadequate traffic control planning is the cause in India.

Our study shows that maximum numbers of victims (86.05%) were males this fits well with the other research studies of a similar nature.<sup>7-9</sup> This could be due to the fact that more males work outdoors and therefore are more commonly to traffic accidents. Many of them were likely to have been the sole bread winner of their families, which causes an adverse economic impact on the family.<sup>10</sup>

The age group 21 to 40 years is the most active phase of life, physically and socially hence outnumbers the other road users. They therefore account for the maximum number of accidental deaths in a study made by Hetal C.

kyada et al,<sup>11</sup> and in other studies<sup>12,13</sup> it was found that the male and female ratio among victims of RTA was 10.5:1 which is similar with present study 6.17:1.

In our study pedestrian (30.76%) were most commonly affected which was similar with Hetal C. kyada et al<sup>11</sup> (33.89%), Pathak et al<sup>14</sup> (32.91%) and Sharma et al<sup>15</sup> (39%). It can be explained due to the fact that maximum of pedestrians died while crossing the road or walking over the road with carelessness on the part of the pedestrian as well as on the part of the driver of the vehicle. Pedestrians usually do not use zebra crossing, drivers do not obey traffic rules and people usually avoid taking road safety measures. On account of zebra crossing they are not well marked and speed breakers with other safety measures usually made without any warning signs over the road.

It was observed that during our study period 40.86% cases were noted in rainy season which is similar with Kachre et al<sup>16</sup> (38.3%), with Hetal C. kyada et al<sup>11</sup> (38.26%). This is because in this part of the world rainy season forms the predominant season, this not only decreases visibility on the road but also makes roads mud

paths and foot paths very slippery which is conducive for accidents. This is in contrast to the study made by Biswas G<sup>12</sup> who found that the majority of the RTA cases occurred during summer season.

Harman Singh et al<sup>17</sup> (77.6%) and Arvind Kumar et al<sup>18</sup> (68.73%) and in our study 49.51% shows head injury as a major cause of death can be explained by the fact that most of the cranio-cerebral injuries were not the result of primary impact but due to secondary impact or secondary injuries or both. The studies conducted in Mangalore and Kathmandu (Nepal) most of the accidents had taken place during the afternoon and evening hours. In present study maximum incidence of vehicular accidents are noted in working hours between 6am to 6pm.

## 5. Conclusion

Our study shows that road traffic accidents were more common in male sex in the younger age groups and during rainy season, at working hours from 6 am to 6pm. Maximum number of victims were pedestrians, head injury is observed as a major cause of death in road traffic accidents.

Road traffic accidents were mostly due to drivers fault according to all India road data. Other factors contributing to RTAs were mechanical defects in vehicles, pedestrian fault and fault of the passengers, bad roads and bad weather.<sup>19</sup> Various preventing measures like avoiding high speeding and diver under the influence of alcohol, promoting the use of helmets, seat belts and other restraints. Ensuring that people walking and cycling are more easily visible, Improving the design of roads and vehicles, enforcing road safety regulations and improving emergency medical services could be used to control the increasing toll of deaths due to RTA. The establishment of a national wide computerized trauma registry to highlight the factors, circumstance's, chain of events leading to the road traffic accidents should be extremely helpful in policy making and health management decisions at a national level.

## 6. Source of Funding

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## 7. Conflict of Interest

None.

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