

A Descriptive Observational Study Assessing Socio-Demographic Profile of Head Injury Victims Due to Fatal Road Traffic Accidents**Abuzar Rizwi**

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Conflict of interest: Nil

Abstract**Aim:** The aim of the present study was to assess the socio-epidemiological profile head injury victims due to fatal road traffic accidents in Bihar region.**Material & Methods:** A retrospective study was conducted including all cases of road traffic accidents involving fatal head injuries which underwent autopsy at over a period of two years. Out of the 250 cases of RTA autopsied from Mangalore jurisdiction, 200 cases (80%) were found to have sustained fatal head injuries.**Results:** In this study, total 200 cases were analysed which clearly demonstrated the male preponderance (85%) in all age groups. It was observed in the study that most affected age group was between 21-30 years having total 64 cases (32%), followed by 20% belonged to the age group 31- 40 years. Individuals in the age group less than 10 years were the least affected (2%), followed by elderly people i.e. 60 years and above in 8% of total cases. 92% belonged to hindu religion and 75% were married. Majority of the victims belonged to rural areas (65%), whereas 35% were from urban area. Most of the victims i.e. 128 cases (64%) were educated up to secondary school or below and rest 72 (36%) were educated up to senior secondary and above. 30% were laborers and 29% were farmers. Most of the victims were two wheeler users (62%). Pedestrians and four wheeler victims were 25% and 8% respectively.**Conclusion:** The present study revealed that most victims were of younger age group. This situation can be improved by educating public through the mass and media initiating road safety training campaign. Most of the deaths from RTA take place either on the spot or within 24 hours of sustaining injury. So an effort should be made to provide timely and proper medical services to RTA victims via mobile emergency services, quality trauma centers and proper rehabilitation services.**Keywords:** Head injury, fatal road traffic accidents, epidemiological factors, safety measuresThis is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Death due to road traffic accident is one of the most common forms of unnatural death and its history is as old as the invention of the wheel itself. Road traffic accidents were ranked ninth among the leading causes of death in the world during 1990s. If the same trend continues, it is estimated that the road traffic accidents will become the second leading cause of death by the year 2020. [1] Road traffic injuries are one of the top three causes of death among individuals aged between 5 and 44 years and more people die in road accidents in India than anywhere else in the World. [2] Road Traffic Accidents (RTAs) have emerged as a new health challenge in the world which not only leads to injuries, disabilities and loss of precious human lives but also imparts a substantial economic burden on the family concerned and the nation as whole. [3]

It is most common cause of death in young adults (age 15-24 years) and is more common in males than

females. [4] According to the WHO report road traffic injuries are currently the leading cause of death for children and young adults aged 5–29 years, signaling a need for a shift in the current child and adolescent health agenda which, to date, has largely neglected road safety. With an average rate of 27.5 deaths per 100,000 populations, the risk of a road traffic death is more than three times higher in low-income countries than in high-income countries where the average rate is 8.3 deaths per 100,000 populations. [5]

The increase in the incidence of road traffic accidents in India has been observed to be 8% per year for last ten years and it is not showing any signs of reduction, reason behind it might be, vehicle sales growth per year in India has reached to 6% per year. [6] Indian National highways comprises of 2% of total world road network while India accounts for forty percent of global traffic and sixty-five percent

of all traffic fatalities yet 40% of the world's traffic occurs on Indian roadways, and 65% of all road deaths occur there. [7-9]

The sustainable development goals include a target of 50% reduction in road traffic deaths and injuries by 2020. [7] Road traffic accidents are important causes of mortality and morbidity due to increasing number of vehicles, the risk taking behavior among general population and changes in lifestyle. Road traffic injuries place a heavy load on our healthcare system. [10] Hence the present study was conducted to study the socio-epidemiological profile head injury victims due to fatal road traffic accidents in Bihar region.

Material & Methods

A retrospective study was conducted including all cases of road traffic accidents involving fatal head injuries which underwent autopsy at Netaji Subhas Medical College and Hospital, Bihta, Patna, Bihar, India over a period of two years. Out of the 250 cases of RTA autopsied from Mangalore jurisdiction, 200 cases (80%) were found to have sustained fatal head injuries.

Inclusion Criteria

- All cases of fatal head injuries due to road traffic accidents over a period of two years were included in the study.

Exclusion Criteria

- All other fatal head injury other than road traffic accidents.

Methodology

The data required for the study was collected and analyzed retrospectively from all cases subjected to autopsy at Department of FMT, Netaji Subhas Medical College and Hospital, Bihta, Patna, Bihar, India. situated in Bihar. A proforma was prepared accordingly to collect the data based on the deceased's particulars, with complete external and internal examination in retrospective studies of those involved in fatal head injury cases due to road traffic accidents. A detailed history was obtained from family as well as eyewitnesses if they were accessible at the time of the autopsy. The inquest report, family, and hospital treatment records were also used to acquire necessary information. Recorded details include name, age, sex, address, information furnished by the police in the inquest papers, postmortem reports, investigation reports if any and cause of death. All the data obtained was kept anonymous to protect the identity of the deceased and also for confidential medico legal information.

Statistical Analysis

The data gathered in this manner was statistically analysed.

Results

Table 1: Distribution of cases of RTA according to age and sex

Age (in years)	Female (%)	Male (%)	Total (%)
Less than 10years	4	0	4 (2%)
11 – 20	4	16	20 (10%)
21 – 30	4	60	64 (32%)
31 – 40	8	32	40 (20%)
41 – 50	6	30	36 (18%)
51 – 60	2	18	20 (10%)
61 – 70	2	10	12 (6%)
71 and above	0	4	4 (2%)
Total	30	170	102 (100%)

In this study, total 200 cases were analysed which clearly demonstrated the male preponderance (85%) in all age groups. It was observed in the study that most affected age group was between 21-30 years having total 64 cases (32%), followed by 20%

belonged to the age group 31- 40 years. Individuals in the age group less than 10 years were the least affected (2%), followed by elderly people i.e. 60 years and above in 8% of total cases.

Table 2: Distribution of cases of RTA according to demographic profile

Demographic profile	No. of Cases	Percentage (%)
Religion		
Hindu	184	92
Muslim	12	6
Sikh	4	2
Marital status		
Married	150	75
Unmarried	50	25

Type of habitat		
Rural	130	65
Urban	70	35

92% belonged to hindu religion and 75% were married. Majority of the victims belonged to rural areas (65%), whereas 35% were from urban area.

Table 3: Education wise distribution of RTA cases

Education Category	No. of Cases	Percentage(%)
Illiterate	40	20
Primary School	8	4
Middle School	24	12
Secondary School	56	28
Senior Secondary School	48	24
Graduate	16	8
Post Graduate	2	1
Professional	6	3
Total	200	100

Most of the victims i.e. 128 cases (64%) were educated up to secondary school or below and rest 72 (36%) were educated up to senior secondary and above.

Table 4: Occupation wise distribution of cases

Occupation	No. of Cases	Percentage (%)
House Wife	20	10
Laborer	60	30
Farmer	58	29
Student	18	9
Businessmen	20	10
Professional	20	10
Other	4	2
Total	200	100

30% were laborers and 29% were farmers.

Table 5: Distribution of cases according to mode of transport

Type of Victims	No. of Cases	Percentage (%)
Pedestrian	50	25
Bicycle	6	3
Two-wheeler MotorCycle	124	62
Four-wheeler (driver)	16	8
Passenger	4	4
Total	200	100

Most of the victims were two-wheeler users (62%). Pedestrians and four-wheeler victims were 25% and 8% respectively.

Discussion

Road Traffic Accidents (RTAs) have emerged as a new health challenge in the world which not only leads to injuries, disabilities and loss of precious human lives but also imparts a substantial economic burden on the family concerned and the nation as whole. [11] The majority of serious and fatal injuries suffered by children and teenagers are caused by motor vehicle accidents. Recognizable actions can result in significant and long-lasting drops in

automobile crash casualties. [12] The most common reason for motor vehicle mortality in adolescents and young people is injuries to passengers. The juvenile age group's highest injury and fatality frequency peaks are seen between the ages of 14 & 18 in both boys and females. [13] The percentage contribution of contagious injuries and illnesses has grown as advances in the prevention and control of infectious diseases have been made. The eighth-highest death cause across every age category is related to traffic accidents. [14] It has been reported that men are more feasible than women to die in automobile accidents. One rationale for the 7% yearly growth in automobiles on Indian roads over through the past eleven years, which shows

minimal signs of decline, is that the nation's quick urban prosperity has fueled a 5% annual rise in automobiles. [15]

In this study, total 200 cases were analysed which clearly demonstrated the male preponderance (85%) in all age groups. It was observed in the study that most affected age group was between 21-30 years having total 64 cases (32%), followed by 20% belonged to the age group 31-40 years. The findings are consistent with other studies Soni SK et al [16], Sonawane S and Jambure M [17], Arora S and Khajuria B [18] where most of the victims were from 21-30 years, followed by 31-40 age group. Younger age groups, such as children and young adults, are more likely to sustain head injuries in road traffic accidents compared to older adults. [19] Men are more likely than women to sustain head injuries in road traffic accidents, possibly due to differences in risk-taking behavior and exposure to risk. [20] Certain occupations, such as drivers of commercial vehicles and construction workers, have been found to be at higher risk of sustaining head injuries in road traffic accidents. [21]

Individuals in the age group less than 10 years were the least affected (2%), followed by elderly people i.e. 60 years and above in 8% of total cases. 92% belonged to hindu religion and 75% were married. Majority of the victims belonged to rural areas (65%), whereas 35% were from urban area. Most of the victims i.e. 128 cases (64%) were educated up to secondary school or below and rest 72 (36%) were educated up to senior secondary and above. People from lower socio-economic backgrounds are more likely to be involved in road traffic accidents and to sustain head injuries, possibly due to factors such as lack of education, poor infrastructure, and limited access to healthcare. [22] 30% were laborers and 29% were farmers. Most of the victims were two wheeler users (62%). Pedestrians and four wheeler victims were 25% and 8% respectively. Similar findings were observed by Akhade S P, et al. [23] As two wheelers are the most common means of transport in rural areas, increased fatalities among the two wheeler can be explained by the factors like lack of traffic sense, poor lighting of the streets, overcrowding on the foot paths, carelessness by both- the drivers and pedestrians, rash driving, neglect in wearing helmets, in-operability of traffic light signals, alcohol abuse etc. The riders of two wheelers have no protection and are unstable and topple even on slight impact, making riders more vulnerable to contact with hard road surfaces.

Conclusion

The present study revealed that most victims were of younger age group. This situation can be improved by educating public through the mass and media initiating road safety training campaign. Most of the deaths from RTA take place either on the spot or

within 24 hours of sustaining injury. So an effort should be made to provide timely and proper medical services to RTA victims via mobile emergency services, quality trauma centers and proper rehabilitation services.

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