

To Study Epidemiological Factors Associated with Road Traffic Accident Cases Coming to Civil Hospital in District Amritsar, Punjab

Yash Mitra¹, Harshdeep Joshi¹, Shalini Devgan², Gurmeet Singh³

ABSTRACT

Introduction: Countries are passing through significant urbanization, motorization, industrialization and a change in socio-economic values. India is no different to this change. Due to these changes, Road Traffic Accidents have become the first public hazard in the world which results in one of the largest threat against human lives and safety. Aim of the study was to study demographic variables and epidemiological determinants associated with Road Traffic Accidents.

Material and Methods: The current Cross - Sectional study was carried out at Civil Hospital Amritsar among 200 consecutive cases of Road Traffic Accidents (RTA) admitted through emergency of Civil Hospital Amritsar from September 2013 to December 2013.

Results: It was observed that maximum number of victims were between 11-40 years of age constituting 127(63.5%) of total victims of road traffic accidents i.e more young patients were involved in road traffic accidents. Demographic and epidemiological factors determining RTA's like age, education and area of residence were studied and findings revealed that majority of the affected victims (52.5%) belonged to rural area and maximum accidents (62.0%) took place between 2 pm to 10 pm. Majority of the cases of RTA's i.e 173 (86.5%) had received no education or were educated just up to matric.

Conclusion: Road traffic injuries are a major but neglected public health challenge that requires concerted efforts for effective and sustainable prevention. Strict enforcement of traffic laws is the need of the hour.

Keyword: Epidemiological Factors, Road Traffic Accident Cases

INTRODUCTION

Trauma in India is an increasingly significant problem, particularly in light of rapid development and increasing motorization. Social changes are resulting in alterations in the epidemiology of trauma. Countries are passing through significant urbanization, motorization, industrialization and a change in socio-economic values. India is no different to this change. Due to these changes, Road Traffic Accidents have become the first public hazard in the world which results in one of the largest threat against human lives and safety.¹

Thus RTA is a collision between vehicles and pedestrians; between vehicles and animals or between vehicles and geographical or architectural obstacles.

Ninety one percent of world's fatalities on the roads occur in low income and middle income countries, even though these countries have approximately half of the world's vehicles. According to World Health Organization (WHO), road traffic injuries are the sixth leading cause of death in India with a greater share of hospitalization, deaths, disabilities and socio-economic losses in young and middle - aged population.²

Accidents, tragically, are not often due to ignorance, but are due to carelessness, thoughtlessness and over confidence. William Haddon (Head of Road Safety Agency in USA) has pointed out that road accidents were associated with numerous problems each of which needed to be addressed separately.³ Human, vehicle and environmental factors play roles before, during and after a trauma event.⁴ The Aim of conducted study was To study demographic variables and epidemiological determinants associated with road traffic accidents.

MATERIAL AND METHODS

The current Cross - Sectional study was carried out at Civil Hospital Amritsar after obtaining ethical approval from hospital ethical board. The study included 200 consecutive cases of Road Traffic Accidents (RTA) admitted through emergency of Civil Hospital Amritsar from September 2013 to December 2013 based on purposive sampling. For the purpose of the study; A Road Traffic Accident was defined as accident which took place on the road between two or more objects, one of which must be any kind of a moving vehicle. Any injury on the road without involvement of a vehicle (eg. a person slipping and falling on the road and sustaining injury) or injury involving a stationary vehicle (eg persons getting injured while washing or loading a vehicle) or deaths due to RTA were excluded from the study. A pretested semi structured questionnaire specially designed for this purpose was used for interviewing the accident victims. Where the condition of the victim did not warrant the interview, the relatives or attendants were interviewed.

The study incorporated demographic variables (age, gender, area of residence, education and occupation) and epidemiological determinants (time of accident, condition of the road, training of the driver, type of vehicle involved).

STATISTICAL ANALYSIS

Data was entered in Microsoft Excel. Data was analysed via SPSS (Version 20). Interpretation of the collected data was done by using appropriate statistical methods like percentage and proportions.

¹Assistant Professor, ³Professor, Department of Community Medicine, Punjab Institute of Medical Sciences, Jalandhar, ²Assistant professor, GGSMC Faridkot, India

Corresponding author: Yash Mitra, Department of Community Medicine, Punjab Institute of Medical Sciences, Jalandhar, India

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RESULTS

Demographic Variables associated with Road Traffic Accidents

Table-1 depicts demographic variables associated with road traffic accidents.

174 (87%) victims of Road Traffic Accidents were males and only 26 (13%) were females. Majority of the cases i.e 27.5% were between age group of 21-30 followed by 19.5% who were between age group of 31-40. It was observed that maximum number of victims were between 11-40 years of age constituting 127(63.5%) of total victims of road traffic accidents i.e more young patients were involved in road traffic accidents. Also majority of the cases of RTA's i.e 173 (86.5%) had received no education or were educated just up to matric. More number of victims 105 (52.5%) were from rural area compared to 97 (47.5%) who were from Urban area.

Table-2 depicts time of the day of occurrence of accident. It shows that majority of the accidents i.e 124 (62.0%) occurred between 2.00 pm to 10.00 pm followed by 6.00 am to 2.00 pm (29.0%).

Table-3 shows that maximum number of persons 101 (50.5%) involved in road traffic accidents were drivers, 59 (29.5%) were passengers and only 40 (20%) were pedestrians. Also 116 (58%) of the vehicles involved were two - wheelers followed by 68(34.0%) four wheelers.

Table-4 shows that majority of the persons 47 (23.5%) involved in RTA were intoxicated on the day of accident, alcohol being main intoxicant. 17% were having stress at the time of accident which were emotional, physical or social stress and 30 (15%) were fatigued. 3.5% (7) had medical illness which could have contributed to accident. Main factors in vehicles responsible for road accidents were being rash driven 24% (48) which led to accident. 18.5% (37) were not well maintained and not regularly serviced and were very old models. 19 (9.5%) of the vehicles contributing to accidents had defects like failure of brakes, defects in head light or bursting of tyre.

Figure-1 shows that majority (44.5%) accidents took place on city roads followed by link roads (31.5%).

Figure-2 shows that maximum accidents (19.5%) occurred due to pits on the roads followed by uncontrolled crossings (18.5%) and slippery roads (8.5%).

DISCUSSION

The current study revealed that 87% of the victims of Road Traffic Accidents were males and predominantly youngsters(63.5%) were affected. Also in our study majority of the affected victims (52.5%) belonged to rural area. Maximum accidents (62.0%) took place between 2 pm to 10 pm. These findings are in consonance with study conducted by Singh D et al (2014) in Chandigarh in which male preponderance (76%) was observed throughout the study period with youngsters being more commonly involved. The study also supported that more casualties were observed in rural (60.4%) area as compared to Urban area exhibiting a statistically significant difference ($p < 0.05$).³ The current study shows that the people of the most active and productive age group are involved in RTAs, which adds a serious economic loss to the community. Dandona R et al (2011) in a study conducted in Hyderabad reported male youngsters being more involved in Road Traffic Accidents as

Demographic variables		
Gender	No. of cases	Percentage
Male	174	87.0%
Female	26	13%
Age	No. of cases	Percentage
<10	14	7.0%
11-20	33	16.5%
21-30	55	27.5%
31-40	39	19.5%
41-50	29	14.5%
51-60	22	11.0%
61 and above	8	4.0%
Education status	No. of	Percentage
Illiterate	50	25%
Primary	33	16.5%
Matric	90	45%
Graduation	19	9.5%
Post Graduate	4	2.0%
Professionals	4	2.0%
Area of Residence	No. of cases	Percentage
Rural	105	52.5%
Urban	95	47.5%

Table-1: Demographic Variables associated with Road Traffic Accidents

Time of Accident	Number of cases	Percentage
Before noon 6.00 am to 2.00pm	58	29.0%
After noon 2.00 pm to 10.00pm	124	62.0%
During night 10.00pm - 6.00 am	18	9.0%
Total	200	100%

Table-2: Time of the day of Occurrence of Accident

Type of person	Number of cases	Percentage
Driver	101	50.5%
Passenger	59	29.5%
Pedestrian	40	20.0%
Type of vehicle		
Two - wheeler	116	58.0%
Three - wheeler	5	2.5%
Four - wheeler	68	34.0%
Other	11	5.5%

Table-3: Type of persons and vehicles involved in Road Traffic Accidents

Factors in person	Number of cases	Percentage
Untrained drivers	14	7.0%
Intoxicated	47	23.5%
Medical Illness	7	3.5%
Fatigue	30	15%
Stress	34	17%
Factors in Vehicle		
Rash driving	48	24.0%
Not well maintained	37	18.5%
Defects in vehicles	19	9.5%

Table-4: Shows Factors in person and vehicles contributing to Road Traffic Accidents

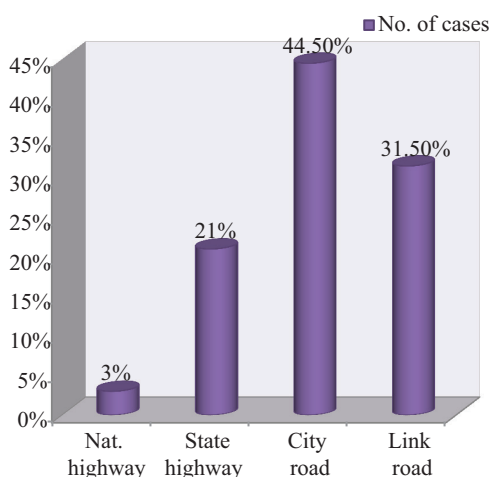


Figure-1: Type of roads involved in RTA's

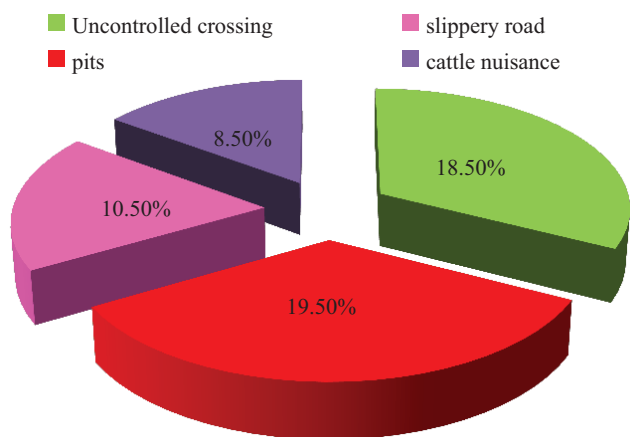


Figure-2: Factors on roads

compared to females and these findings are in consonance with our study as males were more involved in outdoor activities.⁵ Verma PK et al (2004) in a study conducted in Delhi found that majority of the accident victims belonged to rural area.⁶ This pattern is also similar to our study as figures of the year 2011 reveal that 68.8% of population resides in rural India.

Majority of the cases of RTA's i.e 173 (86.5%) had received no education or were educated just up to matric. These are synonymous with findings of a study carried out by Manna N et al (2012) in Kolkattathat relatively poorly educated individuals were more likely to get into traffic accidents can be due to less awareness about the traffic rules and safety measures.⁷

In the present study majority of the Road Traffic Accidents (62.0%) occurred between 2 pm to 10 pm. These are similar to study conducted by Patel DJ e al (2010) in Chattisgarh.⁸ The current study observed that majority (58%)of the vehicles involved were two - wheelers followed by 68 (34.0%) four wheelers. These findings are consistent with other studies which found that majority of the victims were Two-wheeler users 46.3% (315) and pedestrians 24.9% (169), followed by cycle users (14.1%).⁹

The present study found that majority of the affected victims 23.5 % were intoxicated with alcohol, 17 % were having mental stress and 15 % were fatigued. This is supported by findings of Jha N et al and Patil SS.^{4,10} Manna N et al (2012)in a study conducted in Kolkatta showed that 6.8% had mental anxiety during the time of accidents and impulsive risk taking behavior

in 5.8% individuals. Studies in Maharashtra, and Nepal had found RTAs more frequent among drivers and passengers.^{10,11} These findings are consistent with the current study in which maximum number of persons 101 (50.5%) involved in road traffic accidents were drivers and 59 (29.5%) were passengers.

Conclusion- The study observed that majority of the victims of Road Traffic Accidents were young males leading to loss of productive age group which will adversely affect economy of our country. The prevention of road accidents is also tremendously vital and should be ensured by implementation of strict laws, by intervention of technical and police controls, by providing training to drivers, mainly those involved in the transport of dangerous substances and, if required, by applying legal and administrative penalties, implemented laws should be maintained.

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