

Original Research Article

Epidemiological study of road traffic injury victims attending a tertiary care centre in Hyderabad

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ABSTRACT

Background: Increased vehicular traffic on roads has now begun to cause road traffic accidents. Road traffic injuries will rise to become the fifth leading cause of death by 2030. In India every year road traffic accidents (RTA) accounts for over 1,00,000 deaths, 2 million hospitalization and 7.7 million minor injuries. The objective of the study was to study the socio-demographic profile and the epidemiological factors related to RTA.

Methods: It is a cross-sectional, hospital based descriptive study done on all road traffic injury victims admitted at Owaisi hospital attached to deccan college of medical sciences between April 2013 and July 2014. 573 RTA victims were interviewed using a predesigned questionnaire.

Results: Majority of the victims were from the age group of 25 to 39 years (38.4%). Majority are males (85.5%). Majority victims had a primary level of education (29.3%), followed by illiterates (20.6%). Majority victims were from upper lower socio-economic class (34.5%) and lower class (30.4%). Majority of the accidents occurred on weekends (57%). Maximum road traffic accidents (45%) occurred during rainy season. Majority of the road user victims were drivers (47%). Motorised two wheelers (43%) were the leading road users among the victims.

Conclusions: Majority of the victims being in the productive age group. Public should be sensitized about the raise in road traffic accidents especially in peak hours and weekends. Motorcyclists being the leading road users among victims must be counselled regularly regarding proper road safety measures.

Keywords: Road traffic accidents, Epidemiological study, Socio-demographic profile

INTRODUCTION

Increased vehicular traffic on roads due to improved living and travelling standards and economic stability has now begun to cause road traffic accidents. It is a major issue of the health as many lives are being involved every single day and millions of people are facing deaths mostly due to accidents on the road.

According to the global status report on road safety 2009, states that over 90% of the world's fatalities on the roads occur in low-income and middle-income countries, which have only 48% of the world's registered vehicles, and

predicts that road traffic injuries will rise to become the fifth leading cause of death by 2030 and owing to the global and massive scale of the issue, are the predictions that, by 2020 road traffic deaths and injuries will exceed HIV/AIDS as a burden of death and disability.¹

Road traffic accidents (RTA) accounts for 2.1% of total deaths and 21% of total injury. Projected estimations reveal that fatalities due to RTA will increase by 66% over the next 20 years and will be the 3rd leading cause of death by 2020 moving from its present 9th position.²

In India 1,36,834 deaths, 4,46,800 injuries occurred due to road traffic accidents in the year 2011.³ In India,

around 375 deaths and 1284 injuries per day occur due to road traffic accidents. followed by China with over 96,000 deaths every year. The total number of deaths every year due to road accidents has now passed the 135,000 mark, according to the latest report of national crime records bureau or NCRB.⁴

In India every year RTA accounts for over 1,00,000 deaths, 2 million hospitalization, 7.7 million minor injuries and an estimated loss of 55,000 crores or nearly 3% of the GDP every year.

Hyderabad is one such advanced city whose population is exceedingly rapidly over the past few years. Owaisi hospital is a tertiary level hospital of Hyderabad attached to deccan college of medical sciences. A study of victims will help us to know which stratum of society are seeking care as patients, and a rough estimate of the burden of road traffic accidents in and around Hyderabad. It will also shed some light on the various factors influencing the occurrence of injuries.

METHODS

It is a cross-sectional, hospital based descriptive study done on all road traffic injury victims admitted at Owaisi hospital attached to deccan college of medical sciences. Data was collected using a predesigned, pretested questionnaire. All the road traffic accident cases admitted on that particular day were approached and explained the purpose of the study in their language after taking permission, they were interviewed and data was entered. Information of unconscious patients was collected from their relatives. After regaining consciousness, the patient was approached and re-interviewed. The medico legal records and case sheets of the victims were referred for collecting additional information. Institutional ethical committee permission was taken prior to the study. All the cases admitted between April 2013 and July 2014 were included in the study (n=573). Victims brought dead due to road traffic injuries, victims who were immediately referred to higher centre and victims who did not consent to be a part of the study were excluded from the study.

Statistical analysis

Data is expressed in percentages.

Definition of study variables

Age: Age was recorded to the nearest completed year.

Education

The subjects were asked about their highest educational level attained.⁵ Illiterate: the person who could neither read nor write. Primary: the person who was studying or studies till or less than class VII. Secondary: the person who was studying or studied between VII to XII. Graduate: who has completed or doing a degree course.

Postgraduate: who has completed or doing higher education. Not applicable: less than 8 years of age.

Occupation⁶

- **Unemployed:** not currently employed.
- **Unskilled:** doing a work which does not require any specific skills like domestic help laborers.
- **Student:** presently studying any class, lesser than a post-graduate degree.
- **Semi-skilled:** employed in a job that requires specific skills to qualify for employment like fitter, turner, gardener, drivers etc.
- **Skilled:** job which requires a specialized skill in performing the activity-carpenter, electrician etc.
- **Semiprofessional:** people having their own business.
- **Professional:** people employed in a profession which requires a high degree specialization like doctors, engineers etc.
- **Housewife:** the socio-economic status was determined according to the recent modification of Kuppuswamy classification of socio-economic status.⁷

Road traffic accident has been defined as accident which took place on road (including sidewalk or footpath) between two or more objects, one of which must be any kind of a moving vehicle.²

RESULTS

From the Table 1, it was observed that, out of 573 victims of road traffic accidents, majority victims were from the age group of 25 to 39 years i.e., 220 (38.4%). Majority are males (85.5%). Majority victims were married 353 (61.6%). Majority victims had a primary level of education 168 (29.3%), followed by illiterates 118 (20.6%). Majority of victims were the unskilled-180 (31.4%), followed by semi-skilled 115 (20.1%) and skilled were 88 (15.3%). Majority victims were from upper lower socio-economic class 198 (34.5%), followed by lower class 174 (30.4%) and lower middle 130 (22.7%).

Majority of accidents (43%) occurred between 6 am -12 noon followed by 22% between 12 pm to 6 pm, Night hours (6 pm - 12 am) 20% cases and minimum number of accidents (15%) of cases occurred in the late night and early morning i.e. from 12 am – 6 am. Maximum number of the accidents occurred on weekends (57%).

Maximum road traffic accidents (45%) occurred during rainy season (June to September), followed by 34% road traffic accidents in winter (October to January), and minimum road traffic accidents (21%) in summer (February to May).

Majority of the road users were drivers (47%) followed by passengers (29%) and pedestrians (24%).

Majority of the vehicles involved were motorised two wheelers (43%) followed by four wheelers (30%), three wheelers (24%) and bicycles (3%).

Table 1: Socio demographic profile of RTA cases (n=573).

Socio demographic variable		Number	Percentage
Age group (years)	<15	17	3.0
	15-24	119	20.8
	25-39	220	38.4
	40-50	106	18.5
	51-60	85	14.8
	>60	26	4.5
Gender	Male	490	85.5
	Female	83	14.5
Marital status	Unmarried	220	38.4
	Married	353	61.6
Educational status	Post-graduate	10	1.8
	Graduate	66	11.5
	Inter-mediate	75	13.1
	High school	98	17.1
	Middle school	38	6.6
	Primary school	168	29.3
	Illiterate	118	20.6
Occupational status	Profession	9	1.6
	Semi-profession	67	11.7
	Clerical, shop owner, farmer	86	15.0
	Skilled	88	15.3
	Semi-skilled	115	20.1
	Unskilled	180	31.4
	Un-employed	28	4.9
Socio economic status	Upper	15	2.6
	Upper middle	56	9.8
	Lower middle	130	22.7
	Upper lower	198	34.5
	Lower	174	30.4

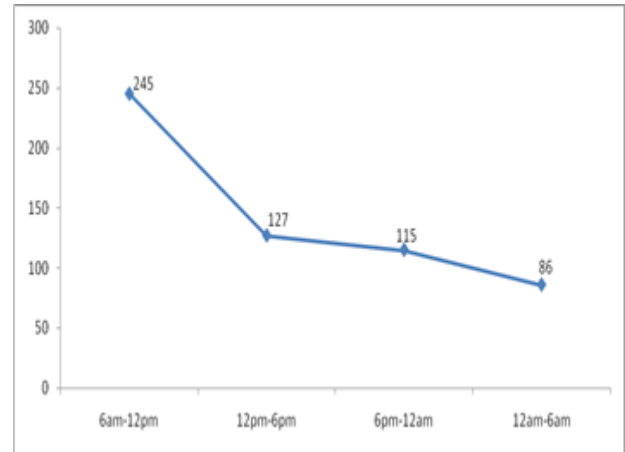


Figure 1: Distribution of RTA cases based on time of occurrence.



Figure 2: Distribution of RTA cases based on day of accident.

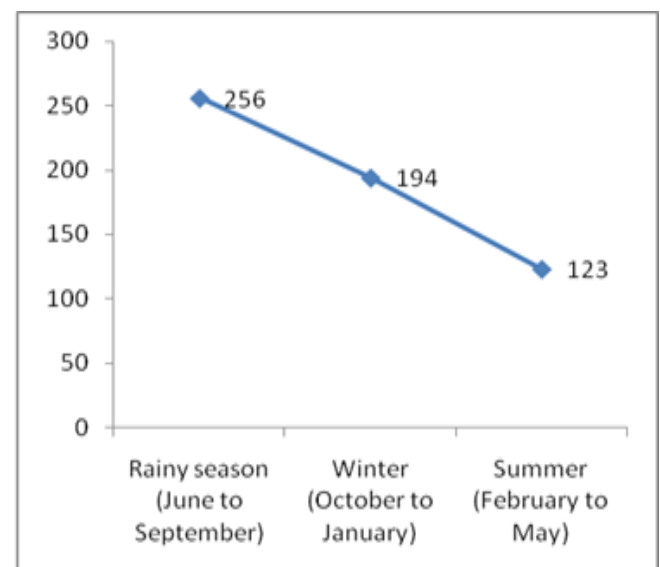


Figure 3: Distribution of RTA cases based on season and month of accident.

Table 2: Type of road user involved in the RTA (n=573).

Category of road user	Number of RTA victims	Percentage
Driver	270	47
Passenger	166	29
Pedestrian	137	24
Total	573	100

Table 3: Vehicles of the victim involved in the RTA.

Type of vehicle	Number of accidents	Percentage
Motorised two-wheeler	116	43
Four-wheeler	80	30
Three-wheeler	65	24
Bicyclists	9	3
Total	270	100

DISCUSSION

In the present study majority of the victims were in the age group of 25 to 39 years (38.4%), followed by 15-24 years (20.8%), 40-50 years were 18.5%, elderly (>60 years of age) were 4.5% and showed least number of victims among <15 years (3%). In a study by Jha et al the highest number of victims were in the age group of 20-29 years accounting for 28.6% followed by 18.9% in 30-39 years age group.⁸ In a hospital based study performed by Nilamber et al highest numbers of victims (31.3%) were 20-29 years of age, followed by 30-39 years and 40-49 years of age group. There were 8.9% below 12 years of age with an average age of 7.1 yrs.⁹ The findings from the present study are in agreement with the above studies. It is evident that the victims are predominantly from a productive age group with the road traffic injury resulting in a compromise in their quality of life.

In the present study 85.5% of the victims were males and 14.5% of them being females. In a study conducted by Jha et al, males are commonly affected accounting for 76.1% than females 23.9%.⁸ In a hospital-based study performed by Nilamber et al, most of the victims 83% were males and 17% were females.⁹

In the present study, 61.6% of victims were married while 38.4% were not married. According to the study by Agarwal et al, 54% of the road traffic victims were married.¹⁰ In a study by Kumar et al out of total RTA cases, majority of the subjects 69.1% were married and 30.9% were unmarried.¹¹ This infers that most of them have family members who are dependent on the victims which will increase to the economic burden.

In the present study, majority of the victims (29.3%) had a primary level of education, followed by illiterates (20.6%), high school (17.1%) and graduates (11.5%) but

only 1.8% had professional degree. In an epidemiological study by Jha et al on road traffic accident cases, 23% of victims were either illiterate or had only primary level of education, where as victims with higher education were fewer in proportion.⁸ In a hospital based study performed by Nilamber et al, 21.4% had education upto 5th class, 19.3% were educated upto 8th class, while 16.6% were illiterates. Victims with a higher education (matriculate and above) were fewer in proportions.⁹ This infers that higher the education, more the awareness about the risk factors of the road traffic accidents can be known by the road traffic accident victim.

In the present study, it was observed that majority victims were the unskilled (31.4%), followed by semi-skilled (20.1%) and the least number of victims were professionals. In a study by Jha et al, laborers constituted the largest group (27.6%), followed by students (24.2%).⁸ In a study performed by Nilamber et al, laborers were the highest in number among the victims. Persons who were employed in service were the next largest group with 157 victims. 115 students were involved in accidents.⁹ This infers that because of the occupation and ignorance unskilled workers are at greater risk for road traffic accidents when compared to others.

In the present study, it was observed that majority of victims of road traffic accident were from upper lower socio-economic class (34.5%), followed by victims from lower class (30.4%), lower middle (22.7%), upper middle (9.8%) and upper class (2.6%). In a study by Kumar et al 68.9% were from the income group of Rs 9,788/- to 19,754/-, as per the modified Kuppuswamy (2007) socio economic status scale. The lowest number of victims 13.1% were from the SES scale group of Rs. 7,323/- to Rs. 9,787/-.¹¹ Similar findings were found in the study conducted by Mishra et al where victims from low socio economic status were affected more (31.6%), while from higher class 13.33% victims were affected.¹² From the above comparison, we can infer that the greater is the socio-economic class, lesser are the road traffic accidents.

In the present study it was observed that most of the accidents occurred on weekends i.e. 57% followed by 43% on weekdays. Maximum number of accidents (43%) occurred between 6 am to 12 noon followed by 22% between 12 noon to 6 pm and minimum number of accidents (15%) of cases occurred in the late night and early morning i.e. from 12 am to 6 am. In an epidemiological study of the road traffic accidents by Singh et al 54.12% accident cases were reported on week days and remaining 45.88% on weekends. Most (40.15%) of the RTA's occurred in the evening (6 pm to 12 midnight).¹³ In an epidemiological study of road traffic accident cases by Mishra et al, maximum number of accidents occurred in between 3 and 7 pm (44.16%) followed by 24.16% between 7 and 11 am Here two distinct peaks were found, i.e. between 3 to 7 pm and 7 am to 11 am at 40.29% and 32.83% respectively. For

weekends 3 pm to 7 pm recorded the maximum cases i.e. 45.28% out of the total 159.¹² From the above comparison, we can infer that most of the road traffic accidents occurred on weekend days, obviously due to the holidays as everyone on those days go outside their homes by roads. During week days, majority of the road traffic accidents occurred during 6 am-12 noon, when the people mostly go to their own working places.

In the present study, regarding the seasonal distribution of the RTA, out of total 573 accidents, majority i.e. 256 (45%) occurred during rainy season (June to September), 194 (34%) occurred in winter (October to January), and 123 (21%) occurred in summer (February to May). In a hospital-based study performed by Nilamber, found the highest number of accidents took place in January followed by August and October each. The maximum numbers of people involved in accidents were in January followed by in June. The rainy months in this part of India are October, November and December.⁹ In a study conducted by Pramod et al, it was found that maximum number of accidents were seen in rainy months of July, August, September and also in winter months (33.5%).¹⁴ This infers that, most of the road traffic accidents were in the rainy season obviously due to the slippery surface of the roads, and poor daylight.

In the present study it was observed that most of the road users were drivers (47%) followed by passengers (29%) and pedestrians (24%). It is observed that most of the vehicles involved were motorized two wheelers (43%) followed by four wheelers (30%) and bicycles (3%). According to the community-based study done by Pramod et al in Delhi majority of the victims were two-wheeler users (46.3%) and pedestrians (24.9%), followed by cycle users (14.1%).¹⁴ In the JIPMER study pedestrians constituted 22%, drivers (35%) and occupants of vehicles (45%) among the different type of vehicles. 38.6% of victims were bicycle users and 31.1% were motor cycle riders. Occupants of buses (48%) were the highest number of victims involved in Road Traffic Injuries, followed by truck occupants (12.6%).⁹ This infers that, majority of the road traffic accidents are among two-wheelers, pedestrians and cyclists. Hence two-wheeler users, pedestrians and cyclists need to take extra precautions on road.

CONCLUSION

Majority of the victims being in the productive age group of 25 to 39 years and many of them being married, places an economic burden on the family apart from the physical pain and mental suffering. It is also a loss to the country due to productive days of life lost. Majority of the victims had a primary level of education or illiterates leading to ignorance regarding the risk factors because of lack of education. Many being manual laborers and semi-skilled workers who earn on a daily basis, will be losing their earnings due to the injury and incurring considerable expenses on medical care. Majority of the RTAs

happened on weekends and most of the RTAs occurred between 6 am and 12 pm.

Recommendations

There is a need for public education about the raise in road traffic accidents especially in weekends and the peak hours of all week days and planning the travel accordingly. Further motorcyclists must be counseled regularly on road safety measures, being the leading road users among victims. There is a need to increase the traffic police and volunteers at busy traffic junctions to control the traffic especially during peak hours and weekends.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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