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Epidemiological Study of Road Traffic Accident Cases: A Study In Jharkhand

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Abstract : *Research question: What are the various epidemiological factors related to road traffic accident cases? Objectives: 1. To assess the prevalence of road traffic cases coming to hospitals. 2. To know the various epidemiological factors related to road traffic accident cases. Participants: 1260 road traffic victims reported in one year period. Study variables: . Type of accidents, vehicle involved in accidents etc. Statistical analysis: Proportions. Results: There were 85% male and 15% female accident victims. The occupants of the various vehicles constituted the large (55.55%) group of the victims. Among the motorized vehicles, two wheeler drivers were more (44.84%) involved in accidents. Out of 460 drivers (36.50%)were found to have consumed alcohol. Being knocked down was the common mode of accidents.*

Key Words: *Road traffic accident, Accidents, Epidemiological study, Trauma, Injuries*

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I. Introduction

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. Human, vehicle and environmental factors play roles before, during and after a trauma event. Accidents, therefore, can be studied in terms of agent, host and environmental factors and epidemiologically classified into time, place and person distribution.

II. Material and Methods

This study was conducted in RIMS Ranchi,MGM Medical college Jamshedpur,PMCH Dhanbad jharkhamd from 1st January to 31st December 2017. The study group-consisted of all the RTAvictims reporting casualty in the above one year period. For the purpose of the study, a Road Traffic Accident (RTA) 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 (e.g. a person slipping and falling on the road and sustaining injury) or injury involving a stationary vehicle (e.g. persons getting injured while washing or loading a vehicle) or deaths due to RTA were excluded from the study. The victims of the accidents were interviewed to obtain the information about the circumstances leading to accident. A pre-tested proforma specially designed for this purpose was used for interviewing the accident victims, either in the casualty or in the wards of Hospital. Where the condition of the victims did not warrant the interview, the relatives or attendants were interviewed. The information collected consisted of personal identification data, time, date, day and type of vehicles involved in RTA, protective gear worn and category of road users. The medico-legal records and case sheets were referred for collecting additional information and where necessary for cross-checking.

III. Results

A total of 1260 RTAs involving 1260 victims, including 78 fatalities from 100 RTAs, reported at Hospital during this study period. Due to certain limitations, it was decided not to include fatal accidents. This present study deals with 1260 RTAs involving 1260 victims.

Table I: Age and sex distribution of victim

Age(yrs)	Male no (%)	Female no (%)	total
0-19	160(14.94%)	32(16.93%)	192
20-39	640(59.76%)	104(55.03%)	744
40-59	244(22.7%)	46(24.34%)	290
>59	27(2.52%)	7(3.7%)	34
Total	1071	189	

There were 1071(85%) male and 189(15%) female victims. The average age of the victims was 31.5 years. The highest number of victims (59.76%) were between 20-39 years of age followed by 40-59 years and 0-19 and >59years age group. About 74.7% of the victims (936) were under 40 years of age.

Table II: Educational status of the victims.

Educational status	Victims no. (%)
Illiterate	83(6.59%)
Education upto 5^{th} class	240(19.04%)
Education up to matriculation	580(46.03%)
Intermediate	180(14.28%)
Graduation	120(9.52%)
Post graduation	57(4.52%)
Total	1260

Table III: Type of vehicles involved in injuries to Pedestrians

Types of vehicle	Victims No (%)
Bicycle	164(13.01)
Two wheelers (motorcycle)	531(42.12%)
Three wheelers	328(26.03%)
Four wheelers (car jeep van)	124(9.84%)
Bus	58(4.6%)
Truck	55(4.36%)
Total	

242.12% pedestrians were injured by motorized two Wheelers. Approximately 24.48% victims found to be alcohol induced .

IV. Discussion

In the present study, the highest number of RTA victims (55.03%) were found between the age group of 19 and 40 years. The similar findings were also reported from Delhi and Nepal also. However, in few studies 16 to 30 years and 15-35 years 65age groups were more involved in RTA. Another study from Delhi, reported that people of the 3rd decade of age were most commonly involved in RTAs. The present study also found that more than 69% of the victims were in the age group between 20-49 years. This 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. The present study showed that below and above the age of 20 and 49 years, there were less accidents. The reasons may be that children are taken care of by elders and less use of vehicles in the adolescent age group. Lower proportion of RTAs in those aged 60 and above could be due to the generally less mobility of the people.

The accident rates were 5.67 times higher in males than in females according to this study. Similar results were also observed in Delhi. However, in another study, male and female ratio was very high (9:1). It has been reported that more than 80% the victims involved in RTAs were males. Males are much more exposed to RTAs than females. It was observed that more people with lower levels of education were involved in RTAs. Similar result were also observed by others. However, this relationship between education and RTA may not be causal.

In this study, the up to tenth class constituted the largest group (46.03%) involved in RTAs, followed by employees in service, agriculturists and students in descending order. It has been reported that more accidents were seen among low socio- economic group of people. Similar study, the students were the highest followed by labourers. In the present study the highest number of accidents were on Sundays and lowest on Mondays. This pattern differs from studies in Delhi and California, where they found the highest occurrence of RTAs were on Saturdays. In another study from Delhi, the highest number of RTAs were observed on Mondays and Wednesdays. The reason may be that people leave homes for various purposes on Sundays, it being a holiday.

In this study, two wheeler constituted 42.12% of the road users involved in RTA, followed by three wheeler (26%) ,bicycle (10.9%). Among the motorized two wheelers, moped drivers were more commonly involved in RTAs. This could be due to the higher speed, which can be achieved over short distances and less

stability of the vehicle. No protective gear was used by any of the victims in this Study. In the present study, 24.48% of the drivers involved in RTA had consumed alcohol. This was a higher proportion compared to 4.6% and 8% as reported from Delhi. The role of alcohol in impairing driving ability is well documented. Also the impairment increases as the blood alcohol level rises. In addition, the risk of accidents is higher in youngsters and elderly people for the same blood alcohol levels. Two wheelers riders appear to be at greater risk of sustaining injury in a RTA. Rough driving, over speeding and heavily loaded vehicles offering poor control are the possible reasons.

The common mode of sustaining injury was by being knocked down by a vehicle. As many as 37% of victims were injured by this mode. Similar results were also observed in Delhi. Falling from a moving vehicle and collision between two vehicles were responsible for 20% and 19% respectively. These were other modes of RTAs causing injuries.

V. Conclusions and Recommendation

There is clearly a need for road safety education and it should be directed towards road users, who are frequently involved and injured in RTAs (e.g. students). An integrated programme of road safety education is suggested.

(a) Pre-school children may be introduced to the elementary concepts of road safety through stories involving the animal world.

(b) Primary school children may be given practice guidance on the use of side walks and road crossing techniques.

(c) For middle school students - road signs and bicycle riding.

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