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# A Study on Socio-Demographic Profile and Injury Pattern of Patients with Head Injury in Victims of Road Traffic Accident in a Tertiary Care Center of South India

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**Abstract:- Globalization, epidemiological evolution, demographic modification and societal makeover have led to increased usage of motor vehicles. Road accident is one of the menacing issues that the society faces on a day to day basis. This study is conducted to analyze the socio-demographic and injury profile of patients with head injury in victims of road traffic accident in a tertiary care center. Out of 2438 road traffic accident cases that were admitted in Saveetha Medical College & Hospital from January 2018 to December 2018, data of head injury cases were collected and a detailed analysis was done. 14.11 % cases (344 cases) were because of head injury due to Road Traffic Accident. Most of the victims were from 21 to 30 years of age, about three fourth of them were males, about 40% of the injuries were in frontal region. Most of the victims were 2 wheeler riders mandating the helmet usage as a preventive measure. Good governance, education and cooperation from community would help curb this peril.**

***Keywords:-*** *Head Injury, Road Traffic Accident, Socio-Demography, Intra Cranial Hemorrhages.*

## I. INTRODUCTION

According to the World Health Organization statistics for the year 2018, approximately 1.35 million people die each year as a result of road traffic crashes.The more progressive and urbanized states such as Andhra Pradesh, Maharashtra, and Tamil Nadu are the most affected by road traffic accidents (RTAs). According to State Crime Record Bureau, highest number of RTAs were reported in the state of Tamil Nadu for the year 2016 which is about 71,000 accidents, involving nearly 1,00,000 victims amongst whom about 17,000 were fatal cases. A head injury is any trauma to the scalp, skull, or contents of the skull which includes brain & meninges. The injury may be only a minor bump on the skull or serious brain injuries. Head injury can be either closed or open (penetrating). Some head injuries are severe enough to cause brain damage or even death. [1]

## II. METHODOLOGY

Data of victims of head injury cases due to road traffic accidents were collected. The socio-demographic profile and injury pattern from the accident records of Saveetha Medical College Hospital for the year 2018 (from January 2018 to December 2018) was collected retrospectively. The data obtained were statistically analyzed using appropriate statistical tests.

## III. RESULTS

On analyzing the data obtained, 76.45 % of the victims were found to be males (263) whereas 23.55 % (81) were females. (Fig 1) 177 victims i.e., 51.45% of the individuals are between the age 21 to 30.(Table 1) 120 victims (34.8% of the victims) were affected between 6 PM to 12AM followed by 105 victims (30.5 % of the victims) who met with an accident between 6AM to 12 PM . The Victims were mostly motorcyclists, who constituted about 79% of the cases (fig 2) and rest of the victims who suffered head injuries were pedestrians and passengers of other vehicles. Out of 344 victims who suffered head injury, 145 (43.3%) had frontal head injury , followed by left temporal region ,95 (27%). (Fig 3) and rest were injuries of the other regions.

Among 344 cases, 65 (22.4%) head injury cases presented with extensive Brain contusion, 20 (5.8%) cases presented with EDH (Extra Dural hemorrhage), 13 (3.7%) cases presented with subdural and Sub arachnoid hemorrhage as indicated in CT reports. **(Table 2)**

## IV. DISCUSSION

The study revealed that majority of head injury cases i.e., 177 victims (51.45%) were between 21 to 30 years of age and the next highest age group victims affected were between 30 to 40 years. Similar results were observed in the studies conducted in Delhi and other parts of the world.[1-4] Young adults are usually the most affected people in case of road traffic accidents. It is due to active outdoor life with more tendencies to take undue risks in the road.

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Among 344 head injury victims, 263 (76.5%) victims were males and rest of them were females(23.5%). This was due to the reason that males move out of their homes more frequently as an active working member of the family than females. This was in concurrence with many other studies in India and other parts of the world. [1-6]

On the basis of time, out of 344 victims, 120 victims (34.8%) were affected between 6 PM to 12 AM, 105 victims (30.5 %) were affected in the time slot 6AM to 12PM, 79 victims (22.9%) were affected in the time slot 12PM to 6PM and 41 victims (11.9%) were affected between 12AM to 6AM. Most of the road traffic accidents occurred during the late evening to night hours and early morning. The reason for this incidence is due to traffic rush at peak hours as most of the people head back to their houses from work and vice versa. Exhaustion and traffic violation may have led to accidents.

Among the study population, most affected victims were motorcyclists, who constitute about three fourth of the cases and 11 of them met with the accident because of driving under the influence of alcohol. Out of 344 cases, 246 cases were motorcyclists, 56 cases were in 4 wheelers, 4 cases were in lorry, 5 were bus passengers and 19 rickshaw occupants. Skid and fall from motorcycle was the most common cause of RTA. Same results were observed in studies done by Meyyappan A et al, Singh R et al, Singh YN et al and Mayou R et al. [6-9]

Out of 344 head injury cases, the most common site of injury was in frontal region i.e., 145 (42.75%) cases followed by left temporal region i.e., 95 (27%). Our results were in concurrence with the study done by Singh R et al., [7]

Out of 344 patients, 65 cases (22.4%) presented with extensive Brain contusion, 20 cases (5.8%) presented with EDH (Extra Dural Hemorrhage), 13 cases (3.7%) presented with Subdural & Sub arachnoid Hemorrhages, as indicated in CT scan reports. The same results were observed in the study done by Kumar A et al. and Adeleye et al. [1, 3]

Other injuries were superficial injuries, where 139 patients (40%) presented with lacerations, out of which 12 patients had active bleeding even after 30 minutes of accident, with CT being normal, 74 cases (21.5%) had abrasions and 13 victims (3.7%) had swelling at site of injury**.**Since most of the victims were motorcyclists, use of helmet itself can greatly contribute in prevention of severe head injuries in Road traffic accidents.

## V. CONCLUSION

In our study,Pedestrians and motorcyclists were the ones who were affected the most. As a general rule, more the speed, more likely a crash will arise and hence the severity of the injuries sustained. Wearing helmets could greatly contribute in preventing head injuries. Following the traffic rules, avoiding drunk & driving, taking necessary safety measures (including checking function of head lights while riding in the night time) and avoiding over speed can drastically reduce the chances of road traffic accidents.

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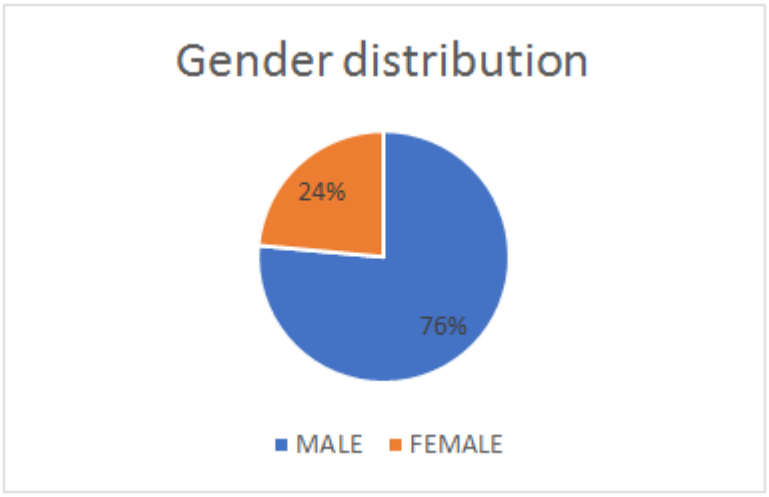


Fig 1:- Gender Distribution

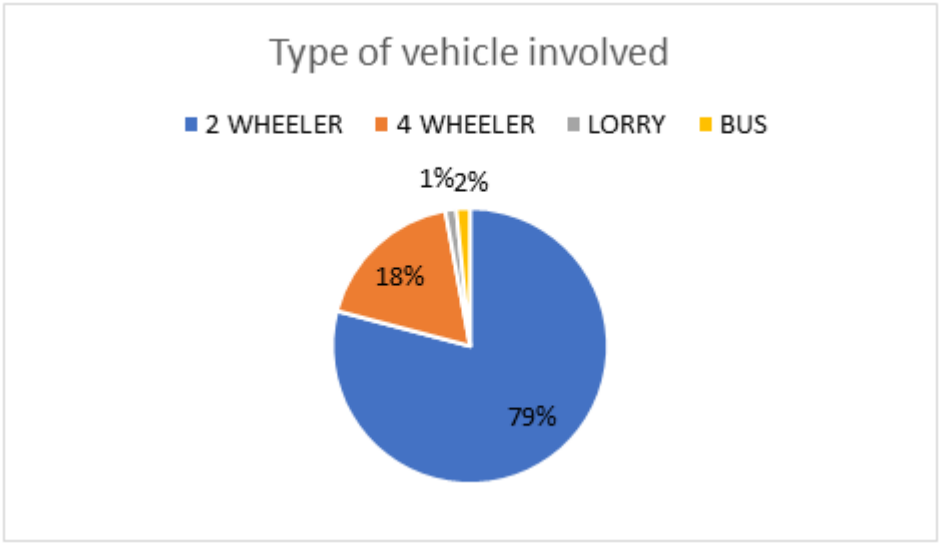


Fig 2:- Type of Vehicle Involved

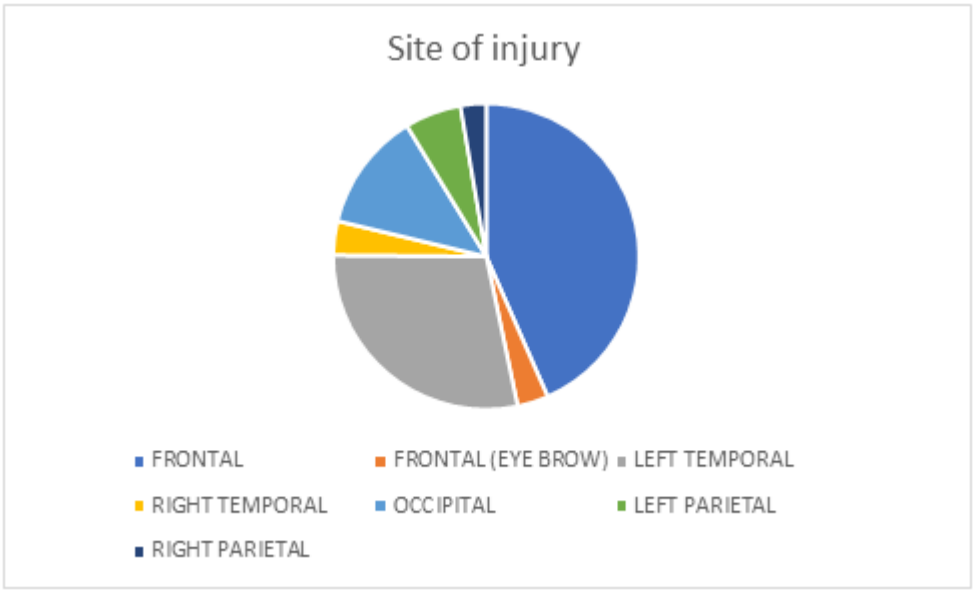


Fig 3:- Site of injury

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| Age group | No. of Cases | Male | Female | Sex Ratio |
|---|---|---|---|---|
| 0-10 | 10 | 7 | 3 | 2.33:1 |
| 11-20 | 39 | 30 | 9 | 3.33:1 |
| 21-30 | 177 | 130 | 47 | 2.76:1 |
| 30-40 | 61 | 51 | 10 | 5.1:1 |
| 41-50 | 36 | 28 | 8 | 3.5:1 |
| 51-60 | 21 | 17 | 4 | 4.25:1 |
| **TOTAL** | **344** | **263** | **81** | |

Table 1:- Age and Sex Wise Distribution of Cases

| Type of Injury | No. of cases |
|---|---|
| Extensive Brain Contusion | 65 |
| Extra Dural Hemorrhage | 20 |
| Subdural & Sub arachnoid Hemorrhage | 13 |
| Lacerations | 139 |
| Abrasions | 74 |
| Fracture | 20 |
| Swelling ( But CT Normal) | 13 |
| **Total No of cases** | **344** |

Table 2:- Type of Injury Sustained