

Epidemiological Profile of Road Traffic Accidents Injuries in Western Maharashtra

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Conflict of interest: Nil

Abstract:

210 autopsies (176 males and 34 females) aged between 2 to 70 years were studied. 12(6.81%) males, 8(23.5%) females total 20(9.52) were aged between 2-10 years 32 (18.1%) males, 4(11.7%) females total 36(17.1%) were aged between 11-20 years. 52(29.5%) males, 12(35.2%) female total 64(30.4%) were aged between 21-30 years. 31(17.6%) males, 3(8.82%) females total 34(16.1%) aged between 31-40 years 21(11.9%) males, 2(5.81%) females, total 23(10.9%) were aged between 41-50 years 15(8.5%) males, 3(8.82%) females, total 18(8.57%) were aged between 51-60 years 13(7.3%) males, 2(5.88%) female total 15(7.14%) aged between 61-70 years. The types of riders were, 17(8.09%) pedestrian 29(13.8%) cyclist, 103(49%) were riding two wheelers. 49(23.3%) travelling in car, 12(5.71%) were Lorry drivers / bus travellers. The types of injuries were 72(34.2%) had head injury 22(10.4%) had neck injury, 31(14.7%) had injuries to lower limb, 21(10%) abdominal injuries, 34(16.1%) had injuries to thorax, 13(6.19%) had injuries to upper limb 17(8.09%) had injuries to face. This pragmatic study will be quite useful to medico legal expert to assess the age group, region wise injury, types of riders because accident is an unexpected mishap which claims life, who are in hurry and disobey the traffic rules.

Keywords: Accidents, injuries, Autopsies, Maharashtra.

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Introduction

Globally, the growth of transport system has been growing continuously and become a key element in economic development. Due to industrialization and urbanization the transport system has been increased at leaps and bounds but in India. Bad roads, ignorant of traffic rules. Corruptive administration, law and orders ultimately leads to road accidents and deaths. Every year Road traffic Accidents (RTA) claim 600000 and fifteen million get injured in RTA. [1]

The term accident has been defined as an occurrence in the sequence of events which usually produces unintended injury death or property damage [2] and majority of death occurs in age group between 5-44 was reported globally [3] It is surprise to note that, a person is killed or injured in every 4 minutes in Delhi traffic accidents in India [4] Hence attempt was made to study deaths in both sexes at different age, and different vehicles of Maharashtra state highways.

Material and Methods: 210 Autopsies (176 males and 34 females) aged between 2-70 years brought to Vedanta institute of Medical sciences,

Dhundalwadi, Dahanu, Palghar (Dist.)-410606, Maharashtra were studied. Information of age riding vehicles, or pedestrian was collected from police records.

Majorities of autopsies blood / viscera traces of alcohol were found. Most of the accident took place during night time. The age group in both sexes, types of riders / pedestrian. Region wise external injuries were classified with number and percentage. Duration of the study was 2020-2022 (3 years)

Study design: Retrospective**Exclusion and inclusion criteria:** Death exclusive from RTA without any natural cause included.

Proforma of the victim and drivers who was driving the vehicle was validated. It includes the preliminary finding of the victims, site of injury, type of injury, valid license from drivers, influence of alcohol findings, use of helmet for two wheeler drivers etc.

Observation and Results

Table 1- Classification age and sex in patterns of Road accidental deaths- 12(6.8%) males, 8(23.5%) of females total 20(9.52%) were aged between 2-10 years. 32 (18.1%) males 4(11.7%) females total 36(17.1%) aged between 11-20 years. 52(29.5%) males, 12(35.2%) female total 64(30.4%) were aged between 21-30 years. 31(17.6%) males, 3(8.82%) female, total 34(16.1%) were aged between 31-40 years. 21(11.9%) males, 2(5.88%) females, total 23(10.9%) were aged between 41-50 years. 15(8.5%) males, 3(8.82%) female total 18(8.57%) were aged between 51-60 years

13(7.31%) 2(5.88%) females total number 15(7.14%) were aged between 61-70 years

Table 2- Study of types of riders in patterns of injuries 17(8.09%) were pedestrian, 29(13.8%) cyclist, 103(49%) were two wheelers. 49(23.3%) were travelling in car, 12(5.71%) were lorry drivers / travelling in Bus

Table 3- Study of injuries in road accidents. 72(34.2%) had head injury 22(10.4%) had neck injuries 31(14.7%) had lower limbs injuries, 21(10%) had abdominal injuries, 34(16.1%) had injury to thorax, 13(6.19%) had injuries to upper limb, 17(8.09%) had injuries on face.

Table 1: Classification of age and sex in pattern of Road Injuries (Total No deaths 210)

Age-group	Males (176)	% Percentage	Females (34)	% Percentage	Total no of Deaths	% Percentage
2-10 years	12	6.81	8	23.5	20	9.52
11-20	32	18.1	4	11.7	36	17.1
21-30	52	29.5	12	35.2	64	30.4
31-40	31	17.6	3	8.82	34	16.1
41-50	21	11.9	2	5.88	23	10.9
51-60	15	8.5	3	8.82	18	8.57
61-70	13	7.3	2	5.88	15	7.14

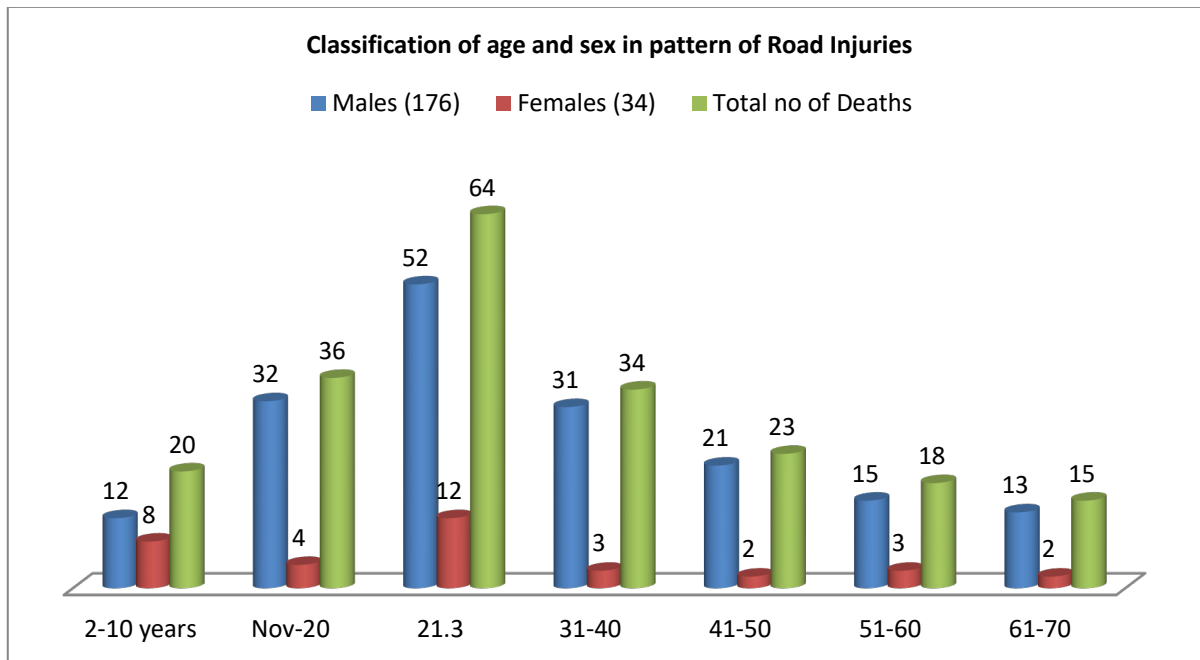


Figure 1: Classification of age and sex in pattern of Road Injuries

Table 2: Study of types of Riders in the patterns of Injuries (No of death - 210)

S. no.	Types of Riders	No of Riders	% Percentage
1	Pedestrian	17	8.09
2	Cyclist	29	13.8
3	Two wheelers	103	49
4	Car / jeep	49	23.3
5	Lorry / bus	12	5.71

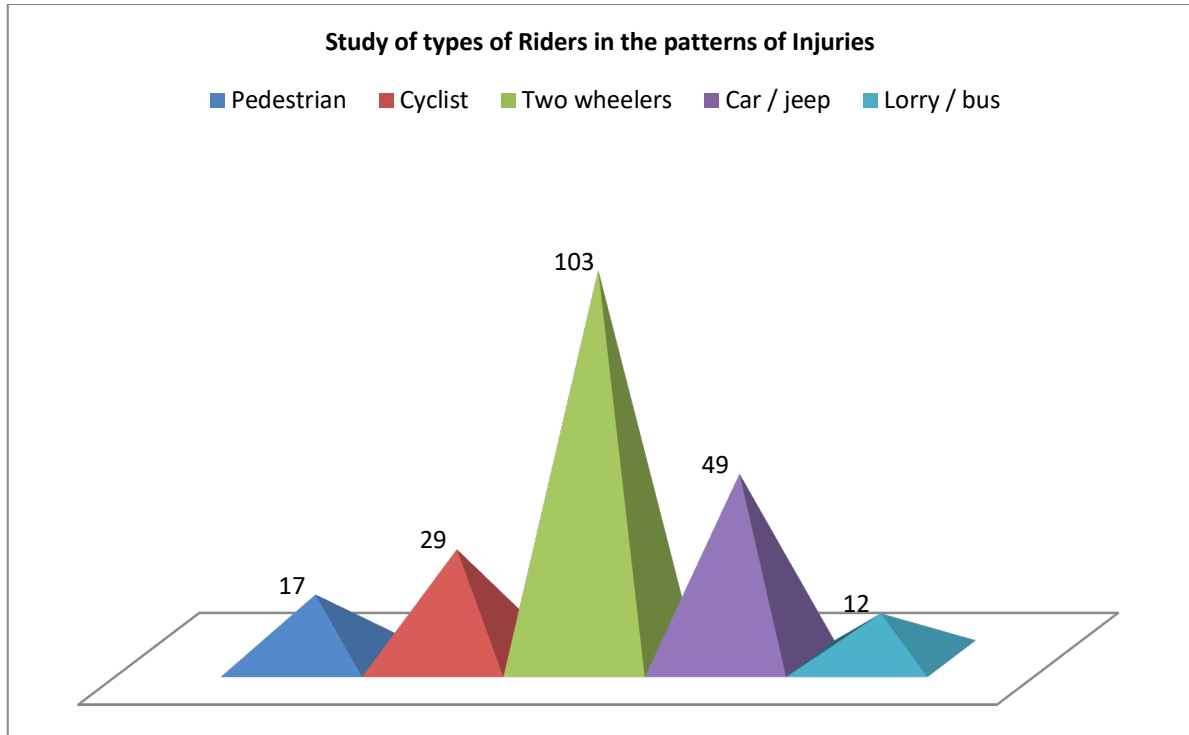


Figure 2: Study of types of Riders in the patterns of Injuries

Table 3: Injuries in the traffic Road accidental deaths (Total No -210)

Sr. No.	Region of body	No of persons	% Percentage
1	Head	72	34.2
2	Neck	22	10.4
3	Lower limb	31	14.7
4	Abdomen	21	10
5	Thorax	34	16.1
6	Upper limb	13	6.19
7	Face	17	8.09

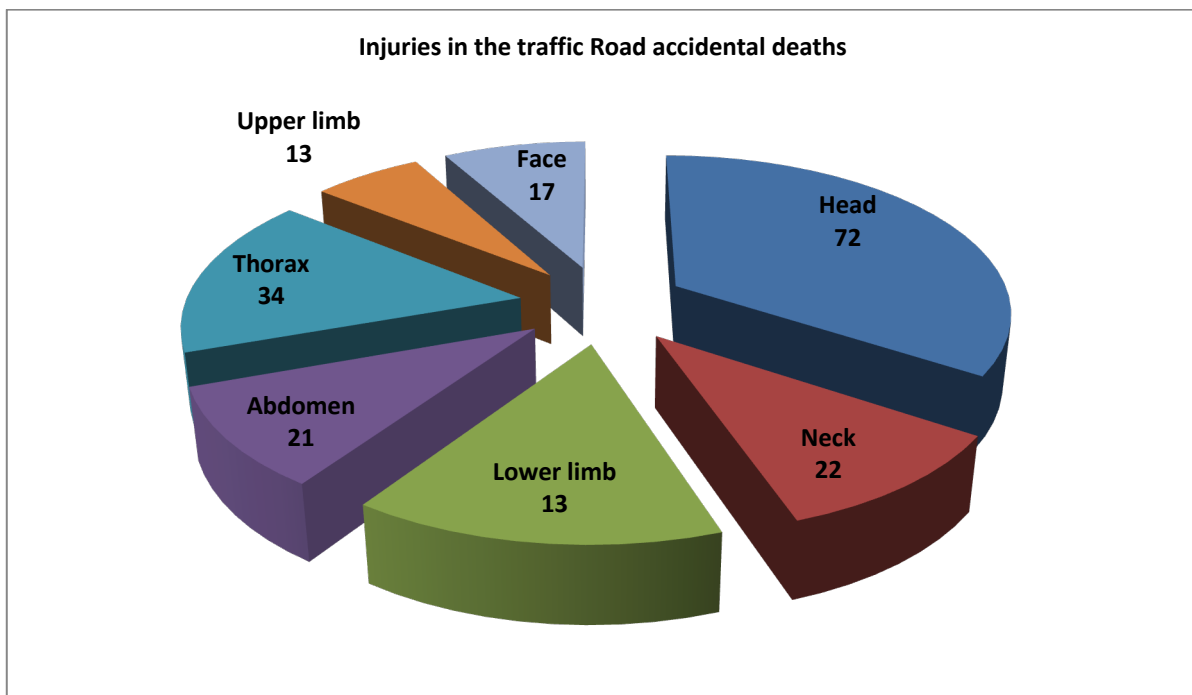


Figure 3: Injuries in the traffic Road accidental deaths

Discussion

Present study of patterns of injuries by traffic accidents in Maharashtra population. Classification of age and sex was 12(6.81%) in males, 8(23.5%) in female total 20(9.52%) in the age between 2- 10 years 32(18.1%) in males 4(11.7%) in females total 36(17.1%) in the age between 11-20 years 52(29.5%) in males 12(35.2%) in females total 64(30.4%) in the age between 21-30, 31(17.6%) males 3(8.82%) in females total 34(16.1%) in the age group of 31-4 years. 21(11.9%) males, 2(5.88%) female total 23(10.9%) were in the age group between 41-50 years, 15(8.5%) males, 3(8.82%) female total 18(8.57%) were aged between 51-60, 13(7.3%) males 2(5.88%) females total 15(7.14%) were aged between 61-70 years. (Table-1) In the study of types of riders 17(8.09%) were pedestrian, 29(13.8%) were cyclist 103(49%) two wheelers, 49(23.3%) were travelling in car, / Jeep, 12(5.71%) were al- lorry / Bus (Table-2) in the evaluation injuries

During the autopsies 72(34.2%) had head injuries, 22(10.4%) had neck injury, 31(14.7%) had injuries to lower extremities, 21(10%) had injuries to abdomen, 34(16%) had injuries to thorax, 13(6.19%) had injuries to upper limb, 17(8.09%) had injuries to face. (Table-3). These different findings were more or less in agreement with previous studies [5,6,7]

Head injury includes, scalp injury in the form of contusions, lacerations, under scalp hematoma intracranial hemorrhages, comprising skull fractures [8] the tempo- regional injury was quite common. The neck injury include compression of spinalcord followed by fracture of vertebrae, fracture of larynx, laryngeal cartilages, laceration of common carotid and Jugalar vein.[9] Injury to thorx included fracture of ribs, with lung and heart injury was also noted. Injuries to upper limb and lower limb mainly included fracture of long bones followed by laceration blood vessels and musculature in addition to joint fractures. Moreover abdominal injury includes injury to vital organs rapture of spleen, intestinal perforation and bladder rapture [10] injury to spinal column was also noted. Most of the deaths due to severe bleeding injury to respiratory centers of brain, and involvement of nervous system and respiratory organ (cardio-vascular).

The mean age group of the victims was 21-30 years which was different to the findings by Deepak Sharma et al. [11] The highest percent (35.2%) of victims were between 21 and 30 years of age. In the present study, 79.33% of the victims were in the age group of 11 to 50 years. Similar observation was reported by WHO in The Injury Chartbook [12], thereby indicating that the people in the productive age groups are most commonly

involved in road traffic accidents, incurring serious loss to the country's productivity and economy. The victims below the age of 14 years and above the age of 60 years was low, similar to the findings of Patil SS et al. [18] It was observed that 83.8% of the victims were males in the study. The male-to-female ratio was 5.4:1. Ganveer and Tiwari [14] in their study in Nagpur found that number of male victims (85.8%) was more when compared to female victims (14.2%). They found male to female ratio of 6:1, which was also similar to findings of Mehta SP.(15) This gender difference could probably be related to both increased exposure and risk taking behavior of males. Among the victims, majority (49%) were travelling by motorized two-wheeler followed by four wheelers (23.3%). The results are in conformity with the findings of Gururaj G et al [16] and Sahadev et al. [17] Among the pedestrians injured, the highest percent (38.89%) were injured by motorized two wheelers followed by four wheelers (30.56%). Similar results were reported by Jha et al. [13] The drivers constituted the highest percent of road traffic accident victims (64.22%) and among these, the majority (49%) was drivers of motorized two-wheeler. This could be because of the higher speed which can be achieved over short distance with these vehicles and also less stability of the vehicle. Out of 236 drivers involved, 11.01% had no valid license; among these 72.12% were drivers of motorized two wheelers. The reason may be the easy accessibility of the two wheeler vehicles and casual attitude of drivers towards obtaining license.

This finding is lower compared to the finding of Patil SS. [18] among the victims who travelled using motorized two-wheelers, only 32.22% used helmets. Major cause of the Road traffic accident was unintentional (71.12%). Out of 236 drivers who were involved in the road traffic accident, 14.14% were under the influence of alcohol. This was similar to a study by Deepak Sharma et al [11] in which majority (50%) managed to reach the hospital within 1 hour of accident. Out of the total fractures reported, the commonest site of fracture was lower limb (44.2%) followed by upper limb (20.9%) and skull (16.86%).

Similar findings were reported by Patil SS. [18] the extremities are more vulnerable to injuries and are commonly involved due to direct trauma of the vehicle or due to fall, especially in motorcyclists as they are unprotected. Most commonly, accidents occurred on Sundays (72.31%) and during day time (61.10%), similar to the findings of Khajuria et al [21] in which most (54.2%) of the RTA's occurred during the daytime.

Summary and Conclusion

The present study of pattern of injuries in road traffic accidents in Maharashtra population is quite

useful to medico legal expert, police and judiciary officials, Death or accidents in RTA is not only a Indian problem rather it is problem of the whole world where transport is functioning. The reasons are riders are un-aware or ignorant of traffic rules and consequent punishment. Disobedience of traffic rules, fearless consequences of punishments. Hence stringent law should be imposed and awareness of traffic rules in illiterates. Apart from this journey in night and during rainy seasons must be discouraged. Usage of alcohol, non-usage of helmet, belts in cars. Pedestrian should take particular caution when crossing the roads and look both ways before crossing walking on the road must be discouraged. Wide and neat roads, ban on old vehicles can prevent the major accidents. Above all, early slow driving self-confidence will save our life and others too. This research paper was approved by ethical committee of Vedanta institute of Medical sciences Dhundalwadi, Dahanu, Palgarh (Dist.) - 410606, Maharashtra.

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