

A Study of Road Traffic Accident (RTA) Deaths in a Teaching Hospital in Ahmedabad from January 2014 to June 2014 classified according to ICD-10

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Abstract :

Introduction : Global status report on road safety 2013 indicates that worldwide the total number of road traffic deaths remains unacceptably high at 1.24 million per year. Only 28 covering 7% of the world's population have comprehensive road safety laws. Road traffic injuries are the sixth leading cause of death in India with greater share of hospitalization, death, disabilities, and socio-economic losses in the young and middle-aged population. **Objectives :** 1. To study the demographic profile of deaths 2. To study the distribution of deaths in road traffic accidents according to mode of transport and victim's role 3. To identify the underlying cause of death of the deceased (according to ICD-10). **Method :** Retrospective record based study was carried out at V.S.General Hospital of Ahmadabad. A total of 139 RTA deaths studied from autopsy records section in the period 1st January 2014 to 31st June 2014. **Results :** Maximum mortality in males 117(84.2%) as compared to females 22(15.8%). Highest number of deaths occurred in the 21-50 years age group 87(62.6%). Pedestrians (V01 to V09) and drivers of two wheelers (V20 to V29) were the maximum affected victim (30.2% and 46% respectively). 52% of deaths due to head injury and head injury + complications. **Conclusion :** There is need for better and effective policy on road safety, constructing road network, ensuring proper scrutiny of individuals before issuing their driving license, educating the public on road safety.

Key words : Road Traffic Accidents, Pedestrians, Two wheeler

Introduction :

Global status report on road safety 2013 indicates that worldwide the total number of road traffic death remains unacceptably high at 1.24 million per year. Only 28 countries covering 7% of the world's population have comprehensive road safety laws on five key risk factors; 1. Drinking and Driving, 2. Speeding, 3.Failing to use Helmet, 4. Seat Belts, 5. Child Restraints. Over 3400 people die on the world's road every day and tens of millions are injured or disabled every year.^[1]

In India, the motor vehicle population is growing at a faster rate than economic and population growth. According to World Health Organization, road traffic injuries are the sixth leading cause of death in India with greater share of hospitalization, deaths, disabilities and socio-economic losses in the young and middle aged population.^[2]

Road traffic injuries also place huge burden on the health sector in terms of pre hospital, actual care, and rehabilitation.^[3] During the year 2011, a total 4.43 lakh road accidents were reported and the rate of death per 1000 vehicles was 1.2.The rate of accident deaths per 1000 vehicles was highest in Bihar and Sikkim at 1.6, followed by West Bengal at 1.5.^[4] In 2007, 1.14 lakh people in India lost their lives in road mischief that is significantly higher than road death figures in China.^[5] In Ahmadabad, Death due to road accident is a major concern and the city has reported 21% rise in number of fatal accident in the first four months in 2014, as compared to the last year. Ahmadabad is among the top five cities in India having the highest per capita vehicles coupled with issue such as inadequate infrastructure, the city also faces the problem of not so good traffic sense of people.^[6]

The pattern of injuries are dependent on mechanical forces like shearing, strain and

biophysical motion that occurring during accidents. Road traffic accident is the third major preventable cause of death.^[7]

Objectives :

- 1) To study the demographic profile of deaths due to RTA
- 2) To study the distribution of death of persons in road traffic accidents according to mode of transport and victim's role.
- 3) To identify the Underlying Cause of Death of the deceased (according to ICD-10).

Method :

This study was conducted in V. S. General Hospital of Ahmedabad. The study includes all deaths reported for 6-months period, recorded from 1st January 2014 to 31st June 2014. After due ethical and institutional permission, information related to deaths, due to road traffic accidents was collected from the autopsy records of the department of the institute. Confidentiality of data is maintained.

Study Design : Retrospective record based study

Sampling Method : All deaths registered during 6 months period in the institute.

Case records from the “Medical Records Section” of the institute were studied for each of the autopsy reports of road traffic accidents death. Necessary socio-demographic details in terms of age and sex, mode of transport, victim's role, and circumstances of the occurrence of the accident were sought. After corroborating both records and underlying cause of death was identified. The analysis is done by appropriate software and the results were interpreted in terms of mean and standard deviation.

Sample size : A Total of 139 RTA deaths were studied from autopsy records section in the period 1st January 2014 to 31st June 2014. All the Road Traffic Accident deaths coming in the particular specified Time period were taken and all the 139 deaths were studied and analyzed for the different variable.

Results :

Out of total 139 deaths, 117(84.17%) victims were male and the rest 22(15.83%) were female.

Highest number of victims were in the age group 21-30 years 38(27.3%) followed by 31-40 years 27(19.4%) in both the sex groups. A total of 107 (77%) of all deaths took place in the age group 21 to 60 years, i.e. economically most productive age group; and nearly similar proportion (75.2%) deaths were in males. The proportion in females in the same age group constituted 18 (81.8%) of all female deaths. Almost 50% cases of RTA occurring in 21-40 years age groups with mean age is 38.6 years, least affected victims 1.4% in 1-10 years group and 10.1% in 61 year and above.[Table 1]

Table 1 : Age and Sexwise distribution of all Transport Accident deaths

Age Group (years)	Sex		Total
	Male	Female	
1-10	2 (1.7 %)	0 (Nil)	2 (1.4%)
11-20	13 (11.1%)	3 (13.6%)	16 (11.5%)
21-30	33 (28.2 %)	5 (22.7%)	38 (27.3%)
31-40	22 (18.8 %)	5 (22.7%)	27 (19.4%)
41-50	19 (16.3 %)	3 (13.6%)	22 (15.8%)
51-60	15 (12.8 %)	5 (22.7%)	20 (14.4%)
61 and above	13 (11.1 %)	1 (4.5%)	14 (10.1%)
Total	117 (84.17 %)	22 (15.8%)	139 (100%)

Most (69.7%) of the deceased were drivers themselves and the rest were pedestrians (30.3%). [Table 2]

Table 2: Distribution of deaths according to the characteristics of the deceased

Death of Driver of any vehicle	97(69.7%)
Death of Pedestrians in Road Transport Accident	42(30.3%)
Total	139(100%)

The results shows that there were maximum use of Two Wheelers (37.4%) followed by pedestrians (30.2%) and car (12.9%). In males two wheeler users were more (40.1%) as compared to female users (22.7%).Half of all females were pedestrians at the time of accidents. [Table 3]

Table 3: Genderwise distribution of External Causes of Mortality due to Transport Accidents

Mode of Transport	Male	Female	Total
Pedestrians injured in transport accident (V01 to V09)	31(26.4%)	11(50%)	42(30.2%)
Pedal cycle injured in transport accident (V10 to V19)	7(5.9%)	5(22.7%)	12(8.6%)
Two Wheelers injured in transport accident (V20 to V29)	47(40.1%)	5(22.7%)	52(37.4%)
Three Wheeler injured in transport accident (V30 to V39)	6(5.1%)	1(4.5%)	7(5%)
Car injured in transport accident (V40 to V49)	17(14.5%)	1(4.5%)	18(12.9%)
Van injured in transport accident (V50 to V59)	1(0.8%)	0	1(0.7%)
Truck injured in transport accident (V60 to V69)	5(4.2%)	0	5(12.9%)
Bus injured in transport accident (V70 to V79)	2(1.6%)	0	2(1.4%)
Total Fatal Transport Accidents	117	22	139

Out of total 139 Victims who died, maximum were hit by car (35.2%) followed by truck or tractor (18.7%). While 46.7% of fatal accidents occurred in the occupants of four wheelers (Pick- up van and Car

) and another 30.2% occurred in occupants of heavy transport vehicles (bus and truck), two wheeler riders constituted (15.8%). [Table 4]

Table 4 : Distribution of Transport Accidents by the Vehicle involved in the Accident

Type of Vehicle	Male (%)	Female (%)	Total (%)
Two Wheeler (Motor cycle) rider injured in transport accident (V20 to V29)	20 (91) <i>(17.1)</i>	2 (9) <i>(9.0)</i>	22(100)
Three Wheeler occupant injured in transport accident (V30 to V39)	7 (77.7) <i>(5.9)</i>	2 (22.3) <i>(9.0)</i>	9(100)
Car occupant injured in transport accident(V40 to V49)	40 (81.6) <i>(34.2)</i>	9 (18.4) <i>(9.0)</i>	49(100)
Pickup Truck or Van occupant injured in transport accident (V50 to V59)	14 (87.5) <i>(12.0)</i>	2 (12.5) <i>(9.0)</i>	16(100)
Occupant of Heavy transport vehicle (Truck) injured in transport accident (V60 to V69)	23 (88.4) <i>(19.6)</i>	3 (11.6) <i>(13.6)</i>	26(100)
Occupant of Heavy transport vehicle (Bus) injured in transport accident (V70 to V79)	14 (73.6) <i>(12)</i>	5 (26.4) <i>(22.7)</i>	19(100)
Total Fatal Transport Accidents	117 (84.2)	22 (15.8)	139 (100)

Note: Percentages are computed from total number of fatal accidents of the Occupants according to type of vehicle involved (in each row)

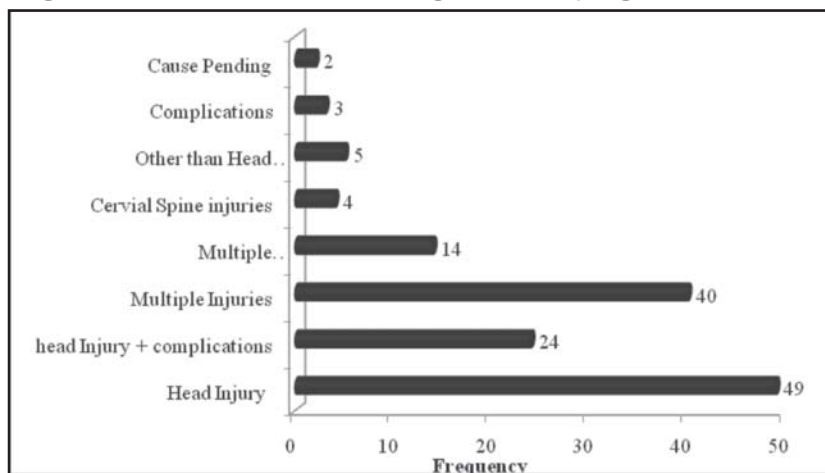
Percentages in Italics and bold are computed from total number of fatal accidents in each sex

Out of 64 two wheelers user maximum deaths by car (39%) followed by Light motor vehicle (17.9%) and two wheeler (17.1%). In 42 pedestrians, fatal accidents due to two wheeler (30.9%) followed by Truck Tractor (26.1%) and Bus (10.9%). [Table 5]

Table 5: Two Wheeler riders and pedestrians involved in fatal accidents

Type of Vehicle involved	Pedestrians injured in transport accident (V01 to V09)	Two Wheeler rider injured in transport accident (V20 to V29)	Total
Two Wheeler	13(30.9%)(V02)	11(17.1%)(V22)	24(22.6%)
Three Wheeler	1(2.3%)(V02)	6(9.3%)(V22)	7(6.6%)
Car	5(11.9%)(V03)	25(39.0%)(V23)	50(47.1%)
Van	3(7.1%)(V03)	7(17.9%)(V23)	10(9.4%)
Truck Tractor	11(26.1%)(V04)	8(12.5%)(V24)	19(17.9%)
Bus injured	9(21.4%)(V04)	7(10.9%)(V24)	16(15%)
Total	42	64	106

Figure1 : Distribution according to underlying cause of death



It is observed in the above figure, that 73 (52%) of deaths were due to head injury and head injury plus complications and rest 48% were due to injuries at other sites or multiple sites.

Discussion :

Maximum Deaths occurred in males 117 (84.2%) and the rest 22 (15.83%) were in the females. Sex ratio of death was 5.3: 1. Mean age at death was 38.6 ± 16.4 years. Highest number of death occurred in the 21-50 years age group 87 (62.6%) out of which 38 (43.6%) deaths were in the 21-30 years age group. In females, maximum affected victim's 38(27.3%) in the 21-30 year age group.

Moshiro C et al (2005)in their study found that males had significantly increased risk of transport injuries as compared to females. [8] They reported age

to be an important risk factor for certain types of injury. They also found transport related injuries to be much common among adults, 15 years and above.

Jha et al (2004) in their study found 83% victims to be male and 17% female victims. [9] The average age of the victims was 31.5 years. The highest number of victims (31.3%) was between 20-29 years of age. Similar results are also seen in the present study.Ganveer and Tiwari (2005) in their study in Nagpur found that number of male victims(85.8%) was more as compared to female victims (14.2%). [10] The results are similar to our study. They found male to female ration of 6:1.

Pedestrians (V01 to V09) and two wheelers (V20 toV29) maximum affected victim, 30.2% and 46%.In the counterpart, out of 64 two wheeler riders,

maximum were hit by car (39%) followed by Light motor vehicle (17.9%) and by another two wheeler (17.1%). Amongst 42 Pedestrians who met with fatal accident, the culprits were two wheelers (30.9%) followed by Truck or Tractor (26.1%) and Bus (21.4%).52% of deaths due to head injury and head injury and complications and rest 48% due to other injury.

Conclusion :

RTA continues affecting the country's economic development and lives are lost in the most reproductive age group. There is need for better and effective policy on road safety, constructing road network, ensuring proper scrutiny of individuals before issuing their driving license, educating the public on road safety.

References :

1. Global status report on Road safety, 2013. www.who.in/violence-injury-prevention/road-safety-status/

2. Ministry of health and family welfare. Integrated disease surveillance project- project implementation plan 2004-2009. New Delhi: Government of India; 2014:1-18

3. Guru raj G, Road traffic injury prevention in India. National Institute of mental health and Neuroscience, 2006, Publication No.56.

4. Govt.of India(2013),Accidental Deaths and Suicides in India ,2013, National Crime Records Bureau, Ministry of Home Affairs, New Delhi

5. Dash DK (2009) India leads world in road deaths WHO, Times of India.

6. 21% rise in fatal accident in Ahmadabad, 2014. Times of India, June 4, 2014.

7. D.Sharma, U.S.Singh, S.Mukherjee, A study on road traffic accident in Anand-Gujarat, Health line Vol-2 issue 2 July - December 2011.

8. MoshiroC,Heuch I , Astrom AV, Setel P, Hemed Y, Kvale G(2005),Injury in an urban and rural area in Tanzania: Epidemiological Survey 5:11.

9. Jha .N. Srinivasa DK, Ray G, Jagdish S(2004) , Epidemiological study of road traffic accident case: Study from South India , Indian Journal of Community Medicine 29(1):20-24

10. Ganveer GB, Tiwari RR, (2005) Injury path among non fatal road traffic cases; a cross sectional study in central India, Indian J Med, and 59(1):9-12.