

## Original Research Paper

# Profile of Death due to Road Traffic Accidents Brought to Dr. S. N. Medical College & Hospital, Jodhpur

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### Abstract

Accident in general is a sudden, unplanned, unfortunate mishap or unexpected, unintentional event resulting from carelessness, unawareness, ignorance or a combination of factors and causing injury or loss, a decrease in value of the resources, or an increase in disabilities. It is estimated that 10 millions motor vehicle crashes (MVC) occur annually in the world. Deaths from (RTAs) have been characterized as a hidden epidemic affecting various sectors of society all over the world. In India over 80,000 person die in road traffic crashes annually, over 1.2 million are injured seriously and about 30,000 disabled permanently. No such, study has so far been carried out in Jodhpur region. Therefore, present study was undertaken to study epidemiological factors, profile of victim and pattern of road traffic accident, to draw public attention, awareness towards road safety and prevention of mortality due to road traffic accidents.

**Key Words:** Road Traffic Accidents, Death, Disability, Haemorrhage

### Introduction:

Amongst all transportation accidents, road traffic accidents claim largest toll of human life and tend to be most serious problem worldwide, a counter product of modernization and fast life. Road Traffic accidents (RTAs) are the major public health problem all over the world where society and decision makers still accept death and disability at large scale among young people.

This human sacrifice is deemed necessary to maintain high levels of mobility and is seen as a necessary "externality" of doing the business. [1] RTAs are usually caused by human errors including ignorance, overtaking, rash & negligence driving, use of mobile phones while driving, least knowledge about traffic rules as well as defective roads, poor maintenance of the vehicles, improper light, diminished visibility due to certain atmospheric conditions.

Violation of the traffic rules also plays the significance role, thus highlighting the strict implementation of the road safety measures. [4]

The increasing frequency of road traffic accidents is causing incalculable loss in developing and developed countries and has got an overall direct effect on progress of National economy. Road accidents constitute a modern day epidemic calling for control and prevention of accidents, which are no longer considered accidental events.

Problem related to vehicular injuries and eventually death of victims may call upon the entire spectrum of Forensic expertise. The present Prospective study was conducted in Jodhpur region.

### Aims and Objectives:

1. To study the incidence of road traffic accidents in Jodhpur region among cases brought to Mortuary of Dr S.N. Medical College, Jodhpur
2. To study pattern of road traffic accidents in terms of:-
  - a. Cause of death.
  - b. Profile of victim.
  - c. Age and Sex distribution.
  - d. Time and Month distribution.
  - e. Duration of survival.
3. To evaluate various factors responsible or road traffic accidents in Jodhpur region, and recommend the preventive measures of Road Safety.
4. To know effect of protective measures, e.g. Helmet, Seat belt.

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### **Material and Methods:**

The present study was carried out at the mortuary complex of Department of Forensic Medicine & Toxicology and Dr. S.N. Medical College and Hospital, Jodhpur from 01.09.2011 to 31.08.2012. During this period total 824 medico-legal Autopsies were conducted, out of which 153 Autopsy case of Road Traffic Accident were studied in details.

General particulars of each case were taken from police personnel accompanying the victims, relatives. Attendants of deceased and other relevant information obtained.

### **Observation and Result:**

According to the study conducted by National Transportation Planning and Research Centre, New Delhi, a person is killed or injured in every 4 min in traffic accidents in India. [5]

Accidents constitute a modern day epidemic, a counter product of modernization and fast life. Studies by different authors conducted in India showed that the pattern of road traffic accidents and deaths are quite different in developed countries as compared to developing countries. Increased urbanization and industrialization has led to tremendous growth in road transport sector.

Inadequate traffic planning control is one of the causes in India. The rise in number of vehicles and rate of vehicular accidents could be judged on the basis of the heavy postmortem rate, reported in India in recent years.

The maximum numbers of cases were observed in the age group 21-30 years, 52 (33.9%) Cases followed by age group 40-41 years 30 (19.6%) Cases Least incidence was found in the age groups of >70 years no case (1.4%). Higher incidence was observed in male 47 (34.3%) in the age groups of 21-30 years as compared to female 05 Cases (31.2%). (Table 1) In this study maximum number of cases was observed in the month of July 19 Cases (12.4%), followed by August 16 cases (10.4%).

In the month of January & November incidence observed was relatively less with 5 cases (3.5%) of road traffic accident. (Table 2)

In our study maximum number of incidences was observed during time between 12.01 p.m. to 6.00 p.m. 58 cases (37.90%), followed closely during time of 6.01 am to 12.00 noon 51 cases (33.3%).

Relatively fewer incidences were observed at night hours from 12.01 a.m. to 6 a.m. 22 cases (14.37%). (Table 3) Maximum no. of incidence was observed in motorcyclist 58 (40.8%), out of which 17 (100.0%) were slipped, followed by pedestrian in 30 (21.1%), out of

which 15 (39.5%) were affected by side impact.

It was also observed that incidence of vehicular turn over occurred in 23 cases (100.0%), out of which in 12 cases (52.2%) involved vehicle was rickshaw.

In distribution of cases according to type of collision, it was observed that maximum 38 (100.0%) were occurred by side impact collision, out which motorcycle involved in 16 (42.1%) followed by 26 (100.0%) resulted from front impact collision, out of which motorcycle involved in 10 (38.5%). (Table 4)

Present study showed that maximum incidences of road traffic accidents were observed in two-wheeler (motorcycle) involving 80 cases (52.3%), followed by pedestrian in 37 cases (24.1%). Minimum incidence was observed in Bicycle 05 cases (3.2%). (Table 5)

Maximum numbers of victims were observed when brought to hospital and declared dead in 58 cases (37.9%), followed by 28 cases (18.8%) that died within 6 hours of event time.

Only 03 cases (2.1%) were observed who survived for 6 to 12 hours of hospital admission. (Table 6) Maximum incidence with heavy vehicle (Bus, Luxury, Truck, and Tractor) was found in 54 cases (35.2%). With involvement of heavy vehicle as an offending vehicle maximum were in motor cyclist 22 cases (14.4%) in this study. (Table 7)

Incidence of head injury was observed as a single and most prominent cause of death in 95 cases (62.1%), followed by death due to shock and hemorrhage on account of poly trauma in 39 cases (25.5 %) and died on account of septicemic shock in 04 cases (2.6%).

Further incidence of chest injury (with or without head injury) and abdominal injury (with or without head injury) was observed in 08 cases (5.2%) and 06 cases (3.9%) respectively.

In one case (0.6%) cause of death was associated with heart disease. (Table 8)

### **Discussion:**

All studies including present study shows head injury as a major cause of death involving around 62.1% of cases out of total fatalities (varying in range 35% to 62%). The higher incidence of head injury as a cause of death can be explained by the fact that most of the cranio-cerebral injuries were not the result of primary impact but due to secondary impact or secondary injuries or both. (Table 9)

### **Conclusion:**

Major outcome of this study is "Accidents don't just happen; they are caused. Therefore preventable, But following major challenges should be taken in to consideration

for better results. Above mentioned pitfalls conclude that accidents are a complex phenomenon of multiple causation, which require inter-sectoral approach to both prevention and care of the injured.

The various measures comprise such as Data collection, Safety education, Promotion of safety measures, Alcohol and other drugs should be avoided; planning, organization and management of trauma treatment and emergency care services, Elimination of causative factors, Enforcement of laws, Rehabilitation services and Accident research are required for prevention of RTAs.

**Think! Advice - Top Ten Road Safety Tips:**

1. **Don't use your mobile phone whilst driving:** Making or receiving a call, even using a hands-free phone, can distract your attention from driving and could lead to an accident.
2. **Belt up in the back:** In a collision, an unbelted rear seat passenger can lead to serious injury to the driver or a front seat passenger or may even cause death,
3. **Don't drink and drive:** Any alcohol, even a small amount, can impair your driving ability, so be a safe driver don't drink and drive.
4. **Slow down:** At 35 km/h you are twice as likely to kill someone as you hit as at 30 km/h.
5. **Children:** Children often act impulsively; take extra care outside schools, near buses and ice cream vans when they might be around.
6. **Take a break:** Tiredness is thought to be a major factor in more than 10% of road accidents. Plan to stop for at least a 15-minute break every 2 hours on a long journey.
7. **Walk safely:** When crossing a road always use a pedestrian crossing if there is one nearby. Help others to see you by wearing fluorescent or reflective clothing in poor light conditions.
8. **Anticipate:** Observe and anticipate other road users, use your mirrors regularly and don't forget to glance into your blind area before altering your course.
9. **Use child seats:** Child and baby seats should be fitted properly and checked every trip.
10. **Keep your distance:** Always keep a two second gap between you and the car in front.

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**Table 1: Age and Sex Distribution**

Age Grps (Yrs)	Cases (%)	Male (%)	Females (%)
0-10	6(3.92)	05 (3.6)	01 (6.25%)
11-20	18 (11.8)	16 (11.7)	02 (12.5%)
21-30	52 (33.9)	47 (34.3)	05 (31.2%)
31-40	23 (15.03)	20 (14.6)	03 (18.7%)
41-50	30 (19.6)	27 (19.7)	03 (18.7%)
51-60	19 (12.4)	19 (13.8)	00 (0%)
61-70	04 (2.6)	02 (1.4)	02 (12.5%)
>70	00 (0)	00 (0)	00 (0%)
<b>Total</b>	<b>153</b>	<b>137</b>	<b>16</b>

**Table 2: Month Wise Distribution**

Months	Cases	Percentage (%)
January	5	3.26
February	12	7.84
March	14	9.15
April	14	9.15
May	15	9.80
June	14	9.15
July	19	12.41
August	16	10.4
September	11	7.8
October	13	8.49
November	5	3.26
December	15	9.8
<b>Total</b>	<b>153</b>	<b>100.0</b>

**Table 3: According to the Time of Event**

Period of Event Time	Cases	Percentage (%)
6.01 a.m. to 12.00 noon	51	33.3
12.01 p.m. to 6.00 p.m.	58	37.90
6.01 p.m. to 12 midnight	21	13.72
12.01 a.m. to 6.00 a.m.	22	14.37
Not known	01	0.6
<b>Total</b>	<b>153</b>	<b>100.0</b>

**Table 5: According to the Type of Victim**

Category of Victim	Cases	Percentage (%)
Pedestrian	37	24.1
Bicycle	5	3.2
Two Wheeler (Motorcycle)	80	52.5
Three Wheeler (Chhakdo/Rickshaw/Tempo)	12	12.4
Light four wheeler (Car/Van)	10	6.5
Heavy vehicle (Bus/Truck/Tractor)	9	5.6
<b>Total</b>	<b>153</b>	<b>100.0</b>

**Table 6: According to the Duration of Survival**

Duration of Survival	Cases	Percentage (%)
Spot Death	05	3.2
Brought and Declared dead	58	37.9
0 to 6 hours	28	18.3
>6 to 12 hours	03	1.9
>12 to 24 hours	16	10.4
>24 to 48 hours	08	5.2
>2 to 7 days	21	13.7
>7 to 14 days	10	6.5
>14 days	04	2.6
<b>Total</b>	<b>153</b>	<b>100.00</b>

**Table 8: According to the Cause of Death**

Cause of Death	Cases	Percentage (%)
Head Injury (1) Cranio-cerebral injuries (2) Shock and hemorrhage (3) Complication	95	62.09
Shock and haemorrhages due to Poly trauma	39	25.5
Chest injury	8	5.2
Abdominal Injury	6	3.9
Septicemic shock	4	2.6
Heart disease	1	0.6
<b>Total</b>	<b>153</b>	<b>100.0</b>

**Table 4  
Cross-tabulation between Mode of Event and Vehicle affected**

Mode of Event	Vehicle Affected								Total (%)
	Bicycle (%)	Bus (%)	Car (%)	Motorcycle (%)	Pedestrian (%)	Tempo (%)	Tractor (%)	Truck (%)	
Front Impact	01(3.8)	08(26.9)	06(15.4)	12(38.5)	04(14.5)	02(3.8)	00(0.0)	04(15.4)	37(100.0)
Fall from vehicle	00(0.0)	00(0.0)	00(0.0)	04(57.1)	00(0.0)	01(14.03)	00(0.0)	00(0.0)	09(100.0)
Hit from behind	02(8.3)	00(0.0)	00(0.0)	06(25.0)	16(58.3)	00(0.0)	00(0.0)	00(0.0)	24(100.0)
Not known	00(0.0)	03(0.0)	01(14.3)	04(57.1)	01(14.3)	00(0.0)	01(14.3)	00(0.0)	13(100.0)
Side Impact	03(7.9)	00(0.0)	01(2.6)	16(42.1%)	15(39.5)	00(0.0)	00(0.0)	00(0.0)	43(100.0)
Slip	00(0.0)	00(0.0)	0(0.0)	15(100.0)	00(0.0)	00(0.0)	00(0.0)	00(0.0)	15(100.0)
Turn Over	00(0.0)	00(0.0)	04(17.4)	01(4.3)	00(0.0)	04(17.4)	00(0.0)	01(4.3)	12(100.0)
<b>Total</b>	<b>06(4.2)</b>	<b>07(4.9)</b>	<b>10(7.0)</b>	<b>58(40.8)</b>	<b>30(21.1)</b>	<b>06(4.2)</b>	<b>01(0.7)</b>	<b>03(2.1)</b>	<b>153(100.0)</b>

**Table 7  
Co-relation between Type of Victim and Vehicle Offending**

Type of Victim	Vehicle Offending							Cases (%)
	Motorcycle	Three wheeler	Car	Heavy Vehicle	Animal	Not known	Not applicable	
Pedestrian	14(37.8)	02(5.4)	08(21.6)	10(27.0)	00(0.0)	02(5.4)	01(2.7)	37(100.0)
Bicycle	02(4.0)	01(2.0)	01(2.0)	01(2.0)	00(0.0)	00(0.0)	00(0.0)	05(100.0)
Two Wheeler	06(7.5)	06(7.5)	01(8.7)	30(37.5)	03(3.7)	06(7.5)	22(27.5)	80(100.0)
Three Wheeler (Rickshaw/Chhakdo /Tempo)	00(0.0)	00(0.0)	01(8.3)	05(8.3)	01(8.3)	00(0.0)	9(75)	12(100.0)
Light four wheeler(Car/Van)	00(0.0)	00(0.0)	00(0.0)	05(50.0)	01(10.0)	00(0.0)	04(40)	10(100.0)
Heavy vehicle (Bus/Truck/Tractor)	00(0.0)	01(11.2)	00(0.0)	09(77.8)	00(0.0)	00(0.0)	01(11.2)	09(100.0)
<b>Total</b>	<b>22(14.4%)</b>	<b>10(6.5)</b>	<b>17(11.2)</b>	<b>54(35.2)</b>	<b>05(3.2)</b>	<b>08(5.2)</b>	<b>37(24.2)</b>	<b>153(100.0)</b>

**Table 9  
Comparison of the Causes of Death**

Cause of Death	Study Author			
	Lau [6]	Biswas [7]	Ghangale [8]	Present Study
Head Injury	41.8%	47.3%	35.5%	62.1%
Shock and Hemorrhage due to Multiple Injuries	49%	41.8%	46.6%	22.5%
Chest Injury	21.1%	0%	11.1%	5.2%
Abdominal Injury	2.6%	0%	0%	3.9%
Others	1.1%	5.5%	0%	3.1%