



Original Research Article

Retrospective Study of Road Traffic Accident Profile in Government Dindigul Tertiary Care Center During the Years 2022–2025.

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INTRODUCTION

Road traffic accidents are among the leading causes of death and disability globally. According to the World Health Organization, approximately 1.19 million people die annually due to road traffic injuries, and millions sustain non-fatal injuries leading to permanent disability. RTAs have become a major socioeconomic burden, particularly in developing countries.

India accounts for a significant proportion of global road traffic deaths due to increasing vehicular population, poor adherence to traffic regulations, overcrowded roads, alcohol consumption, speeding, and inadequate road infrastructure. Tamil Nadu consistently reports one of the highest numbers of road traffic accidents in India.

Autopsy-based studies provide valuable information

regarding demographic distribution, injury patterns, and causes of death in fatal RTAs. Such studies help in identifying vulnerable populations and planning preventive strategies.

The present study was undertaken to analyze the epidemiological profile, injury patterns, causes of death, and survival periods among fatal road traffic accident victims subjected to medico-legal autopsy at Government Dindigul Tertiary Care Center during the years 2022–2025.

Aim and Objectives

Aim

To study the profile of fatal road traffic accidents among medico-legal autopsies conducted at Government Dindigul Tertiary Care Center from January 2022 to December 2025.

Objectives

1. To analyze the sex-wise and age-wise distribution of fatal RTA victims.
2. To study the pattern of injuries sustained in fatal RTAs.
3. To determine the common causes of death in RTA victims.
4. To assess the position of victims and type of vehicle involved.
5. To evaluate the survival period following accidents.

MATERIALS AND METHODS

Study Design

Retrospective descriptive autopsy-based study.

RESULTS

Table 1: Sex Distribution

Sex	Number	Percentage
Male	751	84.57%
Female	137	15.43%
Total	888	100%

Males constituted the majority of victims accounting for 84.57% of cases.

Table 2: Age-wise Distribution

Age Group	Number	Percentage
0–10	10	1.13%
11–20	52	5.86%
21–30	183	20.61%
31–40	134	15.09%
41–50	136	15.32%
51–60	133	14.98%
61–70	115	12.95%
71–80	88	9.91%
81–90	14	1.58%
Unknown	23	2.59%
Total	888	100%

The highest incidence was observed in the age group of 21–30 years.

Study Place

Department of Forensic Medicine, Government Dindigul Tertiary Care Center, Tamil Nadu.

Study Period

January 2022 to December 2025.

Study Population

All fatal road traffic accident victims subjected to medico-legal autopsy during the study period.

Inclusion Criteria

- All confirmed fatal road traffic accident cases brought for medico-legal autopsy.

Exclusion Criteria

- Cases with incomplete records.
- Decomposed unidentified bodies with uncertain history.

Sample Size

A total of 3721 autopsies were conducted during the study period, among which 888 cases were due to road traffic accidents.

Data Collection

Data were collected from postmortem reports, police inquest reports, accident records, and hospital case sheets.

Statistical Analysis

Data were entered in Microsoft Excel and analyzed using descriptive statistical methods. Results were expressed in percentages and tabulated.

Table 3: Cause of Death

Cause of Death	Number	Percentage
Head Injury	666	75%
Shock and haemorrhage due to multiple injuries	142	16%
Chest Injury	27	3%
Abdominal Injury	44	5%
Septicaemic Shock	9	1%
Total	888	100%

Head injury was the predominant cause of death accounting for 75% of cases.

Table 4: Pattern of Injuries

Site of Injury	Number	Percentage
Limbs	240	27%
Head	275	31%
Thoracic	169	19%
Abdomen	151	17%
Pelvis	44	5%
Spine	9	1%
Total	888	100%

Head injuries were the most common injuries followed by limb injuries.

Table 5: Position of Victim

Position	Number	Percentage
Occupant	115	13%
Driver	338	38%
Pedestrian	435	49%
Total	888	100%

Pedestrians constituted the largest group of victims.

Table 6: Type of Vehicle Involved

Type of Vehicle	Number	Percentage
Two Wheeler	364	41%
Three Wheeler	44	5%
Four Wheeler	107	12%
Heavy Vehicle	373	42%
Total	888	100%

Heavy vehicles and two-wheelers were involved in the majority of fatal accidents.

Table 7: Period of Survival

Period of Survival	Number	Percentage
Brought Dead	702	79%
Up to 6 Hours	53	6%
6–12 Hours	44	5%
12–24 Hours	36	4%
More than 24 Hours	53	6%
Total	888	100%

Most victims were brought dead to the hospital, indicating severe injuries and inadequate golden hour management.

DISCUSSION

The present study analyzed 888 fatal road traffic accident cases autopsied at Government Dindigul Tertiary Care Center between 2022 and 2025. RTAs constituted 23.86% of all medico-legal autopsies conducted during the study period.

Male predominance (84.57%) observed in the present study is comparable with studies conducted by Jindal et al., Janani et al., and Ashwini Narayan et al., where

males were predominantly involved in RTAs. This may be attributed to greater outdoor activities, occupational exposure, risk-taking behavior, and increased driving frequency among males.

The age group of 21–30 years was most commonly affected, which is similar to findings reported in several Indian autopsy-based studies. Young adults constitute the economically productive population and are more

exposed to vehicular travel and high-speed driving.

Head injury was the leading cause of death in the present study accounting for 75% of cases. Similar observations were reported in studies conducted by Nair et al. and Sundaragiri et al. Severe craniocerebral trauma resulting from high-velocity impact remains the major fatal injury in RTAs.

Pedestrians constituted nearly half of the victims in the present study. Poor pedestrian infrastructure, lack of dedicated walkways, poor illumination, and non-compliance with traffic regulations contribute significantly to pedestrian fatalities.

Heavy vehicles and two-wheelers were the most commonly involved vehicles. Heavy vehicles cause severe crush injuries due to their size and momentum, whereas two-wheelers offer minimal protection to riders.

A large proportion of victims were brought dead, indicating severe trauma and highlighting the importance of timely emergency medical services and trauma care during the golden hour.

The present findings emphasize the need for strict implementation of traffic laws, use of protective equipment such as helmets and seatbelts, improved road engineering, pedestrian safety measures, and enhancement of trauma care facilities.

CONCLUSION

Road traffic accidents remain a major cause of mortality in Tamil Nadu. Young adult males constituted the majority of victims. Head injury was the most common cause of death. Pedestrians and drivers were the most vulnerable groups affected. Heavy vehicles and two-wheelers were frequently involved in fatal accidents.

Strengthening trauma care systems, promoting road safety education, strict enforcement of traffic regulations, mandatory helmet and seatbelt usage, speed control measures, and development of safer pedestrian infrastructure can significantly reduce RTA-related mortality.

Recommendations

1. Strict enforcement of helmet and seatbelt laws.
2. Improvement in road infrastructure and pedestrian pathways.
3. Establishment of advanced trauma care centers.
4. Public awareness programs on road safety.
5. Speed monitoring and stricter penalties for traffic violations.
6. Strengthening emergency ambulance services during the golden hour.
7. Regular road safety education campaigns targeting young adults.

Limitations

1. This was a retrospective record-based study.
2. Detailed information regarding alcohol intoxication and exact accident mechanism was unavailable in some cases.
3. Long-term morbidity among survivors could not be assessed.

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