DOI: 10.21088/ijfmp.0974.3383.18425.7

Indian Journal of Forensic Medicine and Pathology
Volume 18, Number 4, October - December 2025

ORIGINAL ARTICLE

Pattern and Distribution of Injuries in Fatal Road Traffic Accidents Autopsied at Mortuary of HIMS Teaching Hospital, Hassan: A Prospective Study

Sujay V.K.[1], Vishwanath D.[2], Aramani S.C.[3], Deepika V.[4]

HOW TO CITE THIS ARTICLE:

Sujay V.K., Vishwanath D., Aramani S.C., et al. Pattern and Distribution of Injuries in Fatal Road Traffic Accidents Autopsied at Mortuary of HIMS Teaching Hospital, Hassan: A Prospective Study. Indian J Forensic Med Pathol. 2025 Oct-Dec; 18(4): 255-262.

ABSTRACT

Introduction: Road Traffic Accidents (RTAs) are a major cause of unnatural deaths, especially in developing countries. It is necessary to consider the limitation of human body for designing safety equipment necessary to safeguard human life. This study aims to analyse the pattern of injuries and the survival period of victims amongst the other objectives to increase the awareness about fatal injuries resulting from road traffic accidents.

Methodology: This prospective cross-sectional study analysed 242 fatal RTA cases autopsied at HIMS Teaching Hospital, Hassan, between January 2023 and June 2024.

Results: The majority of victims were males (87.6%) in the 41–50-year age group (21.5%), with two-wheeler drivers being most common victims (41.7%). Maximum victims died (48.8%) before any first aid was made available. A combined Sub dural hemorrhage and Sub arachnoid hemorrhage (88.5%) was most frequently noticed pattern of intracranial hemorrhages. Head injuries sustained (61.6%) was the leading cause of death.

Conclusion: The age group of victims commonly affected suggests the socio-economic status of the place, and their need for using two wheelers for commuting

AUTHOR'S AFFILIATION:

[1]Senior Resident, Department of Forensic Medicine, Kasturba Medical College Mangalore, Manipal Academy of Higher Education, Manipal, India.

[2]Professor and Head, Department of Forensic Medicine, Hassan Institute of Medical Sciences, Hassan, Karnataka, India.

[3]Professor and Head, Department of Forensic Medicine, Haveri Institute of Medical Sciences, Haveri, Karnataka, India.

[4]PHD Scholor, Manipal College of Dental Sciences, Mangalore, Manipal Academy of Higher Education, Manipal, Karnataka, India.

CORRESPONDING AUTHOR:

Sujay V.K., Senior Resident, Department of Forensic Medicine, Kasturba Medical College Mangalore, Manipal Academy of Higher Education, Manipal, India.

E-mail: sujay.vk@manipal.edu

➢ **Received:** 29-07-2025 ➢ **Accepted:** 11-12-2025

Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution NonCommercial 4.0 License (http://www.creativecommons.org/licenses/by-nc/4.0/) which permits non-Commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the Red Flower Publication and Open Access pages (https://www.rfppl.co.in)

during evening time. This highlights the need for improved trauma care, lack of awareness about the need for using helmets. Targeted preventive strategies, public awareness campaigns and strategies for stricter enforcement of law are recommended.

KEYWORDS

• Road traffic accident • Fatal injuries • Head trauma • Two-wheeler • Autopsy

INTRODUCTION

A road traffic accident (RTA) is defined as an accident that takes place on the road between two or more objects, one of which must be any kind of moving vehicle.[1] Accident can also be defined as an "occurrence in a sequence of events which usually produces unintended injury, death or property damage."[2] WHO defined accident as an unexpected, unplanned occurrence that may involve injury? The ICD-10 version 2019 for the World Health Organisation classifies morbidity and mortality due to transport accidents in chapter XX from V01 –V99.[3]

The transport research wing under the Ministry of Road Transport and Highways of the Government of India estimates that each year 1.3 million people around the world die due to injuries caused by road traffic accidents with millions more suffering from non-fatal injuries.[4] These injuries often result in long-term disabilities, affecting the quality of life of survivors and imposing a significant burden on healthcare systems. In the year 2021, the total number of road accidents reported was 412,432 and it caused the death of 153,972 lives. The 18-45 years old age group was the worst affected by road accidents, accounting for 67% of total accidental deaths.[5] Estimates suggest that the annual global cost of RTAs is around $518 billion, with low and middle-income countries bearing a disproportionate share of these costs due to limited resources and higher RTA rates.[6]

Numbers of RTAs are increasing every year due to factors[7,8] such as:

Additions of more vehicles on the road (heavy traffic), Technological advancement of motorized transport, Imperfect drivers, Vehicle fault, overloaded vehicles, Use of mobile phones while driving, Driving under influence of alcohol or drug, Traffic rule violations, Unfavourable environmental conditions (night driving, bad weather, and road conditions).

It is necessary to consider the limitations and vulnerability of the human body for reducing mortality and morbidity due to road traffic accidents.[9] Road safety is a multi-sectorial issue and a public health issue, it is generally considered a predictable and preventable human-made problem that is amenable to rational analysis and counter measures.[10,11] This descriptive study is done for better understanding of the patterns and distribution of injuries leading to death due to road traffic accidents. The government should implement measures based on studies done on accident victims, so that correct measures are taken to prevent debilitating injuries due to RTA. Assessment of various injuries on the human body due to RTA provides the data with which safety measures can be implemented for public education, engineering (both roads and vehicles), enforcement of safety rules, and emergency care for the victims to reduce fatalities due to RTAs.

The present study is a prospective cross-sectional analysis aimed at systematically examining the pattern and distribution of injuries in fatal road traffic accidents. Conducted at the mortuary of HIMS Teaching Hospital, Hassan, the study focuses on understanding the causes of mortality by analysing the nature of injuries sustained, the age and gender of the deceased, the victim profile (such as driver, pillion rider, or pedestrian), and the survival period following the accident.

METHODOLOGY

The methodology employed in this study was designed to systematically examine the pattern and distribution of injuries in fatal road traffic accidents autopsied at the mortuary of HIMS Teaching Hospital, Hassan. This is a prospective cross-sectional study done between January 2023 and June 2024.

Data Collection

Data were collected from autopsies conducted on fatalities resulting from road traffic accidents. Information regarding the age, gender, and profile of the deceased, along with the period of survival following the traffic accident, was gathered from the investigating officers, relatives, and friends of the deceased. Detailed documentation of injuries was carried out during the autopsies, using a systematic approach to analyse the pattern and distribution of injuries leading to mortality. The documentation included detailed notes and photographs of the injuries, recorded in a pre-formed proforma.

Inclusion and Exclusion Criteria

The study included all road traffic accident deaths involving two-wheelers, four-wheelers, heavy motor vehicles, and pedestrians across all age groups and both sexes. Cases included spot deaths, deaths occurring during transit from the accident scene, and deaths during medical treatment. The study excluded deaths resulting from railway accidents, decomposed bodies, and cases without a definitive history of road traffic accidents.

Sample Size Estimation

Based on the data provided by the National Crime Records Bureau (NCRB)[12] for the year 2020, the prevalence of deaths due to road traffic accidents was estimated at 26%. Using the formula

$$n = \frac{4pq}{d^2}$$

where p is the prevalence (26), q is 100−p (74), and d (absolute precision) is 7, the calculated sample size was 157, which was rounded up to 160. However, during the study period, with more cases available, the total study sample is 242.

Statistical Analysis

The data documented in the proforma were coded into a master chart based on the study objectives. The data were entered into Microsoft Excel and analysed using descriptive statistics.

RESULTS AND DISCUSSION

In the present study, as illustrated in *Table* 1, the maximum number of RTA deaths occurred in the age group of 41-50 years, accounting for 52 cases (21.48%). This was closely followed by the age group 21-30 years with 42 cases (17.35%). However, studies by Yogesh G. (2015)[13], Anuj Gupta *et al*. (2018)[14], Bhatt SB *et al*. (2017)[15], reported that the highest number of victims were in the age group of 21-30 years. Contrarily, a study by Bavadia GL *et al*. (2022)[16] reported that the maximum number of victims in the age group of 11-20 years, while a study by Frooqui JM *et al*. (2013)[17] reported that the highest number of victims in the age group of 30-39 years. Additionally, a study by Marak F *et al*. (2016)[18] Reported that the maximum number of victims in the age group of 51-60 years.

Table 1: Age wise distribution of victims of RTA

Age	Frequency	Percentage (%)
<10	3	1.2
11-20	18	7.4
21-30	42	17.4
31-40	41	16.9
41-50	52	21.5
51-60	37	15.3
61-70	37	15.3
71-80	11	4.5
81-90	00	00
91-100	1	0.4
Total	**242**	**100.0**

Figure 1 illustrates that males significantly outnumber females among RTA victims. There were 212 male (87.6%) victims compared to 30 female (12.39%) victims, resulting in a male-to-female ratio of 7.06:1.

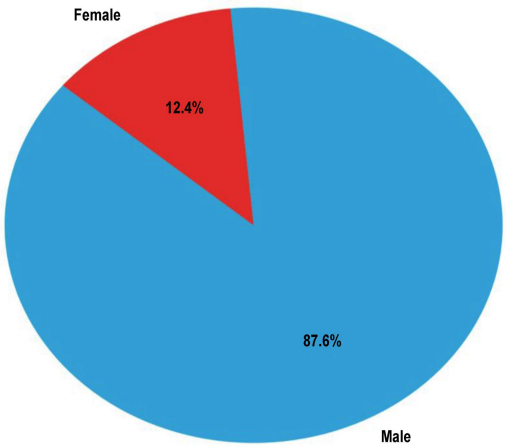

Figure 1: Gender wise distribution of Victims

In the current study, the highest frequency of RTAs occurred between 6 pm and 12 am, as illustrated in *Figure* 2, accounting for 38.4% of total incidents. This finding is consistent with study by Narayan *et al*. (2020).[19] This is due to factors such as with high traffic volumes and reduced visibility during these hours. This highlights the need for improved lighting, stricter enforcement of traffic regulations during peak hours, and public awareness campaigns about the dangers of driving during evening and nighttime.

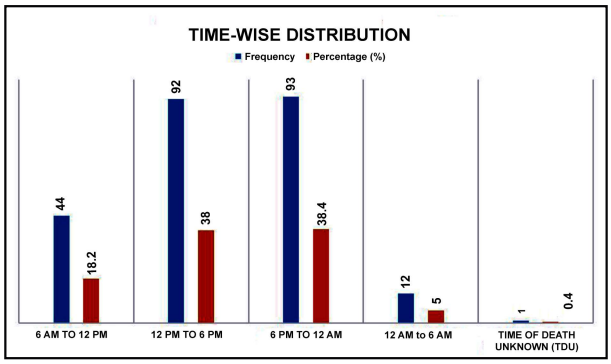

Figure 2: Time-wise distribution of fatal RTA

The analysis of the period of survival for victims following RTAs provides insights into the critical importance of timely medical intervention. In the current study, as illustrated in *Figure* 3, 48.8% of the victims succumbed to their injuries at the scene of the accident, indicating the immediate fatal nature of many RTAs. This finding aligns with the observations by Farooqui JM *et al*. (2013),[17] who noted that 64.28% of victims died before hospitalization The "golden hour" refers to the critical first hour after the occurrence of a traumatic injury, during which prompt medical treatment is most likely to prevent death. The study regarding the period of survival in fatal RTAs stresses the importance of immediate care of victims at the scene of the accident and during transportation to medical facilities, the availability of well-equipped emergency medical services (EMS), and trained personnel at hospitals.

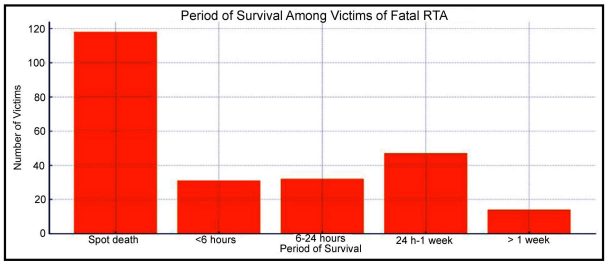

Figure 3: Period of survival among victims of fatal RTA

In the present study, as mentioned in *Table* 2, the majority of the victims, i.e., 137 (56.61%), were riding on two-wheelers, including motorbikes, scooters, mopeds, etc. Among these victims, 101 (41.73%) were drivers and 36 (14.87%) were pillion riders. The findings are similar to the study by Husain BN *et al*. (2020)[20], which reported that 45% of road traffic accident victims were two-wheeler riders and 14% were pillion riders. However, the study by Bhatt SB *et al*. (2017)[15] reported 30% of victims as pedestrians and study by Yogesh G (2015)[13] found the highest number of victims to be heavy motor vehicle users accounting for 34.1%.

Table 2: Type of victim involved in RTA

Victim	Frequency	Percentage (%)
Pedestrian	68	28.1
Two-Wheeler Driver	101	41.7
Two wheeler Pillion	36	14.9
Auto	9	3.7
Light motor vehicle	19	7.9
Heavy motor vehicle	9	3.7
Total	**242**	**100**

In the Hassan district, two-wheelers are one of the most common modes of transport among the people. Traffic rules are not strictly followed, and a large number of riders do not use helmets while traveling on two-wheelers. The weather conditions and road conditions in the Hassan district also significantly contribute to the high percentage of victims among two-wheeler drivers and pillion riders.

The distribution of external injuries varied by anatomical region, as presented in *Figure* 4. In the present study, it is found that contusions were the most common mechanical injury of the head region, affecting 92.5% (224 victims) of the total. This finding is similar to studies by Hasini BRC *et al*. (2019)[25], who found contusions on the scalp in 97.2% of cases, and Gupta A *et al*. (2022)[21], who reported 79% of scalp contusions as the most common head injuries in RTA victims. However, studies by Reddy A *et al*. (2016)[22] reported that lacerations as the most common head injury with incidences of 40%.

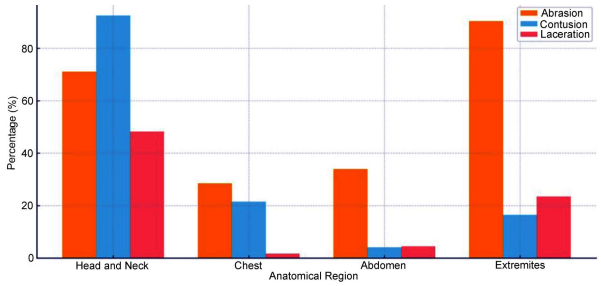

Figure 4: Patterns of external injuries in different anatomical Regions

In the present study as in *Table* 3, in the skull, the temporal bone is most commonly fractured in 25.6% of cases. This is similar to a study by Gupta A *et al*. (2018),[23] who reported the temporal bone is the most common bone fractured in fatal head injuries. However, studies by Gupta A *et al*. (2022),[21] the most commonly involved was the base of the skull fracture in 39% of cases, and in a study by Rathod JS *et al*. (2019),[24] the parietal bone was found fractured in a maximum of 29.03% of cases. The cervical vertebrae fractures were the most common and were noticed in 23.1% (56 cases) of the victims. Rib fractures were the most prevalent type of fracture in the chest region, affecting 28.9% (70 cases) of the victims. Fractures of the pelvic bones occurred in 2.9% (7 cases) of the victims. Similar findings were reported by Gupta A *et al*. (2022),[21] who noted rib fractures in 40% of cases and pelvic fractures in 3% of cases.

Table 3: Patterns of fractures according to anatomical regions

Location	Frequency	Percentage (%)
Head Region		
Frontal Bone Fracture	27	11.2
Parietal bone fracture	31	12.8
Temporal bone Fracture	62	25.6
Occipital bone Fracture	21	8.7
Base of skull Fracture	49	20.2
Maxilla Fracture	5	2.1
Mandibular Fracture	6	2.5
Vertebrae affected		
Cervical Vertebrae Fracture	56	23.1
Thoracic Vertebrae Fracture	18	7.4
Abdominal Vertebrae Fracture	8	3.3
Chest and Abdominal Bones		
Clavicle Fracture	4	1.7
Rib Fracture	70	28.9
Sternum Fracture	4	1.7
Scapula Fracture	1	0.4
Fracture of Pelvic bones	7	2.9
Long Bones of Extremities		
Humerus Fracture	11	4.5%
Radius Fracture	21	8.7%
Ulna Fracture	19	7.9%
Femur Fracture	31	12.8%
Tibia Fracture	37	15.3%
Fibula Fracture	36	14.9%

Regarding fractures of extremities, tibia fractures were the most common, accounting for 15.3% (37 cases). Rathod JS *et al*. (2019)[24] reported fractures of the tibia and fibula in 12.90% of cases, Gupta A *et al*. (2022)[21] noted humerus fractures in 5% and femur fractures in 12% of victims. Reddy A *et al*. (2016)[22] reported upper limb fractures in 17% and lower limb fractures in 13% of cases. Hasini BRC *et al*. (2019)[26] noted that 41.4% of cases had fractures of either the upper or lower limbs

In the present study as in *Table* 4, the most prevalent combination was subdural hemorrhage (SDH) with subarachnoid hemorrhage (SAH), accounting for 88.5% (177 cases) of the total. Similar findings were noticed in studies by Yogesh G (2015),[13] which reported SDH + SAH in 62.08% of cases, and Marak F *et al*. (2016),[18] which found subdural and subarachnoid hemorrhages in 58% of cases.

Table 4: Pattern of distribution of Intracranial hemorrhages

Combination	Frequency	Percentage (%)
EDH only	6	3.0
SDH only	2	1.0
SAH only	6	3.0
SDH + SAH	177	88.5
SDH + SAH + IVH	7	3.5
EDH + SDH + SAH	1	0.5
EDH + SDH + SAH + IVH	1	0.5

In the present study as in *Table* 5, Lung contusions were the most common chest organ injury affecting 16.5% of the victims. Lung lacerations were noted in 2.1% (5 cases). These findings are similar to those in studies by Gupta A *et al*. (2022),[21] Frooqui JM *et al*. (2013),[17] Hasini BRC *et al*. (2019),[25] and Rathod JS *et al*. (2019),[24] which also reported a high percentage of lung injuries among RTA victims. Liver injuries were the most common abdominal injuries, affecting 18.2% (44 cases) of the victims. This finding is consistent with studies by Gupta A *et al*. (2022),[21] Hasini BRC *et al*. (2019),[25] and Rathod JS *et al*. (2019),[24] who also noted the liver as the abdominal organ most frequently affected by RTAs.

Table 5: Patterns of organ injury in the Chest and Abdomen

Incidence of Organ Affected in Chest	Frequency	Percentage (%)
Lung Contusion	40	16.5
Lung Laceration	5	2.1
Hemo Thorax	13	5.4
Heart Contusion	1	0.4
Heart Laceration	3	1.2
Liver Injury	44	18.2
Spleen Injury	12	5.0
Kidney injury	20	8.2
Pancreas Injury	3	1.2
Hemo Peritoneum	40	16.5
Gastro Intestinal Injury	3	1.2
Testes Injury	1	0.4
Bladder Injury	3	1.2

In the present study as in *Table* 6, Head injuries were the leading cause of death in RTAs and head injuries accounted for the largest proportion of fatalities, at 61.6%. The second highest cause of death was combined head and chest injuries, sustained by 12% of the victims. This finding aligns with studies by,[13-25] who reported that head injuries are the most common cause of death among RTA victims. However, Punpale SB *et al*. (2019)[26] Reported that thoracic injuries were the highest cause of death, accounting for 31.95% of fatalities.

Table 6: Causes of death

Cause of Death	Frequency	Percentage (%)
Head Injuries Sustained	149	61.6
Chest Injuries Sustained	7	2.9
Abdominal Injuries Sustained	24	9.9
Extremities Injury Sustained	3	1.2
Head & Chest Injuries Sustained	29	12.0
Head & Abdominal Injuries Sustained	17	7.0
Head & Extremities Injury Sustained	4	1.7
Chest & Abdominal Injuries Sustained	2	0.8
Head & Chest & Abdominal Injuries Sustained	7	2.9
Total	**242**	**100.0**

CONCLUSION

Road Traffic Accidents (RTAs) represent a modern-day epidemic, a by-product of rapid modernization and the relentless pursuit of faster and more efficient transportation. The need to commute during evening hours in two-wheelers without using effective safety equipment are the main cause of fatality. The high percentage of fatality before the victims received first aid signifies the need for effective emergency services and well-equipped hospitals. There is a need for focused enforcement of the use of helmets during evening hours. Poor road conditions, inadequate infrastructure, and congested traffic further exacerbate the number of victims dying due to road traffic accidents.

Recommendation: Strict implementation of traffic rules, public education, Ensuring properly planned and maintained wide roads, implementing stricter measures for issuing permanent driving licenses. There should be traffic aid posts at suitable distances on the highways to assist the injured in case of accidents and quick transport of the injured to hospital, Encourage the use of protective gear whenever possible.[4,5] Safety helmet manufacturers should follow government standards. Regular servicing of automobiles, Crash bars attached to body of automobiles and strict implementation on provision of Seat belts and airbags at par with standards by the manufacturer of automobiles. Media outlets,

including television and newspapers, play a crucial role in educating the public about road safety and the importance of adhering to traffic regulations.[27]

Ethical Considerations

The study did not require any additional investigations or interventions on living patients or animals. All ethical guidelines were followed, and the study was conducted with the utmost respect for the deceased individuals and their families. No significant ethical issues were foreseen during the study.

REFERENCES

1. World Health Organization. Global status report on road safety 2023 [Internet]. Geneva: World Health Organization; 2023 [cited 2025 Sep 9]. Available from: https://www.who.int/teams/social-determinants-of-health/safety-and-mobility/global-status-report-on-road-safety-2023.
2. World Health Organization. Injuries and violence: the facts [Internet]. Geneva: World Health Organization; 2022 [cited 2025 Sep 9]. Available from: https://www.who.int/news-room/fact-sheets/detail/injuries-and-violence.
3. World Health Organization. International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10) [Internet]. Geneva: World Health Organization; 2019 [cited 2025 Sep 9]. Available from: https://icd.who.int/browse10/2019/en#/XX.
4. Ministry of Road Transport and Highways, Government of India. Road accidents in India 2020 [Internet]. New Delhi: Transport Research Wing; 2020 [cited 2025 Sep 9]. Available from: https://morth.nic.in/sites/default/files/RA_2020.pdf.
5. Ministry of Road Transport and Highways, Government of India. Road accidents in India 2021 [Internet]. New Delhi: Transport Research Wing; 2021 [cited 2025 Sep 9]. Available from: https://morth.nic.in/sites/default/files/RA_2021_Compressed.pdf.
6. World Health Organization. Global Status Report on Road Safety 2018. Geneva: World Health Organization; 2018.
7. Ministry of Road Transport and Highways, Government of India. The Motor Vehicles (Amendment) Act, 2019. New Delhi: Ministry of Road Transport and Highways; 2019.
8. Indian Institute of Technology Delhi. Road safety in India: Status Report 2021 [Internet]. New Delhi: Indian Institute of Technology Delhi; 2021 [cited 2025 Sep 9]. Available from: https://www.chronicleindia.in/year-book/chronicle-year-book-2023/road-safety-in-india-status-report-2020.
9. Kumar S., Toshniwal D. A data mining framework to analyze road accident data. J Big Data. 2015; 2(1): 1–9.
10. United Nations. Road safety strategy: For the United Nations system and its personnel [Internet]. New York: United Nations Department of Safety and Security; 2019 [cited 2025 Sep 9]. Available from: https://www.un.org/sites/un2.un.org/files/2020/09/road_safety_strategy_booklet.pdf.
11. Mohan D., Tiwari G., Bhalla K. Road Safety in India: Status Report. New Delhi: Indian Institute of Technology Delhi; 2020.
12. National Crime Records Bureau, Ministry of Home Affairs. Accidental Deaths & Suicides in India 2020 [Internet]. New Delhi: National Crime Records Bureau; 2020 [cited 2025 Sep 9]. p. 133. Available from: https://www.ncrb.gov.in/sites/default/files/ADSI_2020_full_report.pdf.
13. Yogesh G. Pattern of injuries in fatal road traffic accidents: autopsy based study. J Evid Based Med Healthc. 2015;2(4):321–7.
14. Gupta A., Kumar A., Gupta P., Verma A., Kumar R. A study of pattern of fatal head injuries sustained during road traffic accidents in Western Uttar Pradesh. J Indian Acad Forensic Med. 2018; 40(4): 418–23. doi:10.5958/0974-0848.2018.00093.3.
15. Bhatt SB, Gupta BD, Jani CB. Study of patterns & profile of road traffic accidents in Saurashtra region of Gujarat. J Indian Acad Forensic Med. 2017; 39(4): 361–6.
16. Narayan S., Balakumar S., Kumar S., Bhuvanesh M., Hassan A., Rajaraman R., *et al*. Characteristics of fatal road traffic accidents on Indian highways. Accid Anal Prev. 2011; 43(3): 1130–5.
17. Bavadiya G.L., Solanki J.H., Shah J.P., Parmar A.P., Moga H.K. A record-based study of death due to road traffic accident brought for postmortem examination at tertiary care center Bhavnagar. J Indian Acad Forensic Med. 2022; 44(2): 51–5.
18. Farooqui J.M., Chavan K.D., Syed MMA, Bangal R.S., Bhat A.M., Dongre A.P., *et al*.

Pattern of injury in fatal road traffic accidents in a rural area of western Maharashtra, India. Australas Med J. 2013; 6(9): 476–82.

19. Marak F., Sangma M.B., Kumar G, Priyadharshini M. Pattern of injuries associated with deaths following road traffic accidents as seen in a tertiary care hospital in Puducherry. Ind J Forensic Com Med. 2016; 3(4): 257–62.

20. Narayan K.A. Study of pattern & distribution of injuries in fatal road traffic accident cases autopsied at MIMS, Mandya. Ind J Forensic Med Toxicol. 2020; 14(3): 358–61.

21. Husain B.N., Dixit P.G., Niyabani S. Demographic profiles of victims of fatal road traffic accidents in central Indian population: A cross-sectional study. Ind J Forensic Com Med. 2020; 7(1): 33–7.

22. Gupta A., Siddesh R., Singh B. Pattern and distribution of injuries in fatal motorized two-wheeler accident cases: A prospective study. J Ind Acad Forensic Med. 2022; 44(2): 67–71.

23. Reddy A., Tejas J., Balaraman R. Strategic Analysis of injuries and causes of death in fatal two-wheeled vehicle accidents – an autopsy-oriented study in Southern India. Medico Legal Update. 2016; 16(1): 108–14.

24. Gupta A., Kumar A., Gupta P., Verma A., Kumar R. A study of pattern of fatal head injuries sustained during road traffic accidents in Western Uttar Pradesh. J Indian Acad Forensic Med. 2018; 40(4): 418–23. doi:10.5958/0974-0848.2018.00093.3.

25. Rathod J.S., Pithadiya N.R., Chaudhari K.R., Kyada H.C. Study of road traffic accidental (RTA) deaths in and around Jamnagar region of Gujarat. Ind J Forensic Com Med. 2019; 6(4): 250–4.

26. Hasini B.R.C. Death due to road traffic accidents: A forensic study. Ind J Forensic Med Pathol. 2019; 12(2): 67–71.

27. Punpale S.B., Taware A.A., Vaidya H.V., Tatiya H.S. Profile of fatal road traffic accidents in Pune region, Maharashtra: A cross-sectional autopsy study. J Ind Acad Forensic Med. 2019; 41(2): 111–3.

28. National Institute for Mental Health and Neuro Sciences. Advancing Road Safety in India [Internet]. Bengaluru: NIMHANS; 2017 [cited 2025 Sep 9]. Available from: https://nimhans.ac.in/wp-content/uploads/2019/02/UL_BR_m010-11_Main-rprt_final.pdf.