July - December 2025 Volume 34 Issue 2
PRINT ISSN: 2277-1867
ONLINE ISSN: 2277-8853

JOURNAL OF FORENSIC MEDICINE SCIENCE AND LAW

Official Publication of Medicolegal Association of Maharashtra

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MULTISPECIALITY, MULTIDISCIPLINARY, NATIONAL
PEER REVIEWED, OPEN ACCESS, MLAM (SOCIETY) JOURNAL
Indexed with Scopus (Elsevier)

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JOURNAL OF FORENSIC MEDICINE SCIENCE AND LAW
(Official Publication of Medicolegal Association of Maharashtra)
Email.id: mlameditor@gmail.com

PRINT ISSN: 2277-1867
ONLINE ISSN: 2277-8853

Original Research Article

Study on Pattern and Characteristics of Medico Legal Cases in Casualty of Chettinad Hospital and Research Institute, Kelambakkam

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Article Info

Received on: 15.04.2025
Accepted on: 10.10.2025

Key words
Medico-legal cases,
Road traffic accident (RTA),
Poisoning,
Burns,
Occupational injury.

Abstract

Introduction: Medico-legal cases represent a crucial nexus between healthcare and legal accountability, requiring meticulous documentation and prompt medical intervention. These cases, encompassing traumatic incidents such as road traffic accidents, assault and poisoning demand both urgent care and legal intervention. This study seeks to investigate the incidence, patterns and demographic profiles of medico-legal cases at a tertiary care hospital, providing valuable insights for preventive strategies and enhanced medico-legal practices. **Materials And Methods:** This retrospective analysis was undertaken to examine the medico-legal cases documented in the Casualty of Chettinad Hospital and Research Institute, Kelambakkam, over six months, from January 1, 2024, to June 30, 2024, a total of 629 cases were registered out of which 479 were males and 150 were females. **Results:** The analysis showed that the maximum number of cases were road traffic accidents (RTAs) accounting for 48.6 %, followed by accidental injuries which include workplace injuries, machine cuts and dog bites accounting to 15.4%, followed by poisoning (13.9%). Assault and fall from height showed a higher incidence in the 21-30 age group, while burns primarily affected the 0-10 age group. **Conclusion:** Implementing targeted public awareness campaigns for 21–30-year-olds focusing on road safety and mental health, designing gender-specific interventions addressing men's high-risk occupational injuries and women's vulnerability to domestic violence can reduce the morbidity and mortality in these MLCs.

1. Introduction

A Medico-legal case is any medical case with a legal implication. It can be defined as a case of injury or ailment, in which investigations by the law-enforcing agencies are essential to fix the responsibility regarding the causation of the said injury or ailment.[1] These cases encompass a range of incidents, including assaults, vehicular accidents and other traumatic events, all of which require immediate and comprehensive assessment by healthcare professionals.

How to cite this article: Shreeyaa V, Raj A, Uppu RS, Sibi SM. Study on Pattern and Characteristics of Medico legal Cases in Casualty of Chettinad Hospital and Research Institute, Kelambakkam. J Forensic Med Sci Law. 2025;34(2):23-27. doi: 10.59988/jfmsl.vol.34issue2.5

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The examination of medico-legal cases (MLCs) in the casualty of Chettinad Hospital and Research Institute, Kelambakkam, serves as an essential gateway to understanding the complexities of injuries within the community. In the context of rising violence and trauma, particularly against vulnerable population such as women and children, there is a need to understand the profile of medico legal cases. The Medico-legal aspects of any case must always be secondary to the life-saving treatment of a patient.[2] Moreover, the integrity of medico-legal documentation is paramount, as precise and thorough medico-legal reports (MLRs) play a critical role in judicial proceedings. Incorrect or incomplete medico-legal reports may trigger a pause or delay in legal proceedings and patients' rights could be violated.[3] This study aims to delineate the patterns and characteristics of MLCs presenting at our institute, scrutinizing the nature of injuries, victim demographics, and the incidence of various MLC types.

By employing a robust analytical framework, we seek to reveal insights that may inform targeted interventions and reinforce the medical infrastructure necessary for addressing these pressing challenges. This investigation not only endeavors to illuminate the distinctive features of MLCs but also aims to appraise the quality of medico-legal documentation, ultimately paving the way for enhanced policy development and resource utilization in the management of medico-legal cases within our healthcare framework.

Aims and Objectives:

1. To identify trends in the frequency and types of medico-legal cases over a specified period.
2. To analyze the demographic distribution of medico-legal cases in terms of age, sex, and other relevant factors.
3. To identify and categorize different types and patterns of medico-legal cases presented to the casualty at Chettinad Hospital and Research Institute.
4. To examine the nature and underlying causes involved in medico-legal cases.

2. Material and Methods

This retrospective study was conducted to analyze the medico-legal cases registered in the casualty of Chettinad Hospital and Research Institute, Kelambakkam, over six months, from 1st January 2024 to 30th June 2024.

Inclusion Criteria: All cases that were classified as medico-legal in the MLC register of casualty and were treated as either outpatients or inpatients at Chettinad Hospital and Research Institute during the study period were included. The study included both male and female patients across all age groups, provided they met the criteria for a medico-legal case.

Exclusion Criteria: Cases not identified as medico-legal or those with incomplete or unclear documentation were excluded from the study.

Data Collection and Variables: Data for the study were extracted from the hospital's MLC register. Data were systematically entered into a pre-designed proforma for analysis. The data collected were processed and analyzed using Microsoft Excel, with observations presented in the form of frequency tables, graphs and charts.

Statistical Analysis: The data were analyzed using descriptive statistics to determine trends and patterns in the demographic and clinical profiles of the cases. The findings were then compared with similar studies to identify any notable differences or similarities.

Ethical Considerations: Ethical approval for the study was obtained from the Institutional Human Ethics Committee of Chettinad Hospital and Research Institute [IHEC-I/3203/24]. The study ensured the confidentiality and anonymity of all patient data. Informed consent was not required as this was a retrospective study based on hospital records.

3. Results

A comprehensive analysis was conducted on 629 cases documented in the Casualty of Chettinad Hospital and Research Institute from 1st January 2024 to 30th June 2024. Of these, 479 cases (76.2%) were male patients, while 150 cases (23.8%) were female. The data has been tabulated and meticulously examined across various parameters, including age (**Table 1**), time of the incident, incident location, underlying causes in poisoning and hanging cases, marital status (**Table 2**), educational attainment (**Table 3**), brought to the hospital by (**Table 4**), potential correlation with alcohol consumption (**Table 5**) and domiciliary status (**Table 6**).

There were 6 male brought dead cases reported during the study period. All of them were brought by relatives and the place of death for all the cases was home. The majority were married and from urban areas. Consumption of alcohol was associated with only one case.

Table 1: Depicts the distribution of cases across different age groups.

CASE TYPOLOGIES	0 - 10	11 - 20	21 - 30	31 - 40	41 - 50	51 - 60	61-70	71 - 80	81 - 90	Total
Poisoning	14	18	26	12	11	5	1	0	1	88
Hanging	0	0	1	0	0	1	0	0	0	2
Assault	0	8	40	16	11	4	2	0	0	81
Fall from height	3	7	10	7	4	0	0	0	0	31
Burns	4	2	2	1	0	0	0	1	0	10
Cutthroat	0	1	0	0	0	0	0	0	0	1
Hesitation cuts	0	0	1	0	0	0	0	0	0	1
Accidental injuries	4	15	38	21	10	6	2	1	0	97
Brought dead	1	0	1	1	1	2	0	0	0	6
RTA	15	58	100	60	35	24	12	2	0	306
Others	1	4	0	0	0	1	0	0	0	6
Total	42	113	219	118	72	43	17	4	1	629

Table 2: Marital status distribution with gender.

Marital Status	Married	Unmarried	Divorced	Widow	Not known	Total
Male	211	254	1	10	3	479
Female	95	51	1	2	1	150

Table 3: Educational status and gender distribution.

Education	Primary	Secondary	Diploma	Graduate	PG	Illiterate	Not known	Total
Male	74	147	63	119	12	58	6	479
Female	15	48	11	59	3	5	9	150

Table 4: Distribution of patients brought by others, stratified by gender.

Brought by	Police	Relative	Friend	Co - worker	Stranger	Self	Not known	Total
Male	7	230	121	88	19	8	6	479
Female	0	112	21	9	4	4	0	150

Table 5: Association between alcohol use and gender.

Associated With Alcohol	Yes	No	Not known	Total
Male	56	420	3	479
Female	1	149	0	150

Table 6: Domiciliary status distribution by gender.

Domiciliary	Urban	Rural	Not known	Total
Male	405	72	2	479
Female	116	34	0	150

4. Discussion

It is evident from **Table 1** that the maximum number of cases was of Road Traffic Accident (RTA) amounting to 306 cases (48.64%), which may be attributed due to the location of the hospital near highway. This finding was similar to study done by Avinash H et al.,[4] Garg V et al.,[5] Haridas SV et al.,[6] Saxena A et al.,[7] Timsinha S et al.,[8] Trangadia MM et al.,[9] Yatoo GH et al.,[10] etc. RTA peaked in the age group of 21-30 years, which coincide with the study done by Avinash H et al., [4] Garg V et al., [5] Trangadia MM et al.,[9] Malik Y et al.,[11] Hussaini SN et al.,[12] Yadav A et al.,[13] etc. The majority of victims in RTA cases were male, which can be attributed to their higher engagement in outdoor work and travel, which is in accordance with the study done by Trangadia MM et al.,[9] Yatoo GH et al.,[10] Hussaini SN et al.,[12] Jagtap et al.,[14] etc. Accidental injuries (workplace injuries, machine cuts, dog bites) were most concentrated in the 21-30 age group. Poisoning cases showed relatively uniform distribution across different age groups but were highest in the age group of 21-30 years. The most frequently encountered toxins include organophosphates (OPC), phenol, cockroach chalk, rat poison, cough syrup, paint thinner, tablets such as paracetamol, thyronorm, escitalopram, melatonin, as well as sodium hypochlorite and sodium hydroxide, listed in descending order of incidence. Assault cases were predominantly concentrated in the 21-30 age group with a sharp decline after age 40 years. Fall from height incidents were most common in the 21-30 age group with no cases reported in individuals older than 50 years. Burn cases had the highest incidence observed in children and decreased progressively with age. Electrocution cases have a bimodal distribution. Various types of medicolegal cases brought to casualty in tertiary care centres and even there are increased chances of violence against doctors at casualty.[15] There is great scope of research in this field

with day by day increasing use of artificial intelligence.[16]

In current study, most common time of occurrence of medico-legal cases is evening hours, which shows a strong correlation with the rush hour. The afternoon was peak time for accidental injury followed by RTA cases. The incidences of poisoning and assault cases were more during nights.

Notably while home incidents account for only 16.3% of males and constitute a substantial 40% of female cases, suggesting divergent risk profiles between genders. Work-related incidents display the most striking disparity, with males experiencing incidents at a rate fourteen times higher than females, potentially reflecting occupational exposure differentials. Most of the cases are preventable by proper awareness and implementation of rules. Strict implementation of traffic rules can decrease the number of road traffic accidents.

The most common cause for suicidal attempt in females is due to family problems followed by love failure and harassment. In Males, it is due to alcohol addiction, financial problems, accidental poisoning and a sense of isolation. Equal distribution is seen in cases where exam failure was the cause of committing suicide.

It is evident from **Table 2** that, the majority of males involved in MLC were unmarried and constituted the largest group, suggesting a potential correlation with age-related factors and risk behaviors. Married females have the highest representation, potentially reflecting different societal or familial dynamics influencing Medico-legal incidents.

In correlation with **Table 3**, male patients have a broader distribution across all educational levels and female patients show a higher proportion in the graduate category, though the overall educational attainment is generally lower compared to males. Illiteracy is more prominent among males than females, which may suggest a need for targeted education-based prevention efforts, particularly for those with lower educational levels.

From **Table 4**, relatives are the most common individuals bringing patients to the hospital in both genders. Friends brought more male patients to the hospital. Co-workers brought more male patients compared to females, which could indicate different social or occupational dynamics. Police involvement in bringing the cases to the hospital is minimal for both genders. Self-transport is rare but more common among males compared to females.

From **Table 5**, a significant portion of cases involving male patients is associated with alcohol consumption, suggesting a potential link between alcohol use and Medico-legal cases. Whereas, in female patients, an extremely low association with alcohol which might be due to societal norms.

Based on **Table 6**, the majority of victims were from urban areas than rural areas, which implies that people living in urban areas are more prone to RTA, industrial hazards and other factors due to the busy lifestyle and industrialization of cities compared to rural areas. This conclusion is in accordance with the study done by Saxena A et al.[7] Romana M et al.[17] The handling of medicolegal cases at tertiary care Centre through a specialized Clinical Forensic Medicine unit is need of hour.[18] reforms, and generation of India-specific research. Forensic nursing cre has one of the important role in handling the medicolegal cases at casualty and it has the potential to transform India's medico-legal framework at emergency healthcare management by improving victim-centered care and strengthening judicial outcomes.[19] Medicolegal documentation maintaining accurate records adhering legal standards, obtaining informed consent and ensuring data security are important in managing medicolegal emergencies at casualty.[20]

5. Conclusion

Based on our study it was observed that young working males are common candidates involved in a Medico-Legal Cases. Implementing targeted public awareness campaigns for youth focusing on road safety and mental health, developing and enforcing workplace safety protocols can minimize the number of men involved in such incidents. Strengthening of employee wellness programs including mental health assessments to address psychological factors in injury may play an important role in minimizing the incidents at workplace.

Domestic violence prevention initiatives for middle-aged adults can reduce such incidents in females. Prioritizing fall prevention for the elderly through physical therapy programs and environmental modifications to improve home safety and conduct regular health screenings for older adults may be useful in reducing the incidence of such cases. Continuous monitoring of injury data and integrating preventive measures across sectors, from

enhanced traffic safety to violence reduction initiatives and ensuring collaboration between public health agencies, law enforcement, community organizations and healthcare providers to formulate and implement preventive strategies to emerging pattern of medico-legal cases across all demographics is the need of the hour.

Ethical Clearance: IEC approval is taken from the Institutional Ethical committee.

Contributor ship of Author: All authors equally contributed.

Conflict of interest: None to declare.

Source of funding: None to declare.

References:

1. Jayapalan VK. Practical Medico-Legal Manual, 1st Edition, Indian Academy of Forensic Medicine. 1988: 26.
2. Reddy KSN. The Essentials of Forensic Medicine and Toxicology. 34th Edition, New Delhi: Jaypee Publishers; 2017. P-2.
3. Mohammed M, Abdullah A, Rashed S, Faisal F, Alzahrani, Saleh M et al., Characteristics of Medico-Legal Cases and Errors in Medico-Legal Reports at a Teaching Hospital in Saudi Arabia. Open Access Emerg Med. 2021; 13: 521–6.
4. Avinash H, Pravir B, Ruchira R. Study of medico-legal cases admitted at tertiary care hospital. IPIJFMTS. 2020; 5(1):1-4.
5. Garg V, Verma SK. Profile of medico legal cases at Adesh institute of medical Sciences and research Bhatinda Punjab. J Indian Acad Forensic Med. 2010; 32(2):150-2.
6. Haridas SV, Pawale DA. A Retrospective Study of Pattern of Clinical Medico-Legal Cases Registered at Tertiary Health Care Centre in Kolhapur District. J Forensic Med Sci law. 2014; 23(2).
7. Saxena A, Kumar V, Chaudhary SR, Singh J, Awasthi S. Pattern of Medico-legal Cases in the Casualty Department of Teaching Hospital, Bareilly, Uttar-Pradesh. J Indian Acad Forensic Med. 2015; 37(4):338-40.
8. Timsinha S, Manjarikar S, Baral MP, Ranjitkar M. Profile of Pattern of Medico-Legal Cases in the Casualty of a Teaching Hospital of Western Region of Nepal. J Indian Acad Forensic Med.2015; 37(1):46-9.
9. Trangadia MM, Mehta RA, Rada NH, Gupta BD. Profile of medico-legal cases in tertiary care hospital in Jamnagar, Gujarat: Retrospective study of one year. J Res Med Dent Sci.2014; 2(4): 57-62.
10. Yatoo GH, Jalali S, Malik A, Khan A. Profile and pattern of medico-legal cases attending tertiary care hospital in North India. Int J Med Pharm Sci. 2015; 5(5): 1-8.
11. Malik Y, Chawla R, Sharma G, Malik P, Singh R, Tripathi A. Profile of Medico-legal Cases in Casualty of a Rural Medical College of Haryana. J Indian Acad Forensic Med. 2013; 35 (4):367-8.
12. Hussaini SN, Kulkarni CS, Batra AK. Profile of Medico-Legal; cases coming to Casualty of Government Medical College, Akola. J Forensic Med Sci Law. 2013; 22(2).
13. Yadav A, Singh NK. Pattern of Medico-legal Cases in rural Area of Faridabad, Haryana. J Indian Acad Forensic Med. 2013; 35 (1):60-2.
14. Jagtap N, Patekar MB. Study on Pattern of Medicolegal Cases in Casualty of Government Medical College Kolhapur Maharashtra. IP Int J Forensic Med Toxicol Sci 2021; 6(3):75-77.
15. Deokar RB, Patil SS. Violence Against Doctors: Prevention, Administrative and Legal Recourse. J Forensic Med Sci Law 2023;32(1):1-3.
16. Deokar RB, Patil SS. Artificial Intelligence in Healthcare and Biomedical Research - Ethical aspects. J Forensic Med Sci Law. 2024;33(1):1-4. doi: 10.59988/jfmsl.vol.33issue1.1
17. Romana M, Iff A, Farah R, Maqbool A. Medico Legal Cases at Tertiary Care Hospital, Rawalpindi. Pak J Med Sci. 2017; 33(4): 926–930.
18. Deokar RB, Patil SS. Avenues in Forensic Medicine. J Forensic Med Sci Law 2023;32(2):1-3.
19. Patil SS, Deokar RB, Dere RC. Forensic Nursing: A Review of its Evolution and Scope with Special Reference to India. J Forensic Med Sci Law. 2025;34(1):50-54. doi: 10.59988/jfmsl.vol.34issue1.10
20. Rautji R, Dingre N, Karmarkar M, Deshpande K. Legally Safe Medical Documentation: Ensuring Compliance and Patient Protection. J Forensic Med Sci Law. 2024;33(2):79-81. doi: 10.59988/jfmsl.vol.33issue2.14