

ORIGINAL ARTICLE

Understanding assault Patterns: A Cross-sectional study of Cases at Chri, Kelambakkam, Chennai

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ABSTRACT

This prospective descriptive cross-sectional study analysed 100 assault victims presenting to the casualty department of Chettinad Hospital and Research Institute (CHRI), Kelambakkam, Tamil Nadu, over a one-year period. The study aimed to describe the demographic profile, incident characteristics, injury patterns, treatment requirements, and medico-legal aspects of assault cases. Young adults were predominantly affected, with the highest proportion in the 21-30 years age group (43%), and males constituted 71% of victims. Street-related assaults (40%) and home-based assaults (38%) were the most common settings, while 57% of victims identified the assailant as a known person. Personal conflict emerged as the leading motive (57%), followed by intoxication-related violence (23%). Blunt force trauma was the predominant mechanism of injury, and grievous injuries accounted for 65% of cases, with the head and neck region frequently involved. Hospital admission was required in 75% of patients, reflecting the significant clinical burden of assault-related trauma. Medico-legal procedures, including MLC registration and police intimation, were appropriately followed in most cases. The findings highlight the substantial healthcare and forensic burden of assault injuries and emphasise the need for targeted violence prevention strategies, public awareness, and strengthened coordination between healthcare and law enforcement systems.

KEYWORDS:

- Assault • Medico-Legal Cases • Cross-Sectional Study • Blunt Force Trauma
- Grievous Injury • Violence Prevention • Forensic Medicine • Emergency Care

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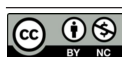
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INTRODUCTION

A medico-legal case refers to any injury or condition where, based on the patient's history and clinical examination, the attending physician concluded that investigation by law enforcement was necessary to determine legal responsibility. A registered medical practitioner was required to thoroughly assess such cases, and in situations of uncertainty, it was considered prudent to inform the police.

Assault cases presented a unique challenge in healthcare settings, particularly in emergency departments, where victims required prompt and often intensive medical care. The Casualty Department at Chettinad Hospital and Research Institute (CHRI), Kelambakkam, played a critical role in managing these cases by providing immediate treatment and support to affected individuals.

This study aimed to profile the assault cases presenting to the casualty department of CHRI, Kelambakkam, to understand the demographic patterns, nature of injuries, and contextual factors surrounding these incidents. Through detailed analysis of case data, the study sought to identify prevailing trends and underlying causes, thereby contributing to more effective preventive strategies and improved patient management. The insights obtained were expected to be relevant to healthcare professionals, policymakers, and researchers dedicated to reducing the burden of assault-related injuries in the community.

METHODOLOGY

This prospective, descriptive, cross-sectional study was conducted in the Department of Forensic Medicine at Chettinad Hospital and Research Institute (CHRI), Kelambakkam, a tertiary care teaching hospital in Tamil Nadu, with the aim of analysing assault cases reported to the casualty department. Data were collected over a period of one year following approval from the Institutional Ethics Committee. The study population comprised all patients presenting to the casualty department with a history of physical assault during the study period. Patients of all age groups and genders with complete medico-legal documentation and clinical records were included in the study, whereas cases with incomplete or missing medical/legal records and victims of self-inflicted injuries or accidental trauma were excluded. Data were obtained from medico-

legal case (MLC) registers, casualty records, and patient case sheets. Variables recorded included demographic details such as age, gender, and occupation; time and location of the incident; alleged mode and motive of assault; type and severity of injuries sustained; medical interventions administered; and details regarding medico-legal documentation and referrals, if any. The collected data were compiled using Microsoft Excel and analysed using descriptive statistics. The findings were presented using appropriate tables and graphical representations. Prior approval was obtained from the Institutional Ethics Committee of CHRI, and confidentiality and anonymity of all patient data were strictly maintained throughout the study, with no personally identifiable information being disclosed or published.

RESULTS

A total of 100 assault victims presenting to the casualty department of CHRI, Kelambakkam during the study period were included in the analysis. The victims ranged in age from **8 to 80 years**, with a **mean age of 32.1 ± 12.4 years** and a median age of 30 years, indicating that assault predominantly affected the young and economically productive age group.

Demographic Profile of Victims

The majority of victims belonged to the **21-30 years age group (43%)**, followed by **31-40 years (22%)** and **41-50 years (15%)**. Individuals above 50 years constituted only 6% of cases.

Table 1: Age Distribution of Assault Victims

Age group (years)	Frequency (n)	Percentage (%)
≤20	13	13
21-30	43	43
31-40	22	22
41-50	15	15
>50	6	6
Total	99*	100

Male victims predominated (**71%**) whereas females accounted for **29%**.

Table 2: Sex Distribution

Sex	Frequency	Percentage (%)
Male	71	71
Female	29	29
Total	100	100

Occupational analysis showed that victims largely belonged to economically active groups, including labourers, private employees, homemakers and students.

Marital status assessment revealed that the majority were **married individuals**, suggesting increased exposure to interpersonal and domestic conflicts.

Incident Characteristics

Street-related assaults formed the largest proportion (40%), followed closely by incidents occurring at home (38%), indicating that both public and domestic environments contributed substantially to assault occurrence.

Table 3: Place of Incident

Place of incident	Frequency	Percentage (%)
Street	40	40
Home	38	38
Workplace	8	8
Public place	3	3
Others	11	11
Total	100	100

Most victims identified the assailant as a **known person (57%)**, while **43%** reported unknown assailants.

Table 4: Alleged Assailant Profile

Assailant	Frequency	Percentage (%)
Known	57	57
Unknown	43	43
Total	100	100

Regarding the number of assailants involved, **single assailant incidents predominated**, while group assaults accounted for a smaller proportion.

The commonest motive identified was **personal conflict (57%)**, followed by **intoxication-related violence (23%)**.

Table 5: Alleged Motive of Assault

Motive	Frequency	Percentage (%)
Personal conflict	57	57
Intoxication	23	23
Unknown	12	12
Robbery	5	5
Others	3	3
Total	100	100

The majority of victims presented **within a short interval following assault**, reflecting

early reporting and prompt access to emergency care.

Clinical and Treatment Profile

Hospital admission was required in **75%** of cases, indicating the significant clinical burden associated with assault injuries.

Table 6: Hospital Admission Requirement

Admission status	Frequency	Percentage (%)
Required admission	75	75
No admission required	25	25
Total	100	100

Outcome analysis showed that **68%** were admitted while **32%** were discharged following initial management.

Table 7: Outcome in Casualty

Outcome	Frequency	Percentage (%)
Admitted	68	68
Discharged	32	32
Total	100	100

Most admitted patients had short hospital stays (1–3 days), whereas a smaller number required prolonged treatment.

Specialist referrals and surgical interventions were undertaken in selected patients depending upon injury severity.

Medico-Legal Characteristics

Medico-legal procedures were appropriately followed in nearly all cases.

Table 8: Medico-Legal Documentation Profile

Variable	Observation
MLC registration	Performed in majority of cases
Police intimation	Done in most patients
Documentation completeness	Maintained
Fitness certificate issuance	Frequently provided
Final medico-legal opinion	Recorded

This demonstrates satisfactory medico-legal handling and coordination between the casualty and forensic departments.

Injury Profile

Grievous injuries predominated (65%) while simple injuries constituted 35%.

Where immediate categorisation of the injury was not possible, the medico-legal opinion was reserved pending radiological investigations and treatment records. On receipt and review of the relevant reports, injuries meeting the

criteria prescribed under Section 116 of the Bharatiya Nyaya Sanhita (BNS), 2023 were classified under the grievous category.

Table 9: Nature of Injuries

Nature of wound	Frequency	Percentage (%)
Grievous	65	65
Simple	35	35
Total	100	100

Blunt force trauma represented the predominant mechanism of assault.

Injury pattern analysis revealed that abrasions, bruises and lacerations constituted the commonest injuries. Fractures and dislocations were observed among grievous injury cases.

The most commonly affected anatomical regions included:

- Head and neck region
- Upper limbs (arm, forearm, hand)
- Lower limbs (thigh, leg)
- Trunk involvement (abdomen/chest)

Most injuries were classified as fresh injuries, reflecting prompt presentation after assault.

DISCUSSION

The present study demonstrated that assault predominantly affected the young and economically productive age group, with the majority of victims belonging to the 21–30 years age group (43%) and a mean age of 32.1 years. Similar observations have been reported by Sharma *et al.* and Mohanty *et al.*, where young adults constituted the largest proportion of assault victims due to increased occupational exposure, interpersonal interaction, and social activity patterns.^{1,2} WHO reports have also identified young adults as the most vulnerable population to interpersonal violence globally.^{3,4}

Male predominance (71%) observed in the present study was comparable to findings reported in previous Indian and international studies.^{2,5–7} Increased outdoor activity, occupational exposure, alcohol consumption, and greater involvement in interpersonal conflicts among males have been suggested as contributing factors.^{5,6} Nevertheless, the notable proportion of female victims (29%) and the occurrence of assaults within domestic settings indicate the ongoing burden of domestic and interpersonal violence.^{3,8}

Street-related assaults (40%) represented the commonest site of occurrence in the present study, closely followed by home-based incidents (38%). Similar trends have been documented by Kumar *et al.* and Shepherd *et al.*, who identified public places and streets as major locations for assault-related injuries.^{9,10} However, the substantial proportion of domestic incidents observed in the present study may reflect increasing household conflicts and socioeconomic stressors.^{8,11}

Most victims (57%) identified the assailant as a known person, indicating the interpersonal nature of violence. Comparable observations were reported by Aggrawal and Parikh, who noted that assaults frequently involve family members, acquaintances, neighbours, and socially known individuals.^{12,13} The predominance of personal conflict (57%) as the principal motive further supports this pattern.

The present study demonstrated predominance of grievous injuries (65%), whereas simple injuries accounted for 35%. This finding differs from several earlier studies that reported higher proportions of simple injuries.^{2,9,14} The increased proportion of grievous injuries in the present study may be attributable to the tertiary care referral nature of CHRI. Furthermore, injuries requiring radiological confirmation and review of treatment records were categorised as grievous following final medico-legal assessment according to Section 116 of the Bharatiya Nyaya Sanhita, 2023.

Blunt force trauma constituted the predominant mechanism of assault in the present study, with abrasions, contusions, and lacerations being the commonest injury patterns. Similar findings have been described by Reddy, Vij, and Modi, who reported blunt weapon injuries as the most frequently encountered injury pattern in assault-related medico-legal practice.^{5,15,16}

The head and neck region represented the most commonly affected anatomical site, followed by extremities and trunk involvement. Similar observations have been reported in forensic literature, where exposed body regions are particularly vulnerable during interpersonal violence.^{5,12,15}

Hospital admission was required in 75% of cases, indicating the significant healthcare burden associated with assault injuries. WHO reports and studies by Shepherd *et*

al. highlighted that assault-related trauma contributes substantially to emergency admissions, healthcare expenditure, and loss of productivity.^{3,10,17}

The present study also demonstrated satisfactory medico-legal documentation practices, including MLC registration, police intimation, documentation completeness, and final medico-legal opinion recording. Proper medico-legal documentation remains essential for legal proceedings and administration of justice.^{5,13,16}

Overall, the present findings indicate that assault in this region was predominantly interpersonal, male predominant, and associated with grievous injuries requiring hospital-based management, emphasising the need for violence prevention programmes, community awareness initiatives, and strengthening medico-legal services.^{18–20}

CONCLUSION

The present study demonstrated that assault victims presenting to CHRI, Kelambakkam were predominantly young adult males, with most incidents arising from personal conflicts involving known assailants. Streets and households constituted the major locations for assault occurrence.

A substantial proportion of victims sustained grievous injuries, predominantly due to blunt force trauma, necessitating hospital admission and specialised care. The findings also emphasised the important role of forensic departments in medico-legal documentation and injury assessment, particularly where final opinions required correlation with radiological investigations and treatment records as per Section 116 of the Bharatiya Nyaya Sanhita, 2023.

The study highlights the need for improved violence prevention programmes, public awareness initiatives, conflict resolution strategies, and integrated coordination between healthcare institutions and law enforcement agencies to reduce assault-related morbidity and societal burden.

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