



INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X

Impact Factor: 6.078

(Volume 11, Issue 1 - V11I1-1422)

Available online at: <https://www.ijariit.com>

An Analysis of Common Types of Injuries Reported at Out Patient Department of Type a Base Hospital in the Eastern Province of Sri Lanka: A Retrospective Study Using Data from Form Information of Injury (H 1258)

Thahira Safiudeen

thahira.sl@gmail.com

Base Hospital kalmunai North,
Srilanka

Baminy Navaratnam

baminy2050@gmail.com

Post Graduate Institute of medicine, University of Colombo
Colombo Srilanka

ABSTRACT

This study aimed to analyze the injury patterns among patients treated in the outpatient department (OPD) to identify key trends in gender, age distribution, mechanisms of injury, and affected body regions. A total of 880 injury cases were reviewed, with male patients constituting 61% and female patients 39%, resulting in a male-to-female ratio of 1.56:1. The majority of injuries (99%) were unintentional, and alcohol use was noted in 2.61% of cases. The age distribution revealed that 91.1% of patients were children, adolescents, or adults, with 59.6% falling within the adult (18-65 years) age group. The most common mechanisms of injury were falls (34%) and being struck by an object (32%), while lower limbs (48%) and palms/fingers (21%) were the most frequently affected body regions. The study also noted that 59% of patients sought treatment by noon, with the remaining patients treated later in the day. These findings suggest that falls, blunt trauma, and upper extremity injuries are most prevalent, with a significant portion of cases occurring in the productive age group. The study highlights the need for targeted injury prevention programs, better data collection on injury specifics, and timely interventions to reduce injury incidence and improve patient outcomes. Keywords: Injury, outpatient department, age distribution, mechanisms of injury, alcohol use, body region affected, fall prevention, injury prevention.

Keywords: Injury, Out Patient Department, Age Distribution, Mechanism of Injury, Alcohol Use, Injury Prevention, Affected Body Region, Fall Prevention

INTRODUCTION

In Sri Lanka, injuries represent a significant public health concern, placing a considerable burden on the healthcare system. A substantial percentage of the annual government expenditure is allocated to the care and management of injured patients, which contributes to rising bed occupancy rates. This increased demand for healthcare services is accompanied by heightened staff workload and increased patient care costs. Injuries, particularly those affecting individuals in the productive age group, result in substantial long-term social and economic consequences. Many affected individuals experience permanent disability or loss of life, leading to an immense emotional toll on both the patients and their families. The consequences are often severe, particularly in cases where patients lose their ability to work, becoming financially dependent on others, and facing lifelong dependency.

Older adults, particularly those prone to falls, also form a vulnerable group that significantly contributes to the injury burden. Furthermore, the psychological trauma experienced by individuals suffering from severe injuries, particularly the loss of limbs or permanent disability, is a major concern. The inability to earn a living due to such disabilities, along with the psychological strain of adjusting to new life circumstances, exacerbates the overall impact on public health and well-being.

Injuries, which encompass both unintentional injuries and violence, are a widespread global public health challenge affecting individuals, families, and communities alike. According to the World Health Organization (WHO) in "Injuries and Violence: The Facts" (2010), injuries and violence continue to pose a significant threat to populations worldwide. The Global Burden of Disease (GBD) study reveals that injuries are one of the leading causes of mortality and morbidity globally. In 2019, the GBD reported 713.9 million injuries and 4.3 million injury-related deaths worldwide.

According to the WHO's "Injury Chart Book" (2002), injury-related mortality rates are notably higher in men compared to women, with young people aged 15-44 years representing nearly 50% of global injury-related deaths. The main causes of injury-related deaths globally include road traffic injuries (24%), suicide (16%), homicide (10%), falls, drowning, burns, poisoning, and war-related injuries.

In Sri Lanka, the Directorate of Non-Communicable Diseases (NCD) serves as the national focal point for injury prevention under the Ministry of Health. This initiative is aligned with the vision of creating "A country free of unintentional injuries" and seeks to reduce the burden of injuries, related disabilities, and deaths in the country. The National Policy and Strategic Framework on Injury Prevention and Management, developed in 2016 and updated for the period 2021–2025, provides comprehensive guidelines and action plans for preventing and managing injuries across Sri Lanka. The Injury Prevention Program, which primarily focuses on unintentional injuries, is led by the technical expertise of a Consultant Community Physician, with Medical Officers of Non-Communicable Diseases (MO NCD) at the district level playing a crucial role in implementation and surveillance.

In Sri Lanka, injuries have emerged as the leading cause of hospitalization for the past two decades, with over one million people being hospitalized annually due to injury-related events. This translates to a staggering number of individuals being admitted to government hospitals for inpatient care, with at least two individuals hospitalized every minute due to injuries. Moreover, injury-related mortality in Sri Lanka is alarmingly high, with approximately 14,000 fatalities each year, accounting for around 10% of all deaths in the country. Injuries rank as the fourth leading cause of death overall and the tenth leading cause of hospital-related deaths. Notably, more than 10,000 individuals die from injuries before even reaching a hospital, often due to the severity of their injuries or delays in receiving medical attention. WHO latest estimates, injuries claim about 12000 lives of Sri Lankans annually. Therefore, every day Sri Lanka loses about 32 individuals (about 4 individuals in every 3 hours) due to injuries (The National Policy and Strategic Framework on Injury Prevention and Management, 2025).

This study aims to provide a detailed analysis of the most common types of injuries reported at a Type A Base Hospital in Sri Lanka's Eastern Province. By reviewing the data collected from Form Information of Injury (H 1258), the research will offer valuable insights into injury trends, hospital admissions, and the associated impacts on the healthcare system and public health. Understanding these patterns is essential for developing more effective injury prevention strategies and improving the overall management of injuries in Sri Lanka.

LITERATURE REVIEW

A study conducted by Liu et al. (2014) to analyze the epidemiological characteristics and factors influencing hospitalization burden among trauma patients revealed that the average length of hospital stay for injured patients was 7 days. The study found that the median age group of hospitalized patients ranged from 52 to 62 years, with falls being the most common cause of hospitalization, accounting for 62.54% of the cases. Furthermore, the upper and lower extremities were identified as the most commonly injured regions among the patients. This highlights the significant burden of fall-related injuries on hospital resources and underscores the importance of fall prevention strategies, especially for the elderly population (Liu T et al., 2014).

Similarly, Alghnam et al. (2019) conducted a study to explore the associations between injury mechanisms and extended hospital stays among pediatric trauma patients in a Saudi Arabian trauma center. The study found that motor vehicle injuries were significantly associated with prolonged hospitalizations, emphasizing the severe impact of road traffic accidents on the healthcare system. The authors recommended implementing preventive measures to reduce the burden of traffic-related injuries, including enhanced traffic law enforcement and public education on road safety to minimize the occurrence of motor vehicle-related trauma (Alghnam S et al., 2019).

In a broader context, both unintentional injuries and those resulting from violence are significant contributors to mortality and morbidity across various populations. According to Franklin and Sleet (2018), injuries are among the top 15 leading causes of death in both Australia and the United States, affecting individuals across all age groups. These injuries are notably the leading cause of death among children and adolescents and a primary cause of disability for individuals of all ages, regardless of sex, race/ethnicity, or socioeconomic status. In both countries, injuries contribute to approximately 10% of Disability-Adjusted Life Years (DALYs), with categories such as transport-related injuries, self-harm, and falls accounting for a significant portion of the injury burden. The study highlights the public health impact of injury-related deaths and disabilities and suggests that injury prevention should be prioritized as part of public health strategies (Franklin RC, Sleet DC, 2018).

Furthermore, Franklin and Sleet (2018) argue that injury prevention should be better integrated into health promotion efforts. They emphasize the need for widespread education on how to reduce injury risks, similar to the public health campaigns for cancer and heart disease prevention. The authors suggest that the widespread belief that injuries are the result of "accidents" or random events often leads to a lack of awareness about the preventability of such incidents. In reality, many injury-related events—whether unintentional or violent—are predictable and preventable, much like many noncommunicable diseases. They advocate for greater involvement of health promotion practitioners in addressing injury prevention to reduce the burden of injury-related deaths and disabilities (Franklin RC, Sleet DC, 2018).

OBJECTIVE

To analyze the trends, patterns, severity, demographic factors, and key determinants associated with injury occurrences treated at the Outpatient Department (OPD) of the Type A Base Hospital

MATERIALS AND METHODS

A descriptive cross-sectional study was conducted at Base Hospital Kalmunai North, a Type A Base Hospital located in the Eastern Province of Sri Lanka. The hospital has a bed capacity of 450 and an average of 426 outpatient visits per day. The outpatient department (OPD) operates uninterruptedly from 8:00 AM to 8:00 PM. The study utilized secondary data collected from the "Information on Injury" Form (H 1258), developed by the Directorate of the Non-Communicable Disease (NCD) Unit, Ministry of Health, Sri Lanka, for injury surveillance purposes.

Data for the study were retrieved from the H 1258 forms for a three-month period, from October 1st to December 31st, 2024. A total of 880 patients were treated at the OPD during this period, as reported in the quarterly institutional return on injury information (H 1258). The data were analyzed to assess the trends, patterns, and key factors associated with injuries treated at the OPD.

RESULTS

A total of 880 patients were treated at the outpatient department (OPD) for injuries during the study period. Among these patients, 540 (61%) were male and 340 (39%) were female, resulting in a male-to-female ratio of 1.56:1, as illustrated in Figure 1.39%).

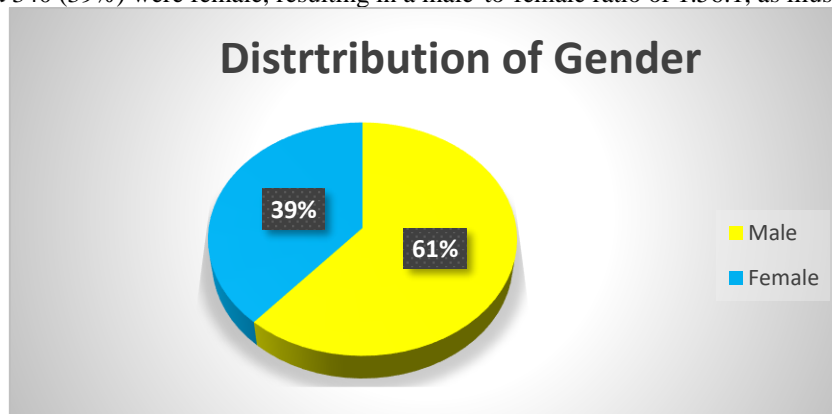


Figure 1: Gender Distribution of Injury victims

The majority (99%) of injuries reported to the OPD were unintentional. However, none of the injury forms included information regarding the place of occurrence or the nature of the injuries. Evidence of alcohol use was noted in 23 (2.61%) patients.

As shown in Table 1, the age distribution of the injury victims revealed that the majority (91.1%) of patients were children, adolescents, or adults. The breakdown by age group was as follows: 163 (18.7%) were children (up to 12 years), 110 (12.8%) were adolescents (12 to 18 years), 523 (59.6%) were adults (18 to 65 years), and 78 (8.9%) were elders (above 65 years). Notably, 59.6% of the patients were adults within the productive age group (18 to 65 years).

Table 1:Age Distribution of Injury Victims

Age category	Number of patients (%)
Children(upto 12 years)	163(18.7)
Adolescent(12 to 18 years)	110(12.8)
Adults(18 to 65 Years)	523(59.6)
Elders(above 65 Years)	78(8.9)

Regarding the time of treatment, 59% of patients sought care by 12 PM, while the remaining patients (41%) were treated till 8pm. Specifically, 30% of the patients were treated between 12 PM and 6 PM..

Table 2 presents the distribution of mechanisms of injury. Falls accounted for the highest proportion of injuries, with 302 (34%) cases. The second most common mechanism was being struck or hit by an object, which accounted for 289 (32%) injuries. Other significant mechanisms of injury included animal bites (43, 4.9%), transport injuries (41, 4.7%), and stab/cut injuries (40, 4.5%). The remaining 165 cases (18.9%) were attributed to other mechanisms not specified in the top categories.

Table 2: Distribution of Mechanism of Injury

Mechanism of Injury	Number(%)
Fall	302 (34)
stuck/hit by object	289 (32)
animal bite	43 (4.9)
transport injuries	41(4.7)
Stab/cut	40 (4.5)
All other categories	165(18.9)

Table 3 shows the distribution of affected body regions. The lower limbs were the most commonly injured body region, with 425 (48%) cases. Palms and fingers accounted for 185 (21%) injuries, followed by head injuries in 67 (7.6%) patients. Injuries to the oromaxillary region and face were observed in 63 (7.1%) and 56 (6.3%) cases, respectively. Additionally, 84 (10%) injuries were classified as affecting other body regions.

Table 3: Distribution of affected Body region due to Injury

Affected Body region	Number(%)
Lower limb	425(48)
Palms &Finger	185 (21)
Head	67(7.6)
Oromaxillary	63(7.1)
Face	56(6.3).
Other area	84(10)

CONCLUSIONS

The study provides valuable insights into the patterns of injuries among patients treated at the OPD. A predominance of male patients (61%) was observed, with the majority of injuries being unintentional. Most of the patients were in the adolescent and adult age groups, and a significant number (59%) sought treatment by noon. The most common mechanisms of injury were falls (34%) and being struck or hit by an object (32%), with injuries predominantly affecting the lower limbs and upper extremities (palms and fingers). Evidence of alcohol use was noted in a small percentage of patients (2.61%), highlighting a potential contributing factor to some injuries.

The age distribution showed that a large proportion of injury victims were in the productive age group (18-65 years), with a smaller but noteworthy percentage of elderly patients (8.9%) and children (18.7%). These findings suggest that efforts to prevent injuries should target both vulnerable populations and the general public.

RECOMMENDATIONS

Prevention Strategies

Given the high frequency of falls and blunt trauma, public awareness campaigns focusing on fall prevention, especially in children and the elderly, should be prioritized.

Workplaces and public spaces should implement safety measures to reduce the risk of injuries from being struck by objects.

Initiatives aimed at reducing alcohol consumption and its link to injury occurrence should be introduced, including education on the dangers of alcohol-related injuries.

Targeted Interventions for Age Groups:

Tailor injury prevention programs for children and elderly patients, considering their specific vulnerabilities. For children, focus on playground safety and household injury prevention. For elderly individuals, emphasize fall prevention measures and home modifications to reduce injury risks.

For adults, particularly those in the productive age group, implement workplace safety measures and road safety education to reduce transport injuries.

Timely Medical Attention:

The data showed that 59% of patients sought treatment by noon, with 30% of patients arriving between 12 PM and 6 PM. It may be beneficial to extend hours for injury care and improve access to medical services, particularly in the afternoon, to accommodate the majority of patients who seek care later in the day.

By addressing these areas, healthcare systems can improve injury prevention, optimize resource utilization, and provide better care for patients affected by injuries.

ACKNOWLEDGEMENT

Dr G. Sukunan - Director , Base Hospital Kalmunai North

REFERENCES

- [1] Global burden of disease study -2019
- [2] WHO .The Injury chart Book, A graphical overview of the global burden of injuries , 2002
- [3] Injuries and violence the facts,WHO 2014
- [4] Liu T, Li F, Li Y, Li J, Chen L, Yang Z, Cao C. Epidemiological characteristics and factors influencing hospitalization burden among trauma patients: a retrospective analysis. Eur J Trauma Emerg Surg. 2024 Apr;50(2):425-437. doi: 10.1007/s00068-023-02353-2. Epub 2023 Aug 31. PMID: 37653128.

- [5] Alghnam S, Towhari JA, Al Babbain I, Al Nahdi M, Aldebasi MH, Alyami M, Alkhalaf H. The associations between injury mechanism and extended hospital stay among pediatric patients: findings from a trauma Center in Saudi Arabia. *BMC Pediatr.* 2019 Jun 3;19(1):177. doi: 10.1186/s12887-019-1559-7. PMID: 31159773; PMCID: PMC6545720.
- [6] Stenehjem JS, Røise O, Nordseth T, Clausen T, Natvig B, O Skurtveit S, Eken T, Kristiansen T, Gran JM, Rosseland LA. Injury Prevention and long-term Outcomes following Trauma-the IPOT project: a protocol for prospective nationwide registry-based studies in Norway. *BMJ Open.* 2021 May 18;11(5):e046954. doi: 10.1136/bmjopen-2020-046954. PMID: 34006552; PMCID: PMC8137183.
- [7] WHO. Injuries and violence: the facts: World Health Organization; 2010. [cited 2018 August 1]. Available from http://www.who.int/violence_injury_prevention/key_facts/en/ [Google Scholar]
- [8] ABS. 3302.0 – Deaths, Australia 2016 Canberra: Australian Bureau of Statistics; 2017. [Google Scholar]
- [9] Mack KA, Clapperton AJ, Macpherson A, et al. Trends in the leading causes of injury mortality, Australia, Canada and the United States, 2000–2014. *Can J Public Health* 2017; 108(2): e217–8. [DOI] [PMC free article] [PubMed] [Google Scholar]
- [10] Richard C Franklin 1, David A Sleet Injury prevention and health promotion: A global perspective, PMCID: PMC6784536 NIHMSID: NIHMS1027357 PMID: 30159990
- [11] Institute for Health Metrics and Evaluation. Australia Country Profile 2014. [cited 2018 August 1]. Available from https://www.healthdata.org/sites/default/files/files/country_profiles/GBD/ihme_gbd_country_report_australia.pdf
- [12] Annual injury report 2022, Directorate of Non Communicable Disease, Ministry of Health, srilanka.