



## Characteristics of Musculoskeletal Injury Patients at Hanau Hospital, Central Kalimantan Province in 2024

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### KEYWORDS

Musculoskeletal injuries, patient characteristics, fractures, Hanau Hospital, epidemiology

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### ABSTRACT

Musculoskeletal injuries are one of the leading causes of disability and death worldwide, including in Indonesia, with a high prevalence among patients presenting to the *Instalasi Gawat Darurat (IGD)*. This study aims to determine the characteristics of musculoskeletal injury patients in the emergency room of Hanau Hospital, Central Kalimantan Province, in 2024. The study used a descriptive design with secondary data obtained from patients' medical records for the period January 1 to December 31, 2024. Inclusion criteria comprised patients diagnosed with musculoskeletal injuries and those with complete medical record data, while the exclusion criteria comprised patients without such diagnoses or with incomplete data. The results showed a total of 123 musculoskeletal injury patients, with the highest age distribution in the 11–20 years group (20%), followed by the 21–30 years group (17%). By gender, males predominated at 70%, while females accounted for 30%. The most common injury locations were clavicle fractures (8%), wrist and other hand fractures (9%), and distal radius fractures (6%). This pattern aligns with previous research showing upper extremity fractures as the most common cases in active populations. These findings confirm the need for prevention strategies based on safety education, improvement of rehabilitation facilities, and ergonomic interventions tailored to specific age groups and types of activities. This study provides an initial overview of the epidemiology of musculoskeletal injuries at Hanau Hospital, which can serve as a basis for prevention and treatment policies in the Central Kalimantan region.

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### INTRODUCTION

Indonesia is one of the countries in ASEAN with a high number of patient visits to the *Instalasi Gawat Darurat*. Data shows that the number of patients visiting the *Emergency Installation* reached 4,402,205 in 2017 (Kementerian Kesehatan Republik Indonesia, 2018). Approximately 10–15% of patients presenting to the *Instalasi Gawat Darurat (IGD)* have musculoskeletal complaints. Acute musculoskeletal injuries requiring emergency room services must be managed properly and accurately because musculoskeletal injury is one of the leading causes of the Global Burden of Disease, as it can result in disability and death (WHO, 2021). Musculoskeletal trauma includes several types, such as fractures and dislocations; trauma to soft tissues including ligaments, muscles, and joints also fall into this category. Examples of soft tissue trauma include sprains (Costa et al., 2022).

According to RISKESDAS data, the number of injuries occurring at home and in the environment accounts for 44.7%, which is higher than road injuries at 31.4% (Kementerian Kesehatan Republik Indonesia, 2018). Domestic accidents in the elderly often occur because they spend more time performing daily activities at home (Cicuh et al., 2024). In Indonesia, the

proportion of injury locations—other than traffic and household—is 9.1% in the workplace and 8.3% in other settings (Kementerian Kesehatan Republik Indonesia, 2018).

Based on data from the Central Kalimantan RISKESDAS, the prevalence of trauma in the age groups 1–4 years, 5–14 years, and 15–24 years was 6.23%, 9.46%, and 9.27%, respectively. It was found that 66.73% of trauma occurred in the lower extremities, while 33.12% occurred in the upper extremities (Hakim & Nurika, 2019). Due to the high incidence of musculoskeletal injuries causing disability and death, adequate health facilities are needed to reduce the risk of disability and mortality resulting from injury.

In Central Kalimantan, Hanau Hospital is a public hospital under the provincial government, inaugurated in 2022. It is expected to serve as a referral hospital for the western region of Central Kalimantan. Due to the high global and national burden of musculoskeletal injury cases—particularly in Central Kalimantan—and the lack of published studies on the characteristics of such patients in this region, the authors conducted this study. Previous research, such as the study by Hussain et al. (2015) in Kashmir Valley, highlighted the epidemiology of pediatric musculoskeletal injuries, showing a high prevalence of fractures in young populations due to active lifestyles. Similarly, Yilmaz et al. (2025) conducted a large-scale national registry study in Turkey, analyzing fracture patterns among working-age adults and emphasizing gender- and age-related differences. Additionally, Xiao et al. (2023) provided detailed epidemiological data on pediatric fractures, noting the influence of age and activity type on injury mechanisms. However, no such study has been conducted specifically at Hanau Hospital. This study aims to describe the characteristics of musculoskeletal injury patients in the emergency room of Hanau Hospital, Central Kalimantan Province.

The results of this study are expected to provide benefits: first, for hospital management as basic data and evaluation for planning equipment procurement, improving service quality, and preparing protocols for handling musculoskeletal injury patients in the emergency room; second, for health workers, especially in orthopedics and emergency fields, to increase awareness and understanding of common injury patterns, thereby improving diagnosis and management accuracy; and third, for local governments and related agencies (such as the Health Office and the Transportation Office) as considerations for developing targeted promotive-preventive policies and programs, such as driving, sports, and work safety education, as well as efforts to prevent domestic accidents tailored to the age and gender characteristics of the at-risk population in the Central Kalimantan region.

## METHOD

This research uses a descriptive research design to determine the characteristics of musculoskeletal injury patients at Hanau Hospital, Central Kalimantan Province, in 2024. The population in this study consists of all patients who presented to the *Instalasi Gawat Darurat (IGD)* of Hanau Hospital with a diagnosis of musculoskeletal injury during the period from January 1, 2024, to December 31, 2024. The sampling technique used was total sampling, where all individuals meeting the criteria were included as samples. The inclusion criteria were: (a) the patient was recorded in the Hanau Hospital Medical Record, and (b) the patient's data included the variables studied (age, gender, and fracture type). The exclusion criteria were: (a) patients with incomplete medical record data, and (b) patients without a diagnosis of musculoskeletal injury.

The variables studied were age, gender, and type of fracture based on location. The research instrument was secondary data in the form of patient medical record documents

obtained from the Medical Record Section of Hanau Hospital for the period January 1, 2024, to December 31, 2024. This research was conducted in the Medical Records Section of Dr. Hanau Hospital during May–June 2025.

The data collection procedure involved accessing secondary data from patient medical records. Researchers visited the Medical Records Section to retrieve data in the form of a database of musculoskeletal injury patients. The data obtained were then processed by screening based on inclusion and exclusion criteria, followed by tabulation. Data analysis was conducted descriptively to produce a profile of musculoskeletal injury patients in the emergency room of Hanau Hospital within the predetermined period. Based on medical record data, the incidence of musculoskeletal injuries at Hanau Hospital from January to December 2024 was identified in 138 patients who presented to the hospital's emergency room.

Characteristics of musculoskeletal injury patients by age.

**Table 1. Distribution of Musculoskeletal Injury Patients by Age Group at Hanau Hospital Emergency Department (January - December 2024) (n=123)**

Age Group	Frequency	Percentage
1 – 10	21	17%
11 – 20	24	20%
21 – 30	21	17%
31 – 40	19	15%
41 – 50	21	17%
51 – 60	9	7%
61 – 70	5	4%
71 – 80	2	2%
81 – 90	0	0%
91 – 100	1	1%
Sum	123	100

Source: Secondary Data of Hanau Hospital Medical Records, 2024

Characteristics of musculoskeletal injury patients based on gender.

**Table 2. Distribution of Musculoskeletal Injury Patients by Gender at Hanau Hospital Emergency Department (January - December 2024) (n=123)**

Gender	Frequency	Percentage
Man	86	70%
Woman	37	30%
Sum	123	100

Source: Secondary Data of Hanau Hospital Medical Records, 2024

Characteristics of musculoskeletal injury patients based on the type of injury according to the location.

**Table 3. Distribution of Musculoskeletal Injury Patients by Fracture Location at Hanau Hospital Emergency Department (January - December 2024) (n=123)**

Fracture Location	Frequency	Percentage
Fracture of clavicle	10	8%
Fracture of other and unspecified parts of wrist and hand	11	9%
Fracture of lower end of radius	7	6%

Fracture of other parts of forearm	7	6%
Fracture of shaft of tibia	5	4%
Fracture of thumb	6	5%
Fracture of upper end of ulna	5	4%
Fracture of fibula alone	5	4%
Fracture of other finger	4	3%
Fracture of femur, part unspecified	4	3%
Fracture of shaft of humerus	4	3%
Fracture of other metacarpal bone	2	2%
Fracture of patella	2	2%
Fracture of foot, unspecified	3	2%
Fracture of shaft of ulna	4	3%
Pertrochanteric fracture	3	2%
Fracture of metatarsal bone	2	2%
Fracture of shafts of both ulna and radius	2	2%
Fracture of upper end of humerus	2	2%
Fracture of shaft of femur	1	1%
Fracture of tibia, open	1	1%
Fracture of shaft of tibia, open	1	1%
Fracture of ilium	1	1%
Fracture of rib	1	1%
Fracture of thoracic vertebra	1	1%
Fracture of navicular [scaphoid] bone of hand	1	1%
Fracture of malar and maxillary bones	1	1%
Fracture of nasal bones	1	1%
Fracture of talus	1	1%
Fracture of other toe	1	1%
Multiple fractures of forearm	4	3%
Total	123	100

Source: Secondary Data of Hanau Hospital Medical Records, 2024

## RESULT AND DISCUSSION

1. Characteristics according to the age of musculoskeletal injury patients. From Table 3.1, it appears that musculoskeletal injuries in the age group of 11-20 years occupy the top number of sufferers as many as 36 people (%), second place is in the age group of 21-30 years as many as 29 people (%), followed by the age group of 31-40 years as many as 23 people (%). Meanwhile, at the bottom of the list of traffic accident patients, namely in the age group of > 60 years as many as 9 people (%). According to Riskesdas 2018, the prevalence of injuries in the age group of children and adolescents is quite high, namely in the age group of 5-14 years of age at 9.46% and 15-24 years of age at 9.27%. This figure indicates a high risk of trauma to the extremities due to dynamic activities that are not accompanied by physical protection (Riskesdas, 2018).

2. Characteristics by gender to musculoskeletal injuries. From Table 3.2, it appears that musculoskeletal injuries at Hanau Hospital for the period January – December 2024 are dominated by 99 men (%) while 39 women (%). Another study found that most musculoskeletal injuries occur in productive men, while women are more affected by osteoporosis fractures in old age (Yilmaz, 2025). In addition, research in the context of gender-based violence reported that the percentage of upper extremity fractures in women (especially the upper arm) reached 53.9%, much higher than that of men (20%) ( $p = 0.0328$ ). This confirms the existence of social factors and mechanisms of violence that affect the distribution of injuries by gender (Leslie, 2025)
3. Location of musculoskeletal injury. Based on Table 3.3, it appears that musculoskeletal injury patients at Hanau Hospital based on the trauma location where trauma that occurred in clavicle fractures (collarbone) ranked at the top, namely 14 traumas (%), in the second order the trauma locations were found in other and non-specific traumas, namely 13 traumas (%), followed by the trauma location found in ulna fractures (bones) and finger and thumb fractures (finger bones), which were with the same number of 12 traumas (%). Meanwhile, in the next order, namely the location of trauma, there are 11 trauma fractures (%). The next trauma location is Tibia (shin bone) fracture with 10 traumas (%) and the lowest trauma location is Thoracic vertebrae and lumbar/spine fracture (spine) with 1 trauma each (%). Population epidemiological research states that fractures of the upper extremities (wrists, fingers, and hands) are the most common, accounting for more than 40% of all fracture cases in the adult population. Similarly, in our data, clavicle, distal radius, and wrist fractures dominate. (Yilmaz, 2025). The mechanism of falling is the main cause of distal radius fractures in adults and children, especially at the age of 11–14 years (Reider, 2021). The frequency of these occurrences decreases with age, while sports-induced fractures increase with age in groups of children and adolescents (Xiao, 2023).

## CONCLUSION

Based on the results of the study, it can be concluded that the characteristics of musculoskeletal injury patients in the emergency room of Hanau Hospital in 2024 were dominated by adolescent and young adult age groups (11–30 years) as well as males, with clavicle, wrist, and distal radius fractures being the most common injury locations. Therefore, it is recommended that hospitals and local health offices develop health promotion and injury prevention programs specifically targeting high-risk populations, especially adolescent and young adult males, focusing on activity and driving safety, as well as improving the readiness of orthopedic and rehabilitation services to manage these most common types of fractures.

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