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Description of Injury Patterns in Traffic Accident Victims of Motorcyclist in the Emergency Room TK. II 03.05.01 Dustira Hospital Cimahi Year 2021-2022

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ABSTRACT
Traffic accidents among motorcyclists are a problem that causes many fatalities. Based on the Central Statistics Agency (BPS), in 2021 the number of motorbikes in Indonesia reached 120 million, which increases every year. According to WHO, every year around 20 to 50 million people experience accidents and 1.3 million of them die. The high mortality rate is caused by many things, such as the low level of compliance of drivers with the rules and the slow handling of traffic accident cases to existing emergency facilities. The aim of this research was to determine the pattern of injuries of motorbike traffic accident victims in the emergency room II 03.05.01 Dustira hospital Cimahi 2021-2022. This type of research is retrospective descriptive by looking at medical record data of ER patients at the II 03.05.01 Dustira hospital Cimahi in 2021- 2022. The results of this research obtained 100 medical record data in 2021-2022. Victims were predominantly aged 15-29 years, 53 victims (53%), male, 79 victims (79%), location The wounds were in the upper extremities in 38 cases (33.3%), the majority of victims' wound patterns were abrasions in 49 cases (40.2%) and the radiological images obtained were predominantly fractures in 17 cases (17%). Based on the literature, the most common location is the head, the conclusion of this study is that the upper extremities are the main support when riding a motorbike with the majority of victims are men aged 15-29 years.

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INTRODUCTION

Road accident namely incident not unexpected and unintentional events that arise during mobilization vehicles , either with or without involvement users road others , and result in injury or loss life individual and /or damage to property , as mandated by the Republic of Indonesia Law Number 22 of 2009. 1 According to the World Health Organization (WHO) report, every year there are around 20 to 50 million cases of incident accident Then traffic resulting in approximately 1.3 million Deaths . [2] Data from the Indonesian National Police Traffic Corps (Korlantas Polri) states that the number of traffic accidents in Indonesia in 2022 reached

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94,671 thousand cases, resulting in 19,054 deaths. This number jumped 34.6% from the 70.2 thousand cases in 2021. According to the West Java Statistics Center (BPS), there were 6,861 traffic accidents in 2020. Meanwhile, according to data from the Cimahi Police Traffic Accident Unit in 2021, there were 860 traffic accidents in Cimahi City, with 480 involving two-wheeled vehicles. [3]

Traffic accident victims can be pedestrians, motorcyclists, and four-wheeled vehicle users, such as private cars. Motorcycle users are a vulnerable group to traffic accidents, as many people use them for daily transportation. An unstable design can easily lead to accidents. Relatively small in size, motorcycles offer high speed and agility, allowing them to maneuver between cars and other vehicles.

Injuries caused by accidents Then cross on motorbikes has various pattern . The severity of injury is influenced by the participation of various road users in the traffic accident event, including pedestrians and motorcyclists . [4] This review aims to describe the pattern of injuries caused by motorcyclist traffic accidents.

MATERIALS AND METHODS

The research method used in this study is method descriptive A retrospective study . The study was conducted at the Dustira Cimahi Kindergarten II 03.05.01 Hospital in 2021-2022 with the population used being record medical from Dustira Cimahi Kindergarten II Hospital, 03.05.01, 2021-2022 who have fulfilled criteria research. The research was conducted in September 2023. The number of samples in this study was 100 people who were taken using a method *Purposive sampling* . The data collected is secondary data that is analyzed. use analysis univariate . Before conducting the research, the researcher had obtained ethical permission with the letter number Etik.RSD/183/X/2023.

RESULTS AND DISCUSSION

This research was conducted at Dustira Hospital, Cimahi, between 2021 and 2022, with a total sample size of 100 patients who met the research criteria. Sample characteristics are shown in Table 1.

Table 1. Sample Characteristics

		Frequency	Presentation (%)	Total
Age	5-14 years old	7	7	100%
	15-29 years old	53	53	
	30-44 years old	28	28	
	45-59 years old	10	10	
	≥ 60 years	2	1.9	
Gender	Man	79	79	100%
	Woman	21	21	

Table 1 shows characteristics The highest number of motorcycle accident victims were teenagers and young adults, aged 15-29, with 53 victims (53%), while the lowest number were aged ≥ 60 (2%). These results align with 2018 WHO statistics, which state that traffic accident victims are in the productive age range, aged 22-50. [5]

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The high prevalence in adolescents and young adults is because at that age they are included in the productive age group, so that someone will often implement mobilization from one place to another . [2] In addition, psychologists explain that young people have higher and less stable emotions, so when driving they sometimes drive at very high speeds, consume illegal drinks or drugs and the desire to seek sensations in controlling the vehicle. Therefore, these conditions increase the number of traffic accidents. [6,7]

Table 1 shows that the majority of motorcycle traffic accident victims were men, with 79 victims (79%), compared to only around 21 women (21%). These results are relevant to Helal's (2021) study, which showed that 91.4% of traffic accident victims were men. Men tend to use motorcycles for long-distance travel to work, leisure time, and commercial deliveries. [8] Furthermore, men tend to be more frequent committing a violation while driving compared to women, namely driving faster than normal speeds so that going at speed tall and not wearing a helmet or protective equipment self . [9]

Table 2. Location of Injuries in Traffic Accident Cases

Wound Location	Frequency	Presentation (%)
Head	23	20.2
Neck	3	2.6
Chest	17	14.9
Stomach	0	0
Pelvis	2	1.8
Upper Extremities	38	33.3
Extremities Lower	31	27.2
Amount	114	100

Table 2 shows that the most common location of injuries in victims was the upper extremity region, with 38 injuries (33.3%), followed by the lower extremity region (27.2%) and the chest (14.9%). These results align with Helal's (2022) study, which found that the incidence of *injury incidents* among motorcyclists was higher in the upper extremities than in the lower extremities, with a ratio of 22.5% and 17.5%. [8]

This is because in a frontal two-wheeled vehicle accident, the vehicle's speed is not restrained, so when a collision occurs, the victim's body hits the affected part of the vehicle. The body part that is initially impacted is usually the lower extremities, as they are the primary impactors, as they support the impact. main the foot and close to the road surface when riding a motorbike so that when driving at high speed high , occurs accident can result in fractures or dislocations of the ankle, knee dislocations and femur fractures. [10]

Table 3. Victim Wound Patterns

Pattern wound	Frequency	Presentation (%)
Wound Scratches	49	40.2
Wound Bruises	26	21.3
Wound Ripped	25	20.5
Wound Burn	1	0.8
Broken Bone	21	17.2

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Amount	122	100

In Table 3. The results showed that the most common injuries found in this study were abrasions, with 49 injuries (40.2%), followed by bruises (21.3%) and lacerations (20.5%). Abrasions are one of the most common types of injuries found in traffic accidents, especially those caused by motorcycles. [2] Abrasions are often found because motorcyclists are usually dragged by the repulsive force between the two objects, causing friction between the road surface, clothing, and skin, resulting in abrasions on the parts of the body that come into contact. [6]

Table 4. Radiological Image of the Victim

Description Radiology	Frequency	Percentage (%)
Fracture	17	17
Dislocation	7	7
No done	76	76
Amount	100	100

In Table 4. The results obtained are that The radiological images were dominated by fractures or broken bones in 17 cases (17%), followed by dislocations or shifts in the joints in 7 cases (7%), while 76 cases (76%) were not examined because there were no fracture or dislocation wounds.

These results are similar to those of Ardhenariswari's (2020) study, which found that of 84 traffic accident victims who died on arrival (DOA) and were hospitalized, the majority of cases showed fractures in several areas of the upper and lower extremities. [11]

In motorcycle accidents, fractures are caused by the high speed of the motorcyclist, causing an imbalance, resulting in an accident that causes a hard impact between the rider's body and the surface, resulting in broken bones. [12]

Table 5. Wound Location and Pattern

Wound Pattern		Scratches	Bruises	Ripped	Burn	Fracture	Total
Head	n	7	4	9	0	3	23
	%	6.1	3.5	7.9	0	2.6	20.2
Neck	n	1	1	0	0	1	3
	%	0.9	0.9	0	0	0.9	2.6
Chest	n	5	4	3	0	5	17
	%	4.4	3.5	2.6	0	4.4	14.9
Stomach	n	0	0	0	0	0	0
	%	0	0	0	0	0	0
Pelvis	n	0	1	1	0	0	2
	%	0	0.9	0.9	0	0	1.8
Upper extremities	n	18	5	5	1	9	38
	%	15.8	4.4	4.4	0.9	7.9	33.3
Lower extremities	n	13	9	7	0	2	31
	%	11.4	7.9	6.1	0	1.8	27.2
Amount	n	44	24	25	1	20	114

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Wound Pattern		Scratches	Bruises	Ripped	Burn	Fracture	Total
	%	38.6	21.1	21.9	0.9	17.5	100

In Table 5. The results showed that the distribution of location and pattern of injuries in cases of motorcycle traffic accidents, from 44 abrasions as many as 18 cases (15.8%) were in the upper extremity region, from 24 bruises as many as 9 cases (7.9%) were in the lower extremity region, from 25 lacerations as many as 9 (7.9%) cases were mostly in the head region. Then from 1 burn as many as 1 case (0.9%) was in the upper extremity region and from 20 fractures as many as 9 cases (7.9%) were in the upper extremity region.

CONCLUSION

Most motorcycle accident victims are aged 15-29 years. When viewed from the location of the injuries, most motorcycle accidents occur in the upper extremity area because the extremities are used as the main support when riding a motorcycle. There were 38 cases found with the most common injury pattern being abrasions (49 cases) and the most common radiological picture being fractures (17 cases).

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