

# Frequency of Bone Injuries examined in the Emergency Departments of the Royal Medical Services hospital, Jordan

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**Keywords:** Emergency Department; Injuries; Traffic Accidents; Falling Down; Injury Type; Injury Site

## ABSTRACT

**Introduction:** Emergency department usually receives cases with bone injuries due to various causes including falling, accidents, and fire shooting.

**Study Objectives:** The main objectives of this study are to identify the frequency of bony lesions compared with other cases received in the emergency departments of the Royal Medical Services hospital, Jordan, and to identify types and causes of bony lesions.

### Methods and subjects:

**Study Design:** A retrospective study design was conducted to collect data from files of patients.

**Study sample:** A total of 150 files for patients who visited emergency department were randomly selected.

**Study Procedure:** After obtaining the ethical approval from IRB committee, the researchers started reviewing patient files to extract data. All data were entered into excel spreading sheet. Data included the following variables age, gender, type of injury, and site of injury.

Data were analyzed using SPSS version 21. Data representation included means, standard deviation, frequencies and percentages. Relationships between variables were determined using Chi-Square test. Significance will be considered at  $\alpha \leq 0.05$ .

**Results:** Study findings showed that the mean of age was  $30.13 \pm 18.60$  years, the majority of patient who were exposed to injuries were males (about 59%), 74% of patients were exposed to injuries resulting from falling down. According to injury site, injuries were more shown in lower body 58%.

**Conclusion:** The results of the present study showed that males were more likely to have injuries compared with females. Females were more likely to be exposed to injuries resulting from falling down. No injury cases resulting from scrimmage among females.

## Introduction

Fracture, a break in the basic progression of bone, is a significant musculoskeletal wellbeing concern around the world [1]. In distributed reports, the frequency of fractures changes and ranges from 3.21 to 22.8/1000 for each annum in the general population [2]. Recently distributed report additionally showed that furthest point breaks establish 82.1%–94.7% of all fractures by anatomical

locale distribution [3-5]. Breaks of ordinary bones regularly results from high-energy sway or dull pressure while for bones unusually debilitated by malady typical burden or unimportant injury is enough to cause a fracture [6]. The outer reasons for limit cracks, for example, engine vehicular crashes, falls, sports injury, and attack are about the equivalent internationally. In any case,

the appropriations of these etiological factors shift between and inside nations depending on winning segment profile, financial, furthermore, natural conditions. Some distributed reports show prevalence of falls as outside reasons for cracks among the pediatric and geriatric populaces, what's more, occupants of areas with a sloping terrain [7-10]. In some different reports, engine vehicular crash was the transcendent outer reason for breaks, particularly in areas where street traffic injury is an ignored epidemic [8,9].

Right now, injury is the main source of death, hospitalization, and inability for all age gatherings, and that is the reason injury casualties are more probable executed more than different infections. Chest injury alone records for 45% of all injury related passing's. The way to analyze chest wounds is having a solid outlook about the probability of thoracic injury in harmed patients, in view of precise patient history [11,12]. The seriousness and sort of component that cause the injury is gotten and a huge level of wounds can be analyzed by basic paraclinical procedures, particularly by plain chest radiography [13]. Nonetheless, in under 15% of the wounds to the chest, crisis medical procedure is required. In different wounds, just steady consideration and early treatment are adequate. A significant number of these wounds are viewed as moderate in seriousness and require just a set number of careful mediations, and there is little uncertainty that such wounds are of specific significance [14]. Cautious development of these patients is basic and accommodating in distinguishing cases that require the treatment of activities [15]. Thoracic injury is perceived as a significant issue and its restorative noteworthiness is clear [16]. Among the breaks during the chest injury, cracks of the ribs are not regular in newborn children because of chest flexion, but rather are extremely basic in the older. Most rib breaks happen in the center aspect of the rib [17]. Upper breaks can be related with aortic and tracheal wounds and lower rib cracks with harm to the intra-stomach organs, including the kidney, spleen, and liver [18]. A few confirmations recommend that there is an immediate connection between age, expanded number of harmed ribs, and mortality [19,20].

**Study Objectives**

The main objectives of this study were to identify the frequency of bony lesions compared with other cases received in the emergency department of the Royal Medical Services Hospital, and to identify types and causes of bony lesions.

**Methods and subjects**

**Study Design:** a retrospective study design was conducted to collect data from files of patients with injuries.

**Study Sample:** A total of 300 files for patients who visited emergency department were randomly selected. The valid files that involved clear data and were valid for analysis were 150 files.

**Study Procedure:** After obtaining the ethical approval from IRB committee, the researchers started reviewing files of patients to extract data. All data were entered into excel spreading sheet. Data included the following variables: age, gender, type of injury, and site of injury. Data were analyzed using SPSS version 21. Data representation included means, standard deviation, frequencies and percentages. Relationships between variables were determined using Chi-Square test. Significance was considered at  $\alpha \leq 0.05$ .

**Results**

**General Characteristics of Participants**

As indicated in Table 1, the mean of age was 30.13±18.60 years, 58% of patients were less the age mean. The majority of patient who were exposed to injuries were males (about 59%). A total of 111 (74%) of patients were exposed to injuries resulting from falling down, traffic accidents were attributed to 18% of injuries, scrimmage related injuries were shown by 8% of patients. According to injury site, injuries were more shown in lower body (58%) than in upper body (42%).

**Table 1:** General characteristics of participants.

Variable	Description
Age (M±SD) years	30.13±18.60
Age (N, %) years:	
- ≤30.133	87 (58%)
- >30.1333	63 (42%)
Gender (N, %):	
-Males	89 (59.3%)
-Females	61 (40.7%)
Injury type (N, %):	
-Accident (traffic)	27 (18%)
-Falling down	111 (74%)
-Scrimmage	12 (8%)
Injury site (N, %):	
-Upper body	63 (42%)
-Lower body	87 (58%)

**Statistical Relationships Between Gender and Age with Other Study Variables**

As shown in Table 2, the gender was significantly associated with injury type (p=0.01). About 21% of females had traffic accidents, while about 16% of males had traffic accidents. Falling down injuries were shown by 79% of females, and 71% males. Scrimmage related injuries were not reported for females and restricted to males. As seen in Table 3, there was no statistically significant relationship between gender and injury site (p=0.383). Lower parts of the body had injuries in 55.7% females, and 59.6% of males. On the other hand, injuries in upper parts of the body

were shown in 44.3% of females and 40.4% of males. As seen in Table 4, there was no statistically significant differences between the age and injury site (p=0.374). In the age group ≤30.133, lower parts and upper parts of the body had similar trends. In the older age group, lower parts of the body had 60% of injuries, whereas

upper parts of the body had about 40% of injuries. As shown in Table 5, there was no statistically significant relationship between age and injury type (p=0.832). Injury types were almost close to each other in age groups.

**Table 2:** The relationship between gender and injury type.

			Injury type			Total	P value
			Traffic accident	Falling down	Scrimmage		
Gender	F	Count	13	48	0	61	0.01
		% within Gender	21.30%	78.70%	0.00%	100.00%	
		% within Injury type	48.10%	43.20%	0.00%	40.70%	
		% of Total	8.70%	32.00%	0.00%	40.70%	
	M	Count	14	63	12	89	
		% within Gender	15.70%	70.80%	13.50%	100.00%	
		% within Injury type	51.90%	56.80%	100.00%	59.30%	
		% of Total	9.30%	42.00%	8.00%	59.30%	
Total	Count	27	111	12	150		
	% within Gender	18.00%	74.00%	8.00%	100.00%		
	% within Injury type	100.00%	100.00%	100.00%	100.00%		
	% of Total	18.00%	74.00%	8.00%	100.00%		

**Table 3:** The relationship between gender and injury site.

			Injury site		Total	P value
			Lower	Upper		
Gender	F	Count	34	27	61	0.383
		% within Gender	55.7%	44.3%	100.0%	
		% within Injury site	39.1%	42.9%	40.7%	
		% of Total	22.7%	18.0%	40.7%	
	M	Count	53	36	89	
		% within Gender	59.6%	40.4%	100.0%	
		% within Injury site	60.9%	57.1%	59.3%	
		% of Total	35.3%	24.0%	59.3%	
Total	Count	87	63	150		
	% within Gender	58.0%	42.0%	100.0%		
	% within Injury site	100.0%	100.0%	100.0%		
	% of Total	58.0%	42.0%	100.0%		

**Table 4:** The relationship between age and injury site.

			Injury site		Total	P value
			Lower	Upper		
Age	≤30.133	Count	49	38	87	0.374
		% within age	56.3%	43.7%	100.0%	
		% within injury site	56.3%	60.3%	58.0%	
		% of Total	32.7%	25.3%	58.0%	
	>30.1331	Count	38	25	63	
		% within age	60.3%	39.7%	100.0%	
		% within injury site	43.7%	39.7%	42.0%	
		% of Total	25.3%	16.7%	42.0%	

Total	Count	87	63	150
	% within age	58.0%	42.0%	100.0%
	% within injury site	100.0%	100.0%	100.0%
	% of Total	58.0%	42.0%	100.0%

**Table 5:** The relationship between age and injury type.

		Injury type			Total	P value	
		Traffic accident	Falling down	Scrimmage			
Age	≤30.133	Count	17	63	7	87	0.832
		% within age	19.5%	72.4%	8.0%	100.0%	
		% within injury type	63.0%	56.8%	58.3%	58.0%	
		% of Total	11.3%	42.0%	4.7%	58.0%	
	>30.1331	Count	10	48	5	63	
		% within age	15.9%	76.2%	7.9%	100.0%	
		% within injury type	37.0%	43.2%	41.7%	42.0%	
		% of Total	6.7%	32.0%	3.3%	42.0%	
Total	Count	27	111	12	150		
	% within age	18.0%	74.0%	8.0%	100.0%		
	% within injury type	100.0%	100.0%	100.0%	100.0%		
	% of Total	18.0%	74.0%	8.0%	100.0%		

**Discussion**

The present study showed that the mean age of study participants was about 30 years. This means that young people are more likely to be affected by injuries. This may indicate that due to productivity of this group of patients, which requires more using of traveling. This result is consistent with other studies such as the study of Kalani et al. The present study showed that males were more likely to be involved in injuries. This may reflect the dynamics of Jordan community in which more males are involved in labor market and military forces, a matter that increase the chances for injuries by males. Recently, the study of Kalani et al also indicated that males were more likely to be involved in injuries.

The results of the present study showed that injuries resulting from falling down made the most frequent injuries. However, the study of Kalani et al reported different trends in which falling down frequencies were within minimal levels as compared with other injuries. Other studies are consistent with our findings. The results of the present study showed that injuries in the lower parts of the body was more predominant than injuries in the upper parts of the body. This is in line with other studies such as the studies of Donaldson. The results of the present study showed that gender was significantly associated with injury type, and females were more likely to have injuries resulting from falling down. Other studies did not report such differences.

**Conclusion**

The results of the present study showed that males were more likely to have injuries compared with females. Females were more

likely to be exposed to injuries resulting from falling down. No injury cases resulting from scrimmage among females.

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