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Evaluation of causes and severity of traffic accident injuries and related factors in patients referred to khatam al-anbia emergency department in Zahedan in 2020: A cross-sectional

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Abstract
Introduction & Objective: One of the most important problems that can be deduced from comparing the spread of traffic accidents between countries is that it is faster than the expansion of the number of vehicles compared to the expansion of roads. Therefore, the present study was designed and performed with the aim of determining the causes and severity of injuries in traffic accidents and related factors in patients referred to Khatam al-Anbia emergency room in Zahedan in 2019.
Materials and Methods: In this study, 400 patients who referred to Khatam Al-Anbia Emergency Department in Zahedan in 2019 were studied by census method. Data were statistically analyzed using SPSS software version 26.
Results: In the present study, out of 400 patients, 228 (57%) were male and 172 (43%) were female. Depending on the type of Vehicle, there were 204 cases (51%), motorcycles. Depending on the type of injury, the level of loss of consciousness was 25 cases (6.3%). There were 24 cases (6%) according to the location of head and neck injuries. The relationship between the type of injury and the location of injury with the severity of organ damage in the present study was significant (p-value<0.05).
Conclusion: According to the findings of the present study, it is concluded that the most at risk of traffic accidents are men, especially in the age group of young people, and also in terms of the type of vehicle, motorcycles account for a large percentage of traffic accidents. Reducing the time it takes to transport injured people to the emergency room can also play a vital role in saving patients' lives.

Keywords: causes and severity, traffic accidents, khatam zahedan hospital emergency

Introduction
The increase in disabilities, physical and psychological deaths attributed to traffic accidents has become a major global concern over the past few decades [1, 4]. Unfortunately, most accidents are due to carelessness, carelessness and high self-esteem [5, 8]. Despite recent advances in technology and medical science, post-traffic mortality and disability still need to be severely controlled, as the incidence of traffic accidents has increased alarmingly worldwide [3]. They are the third leading cause of death in the world after cardiovascular disease and cancer, which cause about 6,000 and more than 5 million deaths per day [9, 11]. With the increase in traffic accidents, this rate is expected to increase to eight million deaths per year in 2020 [5]. From an economic point of view, injuries caused by traffic accidents in low-income countries account for one percent, middle-income countries for 1.5 percent, and in high-income countries for 2 percent of their GDP [6, 12, 19].
During a study in 2015, the number of road accident deaths in Iran was 16,584, of which 75% were men, 72% of accidents occurred on suburban roads [8] between education and frequency and traffic accidents. There is an inverse relationship. In the 1990s, we saw a decrease in deaths due to accidents, but despite this decrease, the death toll is still higher than the global rate [9].
Various studies show that children and the elderly are two high-risk groups in traffic accidents, but they also exist in industrialized countries [20, 22]. The present study was designed and performed with the aim of determining the causes and severity of injuries in traffic accidents and related factors in patients referred to Khatam al-Anbia emergency room in Zahedan in 2019.

Methods
This descriptive study was performed on 400 trauma patients referred to Khatam Al-Anbia Teaching Hospital in Zahedan in southern Iran from to 1 January 2020 to 31 December 2020.
Inclusion criteria were: Patient consent to participate in the study. Exclusion criteria were: incomplete file information, and lack of cooperation with the researcher. To select the participants, a census sampling method was selected so that all possible patients were included. After coordination with the emergency department, all patients who had been admitted to the hospital due to a traffic accident were admitted. The required information was entered through the information form. The information entered were: demographic (age, gender, time of emergency transfer (minutes), severity of organ damage (based on ISS rating), type of vehicle (motorcycle / car / bicycle / heavy vehicle), type of injury (Superficial scratches-fractures-crushing-dislocations-penetrating trauma-amputation-decreased level of consciousness), and the location of the injury (head, neck, chest, abdomen, back, limbs, pelvis and pelvic contents).
This study has been approved by the ethics committee of Zahedan University of Medical Sciences under the number of ethics. Written and oral consent was received from all participants in the study. Participants are assured that their

information will remain confidential. The STROBE checklist was used to report the study.

Data were entered into SPSS V22 software for analysis. Descriptive statistical tests (quantitative (mean, standard deviation, frequency and percentage) and analytical tests (chi-square) were used to describe the demographic characteristics of the participants, Kolmogrove-Smirnov test was used to evaluate the data distribution. Independent t-test and Pearson correlation test were used to analyze the data, P value less than 0.05 was considered statistically significant.

Results

From all 400 selected patients, information of all patients was collected (response rate: 100%). The mean age of patients was 21.54 30 30.55. Most patients in the age group of 1-20 years (36.3, male (228, 57%), married (n = 282, 95.3%), had less than a diploma (n = 249, 84.1%). Demographics were only significantly related to gender in different groups (Table 1).

Regarding the type of injuries inflicted on patients, the results showed that the most common injuries were: penetrating trauma 88 cases (22%), dislocation 86 cases (21.5%), and crushing 83 cases (20.8%). The most common sites for injury were limbs 128 (32%), abdomen 102 (25.5%) and chest 52 (13%). Depending on the type of vehicle, there were 204 cases (51%), motorcycles 144 cases (36%), bicycles 29 cases (7.3%) and heavy vehicles 23 cases (5.8%).

Table 1: Frequency distribution of the type of injury in traffic accidents in the study group

type of injury	N	%
Loss of consciousness	25	6.3
Amputation	29	7.3
Penetrating trauma	88	22
Dislocation	86	21.5
Press	83	20.8
Fracture	63	15.8
Superficial scratches	26	6.5
The neck	24	6
Chest	52	13
Abdominal	102	25.5
Waist	46	11.5
Limbs	128	32
Pelvis and pelvic contents	48	12

Table 2: Frequency distribution of injury site in traffic accidents in the study group

Injury location	N	%
The neck	24	6
Chest	52	13
Abdominal	102	25.5
Waist	46	11.5
Limbs	128	32
Pelvis and pelvic contents	48	12

Table 3: Frequency distribution of vehicle type in traffic accidents

Vehicle type	N	%
heavy vehicle	23	5.8
Car	204	51
motorcycle	144	36
Bike	29	7.3

Discussion

In the present study, out of 400 patients, 228 (57%) were male and 172 (43%) were female. In terms of age, the highest frequency in patients aged 26 years was 24 cases (6%) and the lowest frequency in patients aged 19 years was 1 case (0.3%). Depending on the type of vehicle, there were 204 cases (51%). Depending on the type of injury, the level of loss of consciousness was 25 cases (6.3%). Depending on the location of the head and neck injury, there were 24 cases (6%). The relationship between the type of injury and the location of injury with the severity of organ damage in the present study was significant.

Seid M *et al*. (2015) [] on the characteristics of injuries and the result of road traffic accidents among victims in adult emergencies stated that road traffic injuries are the eighth leading cause of death worldwide and the most important cause of death in this country. And the risk of death as a result of a road traffic injury in Africa is the highest in the world. Out of 690 trauma patients referred to the adult emergency department of Tikor Anbasa Specialized Hospital between January and March 2013, two hundred and fifty (23.26%) were road accident patients who were studied during the period. Participants in this study were 165 (71.3%) male and 65 (28.7%) female, so the male to female ratio was 2.6: 1. [1]

The age of patients ranging from 14 to 80 years with mean and standard deviation of 32.15 and 14.38%, respectively. The majority age group was 14-25 years and 107 patients (46.5%) were in this group. The majority of road traffic victims were daily workers (95 (41.3%)) followed by students (28 (12.2%). Regarding the educational status of road accident victims, 165 (71.74%) attended formal school, of which 59 (35.76%) and 73 (44.24%) attended the first and second year of school, respectively. While 33 (20%) of the victims reported higher education. Of the 230 road accidents that occurred during the study period, 139 (60.4%) of these accidents occurred in the city while 91 (39.6%) occurred outside the city. The highest number included 156 cases (67.9%) of road accidents occurred during the day while only 74 cases (32.1%) occurred during the night. Patients' job variables, educational status and type of traffic accidents were not studied in the present study; However, age and sex variables were consistent with the present study. In Sadeghian F's study in 2008, he published an article entitled "The pattern of road traffic injuries and related factors in Shahrood, Iran" in which 621 traffic accident casualties were studied. The results showed that head, neck and limb injuries are the most common pattern of injuries in traffic accidents. Therefore, careful attention to the initial examination of the injured in pre-hospital care is essential. Estimating the severity of ISS damage can also be a criterion for determining the prognosis of injury. In contrast to this study, in the findings of the present study, the most common location and pattern of injury in traffic accidents was first in the limbs (30%) and then in the abdomen (25%) [23, 24].

Conclusions

According to the findings of the present study, it is concluded that the most at risk of traffic accidents are men, especially in the age group of young people, and also in terms of the type of vehicle, motorcycles account for a large percentage of traffic accidents. This shows the need to implement training programs such as emotion control and the need to observe personal protection for these age groups and motorcyclists. Reducing the time it takes to transport injured people to the emergency room can also play a vital

role in saving patients' lives.

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