

## LETTER TO EDITOR

# Changes in Fracture Epidemiology Due to COVID-19 Crisis; a Letter to Editor

Seyyed Saeed Khabiri<sup>1\*</sup>, Mohammad Hossein Nabian<sup>2</sup>, Heydar Zeynolabedin<sup>3</sup>, Javad Veisi<sup>3</sup>, Vahid Rastgou<sup>3</sup>, Mehdi Naderi<sup>4</sup>, Shokofeh Maleki<sup>4</sup>

1. Department of Orthopedic Surgery, Clinical Research Development Centre, Taleghani and Imam Ali Hospitals, Kermanshah University of Medical Sciences, Kermanshah, Iran.

2. Department of Orthopedic Surgery, Joint Reconstruction Research Center, Tehran University of Medical Sciences, Tehran, Iran.

3. Department of Orthopedic Surgery, Faculty of Medicine, Kermanshah University of Medical Science, Kermanshah, Iran.

4. Clinical Research Development Centre, Taleghani and Imam Ali Hospitals, Kermanshah University of Medical Sciences, Kermanshah, Iran.

Received: April 2020; Accepted: April 2020; Published online: 21 April 2020

Cite this article as: Khabiri S S, Nabian M H, Zeynolabedin H, Veisi J, Rastgou V, Naderi M, Maleki Sh. Changes in Fracture Epidemiology Due to COVID-19 Crisis; a Letter to Editor. Arch Acad Emerg Med. 2020; 8(1): e63.

## Dear Editor

Since December 2019, when the first case of COVID-19 was reported in China, the main strategy of health policy makers has been to quarantine and impose social restrictions, causing significant behavioral changes in people due to fear of infection (1, 2). Laws limiting traffic, reduced travel permits, paying attention to personal hygiene, and making efforts to clean up private and public environments are some of the changes that have been observed. We also noticed alterations in patients' admission to trauma centers. In a retrospective cross-sectional study, demographic characteristics and type of fracture were analyzed in patients referring to the trauma center of Taleghani Hospital, Kermanshah, Iran, from 1<sup>st</sup> March to 15<sup>th</sup> April, in 3 consecutive years (2018 to 2020). 2,483 trauma patients with the mean age of  $37.31 \pm 22.86$  years were studied (Table1). The findings showed that, the number of fractures has generally decreased in March and April 2020. The change is more prominent in children and young men aged 18 to 35 years, which may be due to reasons such as schools being closed, sports activities being ceased, and the decrease in traffic, as well as the reduction of accidents that have affected these age groups. The age, gender, and type of fracture had approximately the same pattern during the studied period in three years, but we have seen an increase in some specific fractures such as foot bone and ankle (figure1). The fractures of middle-aged women, such as those

with osteoporosis, like proximal femur, humerus, and distal radius, seem to have decreased in number during this period. In the study of Scott et al., during quarantine and social distancing, despite the decrease in the total number of patients, fragility fracture statistics had remained the same (3). Also, in the study of Chui et al., they noted that due to cancellation of elective surgeries and the reduction of hospital workload, patients with pelvic fractures will be able to receive preoperative care faster. And better care has been provided for these patients during the COVID-19 era (4).

Indoor layout optimization and strengthening the muscles to prevent falling and care for high-risk people is important. A program to treat osteoporosis should also be actively implemented in people over the age of 65.

It could be concluded that during the Corona era, because of the behavioral change of the people and the decrease in traffic, we have witnessed a decline in hospital referrals due to trauma and also a decrease in the incidence of fractures, especially those related to accidents. This report may help guide the efforts to improve the healthcare system for crisis preparedness and assist in allocating resources for treatment and predicting workloads.

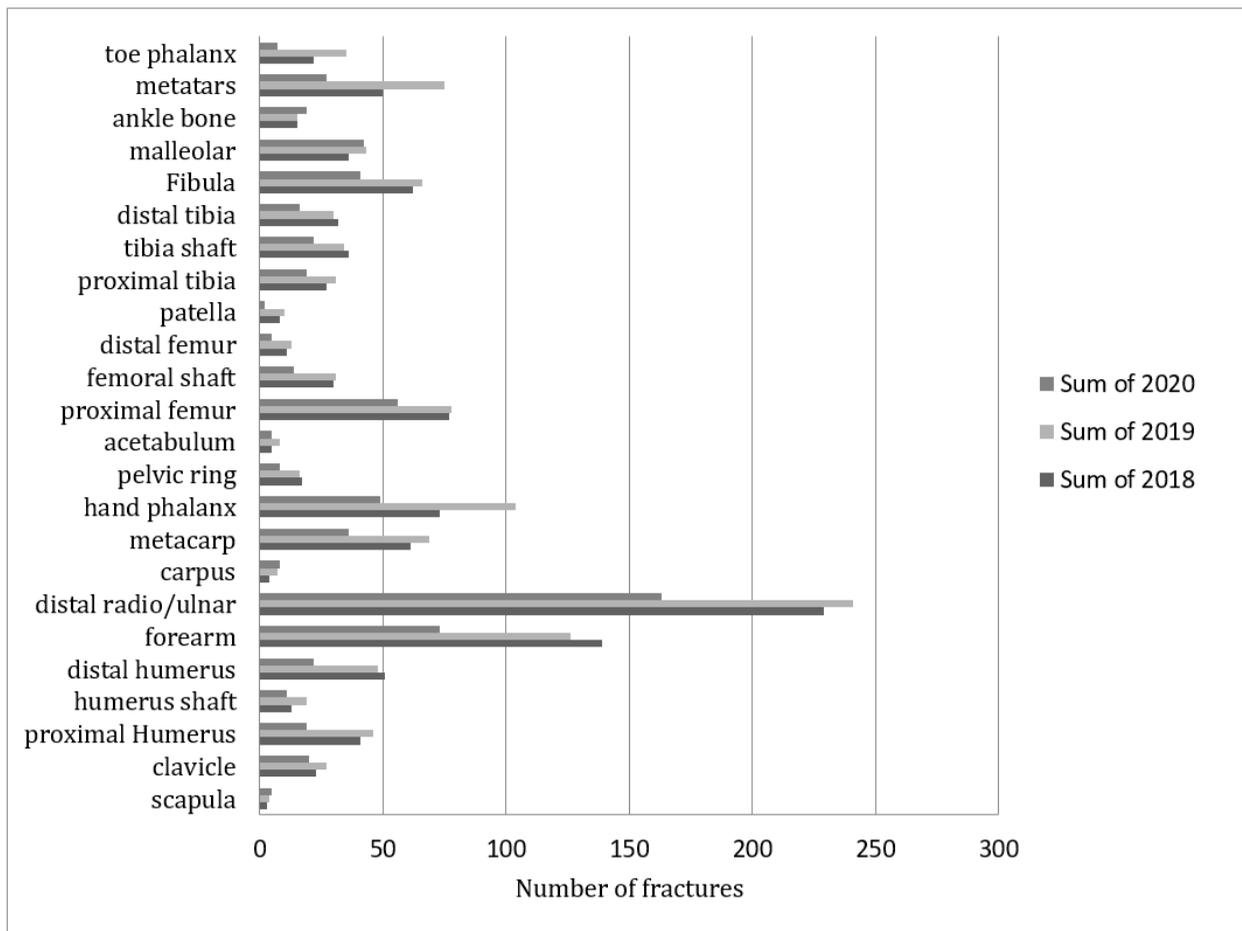
## 1. Declarations

### 1.1. Acknowledgment

The authors would like to thank Amir Akhashi, Nader Bahrami, Salam Ghamari, Omid Sohrabi, Bahareh Safari, and Clinical Research Development Centers of Taleghani and Imam Ali Hospitals, Kermanshah University of Medical Sciences, Kermanshah, Iran, for support, data gathering, cooperation and assistance throughout the study period.

\*Corresponding Author: Seyyed Saeed Khabiri; Department of Orthopedic Surgery, Taleghani Hospital, Faculty of Medicine, Kermanshah University of Medical Science, Kermanshah, Iran. PO box: 6715847167. E-mail: saeed.khabiri@gmail.com, Tel: +98-83-38367984





**Figure 1:** Types and number of fractures during the COVID-19 outbreak (March and April of 2020) and similar periods in 2018 and 2019.

**Table 1:** Number of cases referred to the emergency department with fractures based on gender and age in the studied years

Characteristic	March 1 <sup>st</sup> to April 15 <sup>th</sup>		
	2018	2019	2020
<b>Fracture</b>			
Number	957	948	578
<b>Gender</b>			
Male	605 (63.2)	602 (63.5)	393 (67.9)
Female	352 (36.8)	346 (36.5)	185 (32.1)
<b>Age</b>			
Mean $\pm$ SD	35.41 $\pm$ 22.65	37.97 $\pm$ 23.15	39.37 $\pm$ 22.51

SD: standard deviation.

## 1.2. Authors Contributions

Conception and design of the study: Mohammad Hossein Nabian and Seyyed Saeed Khabiri

Collection, assembly, possession of raw data: Heydar Zeynolabedin, Javad Veisi, Vahid Rastgou and Seyyed Saeed Khabiri

Statistical expertise: Mehdi Naderi and Shokofeh Maleki

Analysis and interpretation of data: Seyyed Saeed Khabiri and Mehdi Naderi

## Authors ORCIDs

Seyyed Saeed Khabiri: 0000-0002-8906-7660

## 1.3. Funding

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

#### 1.4. Conflict of Interest

The authors declare that there is no conflict of interest.

#### References

1. Parmet WE, Sinha MS. Covid-19—the law and limits of quarantine. *New England Journal of Medicine*. 2020;382(15):e28.
2. Wozniak A. Disparities and Mitigation Behavior during COVID-19. Federal Reserve Bank of Minneapolis; 2020.
3. Scott CE, Holland G, Powell-Bowns MF, Brennan CM, Gillespie M, Mackenzie SP, et al. Population mobility and adult orthopaedic trauma services during the COVID-19 pandemic: fragility fracture provision remains a priority. *Bone & Joint Open*. 2020;1(6):182-9.
4. Chui K, Thakrar A, Shankar S. Evaluating the efficacy of a two-site (COVID-19 and COVID-19-free) trauma and orthopaedic service for the management of hip fractures during the COVID-19 pandemic in the UK. *Bone & Joint Open*. 2020;1(6):190-7.

