

# International Journal of Research in Health and Allied Sciences

Journal home page: [www.ijrhas.com](http://www.ijrhas.com)

Official Publication of "Society for Scientific Research and Studies" [Regd.]

ISSN: 2455-7803

## Original Research

### Prevalence of Maxillofacial Fractures in a Known Population

Rahul Sharma<sup>1</sup>, Iqra Khilji<sup>2</sup>, Junaid Kapadia<sup>3</sup>, Ansari Adnan Abdul Latif<sup>4</sup>, Rajat pareek<sup>5</sup>, Shruti Joshi<sup>6</sup>

<sup>1</sup>MDS, Oral Medicine and Radiology, Senior consultant at Arogydham Hospital and Research Center Gwalior M.P., India;

<sup>2</sup>BDS, Medical officer (Dental), Hazrat Haleema Maternity and General Hospital, Garewal chowk, Malerkotla, Punjab, India

<sup>3</sup>MDS, Associate Professor, Department of Public Health Dentistry, Bhabha College of Dental Sciences, Bhopal, Madhya Pradesh, India;

<sup>4</sup>BDS, Private practitioner, Mumbai, Maharashtra, India;

<sup>5</sup>MDS, Senior lecturer, Department of Oral and Maxillofacial Surgery and Implantology, Surendera Dental College and Research Institute, Sri ganganagar, India

<sup>6</sup>BDS, Junior Resident, Department of Dentistry, Gian Sagar Medical College and hospital, Banur, Rajpura, India

#### ABSTRACT:

**Background:** Maxillofacial injuries involve soft and hard tissues of the face from the frontal bone to the mandible. Fracture patterns may vary with mechanism of injury, magnitude and direction of impact force, and anatomy of the injured site. Maxillofacial trauma presents as skeletal, dental, and soft tissue. Disregard for safety while driving, working, and performing daily activities can result in physical traumas. Moreover, treatment and rehabilitation are associated with psychological problems, severe morbidities, disabilities, and mental damages. **Aim of the study:** To study prevalence of maxillofacial fractures in known population. **Materials and methods:** For the study, we selected patients ranging in the age of 18-67 years. A predefined pro forma was used to collect the data regarding the age, sex distribution, etiology, associated factors and type of fractures. We retrospectively analyzed the medical records of the patients and data were collected concerning sex, age, cause of injury, type of fracture, treatment modality, and postoperative complications. **Results:** In the present study, the medical records of 500 patients were studied. In the study population, 290 were males and 210 were females. The mean age of the patients was 43.69 years. In our study, we observed that highest frequency for fracture etiology was seen as motor car accident (43.8%). Second highest was seen in violence (28). Gunshot had lowest frequency (6.20%). We observed that mandibular fractures were most common (51.8%). Zygoma fracture were second highest sites for fractures (21.8 %). Maxilla fracture were least common (5.2%). **Conclusion:** Within the limitations of the present study, it can be concluded that mandibular fracture is the most common site for facial fractures.

**Keywords:** Maxillary fracture, maxillofacial fracture, facial fractures.

Received: 12 September, 2020

Accepted: 16 November, 2020

**Corresponding author:** Dr. Shruti Joshi, BDS, Junior Resident, Department of Dentistry, Gian Sagar Medical College and hospital, Banur, Rajpura, India

**This article may be cited as:** Sharma R, Khilji I, Kapadia J, Ansari Adnan AL, Pareek R, Joshi S. Prevalence of Maxillofacial Fractures in a Known Population. Int J Res Health Allied Sci 2021; 7(1):9-12.

#### INTRODUCTION:

Maxillofacial injuries involve soft and hard tissues of the face from the frontal bone to the mandible.<sup>1</sup> The maxillofacial region is vulnerable to trauma because it

is the most exposed part of the body.<sup>2</sup> Maxillofacial fractures may occur alone or in combination with fractures of other bones. Fracture patterns may vary with mechanism of injury, magnitude and direction of

impact force, and anatomy of the injured site.<sup>3</sup> Maxillofacial trauma presents as skeletal, dental, and soft tissue.<sup>3</sup> The common causes of maxillofacial fractures worldwide are motor vehicle accidents, falls, assaults, firearm injuries, sports, and industrial accidents.<sup>4</sup> These causes may vary with geography, socioeconomic status, cultural characteristics, and era. Disregard for safety while driving, working, and performing daily activities can result in physical traumas. Moreover, treatment and rehabilitation are associated with psychological problems, severe morbidities, disabilities, and mental damages. In addition, these traumas impose a significant financial burden on individuals and societies.<sup>5, 6</sup> Hence, the present study was conducted to study prevalence of maxillofacial fractures in known population.

**MATERIALS AND METHODS:**

For the study, we selected patients ranging in the age of 18-67 years. A predefined proforma was used to collect the data regarding the age, sex distribution, etiology, associated factors and type of fractures. The diagnosis of a fracture is based on the clinical history, signs and symptoms, visual finding, manual examination and correct interpretation of radiographs. The pattern of facial fractures is determined according to the fractures of maxilla, and mid face in relation to the different etiological factors. We retrospectively analyzed the

medical records of the patients and data were collected concerning sex, age, cause of injury, type of fracture, treatment modality, and postoperative complications. The following analyses were conducted for each age group: causes of injury (e.g., motor vehicle accidents, falling, violence, and gunshot) and fracture type (e.g., nasal bone, zygoma, maxilla, mandible, and frontal bone fractures) and clinical outcomes.

The statistical analysis of the data was done using SPSS version 11.0 for windows. Chi-square and Student’s t-test were used for checking the significance of the data. A p-value of 0.05 and lesser was defined to be statistically significant.

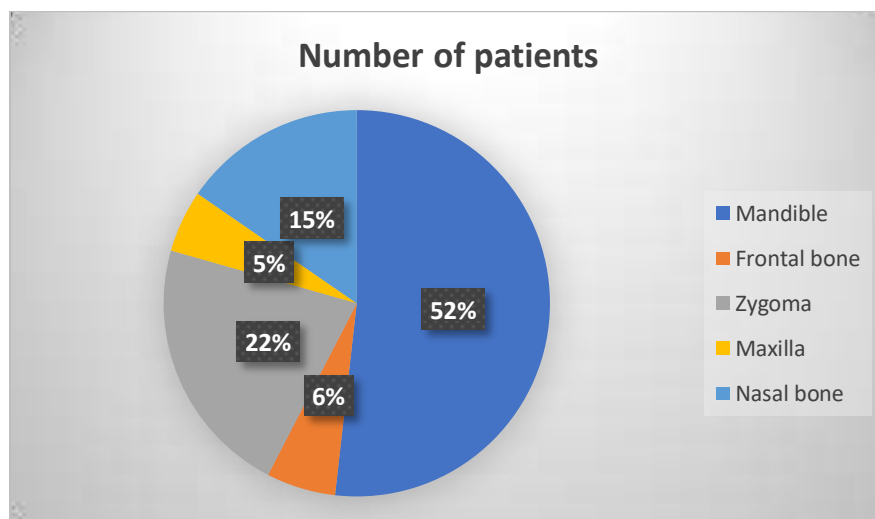
**RESULTS:**

In the present study, the medical records of 500 patients were studied. In the study population, 290 were males and 210 were females. The mean age of the patients was 43.69 years. In our study, we observed that highest frequency for fracture etiology was seen as motor car accident (43.8%). Second highest was seen in violence (28). Gunshot had lowest frequency (6.20%). [Table 1] Table 2 shows distribution of site of fracture in patients. We observed that mandibular fractures were most common (51.8%). Zygoma fracture were second highest sites for fractures (21.8 %). Maxilla fracture were least common (5.2%). [Fig 1]

**Table 1: Etiology of fracture distribution**

Etiology of fracture	Number of patients	Percentage
Gunshot	31	6.20
Violence	140	28.0
Motor car accident	219	43.8
Fall from height	110	22.0
Total	500	100.00

Fig 1:



**Table 2: Distribution of site of fracture in patients**

Site of fracture	Number of patients	Percentage
Mandible	259	51.8
Frontal bone	29	5.8
Zygoma	109	21.8
Maxilla	26	5.2
Nasal bone	77	15.4

**DISCUSSION:**

In the present study, we studied medical records of 500 patients. We observed that the most common cause for maxillofacial fracture was motor car accident. Among the site of fracture, mandibular fracture was the most common fracture. Fracture of maxilla was least common. The results were compared with previous studies from the literature. Samieirad S et al <sup>7</sup> evaluated the epidemiology of maxillofacial fractures and treatment plans in hospitalized patients in Northeast of Iran. In this retrospective study, the medical records of 502 hospitalized patients were evaluated in the Department of Maxillofacial Surgery in Kamyab Hospital in Mashhad, Iran. The majority of patients were male (80.3%). Most subjects were in 20-30-year age range (43.2%). The fractures were mostly caused by accidents, particularly motorcycle accidents (MCAs), and the most common site of involvement was the body of the mandible. There was a significant association between the type of treatment and age. In fact, the age range of 16-59 years underwent open reduction internal fixation (ORIF) more than other age ranges. Also, there was a significant association between gender and fractures. It was concluded that patient age and gender and trauma significantly affected the prevalence of maxillofacial traumas, fracture types and treatment plans. Singaram M et al <sup>8</sup> evaluated the prevalence of maxillofacial trauma in a developing country, along with its pattern, etiology and management. The medical records of patients treated for maxillofacial injuries between May 2014 and November 2015 were retrospectively retrieved and analyzed for prevalence, pattern, etiology, and management of maxillofacial trauma. Maxillofacial fractures accounts for 93.3% of total injuries. The mean and standard deviation for the age of the patients were 35.0±11.8 years and with a minimum age of 5 years and maximum age of 75 years. Adults from 20 to 40 years age groups were more commonly involved, with a male to female ratio of 3:1. There was a statistically significantly higher proportion of males more commonly involved in accident and injuries. They concluded that most common etiology of maxillofacial injury was road traffic accidents (RTA) followed by falls and assaults, the sports injuries seem to be very less. In RTA, motorized two-wheelers (MTW) were the most common cause of incidents.

Latifi H et al <sup>9</sup> surveyed the prevalence of different kinds of maxillofacial fractures and their associated factors are surveyed in patients referred to Imam Khomeini Hospital, Urmia in 2011. 637 cases of patients with a confirmed diagnosis of maxillofacial fractures in 2011 referred to Imam Khomeini Hospital, Urmia. In this study, 457 patients were male and 178 were female and the mean age was 14.47±26.68 years. Falling was the most common cause of fractures after accidents and assaults were the most common causes. The most common site of nasal fractures was about 66.4% and then fractures in several places about 14.9% and mandibular 7.1%. They concluded that maxillofacial fractures in males and in 20 to 30 years of age is prevalent and is mostly due to falling and road accidents and are further seen in nasal bone and mandible. Chandra L et al <sup>10</sup> evaluated the pattern, prevalence, etiology, site of fractures, and their management in patients with maxillofacial injury in Delhi-NCR region. A total of 1278 maxillofacial trauma patients visiting different registered hospitals from Delhi-NCR region from January 2012 to December 2017, treated by open reduction and internal fixation under general anesthesia (GA)/local anesthesia (LA) or closed reduction/conservatively, were taken into the study. From a total of 2250 trauma patients, 1278 patients (1053 males and 225 females) had maxillofacial injury. The average prevalence rate was 56.8%. Yearly incidence rate was 20.4%. Road traffic accident (RTA) was the most common cause of trauma in 1029 (80.5%) patients, followed by physical assault with significant male predominance in different age groups. Isolated mandibular fractures were the most common, followed by midface with maxilla fracture. Treatment modalities were conservative management, closed reduction, and open reduction with internal fixation under GA/LA. They concluded that RTA followed by physical assault is still the leading cause of maxillofacial trauma in young males in Delhi-NCR region. Mini plate osteosynthesis is the main treatment procedure for maxillofacial trauma.

**CONCLUSION:**

Within the limitations of the present study, it can be concluded that mandibular fracture is the most common site for facial fractures.

**REFERENCES:**

1. Al Ahmed HE, Jaber MA, Abu Fanas SH, Karas M. The pattern of maxillofacial fractures in Sharjah, United Arab Emirates: a review of 230 cases. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 2004;98:166–70.
2. Ansari MH. Maxillofacial fractures in Hamedan province, Iran: a retrospective study (1987-2001) *J Craniomaxillofac Surg.* 2004;32:28–34.
3. Bakardjiev A, Pechalova P. Maxillofacial fractures in Southern Bulgaria - a retrospective study of 1706 cases. *J Craniomaxillofac Surg.* 2007;35:147–50.
4. Bali R, Sharma P, Garg A, Dhillon G. A comprehensive study on maxillofacial trauma conducted in Yamunanagar, India. *J Inj Violence Res.* 2013;5:108–16.
5. Aksoy E, Ünlü E, Sensöz Ö. A retrospective study on epidemiology and treatment of maxillofacial fractures. *J Craniofac Surg.* 2002;13:772–5.
6. Wittchen HU, Jacobi F, Rehm J, Gustavsson A, Svensson M, Jönsson B. The size and burden of mental disorders and other disorders of the brain in Europe 2010. *Eur Neuropsychopharmacol.* 2011;21:655–79.
7. Samieirad S, Aboutorabzade MR, Tohidi E, et al. Maxillofacial fracture epidemiology and treatment plans in the Northeast of Iran: A retrospective study. *Med Oral Patol Oral Cir Bucal.* 2017;22(5):e616-e624. Published 2017 Sep 1. doi:10.4317/medoral.21809
8. Singaram M, G SV, Udhayakumar RK. Prevalence, pattern, etiology, and management of maxillofacial trauma in a developing country: a retrospective study. *J Korean Assoc Oral Maxillofac Surg.* 2016;42(4):174-181. doi:10.5125/jkaoms.2016.42.4.174
9. Latifi H. Prevalence of different kinds of maxillofacial fractures and their associated factors are surveyed in patients. *Glob J Health Sci.* 2014;6(7 Spec No):66-73. Published 2014 Sep 18. doi:10.5539/gjhs.v6n7p66
10. Chandra L, Deepa D, Atri M, et al. A retrospective cross-sectional study of maxillofacial trauma in Delhi-NCR Region. *J Family Med Prim Care.* 2019;8(4):1453-1459. doi:10.4103/jfmprc.jfmprc\_89\_19