

# A Prospective Analysis, of Maxillofacial Injuries in Patients Reporting to a tertiary care hospital in Lahore

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## ABSTRACT

**Background:** Maxillofacial trauma is frequently encountered in the Accident and Emergency department of hospitals either as an isolated injury or as a part of multiple injuries to the head, neck, chest, and abdomen.

**Aim:** To assess prospectively the profile of maxillofacial injuries in patients reporting to a local hospital in Lahore.

**Methods:** The study was conducted in the Emergency Department of Sir Ganga Ram Hospital Lahore. Case record sheets of 80 medico legal cases reporting to the hospital emergency were scrutinized and various demographic and epidemiologic factors, including the patient's age and gender, reporting time and the etiology and nature of injury were recorded.

**Results:** The peak incidence of maxillofacial injury was observed in the age group of 21–30 years, with males outnumbering females in all age groups. Maximum number of trauma cases reported in late evening hours. Interpersonal assault was the primary etiological factor followed by road traffic accidents. Soft tissue injuries were very common followed by maxillofacial fractures and fractures of lumber, hip and knee region.

**Conclusion:** The trend of maxillofacial injuries in Lahore necessitates strict legislation against violence especially due to fight and accidental fall. There is a need to minimize the physical, psychological, and emotional distress associated with maxillofacial trauma.

**Keywords:** maxillofacial injury, fractures, fight and fall issues

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## INTRODUCTION

Maxillofacial fractures occur in a significant proportion of trauma patients. The epidemiology of facial fractures varies with the type, severity, and cause of injury depending on the people studied. The main causes of facial fractures are interpersonal violence and falls<sup>1</sup>.

The human face often constitutes the first point of contact in various human interactions and is frequently the preferred target for blows in assault cases. Maxillofacial trauma is thus a common presentation in Accident and Emergency departments of hospitals either as an isolated injury or as a part of multiple injuries to the head, neck, chest, and abdomen. These injuries may cause serious functional, psychological, physical, and cosmetic disabilities<sup>2</sup>.

The etiology of maxillofacial trauma varies from one geographical region to another and even within the same region depending on the prevailing socioeconomic, cultural, and environmental factors. One of the common etiological factors include falls from height and sport-related injuries, gunshots, and blasts. It is common for people as to sleep on rooftops, especially during the summer months. A

large proportion of the fall victims were children who had fallen from height while playing or flying kites on flat rooftops<sup>3</sup>. The severity of injury may vary from simple soft tissue lacerations to more complicated fractures of the maxillofacial and lumber region<sup>4</sup>.

Continuous collection of data based on the epidemiology of maxillofacial fractures is important because it gives necessary information for the development of preventive measures for decreasing the incidence of facial injuries<sup>5</sup>. Factors such as geographic region and temporal factors including type of injury and area may affect the both the type and frequency of injuries in the population<sup>6</sup>.

The aim of the present study was to assess prospectively the profile of maxillofacial injuries and fractures among patients reporting to a local hospital in Lahore. Clearer insight into the etiologic, epidemiologic, and demographic factors related to maxillofacial trauma would help to use preventive and health care measures for such cases.

## MATERIAL AND METHODS

This study was conducted in the Department of Emergency, Sir Ganga Ram Hospital Lahore. The basis of the study was the data obtained from record sheets of 80 legal cases who reported to the hospital emergency during the period from March 2011 till

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June 2011. Study was approved by institutional ethical committee, the case sheets were thoroughly scrutinized and various demographic and pathologic factors, such as the patient's age and gender, the time of reporting, anatomic site of injury, and the nature of injury, were recorded in specially designed proforma. The data obtained were statistically analyzed and following preliminary inspection and content analysis, the data were interpreted using percentages wherever necessary. I lived descriptive statistics and analysis of variance.

## RESULTS

The age of the patients ranged from 18-50 years with a mean age of 37.4 years. Among these, the majority of cases (>60.0%) were in the second or third decade of their life, with a peak incidence of maxillofacial trauma observed in the age group of 31-40 years. A decreasing trend was seen with age proceeding to both the extremes.

Table 1: Age and Gender distribution

Age range (yrs)	Male	%age	Female	%age
18-20	14	23.33	02	10
21-30	10	16.67	12	60
31-40	36	60	06	30

**Gender distribution:** Males comprised 75.0% of the patients and 25% females in this age group. The majority of patients were male, with ages ranging from 18 to 40 years. The peak of incidence for women occurred in the age group from 22 to 50 years. The male-female ratio found was 2.3:1 (Table 1).

**Time of reporting:** The greatest incidence of maxillofacial trauma was observed in the evening hours between 4 pm to 12 pm. Other cases were reported between 9 am to 11 am.

**Etiology of injury:** Interpersonal assault was found to be the primary etiologic factor, accounting for approximately 55.0% of the injuries, followed by fall (25%) and Road Traffic Accident (20%).

**Nature of injury:** Analysis of the record sheet revealed that patients presented with varying types of maxillofacial injuries. Soft tissue injury was the most frequent injury and was observed in 72.5% of the cases. Swelling of face was the most frequent site of trauma followed by pain. Another 27.5% demonstrated bony fractures. Among patients with history of violence, maxillofacial fractures, fractures of nose, hands, hip and lumbar area were the most frequent fractures (27.5%) followed by lacerated wound of head and cheek (10%), swelling of hand, eyes, mid face and pain in chest, shoulder, knees, back etc. (62.5%).

The major cause of injuries was fight (55%) followed by falls (32.5%) and motorcycle accidents (12.5%) (Table 2). Fights and motorcycle accidents were more prevalent among males, whereas in females, the more prevalent were interpersonal violence and falls. Analyzing the relation between gender and etiology of fractures, a significant relation was found between these variables ( $p < 0.001$ ). Falls were more frequent in women than all other etiologies ( $p < 0.002$ ), even though there were no significant differences when falls were compared with interpersonal violence ( $p = 0.31$ ). There was also a higher proportion of women with facial fractures caused by violence, but not significantly different when compared with facial fractures caused by fights ( $p = 0.35$ ). There was a high proportion of men (94.92%) ( $p < 0.001$ ) with fractures caused by other factors then fractures caused by motorcycle (79.88%). There were a total of 20 fractures of different areas in both sexes and among these 12 males and 8 females were the sufferers (Table 2).

Table 2: Reason of injuries cause in both sexes

Cause of injury	Male	%age	Female	%age
Fight	30	50	14	70
Fall	20	33.3	06	30
Accident	10	16.6	-	-

Table 3: Location of main injuries in both sexes

Location	Male/Female
Pain in areas suffered (chest, hip, shoulder, mouth etc.)	20%
Swelling of face, hip, shoulders etc.)	40%
Lacerated wound of head, cheek etc.	08%
Maxillofacial fractures and fractures of hip, lumber region and knee	12%

Location of main fractures in both sexes was tabulated as table 3. It was observed that 20% individuals have a pain in suffered areas especially of chest, hip, shoulder and mouth etc. About 40% of individuals have swelling of face, hip and shoulders etc. Lacerated wound of head and cheek etc. was observed in 40%. Fractures of hip, lumber region and knee were observed in 12% cases.

## DISCUSSION

The age distribution of patients with maxillofacial injuries and fractures in the present study corresponds the findings of other studies. Young adults usually show greater physical activity, number of fights and self-mobility as compared to old<sup>7,8</sup>.

Other studies found that the pattern of age distribution in maxillofacial injuries demonstrated that although all ages were affected; the peak incidence

was, however, observed in the age group of 21–30 years. Studies reported that the third decade is perhaps the most active period of life in which people tend to remain outdoors due to working and are thus more vulnerable to vehicular accidents, falls, and assault-related injuries as compared to the individuals in the extremes of life were found to be least affected<sup>9,6</sup>.

The gender distribution revealed a male preponderance in all the age groups as has been reported in other studies. The male: female ratio in our sample (2.3:1) was, however, higher than what has been reported by authors<sup>10,11,12</sup>. This is most likely due to the fact that most of the individuals belong to lower socioeconomic group, men are often the primary supporter of the family and tend to remain outdoors for a large period of time, thus they are more susceptible to trauma in general and maxillofacial trauma in particular. Also, females drive less often and are thus less likely to be involved in vehicular accidents. They are also less susceptible to sport-related injuries and to falls and violence. A study also most found that most of the male patients in the study were young adults who are often injured away from home, whereas female victims are more likely to be assaulted in their homes by some known one<sup>13</sup>.

According to our study the major cause of injuries was fight (55%) followed by falls (32.5%) and motorcycle accidents (12.5%). Fight and motorcycle accidents were more prevalent among males; whereas women suffered mostly with interpersonal violence and falls<sup>14</sup>.

We also studied the location of main fractures in both sexes. It was observed that 20% individuals have a pain in suffered areas especially of chest, hip, shoulder and mouth etc. About 40% of individuals have swelling of face, hip and shoulders etc. Lacerated wound of head and cheek etc. was observed in 8%. Maxillofacial fractures and fractures of hip, lumber region and knee were observed in 15% cases. The greatest incidence of maxillofacial trauma was observed in the evening hours between 4 pm to 10 pm. Other cases were reported between 9 am to 11 am. Our study is in accord to the study who stated that the greatest incidence of maxillofacial trauma (38.0%) was observed in the evening hours between 6 pm and 12 am. It is found that substantial increase in traffic is usually after the office hours<sup>15</sup>.

We found that interpersonal assault was found to be the most common etiology behind maxillofacial injuries. Our contradictory finding signifies the changing tendency of etiology of maxillofacial trauma may be trait to the fact that Sir Ganga Ram Hospital is mostly attended by the poor and moderately poor

people. Studies reported that unemployment and associated frustration, especially among the youth of lower socioeconomic group, having arguments and fights, leading to violence. Obviously, the face is the preferred “target” for blows during an assault<sup>16, 14</sup>.

It has been reported that in automobile accidents, the facial area is the most frequently injured region. About 20%–60% of persons involved in automobile collisions having some sort of facial fracture. Vehicular accidents may be accredited to the no segregation of slow and fast moving traffic, overloaded buses, and the proximity to national highway<sup>17</sup>.

According to our study the most common type of maxillofacial injury was found to be soft tissue trauma. This finding is in accordance with a study who demonstrated a very high frequency of soft tissue injuries in cranio-maxillofacial trauma and also with group of workers who reported that soft tissue injuries were the most common type of injuries in cases reporting with domestic violence. The fact that the most common etiologic factor in the present study was interpersonal assault may lead to the high incidence of soft tissue injuries. Similar results have also been reported in adults<sup>20</sup> and in pediatric patients.

Present study observed that facial contusions and abrasions were the most frequent types of soft tissue injuries followed by lacerations. Previous studies on maxillofacial injuries associated with interpersonal violence have reported bruises and scratches to be a frequent occurrence<sup>19, 21</sup>. Lacerations when present, were most frequently observed on the lower and upper lips<sup>20</sup>.

Limitations: Problems involve gaps in information and incomplete records. Furthermore, all data rely on the accuracy of the original examination and documentation. Some items may have been excluded in the initial examination or not recorded in the chart.

## CONCLUSION

The maxillofacial injuries and lumber fractures is especially prone to traumatic injuries. The changing trend of etiology of maxillofacial injuries in city, particularly the alarming increase in assault, necessitates strict legislation against violence. There is a need to minimize the physical, psychological, and emotional distress associated with trauma in general and maxillofacial trauma in particular. More elaborate prospective surveys may further corroborate the findings of our study and help prepare more reliable preventive and health care measures against maxillofacial trauma.

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