

## Maxillofacial trauma of psychiatric magnitudes and role of post-traumatic stress symptoms

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### Abstract:

*It has been assessed the prevalence of acute symptoms of stress in patients who experienced a maxillofacial injury in psychiatric magnitudes and their related surgical intervention. Fifty patient's ages between 18 and 65 have been considered; it has been assigned a score to each according to severity of trauma by mean of Injury Severity Scale (ISS). Within 48 hours after surgery (T0) and at the three months (T1) we have administered Davidson Trauma Scale (DTS) for post traumatic symptoms. 44% of evaluated subjects ( 22 patients at T0) showed acute symptoms of stress and 26% ( 13 patients as T1) post-traumatic stress symptoms. Statistical association between demographic variables resulted significant only with sex especially for women. Significant correlation was seen between psychologic variables and symptoms specific of trauma both at T0 and T1, the same also for ISS at T0. Of the 13 patients positive at DTS at 3 months. The aim of the study was to identify the presence of post-traumatic stress disorder (PTSD) in patients who had sustained facial injuries, additionally, we aimed to identify other variables that may modify the psychological response to trauma that include gender, age and presence of disfigurement post-treatment and visible scars injuries. It is therefore necessity not only to restore anatomy and physiology in full but also to provide psychiatric support to those patient's suffering from general or specific psychiatric symptoms caused by traumatic injury.*

**Keywords:** Maxillofacial trauma, psychology

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### Introduction:

The psychological magnitude following on the traumatic events, little attention is still being paid to the emotional and psychological distress that these traumas may cause. Following on to facial injury, for instances those produced in a road traffic accident or by an assault, aesthetic or functional damages may still remain after surgery, with magnitude psychological and behavior problems due to

poor adaptation, often prolong over time. Many studies<sup>1,2</sup> have attempted to measure psychiatric post-traumatic morbidity which may take the form of depressive disorder and anxiety, psychotropic substance abuse or addiction and lastly post-traumatic stress disorder. The aim of the study was to identify the presence of post-traumatic stress disorder (PTSD) in patients who had sustained facial injuries, additionally, we aimed to identify other variables that may modify the psychological response to trauma that include gender, age and presence of disfigurement post-treatment and visible scars/orthopedic injuries. Trauma is a major health care problem in present day society. The face or countenance plays an important part in the formation of initial social relationships, and the appearance or "attractiveness" of a person is greatly contributed by the face<sup>3</sup>.

The disfigurement of the face is secondarily by numerous causes; however trauma to the face is the major cause for disfigurement. This study sought to determine; 1. The prevalence of psychological distress in a series of subjects who sustained maxillofacial injuries and 2. Temporal changes in psychological functioning over 12 weeks compared with baseline values.

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Bony and soft tissue injuries that are extensive can lead to scarring and/or disfigurement of the face. A common sequelae of trauma to the facial injury patients are the psychological distress it causes, hospital care of the facial trauma patients has progressed significantly over the last few decades and recent research has focused on the psychological aspects of the traumatic events.

Military veterans and disaster survivors are our primary knowledge of the psychological impact of traumatic events<sup>4</sup>. Maxillofacial trauma was recognized as important for research because of its potential for both physical and psychological disability.<sup>5</sup>

Poor documentation in routine clinical practice of the psychological impact of facial trauma patient leads to under-recognition and non-treatment of an important morbidity that arises post-trauma and can become chronic.

There has been published literature suggesting post-traumatic stress disorder (PTSD) may develop, the PTSD of facial trauma patients documented range between 26% and 41%.<sup>4,5,6</sup>

Anxiety is an emotion characterized by an state of unpleasantness and of inner turmoil, it is accompanied by nervous behavior, such as pacing back and forth, somatic complaints and rumination<sup>7</sup>. There are subjective unpleasant feelings of dread over anticipated events, such as the feeling of imminent death<sup>8</sup>. Anxiety is not the same as fear that is a response to a real or perceived immediate threat, whereas anxiety is the expectation of future threat<sup>9</sup>. Anxiety is a feeling of fear, worry, and uneasiness, usually generalized and unfocused as an overreaction to a situation that is only subjectively seen as menacing. There are muscular tension, restlessness, fatigue and problems in concentration. Anxiety can be appropriate, but when experienced regularly the individual may suffer from an anxiety disorder.

In spite of the high rates of morbidity and mortality associated with trauma, it is still not regarded as a major disease. Oral and maxillofacial (OMF) trauma has become a major point in focus, owing to its increasing incidence and the multispecialty management, which it dictates. OMF injuries, either with or without associated systemic injuries, account for a large number of hospital admissions, especially through the emergency department. While the specialty of OMF surgery is most commonly involved in diagnosis and treatment of maxillofacial traumatic injuries, comprehensive management often involves several other specialties. A clear understanding of the maxillofacial anatomy and pattern of injuries is required not only to

diagnose, but also to assess injury severity following maxillofacial trauma. Injury severity is regarded as an indicator of the nature and intensity of treatment required by the patient, and helps predict treatment outcomes when quantified.

This study evaluate the prevalence of immediate and delayed psychiatric magnitude in victims of maxillofacial trauma, in particular the onset and evolution of post-traumatic stress disorder (PTSD), to determine the predisposing factors that may acts as concomitant cause of the outcome and maintenance of the disorder and to verify whether the severity of trauma influences post-traumatic stress symptoms. The development of screening mechanism to evaluate post-traumatic psychiatric risk will make it possible to intervene appropriately with psychosocial support, educational treatment and/or pharmacological treatment<sup>3</sup>.

#### **Materials and method:**

This descriptive study was done by the Department of Oral & Maxillofacial Surgery, Dhaka Medical College Hospital, Dhaka. 50 consecutive patients who had undergone trauma to the maxillofacial region were admitted to the study; they were assigned a score for the severity of the trauma, using the Injury Severity Scale (ISS)<sup>10</sup>, limited to the maxillofacial area, with score between 1 (minor injury) and 4 (severe injury). All patients were between 15 and 55 years. All patients were to surgery under general anesthesia. Those presenting positive histories for psychiatric disease and/or use of psychotropic substances were excluded from the study. For each patient, age, sex, marital status, education, etiology and type of fracture.

Within 48 hours after surgery and at 3 months follow up, the following questionnaires were administered to all subjects: the Davidson Trauma Scale (DTS)<sup>11</sup>, specific for the measurement of post-traumatic stress symptoms. The DTS is a self-administered questionnaire, which evaluate symptoms of PTDS in subjects who have undergone physical and/or psychic trauma. The DTS is a 17-item self-report measure that assesses the 17 DSM-IV symptoms of PTSD. Items are rated on 5-point frequency (0 = "not at all" to 4 = "every day") and severity scales (0 = "not at all distressing" to 4 = "extremely distressing"). Respondents are asked to identify the trauma that is most disturbing to them and to rate, in the past week, how much trouble they have had with each symptom.

The DTS yields a frequency score (ranging from 0 to 68), severity score (ranging from 0 to 68), and total score (ranging from 0 to 136). It can be used to make a preliminary

determination about whether the symptoms meet DSM criteria for PTSD. Scores can also be calculated for each of the 3 PTSD symptom clusters (i.e., B, C, and D). In this test we took into account both the total score and that of the sub-scales: IT(total intrusive re-experience), AT(total avoidance) and HT(total hyperarousal).

Injury severity scores for three maxillofacial functional parameters, malocclusion (ISS-1) limited mouth opening (ISS-2) and facial deformity (ISS-3).

**Results:**

The study group comprised 50 patients (44 male and 6 female), mean age 32.4+13.6 years treated surgically, all whom completed the questionnaires administered to them. Demographic characteristics were as follows: marital status: 32 married and 18 unmarried; educational qualifications: 12 illiterate, 10 primary schooling, 20 secondary schooling, 8 university degree;

Etiology, location of fracture and ISS are reported in Tables I, II and III. Table 1 shows about 60% causes of maxillofacial trauma by road traffic accident followed by assault which was 22% and fall were 18%. Urban citizen are depends on vehicle so road traffic accident is most common cause.

**Table-I**  
*Etiology of Maxillofacial trauma*

Etiology	No of cases	%
Road Traffic Accident	30	60
Fall	9	18
Assault	11	22
Total	50	100

**Table-II**  
*Location of fracture*

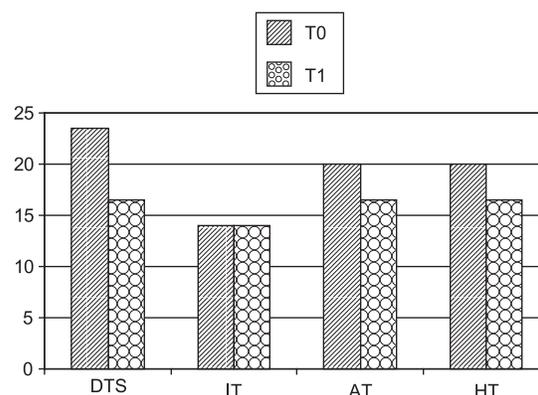
Location	No of cases
Dentoalveolar	6
Mandible	24
Zygomatic arch	2
Naso-orbital-ethmoid	4
Nasal bone	3
Lefort-1,2,3	11

**Table-III**  
*Injury Severity Scale*

ISS	No of cases	%
1234	511304	1022608
Total	50	100

Table III shows Injury Severity Scale (ISS) 60% of case were ISS-3 followed by ISS-2.

With the help of the descriptive analysis, the following results were obtained: at the time of trauma (T0) 22 subjects (44%) were above the threshold value (cut-off>40) at total DTS, with a mean value of 49.45± 7.39. The IT, AT and HT , were also elevated in 14, 20 and 20 patients. After 3 months of trauma (T1) 13 subjects (26%) were above the threshold value at total DTS, with a mean value of 53.23±8.81. Also in the respective sub-scales, 14 patients were above the threshold at IT and HT, and 16 patients were above the threshold at AT (Fig,1). One-way analysis of variance (one-way ANOVA) correlation to be determined between demographic variables in the study group and the mean total scores at DTS at T0 and T1 and the corresponding sub-scales.



**Fig-1:** Prevalence of post-traumatic stress symptoms

The  $\chi^2$  test was then used to correlate the ISS scores with the mean total DTS, and a significant correlation ( $p<0.05$ ) was only found at T0. Nor was the correlation between the etiology of trauma and total DTS found to be significant.

**Discussion:**

Post-traumatic stress disorder is classified among anxiety disorder (DSM-4)<sup>12</sup>, from which it differs in that its onset requires exposure to an “extreme” event compared to the normal stimuli produced by human experience. Traumatic events like road traffic accident, assault and fall produces a series of characteristics symptoms, such as reliving the moment that produced the trauma (nightmares, stressful dreams, flashbacks ), a reduced response to the outside world, avoidance of stimuli associated with the trauma and increased sympathetic activity<sup>13</sup>. The criterion of duration is relevant for diagnosis, since the symptoms must last for at least 1 month<sup>14</sup>. If this condition is not met

in full, the condition is classified as acute stress disorder. Research dealing with psychiatric consequences in patients after maxillofacial trauma, on the contrary, is relatively scarce<sup>15,16</sup>, percentages of PTSD at T1 reported in these studies varies from 10 to 27%, closely comparable to the results of the present study, 26% at 3 months after the traumatic event (44% at T0). As has been widely reported in the literature, maxillofacial trauma chiefly affects subjects in the second and third decades of life, and men are more frequently affected than women; this is also confirmed by the present study, in which 88% of the subjects were male, with mean age  $34.45 \pm 13.57$  years.

### Conclusion:

Maxillofacial trauma often becomes a problem of general health, and may give rise to psychiatric disorders that are more serious than the physical sequelae. Sometimes the patient experiences even small defects as narcissistic wounds, which the maxillofacial surgeon must know when facing the patient. It is not always enough to master valid surgical techniques and exercise careful judgement in selecting surgical treatment; the specialist must have knowledge of the psychiatric aspects that a trauma involves, and the possible problems of body image that may derive from it. It is useful to know and be able to communicate both the limits of reconstructive surgery and specific limit of the surgery. Patients with disfiguring facial injuries had significantly higher PTSD levels compared to patients with no disfiguring facial injuries, patients with orthopedic/visible injuries had statistically significant lower IES scores which could not be strictly termed PTSD when compared to patients with disfiguring facial injuries who had high scores of IES corresponding to high levels of PTSD and these results were observed at all three study intervals (DOD, 1 and 6 months postoperatively). Female patients with disfiguring facial injuries had significantly higher PTSD levels compared to male patients (at all the study intervals) and patients younger than 50 years of age had significantly higher PTSD levels compared to older patients.

The majority of studies of patients who have sustained facial injuries have focused on evaluating surgical interventions and medical outcomes<sup>17</sup>. Although it is well recognized that changes in facial appearance due to injury can cause problems with adjustment and adaptation, relatively few studies have evaluated psychological status following maxillofacial trauma<sup>18</sup>. The present study showed that a significant number of patients achieved scores suggestive of either depression or anxiety state. 30% of the patients achieved scores that was suggestive of depressive disorders and 29% had scores suggestive of anxiety state. The management of facial injuries should integrate a multidisciplinary approach that addresses the

psychological needs of the patients in both the short term and the long term.

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