

POST-TRAUMATIC STRESS DISORDER – A PSYCHOLOGICAL ASPECT OF MAXILLOFACIAL TRAUMA

Basheer Rehman*, Qiam ud Din*, Syeda Nadia Shah**

*Department of Oral & Maxillofacial Surgery, Khyber College of Dentistry, Peshawar, Pakistan

**Department of Psychology, University of Peshawar.

ABSTRACT

Objective: The purpose of this study is to find out the incidence of Post-Traumatic Stress Disorder in patients with maxillofacial trauma and to provide a circumstantial evidence for certain precautionary measures which will play a basic role in the prevention and management of Post-Traumatic Stress Disorder amongst such patients.

Material and Methods: The study was carried out at the Department of Oral and Maxillofacial Surgery, Khyber College of Dentistry Khyber Pakhtunkhwa, Peshawar from June 2009 to May 2010. Two hundred and Ninety patients with maxillofacial trauma were recruited in this study. For the collection of data, Post-Traumatic Stress Disorder Checklist Civilian version consisting of 17 items was used. The collected data and all relevant information were analysed using SPSS Version 17.0.

Results: The results of the present study showed that out of 290 patients, 90 patients (31.03%) had Post-Traumatic Stress Disorder symptoms in which 40 (44.44%) were males and 50 (55.56%) were females. The largest age group suffered from Post-Traumatic Stress Disorder symptoms were 16-25 years and 26-35 years (33.33% each). Thirty four patients (37.78%) scored 50 or above on Check list indicating severe symptoms, where 27 females (30%) had severe symptoms as compared to 7 males (7.78%). Young patients between ages 16-35 were the most common group who suffered from severe symptoms. The severe symptoms of Post-Traumatic Stress Disorder were seen in victims of road traffic accidents and bomb blast injuries (22.22% and 13.33% respectively) with poor and middle socioeconomic status.

Conclusion: The importance of psychological morbidity after major trauma is continuing to gain attention in trauma outcomes research. Taking into account the burden of psychological consequences of maxillofacial trauma, further research and preventive strategies are needed to cope with this hidden epidemic in our society.

Keywords: Post Traumatic Stress Disorder, Maxillofacial Trauma, Bomb Blast Injuries.

INTRODUCTION

Traumatic experience in life sometimes set off a reaction that can last for many months or years known as Post-Traumatic Stress Disorder (PTSD)¹. PTSD can start after any traumatic event like serious road accidents, violent personal assault or a terrorist attack and the symptoms can start after a delay of days to weeks, or even months². PTSD is emerging as

a major public health problem worldwide with an identified rate of approximately 10-30% within the general population³. A traumatic event was described as a catastrophic stressor that was outside the range of usual human experience⁴. Most notably, the definition of what constitutes a traumatic event was altered to include events not outside the range of usual human experience, such as automobile accidents⁵.

The major symptoms of PTSD are caused by a classical conditioning to fear in which a patient may experience increased anxiety or fear when traveling in a car, after having been involved in a road traffic accident (RTA)⁶. Avoidance of motor vehicles only serves to negatively reinforce the fear of cars, when the car is not present, neither is the anxiety⁷. Henry &

Correspondence:

Dr. Basheer Rehman

Demonstrator

Department of Oral & Maxillofacial Surgery,
Khyber College of Dentistry, Peshawar, Pakistan

Office: 091-9216217

Cell: 03339199288

E-mail: trygeminal76@yahoo.com

Havilland⁸ showed that from a biological viewpoint, lasting changes in brain chemistry are often evident in the patient diagnosed with PTSD. When the sympathetic nervous system is activated to prepare for an emergency, the brain releases catecholamine. The characteristic catecholamine abnormalities and a high norepinephrine/cortisol ratio is a useful indicator of PTSD⁸. In 2000, the American Psychiatric Association revised the PTSD diagnostic criteria which include a history of exposure to a traumatic event and symptoms such as intrusive recollections, avoidant symptoms, and hyper-arousal symptoms. The fifth criterion concerns duration of symptoms which must be more than one month⁹.

Maxillofacial fractures are common types of injuries and the surgical literature is largely confined to reporting the epidemiology of these injuries or articulating practice guidelines¹⁰. The current practice of viewing these injuries only within a surgical context tends to ignore equally salient features such as PTSD that can and do impact the health outcomes. Over the past decade, the efforts of a small group of investigators¹⁰⁻¹² have increasingly sensitized the surgical community to the hidden social and psychological factors that adversely influence treatment response and increase the risk of re injury. Providing effective surgical care is a critical aspect of recovery, but so is meeting the concurrent social and psychological needs of patients that may render them at particular risk for poor psychosocial adjustment following the traumatic event. These untreated emotional and behavioural disorders, including depression and antisocial behaviour problems, contribute to poor overall social functioning, occupational failure, substance abuse, and continuing risking behaviours that increase the risk of violence and reinjury¹³.

The contemporary literature discusses the interplay of risk factors such as personal and family psychiatric history, gender, ethnicity, and type of trauma¹⁴. Although rates of exposure to traumatic events are generally lower for females than males, epidemiological studies have consistently found that females are approximately twice as likely as males to develop PTSD¹⁴. Young age people are prone to develop PTSD as compared to other age groups and traumatic events among people of young age specially children may not only cause PTSD but also other psychopathologies¹⁵.

Although the definitive diagnosis of PTSD requires a clinical interview, screening tools exist to assist maxillofacial trauma care providers in identifying patients who might benefit from referral for a more detailed psychiatric evaluation. Various screening instruments have been developed that assess the severity and frequency of the symptoms of PTSD. Among the most commonly-used instruments are the PTSD Symptom Checklist¹⁶ the Posttraumatic Diagnostic Scale, the revised version of the Impact of Events¹⁸, and the Davidson Trauma Scale¹⁹. The purpose of this study is to find out the incidence of PTSD in patients with maxillofacial trauma and to provide circumstantial evidence for certain precautionary measures which will play a basic role in the prevention and management of PTSD.

METHODOLOGY

A total of 290 patients with maxillofacial trauma were recruited in this study over a period of one year from 1st June 2009 to 31st May 2010 in the Department of Oral & Maxillofacial Surgery, Khyber College of Dentistry, Peshawar. Patients having a history of maxillofacial trauma of at least one month duration were included. Patients below 12 years of age were excluded from this study. For the collection of data, PTSD Checklist (PCL) Civilian version consisting of 17 items was used. Patients are instructed to indicate how much they have been bothered by each symptom in the past month using a 5 point (1-5) scale, ranging from "Not at all" to "Extremely." A total score obtained according to PTSD Check list lies between 0-16, indicates no symptoms of PTSD. A total score of 17-20 means minimum symptoms while a score of 21-29 and 30-49 indicates mild and moderate symptoms respectively. A score of 50 or above means severe symptoms of PTSD.

Before the administration of questionnaire subjects were told about the purpose of the study. They were assured that all information obtained from them will be kept confidential and would be used for research purpose only. They were requested to answer all the questions. An informed consent was obtained on the questionnaire. The collected data and all relevant information were analysed using statistical tools (SPSS Version 17.0).

RESULTS

The results of the present study showed that out of 290 patients, 90 (31.03%) had PTSD symptoms while the remaining 200 patients scored 16 or below and therefore could not be labeled as suffering from PTSD. Of 90 PTSD positive patients, 40 (44.44%) were males and 50 (55.56%) were females with a male to female ratio of 1:1.14. The largest age groups suffering from PTSD symptoms were 16-25 and 26-35 (33.33% each). Older individuals (66 years and above) were the least affected with only 3 cases (3.33%). Details are given in Table 1.

Thirty four patients (37.78%) scored 50 or above on PCL indicating severe symptoms. Among these 27 females (30%) had severe symptoms as compared to 7 males (7.78%). Details are given in Table 2. Twenty Six Patients (28.89%) between ages 16-35 years were the most common group who suffered from severe symptoms while the old age patients were found to be more resistant to severe PTSD symptomatology (Table 3). More severe symptoms of PTSD were seen in victims of road traffic accidents (22.22%) followed by bomb blast injuries (13.33%). Details are given in Fig 1. Evaluation of the socioeconomic status and its relation to the severity of symptoms showed that patients with monthly income of less than Rs.15000 had more severe PTSD symptoms (52.20%) as compared

to patients with good economical status (18%). The details are given in Table 4.

Table 3: Severity of symptoms & Age Distribution

Symptoms	Young age 16-35 yrs		Middle age 36-55 yrs		Old age 56 yrs & above	
	n	%	n	%	n	%
Mild	19	21.11	7	7.78	3	3.33
Moderate	15	16.67	9	10	3	3.33
Severe	26	28.89	7	7.78	1	1.11
Total	60	66.67	23	25.55	7	7.78

Table 4: Socioeconomic Status (on monthly income basis)

Socioeconomic Group	Frequency	%
Poor (< Rs. 15000)	47	52.20
Satisfactory (=Rs. 15000-20000)	25	27.80
Good (> Rs. 20000)	18	20.00

Table 1: Age Distribution

Age in years	Frequency	%
16-25	30	33.33
26-35	30	33.33
36-45	16	17.78
46-55	7	7.78
56-65	4	4.45
66-70	3	3.33
Total	90	100

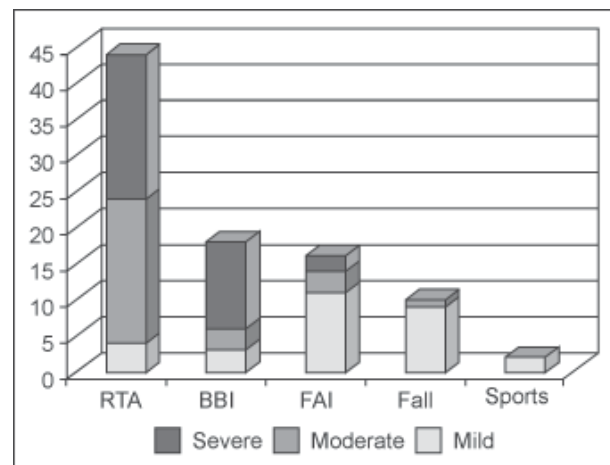


Fig 1: Severity of symptoms and Mechanism of injury

Table 2: Severity of symptoms & Gender Distribution

Symptoms	Male		Female		Total	%
	n	%	n	%		
Mild	21	23.33	8	8.89	29	32.22
Moderate	12	13.33	15	16.67	27	30
Severe	7	7.78	27	30	34	37.78
	40	44.44	50	55.56	90	100

DISCUSSION

As manifested by the literature^{3,6,7} on traumatic stress, injury can disable people in terms of their physical, mental and social functioning. Not only does poor mental health appear to be one of the most common disabling sequelae of traumatic injury, it is the outcome which may hold the most promise for modification by appropriate psychosocial interventions. An individual's own ability to cope with physical impairment, as well as his/her broader social situation, offers opportunities to reduce the extent to which the physical injury can result in disability. The incidence of PTSD (31.03%) after maxillofacial trauma in our study is in agreement with other international studies^{3,6,7}. These findings show that proper psychological evaluation and care of maxillofacial trauma is as important as for other parts of the human body.

A number of trauma related characteristics have been hypothesized to contribute to sex-specific risks including differences in exposure to assault, psychophysiology, appraisal of threat and control, dissociation, coping style and social support^{20,21}. Studies specifically comparing gender differences in perceptions of fear, horror and helplessness revealed that women are more likely than men to view comparable events as threatening²². The current investigation examined the extent to which initial or late traumatic reactions to maxillofacial injuries contribute to gender differences (44.44% male versus 55.56 female) in PTSD symptom development. Moreover the severity of symptoms was also more evident in female population in the present study. The theoretical constructs of cognitive trauma models provide a reasonable framework for examining these associations^{20,23}. Men and women show differences in the biological aspects of brain development, thus differences in behavioural development throughout the lifespan could influence the way risk factors or trauma exposures are met.

This study replicates and extends the findings of some earlier studies^{5,12,15} regarding age and its association to PTSD. The mean age differences in our study showed that individuals with younger ages have high rate of PTSD as compared to older one both in terms of frequency and severity of symptoms. Thompson et al.²⁴ examined age differences in the psy-

chological consequences of traumatic events and found that younger people exhibited the most distress as compared to middle-aged people. It is obvious to think that increased levels of distress are coherent with an increased risk of PTSD. A separate line of inquiry²⁵ examined the effects of age on PTSD in a cultural context, and compared the effects of age after similar disasters and traumatic events in different parts of the world. The findings showed no consistent effect of age on PTSD. These differences in findings may be attributed to the fact that PTSD depends more upon the social, economic, cultural, and historical context rather than the age. Thus the age differences in PTSD prevalence tend to show some cultural variance²⁵.

Similarly social and economic support before and after a trauma, is among the most powerful influences in both the development of symptoms as well as recovery from PTSD²⁶. Poor and middle income categories comprised 80% of the patients who developed PTSD in our study, reflecting the extra burden of low socioeconomic status on human life style and psychological morbidities. Khyber Pakhtunkhwa Province of Pakistan accommodates 21 million of the country's overall population with an extra burden of 1.5 million Afghan refugees. This province's share of Pakistan's Gross Domestic Products (GDP) has historically comprised 10.5%, although the province accounts for 11.9% of Pakistan's total population, rendering it the second-poorest province after neighboring Balochistan²⁷. After suffering for decades due to the fallout of the Soviet invasion of Afghanistan, today the province has been en masse target of terrorism.

Although post-trauma psychopathology can follow any type of trauma exposure, direct exposure such as intentional injury is more likely to be associated with psychiatric disorders than an indirect exposure to traumatic events¹¹. In this study, PTSD symptoms were observed in 50% patients with RTA related while 37.78% in Bomb blast/Fire arm related maxillofacial injuries. These highest figures, unlike worldwide statistics^{10,11,13} reflect the devastating effects of terrorism and its squeals like poverty, poor law and order situation and lack of legislation in this part of the country.

CONCLUSION

The following can be concluded from this study:

1. PTSD was observed in 31.03% patients with maxillofacial trauma.
2. Female (55.56%) in their age groups 16-35 years most commonly suffered from PTSD symptoms as compared to male counterpart.
3. More severe symptoms of PTSD were observed in young, socioeconomically unstable patients involved in RTA and Bomb blast injuries.

Recommendations

After taking into account the burden of psychological consequences of maxillofacial trauma, further research and preventive strategies are needed to cope with this hidden epidemic in our society. A maxillofacial surgeon of the present time must have a close working relationship with clinical psychologist to help patient out of the dangerous consequences of trauma in the form of PTSD. Government should also take serious steps towards injury prevention by traffic legislations as well as eradicating the extra burden of war against terrorism from this already affected province. They should provide a sound working environment for surgeons and psychologist to take their part in helping these patients.

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