

Frequency of Posttraumatic Stress Disorder Symptoms in Earthquake Survivors

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SUMMARY

Objectives: This study was done to assess the frequency of symptoms of Posttraumatic Stress Disorder in earthquake survivors. **Design and place of study:** It was an observational study conducted on in-patient survivors of Oct 8, 2005 earthquake, admitted in different departments of Shaikh Zayed Hospital, Lahore affiliated with Federal Postgraduate Medical Institute. **Subject and methods:** The patients who had received different physical injuries and their surviving attendants were administered with a check-list of symptoms of Posttraumatic Stress Disorder (PTSD) diagnostic criteria of DSM-IV. **Results:** A total of 124 survivors (85 patients and 39 attendants) were identified and administered with the check-list. In all 52 (41.94%) of the survivors, 38 (44.77%) of patients and 14 (35.90%) of the attendants fulfilled the entire DSM-IV symptom criteria for PTSD. Among the patients more females i.e. 27 (52.94%) as compared to males i.e. 11 (32.32%) fulfilled the symptom criteria for PTSD. **Conclusion:** Posttraumatic Stress Disorder symptoms are very common in the survivors of an earthquake, an evidence to sensitize health care providers to organize and implement timely psychosocial assessment and interventions.

Key words: Posttraumatic Stress Disorder, Acute Stress Disorder, Earthquake Survivors.

INTRODUCTION

The defining characteristic of a traumatic event is its capacity to provoke fear, helplessness, or horror in response to the threat of injury or death.¹ People who are exposed to such events are at an increased risk for Posttraumatic Stress Disorder (PTSD) and other psychiatric disorders.² Traumatic events that have been found to be commonly associated with PTSD include violent personal assault, life threatening accidents, terrorist attacks, military combat and natural disasters like earthquake. Factors other than individual vulnerability, that contribute to the intensity of response to traumatic experience include degree of controllability, predictability and perceived threat.³ Earthquake is one such major traumatic event which can not be predicted, controlled or avoided and results in extensive destruction, misery and helplessness.

To be given a diagnosis of PTSD, a person

has to have been exposed to a traumatic event to which he or she responded with intense fear, horror or helplessness and to have three distinct types of symptoms consisting of re-experiencing of the event, avoidance of the reminders of the event, and hyper arousal for at least one month¹ (Table 1).

The lifetime prevalence of PTSD ranges from 7.8 to 12.3 percent⁴. Although PTSD is the most widely recognized psychiatric morbidity after disasters, it is not the only one⁵. The survivors are expected to suffer from different psychiatric disorders like acute stress disorder, anxiety, depression, somatoform and substance abuse disorders. Earthquake survivors usually receive serious physical injuries and if exposed to prolong pain, heat, or cold, the biological and psychological experience can be intensified⁶. Most of earthquakes are followed by after-shocks, actual or perceived threat of which can re-enforce fear and helplessness. Prevalence rates of 67% have been reported in earthquake survivors⁷.

Table 1: Diagnostic criteria for PTSD*.

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- A) A person must have been exposed to a traumatic event.
1. The event involved a perceived or actual threat to the person's own life or physical integrity or that of another, such as a physical or sexual assault, rape, a serious accident, a natural disaster, combat, being taken hostage, torture, displacement as a refugee, sudden unexpected death of a loved one, and witnessing a traumatic event.
 2. The person's response to the event involved fear, helplessness, or horror.
- B) The person persistently re-experiences the event in at least one of several ways:
1. The person has intrusive recollections of the event.
 2. The person has nightmares.
 3. The person has flashbacks, which are particularly vivid memories that occur while he or she is awake and make him or her act or feel as though the event was recurring.
 4. The person has intense psychological distress in response to reminders of the traumatic event.
 5. The person has intense physiological reactions in response to reminders of the event (including palpitations, sweating, difficulty breathing, and other panic responses).
- C) The person avoids reminders of the event and has generalized numbness of feeling as indicated by the presence of at least three of the following
1. The person actively avoid pursuits, people, and places that remind him or her of the event.
 2. The person avoids thinking of or talking about the event.
 3. The person is unable to recall aspects of the event.
 4. The person has lost interest in or participates less in activities.
 5. The person has felt detached or estranged from other people since the event.
 6. The person has a restricted range of emotions or a feeling of numbness.
 7. The person feels as though his or her life has been foreshortened or as though there is no need to plan for the future, with respect to his or her career, getting married, or having children.
- D) The person has symptoms of increased arousal, as evidenced by the presence of at least two of the following:
1. The person has difficulty falling or staying asleep (sometimes related to fear of having nightmares).
 2. The person is irritable and has feelings or outbursts of anger.
 3. The person has difficulty concentrating.
 4. The person has become more vigilant and concerned about safety.
 5. The person has exaggerated startle reactions in response to sounds or movements.
- E) The three types of symptoms must be present together for at least one month.
- F) The disorder must cause clinically significant distress or impairment in social, occupational, or other areas of functioning.
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*There are three subtypes of PTSD, Acute PTSD refers to symptoms that last less than three months. Chronic PTSD refers to symptoms that last three months or longer. Delayed onset PTSD refers to symptoms that begin at least six months after a traumatic event. Adapted from the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition.

Pakistan was struck by a massive earthquake (7.8 at Rector Scale) on October 8, 2005 in the vast hilly areas of Azad Kashmir and NWFP. Around one hundred thousand people died and many more

received major injuries. Millions became homeless to face the hardship of extremely bad weather conditions. Pakistan was faced with gigantic task of rescue and rehabilitation. While thousands of the survivors needed immediate medical and surgical attention, many more required psychological assessment and passionate healing interventions.

Purpose of the study

This study was conducted to find out the frequency of symptoms of Posttraumatic Stress Disorder in earthquake survivors admitted as patients with major physical injuries and their attendants.

SUBJECTS AND METHODS

A search was conducted to locate earthquake survivor patients admitted to different departments of Shaikh Zayed Hospital, Lahore. A total of 85 patients and 39 survivor attendants were identified. All the subjects were clinically assessed for the possibility of trauma related psychiatric morbidity between 26-10-2005 and 02-11-2005. They were administered with a symptom check-list based on DSM-IV diagnostic criteria for Posttraumatic Stress Disorder (Table 1).

RESULTS

There were a total of 124 survivors, 85 patients and 39 attendants. Few patients were accompanied by non survivor attendants while many survivor attendants were looking after more than one patient. There were 34 male and 51 female patients. Among the attendants, 26 were males and 13 females. The patients aged between 1-90 years while mean age of male patients was 28.08 years and that of female patients was 26.84 years with standard deviation of 21.60 and 15.50 respectively. The attendants aged between 16-55 years while mean age of male attendants was 30.00 years and that of female attendants was 28.00 years with standard deviation of 8.50 and 12.50 respectively (Table 2).

Table 2: Age and gender characteristics of earthquake survivors (n=124).

	Patients n= 85		Attendants n= 39	
	Male	Female	Male	Female
No. of survivors	34	51	26	13
Mean age	28.08	26.84	30.00	28.00
Range	1-90	3-70	16-55	16-50
Standard deviation	21.60	15.50	8.50	12.50

A total 124 (60 male and 64 female) subjects completed the symptom check-list. In all, 52 (41.94%) fulfilled the entire symptom criteria for PTSD while 37 (29.84%) fulfilled partial criteria. More patients 38 (44.70%) than attendants 14 (35.90%) fulfilled the entire symptom criteria. Significantly more women 33 (51.56%) as compared to men 19 (31.66%) had PTSD (Table 3).

Table 3: Frequency of PTSD symptoms in the earthquake survivors.

Sex			Full Criteria	Partial Criteria	No symptoms
Patients	Male	34	11 (32.35%)	10 (29.41%)	13 (38.24%)
	Female	51	27 (52.94%)	17 (33.33%)	07 (13.73%)
	Total	85	38 (44.70%)	27 (31.76%)	20 (23.54%)
Attendants	Male	26	08 (30.77%)	06 (23.08%)	12 (46.15%)
	Female	13	06 (46.15%)	04 (30.77%)	03 (23.08%)
	Total	39	14 (35.90%)	10 (25.64%)	15 (38.46%)
Total		124	52 (41.94%)	37 (29.84%)	35 (28.22%)

Among the individual main symptoms of PTSD, increased arousal was the commonest in patients 64 (75%) which was followed by re-experiencing the traumatic event 62 (73%), intense fear 53 (62%) and persistent avoidance of stimuli associated with the event 38 (45%). In the attendants, re-experiencing the traumatic event was the commonest symptom 25 (64%) which was

followed by increased arousal 22 (56%), intense fear 19 (49%) and persistent avoidance of stimuli 14 (36%). Diminished interest and activities, which is one of the two main symptoms of depression was present in 25 (29%) patients and 9 (23%) attendants indicating the presence of significant depression in the survivors (Table 4). The symptoms of recurrent and intrusive thoughts, images or preoccupations, recurrent dreams of the event and difficulty falling asleep were among the most common in both patients and the attendants. In contrast, very few patients and attendants had the symptoms of inability to recall an important aspect of the event.

Table 4 DSM-IV Posttraumatic Stress Disorder symptoms profile of patients and attendants.

Symptoms	Patients (n=85)	Attendants (n=39)
A Intense fear, horror or helplessness	53 (62%)	19 (49%)
B Re-experiencing the traumatic event	62 (73%)	25 (64%)
1 Recurrent and intrusive thoughts, images, or perceptions	58	24
2 Recurrent dreams of the event	39	08
3 Acting or feeling as if experiencing the event	17	05
4 Psychological reactivity and distress at exposure to cues	22	10
C Persistent avoidance of stimuli associated with the event	38 (45%)	14 (36%)
1 Efforts to avoid thoughts, feelings or conversation	18	07
2 Efforts to avoid activities, places or people	18	03
3 Inability to recall an important aspect of the event	02	02
4 Diminished interest and activities	25	09
5 Feeling of detachment	08	01
6 Restricted range of affect	10	01
7 Sense foreshortened future	31	09
D Increased arousal	64 (75%)	22 (56%)
1 Difficulty falling asleep	54	17
2 Irritability	22	07
3 Difficulty in concentrating	22	05
4 Hyper vigilance	09	04
5 Exaggerated startle response	08	03

Patients

Out of 85 patients, 34 were male and 51 female patients. Significantly more female 27 (52.94%) than male patients 11 (32.35%) fulfilled the entire symptom criteria for PTSD, while another 10 males (29.41%) and 17 (33.33%) female patients fulfilled partial criteria. In all, 13 male and 7 female patients had no symptoms of PTSD (Table 3).

Attendants

Out of 39 attendants, 26 were male and 13 were females. More female 6 (46.15%) than male 8 (30.77%) attendants fulfilled the entire symptom criteria for PTSD. Another 6 males (23.08%) and 4 (30.77%) female attendants fulfilled partial criteria while 12 male and 3 female attendants had no symptoms of PTSD (Table 3).

DISCUSSION

The main findings of this study are consistent with the findings of previous studies done on the similar population elsewhere⁸ and in Pakistan^{9, 10} which clearly highlight the importance of psychological assessment of earthquake survivors. Quite a high proportion of earthquake survivors i.e. 2 out of every 5 fulfilled the entire symptom criteria of DSM-IV during fourth week following the earthquake while 1 out of 3 had fulfilled the partial criteria.

Although posttraumatic stress disorder is the most widely recognized psychiatric disorder following a traumatic event, it is not the only one. Acute stress disorder, depression, anxiety disorders, adjustment disorder and substance abuse disorders are also common². Acute stress disorder may be even commoner and understandable universal response following exposure to traumatic events. The so-called normal understandable response to trauma can be highly variable. Some individuals will develop a marked initial reaction which will evolve into PTSD while others will have little or no reaction and will not develop any difficulties^{11, 12}. Intensity of physiological and psychological reactions and duration of persistence of symptoms seems to be the defining characteristics in this regard.

The DSM-IV symptom criteria for acute

stress disorder and posttraumatic stress disorder resemble closely. To be given a diagnosis of PTSD, a person has to have been exposed to a traumatic event to which he or she responded with intense fear, horror or helplessness and to have three distinct types of symptoms consisting of re-experiencing of the event, avoidance of the reminders of the event, and hyper arousal for at least one month¹. The earthquake survivors in our study were assessed and administered with PTSD symptom check-list during the fourth week following the traumatic event and were subsequently shifted back to their native areas and therefore, strictly speaking did not fulfill the requisite one month duration criteria for the diagnosis of Posttraumatic Stress Disorder even in the presence of full symptom criteria of DSM-IV.

The prevalence rates of PTSD have been found to change considerably over time even after once meeting the full criteria at one month¹³ as many of them are expected to recover from the disorder. Posttraumatic Stress Disorder is considered as a delayed and protracted response to traumatic events, so many of the survivors who initially have subsyndromal symptoms may evolve into full blown PTSD later. Within the first month after a posttraumatic experience, traumatized persons may meet the diagnostic criteria for acute stress disorder.

In our present study of 124 subjects, a total of 35 (28.22%) survivors including 20 (23.54%) patients and 15 (38.46%) attendants had no posttraumatic symptoms while majority of the remaining subjects met the diagnostic criteria of acute stress disorder of DSM-IV. Although acute stress disorder is not always followed by PTSD, it is associated with an increased risk of subsequent evolution into full blown PTSD^{14, 15}.

Diagnostic pitfalls set aside; our present study clearly demonstrates that quite a high proportion of earthquake survivors had significant psychiatric morbidity following the traumatic experience.

CONCLUSION

In view of enormous physical damage and psychosocial stress associated with traumatic experience of earthquake, all survivors need to be assessed for the possibility of different

posttraumatic psychiatric problems. Other than the provision of basic necessities of life like food, shelter and material help in rehabilitation, psychological assessment and psychosocial interventions in the form of supportive therapy and trauma-focused cognitive-behavioural interventions^{16, 17} not only can lessen the immediate stress but also can go a long way in the treatment and prevention of trauma related psychiatric morbidity.

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