

# POST-TRAUMATIC STRESS DISORDER (PTSD), DEPRESSION, FEAR AND AVOIDANCE IN DESTITUTE WOMEN, EARTHQUAKE SURVIVORS OF NWFP, PAKISTAN

Unaiza Niaz , Sehar Hassan, Mehar Hasan

## ABSTRACT

**Objective:** To evaluate psychological consequences of traumatic stress such as Depression, Fear and Avoidance in destitute women after 8<sup>th</sup> October earthquake in NWFP, Pakistan.

**Design:** Cross-sectional study of a group of destitute women.

**Place and duration of study:** The study was conducted at a Destitute Women's Shelter Camp in Mansehra in May 2006.

**Subjects & Methods:** A total of 75 women were interviewed from a Destitute Women's Shelter Camp in Mansehra. Standardized structured questionnaires were administered by the researchers following counseling and interview of individual woman in privacy. The instruments used in this study; SITSES, Depression Scale and Fear and Avoidance Scale. SITSES includes detailed Survivor Information Form (SIF), Traumatic Stress Symptom Checklist (TSSC) and Severity of Disability Scale (SDS).

**Results:** The mean age of the respondents was 39 years (S.D. = 13.4). 82% were illiterate. 92% were widow. 70% lost their homes. 21% lost their entire families. 81% were suffering from depression and fear and avoidance was found in 80%. 94% were suffering from Post-traumatic Stress Disorder. Loss of family members, loss of property, being trapped under rubble, history of previous trauma, previous history of psychiatric illness and intensity of fear during earthquake found to be significantly associated ( $p < .001$ ) with psychiatric morbidity in survivors.

**Conclusion:** Our clinical observations of these distressed destitute women coincided with statistical findings of our research survey. These highly distressed, bereaved destitute women after this catastrophic earthquake disaster were expected to show extreme effects of traumatic stress. The findings of study reconfirm that destitute women in stress have markedly high rates of PTSD, depression, fear and avoidance.

**Key words:** Destitute women, Post-traumatic stress disorder, Earthquake survivors, Risk factors.

## INTRODUCTION

Since the mid-1990s there has been an increase in the recorded number of all types of disasters and the number of recorded fatalities resulting from disasters. During the 1990s, more than two-thirds of the deaths from disasters occurred in Asia, which was also the continent most frequently hit by disasters. It is well known that vulnerable high risk groups (women, children and elderly) are most effected in both man-made and natural

disasters because of interaction of biological and social risk factors<sup>1,2</sup>. There is evidence showing that women and men may suffer different negative health consequences following a disaster<sup>3</sup>. Some recent researches suggest that biological differences between the sexes and socially determined differences in women and men, are primarily the cause for gender differences not only in psychiatric illnesses but PTSD<sup>4</sup>. Women's vulnerability to the impact of disasters is increased by socially determined differences in roles and responsibilities of women and men and inequalities between them in access to resources and decision-making power. However, there is a general lack of research on sex and gender differences in vulnerability to and impact of disasters. The report of Department of Gender and Women's Health Geneva, Switzerland (WHO)<sup>5</sup> stressed that research is needed both at the local and at national and regional levels on structural processes and factors that increase disaster vulnerability in women and men across different social groups.

**Unaiza Niaz**, M.D .DPM F.R.C., Psych, Director Institute Psycho-trauma Pakistan (IPTP) Member Task Force Earthquake WPA and Co-Chair Section on Women's Mental Health WPA. Director, (IPTP), The Psychiatric Clinic & Stress Research Center, 6C, 7<sup>th</sup>, Commercial Lane, Zamzama Boulevard, Phase V, D.H.A. Karachi, Pakistan. E-mail: drunaiza@cyber.net.pk .

**Sehar Hassan**, M.Sc. Behavioral. Sciences. (Member IPTP)

**Mehar Hassan**, (Member IPTP)

**Correspondence:**

**Dr. Unaiza Niaz**

Post-traumatic stress responses are characterized by the development of specific symptoms following occurrence of traumatic events. Exposures to catastrophic disastrous incidents like earthquakes are well known to result in development of traumatic stress responses. Survivors having these symptoms are clinically diagnosed as having Post-traumatic Stress Disorder<sup>6,7</sup>.

Recent studies of earthquake survivors have reported that rates of PTSD can range from 26% to 87% in them. The rates of major depression in earthquake survivors ranges from 13% to 31%<sup>8</sup>. In the study of earthquake survivors of 1999 earthquake in Turkey, the rates of PTSD and major depression after 8 months of earthquake were 43% and 31% respectively. These studies have also identified that intense fear during earthquake, being trapped under rubble, death of family members, damage to home, lower education and past history of psychiatric illness have been related to severity of PTSD and depression symptoms in survivors<sup>9</sup>.

Most of studies which reported the prevalence rates in range of 13-37% have examined community samples. In one of the studies Basoglu et al examined traumatic stress responses in earthquake survivors who were seeking treatment. The rates of PTSD found to be 63% and Major Depressive Episode was 42%<sup>10</sup>.

There is some evidence<sup>11</sup> showing that women and men may suffer different negative health consequences following a disaster. Some studies have identified that females are more prone to develop post-earthquake psychological distress. Females are more vulnerable to have severe exposure to actual threat or injuries during earthquake. In Marathwada India, more deaths were reported among females following an earthquake. These deaths were attributed to women being in homes damaged by the earthquake and men being in open areas. Men were sleeping in fields during harvest time and were away from the home in preparation for a festival, boys were at school away from the village, and many men were away from affected areas as they were employed in other districts or states<sup>12</sup>.

A devastating earthquake, measuring 7.6 on the Richter scale, hit the northern part of Pakistan on the morning of 8th October, 2005. In Pakistan social set up, women stay at home in morning hours. These women had horrifying experiences during this earthquake. Most of them had severe injuries as the homes collapsed. Those working ran towards schools to save the lives of their children. Many of them who were able to get out of rubble lost their children and husbands. These traumatic experiences accompanying a high death rate of their families resulted in severe traumatic responses in surviving women and children.

The present report is based on a detail study of a group of Destitute Women Survivors of 8<sup>th</sup> October earth-

quake. The Shelter Camp was based in the outskirts of Mansehra, run by an NGO.

## SUBJECTS AND METHODS

**Study Group:** A detail study was conducted on 75 destitute women in a shelter camp. Most of them were either very young widows living with their small children, elderly widowed grandmothers with small grand children, & some young girls with no surviving family member. Data was collected from all the women who were living in that camp. This group of women had high risk factors for PTSD (most of them were destitute with poor physical health and no male surviving family member). Destitute women with physical handicaps were further helpless to seek their relief money and avail other facilities open for the earthquake survivors.

### **Instrument:**

The assessment was carried out by using well-recognized Standardized Screening Instruments for Traumatic Stress in Earthquake Survivors (SITSES Basoglu et al)<sup>14</sup>. As the majority of study sample was illiterate (82%) it was decided to individually administer the questions by the researchers. SITSES consists of three parts.

- a. **Survivor Information Form** – 28 items concerning demographics, trauma experience, previous trauma and psychiatric history, family history of psychiatric illness and intensity of fear during the earthquake.
- b. **Traumatic Stress Symptom Checklist (TSSC)** measuring PTSD and depression based on DSM IV. First 17 items assess PTSD symptoms and next 6 items assess depression symptoms present in the past week. All measured on an interval scale (0=not at all bothered to 3= very much bothered) The diagnosis of PTSD on a cutoff point of 38 in total scores of 23 TSSC items showed sensitivity of .83 and specificity of .73. The same cutoff was used to predict the symptoms presence and diagnosis of PTSD.

**Severity of Disability Scale (SDS)** consists of two items. The first item measures the overall severity of subjective distress caused by traumatic stress and depression symptoms. The second item measures the degree of disability in work, family and social functioning.

The SITSES Scale Urdu translation was used in this study. The Urdu translation of the instrument has not been validated by the authors. Therefore, on suggestion by the authors of the instrument (Basoglu et al) inter rater reliability of the scale was determined only by evaluating the Urdu translation with five field experts before actual administration. The inter-rater reliability was found satisfactory.

**Procedure:** The data was collected by IPTP team members in its 4<sup>th</sup> visit to earthquake hit areas. The data was collected in May, 2005, 8 months after the earthquake.

## RESULTS

The age range was between 21-60 yrs with Mean age of 38.81 yrs. 39% of women were married, 27% were widow and 5% were single. 82% of women were illiterate and 94% were housewives.

**Risk Factors for PTSD:** Previous studies have identified various risk factors for PTSD in survivors. Table 1 and 2 shows frequency and percentage values of these risk factors in sample of our study.

### **Post-traumatic Stress Disorder (PTSD) in Destitute Women:**

The prevalence of PTSD among destitute women was high. 94.3% of women scored above the cutoff point (>38) on TSSC. The overall mean score on PTSD Scale was 53 with S.D.=11.0.

### **Predictors of Psychological Distress:**

In order to examine the effect of the risk factors, a set of multiple linear regression analyses were conducted. The risk factors included education, marital status, own or rented house, trapped under rubble, loss of family members, loss of property, history of previous trauma, previous history of psychiatric illness and intensity of fear during earthquake. t-values ( $p < .001$ ) showed that most of the risk factors found to be significantly associated with Traumatic Stress Symptom Checklist (TSSC) scores in destitute women.

Education was not found to be significantly associated with PTSD in this group. It seems that insignificant value on education factor has obtained due to the fact that 82% of the women were totally illiterate and rest who were considered literate had completed their education only up to secondary level in our study group.

### **Depressive Disorder and Fear and Avoidance in Destitute Women:**

The cutoff score for Basoglu Depression Scale and Basoglu Fear and Avoidance Scale have not been determined therefore percent values on items of these scales were used to show the prevalence rates of Depression and Fear and Avoidance Symptoms in destitute women.

#### **a. Depression:**

43% of destitute women reported that they were “extremely bothered” and 38% reported that they were “fairly bothered” by depression symptoms, giving some indication that most of the women in camp were suffering from severe depression (Table 3).

#### **b. Fear and Avoidance**

The horrible experiences during earthquake resulted in development of fear and avoidance responses in earthquake survivors. These women reported that they avoid many everyday activities of life as it reminds them of actual traumatic experience. 33% reported that they

**Table 1**  
**Frequency (f) and percentage (%) of Risk Factors for PTSD in Destitute Women (N=75)**

Risk Factors		F	%
<b>House Details</b>	Own House	65	<b>92</b>
	Rented House	2	2.9
	Something else	3	4.3
<b>Trapped in rubble</b>	Yes	27	<b>38.6</b>
	No	43	61.4
<b>Death of relatives No. of relative died</b>	Yes	67	<b>95.7</b>
	Above than 10	28	<b>40</b>
<b>Significant loss of property condition of their house at present</b>	Yes	64	<b>91.4</b>
	Completely Destroyed	48	<b>68.6</b>
	Fallen after Destruction	17	24.3
<b>Previous history of being victim of any calamity</b>	Yes	21	<b>30</b>
<b>Previous history of mental illness</b>	Yes	10	<b>14.3</b>
<b>Fear during Earthquake</b>	Severe Fear	12	17.1
	Extremely Severe Fear	55	<b>78.6</b>

**Table 2**  
**Predictors of PTSD**

Predictors of PTSD	T	Sig
Age	5.740	.000
Education	1.266	.210
Marital status	6.536	.000
House Details	4.605	.000
Proximity to Epicenter	3.023	.004
Trapped in rubble	4.374	.000
Death of relatives	3.695	.000
Significant loss of property	7.487	.000
Previous history of being victim of any calamity	8.911	.000
Previous history of mental illness	10.01	.000
Fear during Earthquake	10.638	.000
**P-value= p<.001		

were “fairly disturbed” and 45% reported that they were “extremely disturbed” by various fear and avoidance symptoms. See Also Table 3 .

## DISCUSSION

Post-traumatic stress disorder (PTSD) is the most commonly studied and probably the most debilitating psychological disorder that occurs after disasters<sup>15, 16</sup>. Literature review has revealed that findings of our study are in accordance with previous studies. The rates of PTSD (94.3%) reported in our study of destitute women in shelter camp are very high. The study<sup>13</sup> of Maramara earthquake survivors, (7.4 on Richter Scale), PTSD rates were 39% in a group of earthquake survivors not-seeking any treatment services. Similar type of study<sup>10</sup> by same authors conducted on Maramara earthquake survivors who were seeking treatment for psychological dis-

stress, the rates of PTSD in this group was 63%. The rates of PTSD in our study are high because of the presence of certain specific risk factors in our group. Firstly, our study sample was comprised of women only. Female gender has consistently been shown to be a risk factor for the onset of PTSD after disasters<sup>15</sup>. Researches have shown that women are more likely than men to have PTSD after natural disasters<sup>16,17</sup>. Clearly in our study we chose high risk destitute women only, hence no comparison can be made in context of gender differences.

The prevalence of PTSD, Depression, Fear and Avoidance were substantially high in our group because these destitute women were living in shelter tent houses with minimum living resources and uncertainty about their life prospectives. Most of these women were illiterate, unemployed, had lost their husbands and had small children to look after. Literature review<sup>18</sup> has also provided many evidences for these correlates of PTSD after natural disasters like earthquake. A study in Hanshin-Awaji earthquake victims<sup>19</sup> showed that low social support is associated with a higher likelihood of PTSD. Another study by Pulcino et al (2003)<sup>20</sup> showed that women’s PTSD symptoms have been shown to increase as their available social supports drop off. Change in the social network, which may involve a decrease in available social support, may be more devastating for women than for men due to its negative effect on their coping ability.

In our study the mean age of sample was 39 years. In terms of age, review of literature has shown that middle-aged adults appear to be the group most affected by disasters. This age group may have more burdens and stresses, such as caring and providing support for a family, that may be increased than before as aftermath of a disaster<sup>21,22</sup>.

The findings of our study provide evidence for a link between severity of post-traumatic stress reactions and other risk factors for PTSD like marital status, being trapped under rubble, loss of family members, loss of property, history of previous trauma, history of psychiatric illness, intensity of fear during earthquake and proximity to epicenter. Proximity to epicenter<sup>10,15</sup> has been identified as important risk factor for PTSD in survivors. In our study sample all the participants belonged to valleys close to epicenter region therefore the presence of this risk factor was understood and consequently found to be associated with PTSD in these women.

**Table 3**  
**Overall Percentages of responses on Basoglu Depression Scale items and Basoglu Fear and Avoidance Scale items**

Scales	None	Slightly	Fairly	Extremely
Depression Scale	4%	15%	38%	43%
Fear and Avoidance Scale	7.1%	14%	33%	45%

Analyses of other studies have also shown that the most important risk factors for the development of PTSD are the extent of exposure to the disaster and the scope of the disaster<sup>23, 24</sup>. Besides, review of studies have shown that higher prevalence rates have been reported in studies conducted on specific groups, e.g. including clinical samples and persons who were in areas heavily affected by the disaster<sup>25, 26</sup>. The higher rates of psychiatric morbidity in our sample could be attributed to this reason as the sample comprised of only those destitute women living in a shelter camp in the outskirts of Mansehra and all these women came from the valley close to the epicenter.

In our study other risk factors like history of previous trauma and previous history of psychiatric illness ( $p < .001$ ) also found to be significantly associated with Traumatic Stress Symptom Checklist (TSSC) scores of destitute women. Previous studies<sup>27</sup> have shown that persons with preexisting or concurrent psychiatric comorbidity and persons who have previously experienced traumatic events or substantial stressors also have higher risks of disaster-related PTSD. Detail literature reviews provide various evidences that disasters can cause serious mental health and emotional consequences for victims. An empirical review of literature by Norris et al<sup>21</sup> showed that in 68% of their research samples found PTSD in disaster victims. He found that the second most common psychiatric problem was depression found in 36% of the samples. Anxiety in various forms was shown in 32% of the samples. In our study 43% of destitute women reported that they were extremely bothered and 38% reported that they were fairly bothered by depression symptoms. The mean score on individual items of Depression Scale was  $M=2.98$  with  $S.D. = .72$ .

The high prevalence rates of psychiatric morbidity in our sample cannot be attributed to the presence of one or two risk factors. The fact is that these risk factors do not operate in isolation. Any single factor is often interrelated with others. As it is commonly reported that female survivors of disaster are more seriously affected than male survivors and there are several possible explanations for this difference e.g. low socioeconomic status is a risk factor for post-disaster psychopathology, and women more often live in poverty than men<sup>28</sup>. The gender difference may be in part explained by differences often observed between the genders in the way psychological distress is articulated. In general, women are more likely than men to acknowledge psychological symptoms and to report them<sup>29</sup>.

## LIMITATIONS OF STUDY

1. Comparison with destitute men was not made in our study.
2. The main instrument SITSES used was translated into URDU but not validated instead only inter-rater reliability of the scales was calculated before administering the scale.

## CONCLUSION

The high prevalence of psychiatric morbidity in our group were co-related to factors as trapped under rubble, loss of family members, loss of property, history of previous trauma, previous history of psychiatric illness and intensity of fear during earthquake. Disaster relief agencies and disaster rehabilitation authorities must consider the features of the post-disaster environment especially for destitute women who are left with minimum resources as it aggravates the burden of PTSD. This study could provide guidance for interventions designed to improve the mental health of high-risk groups particularly destitute women after disasters.

## REFERENCES

1. Norris FH. Epidemiology of trauma: frequency and impact of different potentially traumatic events on different demographic groups. *J Consult Clin Psychol* 1992;60:409-18.
2. Yehuda R. Immune neuroanatomic neuroendocrine gender differences in PTSD. Program and abstracts of the 154th Annual Meeting of the American Psychiatric Association; New Orleans, Louisiana; Symposium May 5-10, 2001: 12A.
3. Katz C. Research on psychiatric outcomes and interventions subsequent to disasters: a review of the literature. *Psychiat Res* 2004; 110: 201.
4. Breslau N, Davis G, Andreski P. Sex differences in posttraumatic stress disorder. *Arch Gen Psychiatry* 1997; 54: 1044-8.
5. Report of World Health Organization. Department of Gender and Women's Health. Geneva: Switzerland; 2002.
6. Wang X, Gao L, Shinfuki N, Zhang H, Zhao C, Shen Y. Longitudinal study of earthquake related PTSD in a randomly selected community sample in North China. *Am J Psychiatry* 2000; 158: 1260-6.
7. Kuo CJ, Tang HS, Tsay CJ, Lin SK, Hu WH, Chen CC. Prevalence of psychiatric disorders among bereaved survivors of a disastrous earthquake in Taiwan. *Psychiatr Serv* 2003;54:249-51
8. Basoglu M, Salcioglu E, Livanou M. Traumatic stress responses in earthquake survivors in Turkey. *J Trauma Stress* 2001;15: 269-76.
9. Goenjian AK, Steinberg AM, Najarian LM, Fairbanks LA, Tashjian M, Pynoos RS. Prospective study of post-traumatic stress, anxiety and depressive reactions after earthquake and political violence. *Am J Psychiatry* 2000;157: 911-6.
10. Livanou M, Basoglu M, Salcioglu E. Traumatic stress responses in treatment-seeking earthquake survivors in Turkey. *J Nerv Ment Dis* 2002; 190: 816-23.
11. Lewin T, Carr V, Webster R. Recovery from post-earthquake psychological morbidity: Who suffers and who recovers? *ANZ J Psychiatry* 1998; 32: 15-20.

12. Jigyasu R. From 'Natural' to 'Cultural Disaster. Consequences of post-earthquake rehabilitation process on cultural heritage in Marathwada region, India. Paper presented at the International Conference on Seismic Performance of Traditional Buildings, Istanbul; 2001.
13. Breslau N, Davis GC, Andreski P, Peterson EL, Schultz LR. Sex differences in posttraumatic stress disorder. *Arch Gen Psychiatry* 1997; 54:1044-1048.
14. Basoglu M, Salcioglu E, Livanou M, Ozeren M, Aker T, Kilic C, Mesticioglu O. A study of the validity of a screening instrument for traumatic stress in earthquake survivors in Turkey. *J Trauma Stress* 2001; 14: 491-509.
15. Livanou M, Basoglu M, Salcioglu E. Traumatic stress responses in non-treatment-seeking earthquake survivors in Turkey. *J Nerv Ment Dis* 2002; 190: 824-6.
16. Durkin ME. Major depression and post-traumatic stress disorder following the Coalinga and Chile earthquakes: a cross-cultural comparison. *J Soc Behav Pers* 1993; 8: 405-20.
17. Carr VJ, Lewin TJ, Webster RA, Kenardy JA, Hazell PI, Carter GL. Psychosocial sequelae of the 1989 Newcastle earthquake: I. Community disaster experiences and psychological morbidity 6 months post-disaster. *Psychol Med* 1995; 25: 539-55.
18. Kilic C, Ulusoy M. Psychological effects of the November 1999 earthquake in Turkey: an epidemiological study. *Acta Psychiatr Scand* 2003;108: 232-8
19. Kwon Y, Maruyama S, Morimoto K. Life events and posttraumatic stress in Hanshin-Awaji earthquake victims. *Environ Health Prev Med* 2001;6:97-103.
20. Pulcino T, Galea S, Ahern J, Resnick H, Foley M, Vlahov D. Posttraumatic stress in women after the September 11 terrorist attacks in New York City. *Journal of Women's Health* 2003; 12: 809-20.
21. Norris FH, Friedman MJ, Watson PJ, Byrne CM, Diaz E, Kaniasty K. 60,000 disaster victims speak: Part 1. An empirical review of the empirical literature, 1981-2001. *Psychiatry* 2000; 65: 207-39.
22. Thompson MP, Norris FH, Hanacek B. Age differences in the psychological consequences of Hurricane Hugo. *Psychol Aging* 1993; 8: 606-16.
23. Canino G, Bravo M, Rubio-Stipec M, Woodberry M. The impact of disaster on mental health: prospective and retrospective analyses. *Int J Ment Health* 1990;19: 51-69
24. Sharan P, Chaudhary G, Kavathekar SA, Saxena S. Preliminary report of psychiatric disorders in survivors of a severe earthquake. *Am J Psychiatry* 1996;153: 556-8.
25. Bodvarsdottir I, Elklit A. Psychological reactions in Icelandic earthquake survivors. *Scand J Psychol* 2004;45:3-13.
26. Carr VJ, Lewin TJ, Kenardy JA, Webster RA, Zell PL, Carter GL et al. Psychosocial sequelae of the 1989 Newcastle earthquake: III. Role of vulnerability factors in post-disaster morbidity. *Psychol Med* 1997;27:179-90
27. Koopman C, Classen C, Spiegel D. Predictors of post-traumatic stress symptoms among survivors of the Oakland/Berkeley, Calif., firestorm. *Am J Psychiatry* 1994;151:888-94.
28. Belle D, Doucet J. Poverty, inequality, and discrimination as sources of depression among U.S. women. *PsycholWomen Quart* 2003; 27: 101-13.
29. Nolen-Hoeksema S. Sex differences in depression. Stanford, CA: Stanford University Press; 1990.