Psychological Disorders and Resilience among Earthquake Affected Individuals

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Abstract

After about a year of the disaster, the present research compared the prevalence of Trauma, Depression, Anxiety and Stress among affected and non affected individuals in the earthquake of 8th October 2005 in Pakistan after. Six hundred individuals belonging to six major districts i.e., three affected (Bagh, Muzaffarabad and Mansehra) and three non-affected (Mirpur, Jehlum and Attock) participated in the study. Impact of Event Scale (IES ; Horowitz, 1979), Depression, Anxiety, Stress Scale (DASS; Lovibond & Lovibond, 1994), The Ego Resiliency Scale (ER89 Scale (ER89; Block & Kremen, 1996) and Post Disaster Adversity Checklist (prepared by authors) were used for data collection. Significant differences existed between affected and non affected individuals as revealed by correlation and t-test analyses. Prevalence of post-traumatic stress disorder, depression, anxiety and stress was high in individuals living in affected areas (n=300) compared to those living in non affected areas (n=300). Ego resiliency among individuals living in affected areas was inversely related with the levels of PTSD, Depression, Anxiety and Stress (n=300).

Key words: Depression, Anxiety, Stress, Disaster, Post Traumatic Stress Disorder (PTSD)

Introduction

Disasters are traumatic events that are dangerous, overwhelming, and usually sudden. These are overwhelming because these test the capability of the community and individuals to cope with a massive disruption .Survivors of natural disasters , as well as the ones caused by human beings such as acts of rape, violence, war, and terrorism , share an enormous experience and come to view the world around them in new and different ways. Some psychological damage to individuals and small or even large groups of human beings is inevitable (for a comprehensive account of effects , see Norris, Friedman, & Watson, 2002).

Humans have been victims of disasters through out recorded history .On the average, a disaster occurs somewhere in the world each day (Norris, Friedman, & Watson, 2002). During their lifetime, 51.2% of women and 60.7% of men are estimated to have experienced at least one traumatic event . Where human sufferings caused by disasters could be immeasurable, these may exact a heavy toll on human life as well. On the average, about 510 people lose their lives in disasters in the United States each year. In the year 2001, over 3,000 people lost their lives in the terrorist attacks of 9th September 2001.Globally, 128,000 lives are lost annually in disasters and 85% of approximately 3 billion people in the world affected by disasters from 1967 to 1991, lived in Asia. (Myers & Wee, 2005).

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In short the occurrence of a natural disaster in a community is traumatic for most and a large-scale environmental stressor because these are sudden, unexpected and damage life and property to a great extent. Exposure to disasters and other stressful life events not only has physiological effects as documented, for example by Selye (1976) and others, but these also have psychological effects. A number of investigators (for example , Epstein & Erksine , 1990) have reported that exposure to traumatic and stressful events can threaten, destabilize, invalidate, and even shatter an individual's fundamental beliefs and implicit assumptions about him or herself and about the world. Baum, Fleming, and Davidson (1983) observe that while most individuals, who experience natural disasters, combat, and other major stressors, may later cope adequately, but a considerable percentage (estimated to be between 20% to 40% depending on the nature of stressor) experiences continual chronic stress and some may continue trauma called post-traumatic stress disorder (PTSD) . Goenjian, Molina, Steinberg, Fairbanks Luisa, Goenjian, and Pynoos (2001) observed severe forms of post-traumatic stress and depressive reactions among Nicaraguan adolescents six months after Hurricane Mitch .These and similar findings suggest that catastrophic earthquakes have long-term psychological consequences, particularly for survivors with high levels of trauma exposure (Salcioglu, Basoglu, & Livanou, 2003).

The American Psychiatric Association (2000) defines a traumatic event as psychologically distress outside the range of usual human experience markedly distressing to almost any one. Furthermore, a traumatic experience caused by a disaster may entail two elements: actual or threatened death or serious physical injury to the individual or to others, and intense fear, horror, and helplessness because of massive destruction and terrible sights .Among victims of major disasters, Post Traumatic Stress Disorder (PTSD) is commonly observed , singly or in conjunction with one or more of different psychological disorders such as Acute Stress Disorder, Anxiety and Depression even after years of disaster or a traumatic experience (see for example, Kulka, Schlenger, Fairbank, Hough, Jordan, Marmar, & Weiss, 2003). Post Traumatic Stress Disorder (PTSD) is perhaps the severest of all of these psychological reactions. Persons suffering from it experience event or events that involved grief over loss of loved ones and valued and meaningful possessions , fear, helplessness , anxiety , sleep disturbances often including nightmares, horror and recurrent and intrusive distressing recollections of the event, images, thoughts, or perceptions or / and distressing dreams of the event (American Psychiatric Association , 2000).

Posttraumatic Stress Disorder occurs in 32 to 60% of the adult survivors and 26% to 95% of the child survivors studied soon after different earthquakes (Norris, 2001). The PTSD rates were between 11–40 % and 3–19% 6 months and 2 years after the Newcastle earthquake in Australia, respectively (Carr, Lewin, Webster, Hazell, Kenardy, & Carter , 1995). The estimated rates of PTSD and major depression were 39% and 18%, respectively among earthquake survivors living in prefabricated housing sites after the 1999 earthquake in Turkey (Basoglu, Salcioglu, & Livanou, 2002). Depression is an inextricable element of PTSD, and people having it after the disasters lose interest in life, are irritable, suicidal, or

withdrawn from the normal activities of life. The lifetime prevalence rate for major depressive disorder co-occurring with PTSD in a large US epidemiological study of young adults was 36.6%. In the same study, the rate of major depression amongst those exposed to trauma, but not suffering PTSD was 13.0% This was not any dramatically higher than those who had not been exposed to trauma (10.1%). From a US community sample of more than 5,800 people, Kessler et al. (1995) found 48.2 % of people suffering PTSD , and had a co-morbid major depressive illness. The rates of depression after earthquakes range between 9 and 79%, and exclusively for anxiety about 6 percent (for similar findings see Basoğlu, Salcioğlu, & Livanou, 2000).

Self reported symptoms of anxiety after a disaster are usually elevated. Although less prevalent than PTSD or Major Depression Disorder, Generalized Anxiety Disorder has been diagnosed at higher than normal levels in disaster-stricken samples when structured diagnostic measures were used. Death anxiety, phobias, and panic disorder have been assessed and observed only occasionally in samples of disaster victims (Armenian, Morikawa, Melkonian, Hovanesian, Haroutunian, & Saigh, 2000).

Disasters like Earthquakes thus tend to produce a series of events that continue to affect people's lives over a prolonged period. Persistent or recurring disruptions from the earthquake substantially contribute to continued mental-health problems. General psychological distress levels following an earthquake appear to stabilize after about 12 months, but posttraumatic stress reactions do not stabilize until 18 months after the earthquake. In some individuals, there is a high likelihood of permanent psychological symptomatology following earthquake exposure. This is particularly true of those who have the highest level of exposure and the greatest concentration of personal loss and damage associated with the earthquake. In fact, individual trauma in disaster is defined, as “a blow to the psyche that breaks through one’s defenses so suddenly and with such brutal force that one cannot react to it effectively. Collective trauma is a blow to the basic tissues of social life that damages the bonds attaching people together and impairs the prevailing sense of communality (Erikson, 1976).

The variability in the number of persons who experience PTSD and other forms of stress disorders as a consequence of exposure to any disaster could be because of methodology differences and limitations. Lack of control groups, probability sampling and classification of subjects into various age groups are some of the intervening and confounding variables in studies investigating the effects of disasters. However, disaster-related factors (e.g., injury, relocation) and certain demographic variables like gender, ethnicity may also determine the extent and intensity of adverse effects of disasters on individuals and communities.

Natural disasters may cause bigger damages in parts of the world where poverty, disease, and civil strife have already weakened the local capacity for coping with adversity (Blanco, Villalobos, & Carrillo, 2006. Moreover, both social and individual personally factors are important to consider in studying the extent to which disasters affect the psychological and physical health of survivors (Galea, Nandi, & Vlahov, 2005; Morgan, Scourfield, & Williams, 2003). Post-disaster life experiences and social support are perhaps the most important ones.

What has an individual or the community undergone after the disaster may continuously modulate the survivors' own perceptions of their sufferings and hence which in turn, may contribute significantly to the development and manifestation of certain psychological disorders. Korsching, Donnermeyers, and Burdge (1980) observed that the new, unfamiliar environment after disaster, accompanied by the loss of social support network of the pre-disaster community, can lead to the development of numerous social and emotional problems. (see, Norris, Friedman, & Watson, 2002)

At individual levels, coping with stress by using avoidance measures (e.g., withdrawal from the situation, isolation, trying to avoid further stressors) appears to contribute to continued distress and posttraumatic stress. Older people and those with a prior history of mental-health problems seem to be at greater risk than others for experiencing posttraumatic stress following an earthquake. Flynn and Nelson (1998) observed that rescue workers with high levels of catastrophic exposure and individuals who, in reaction to the earthquake, tend to "dissociate," or become "numb," and have a sense of being detached from their emotions and bodily experiences for a prolonged period of time are slow to recover from traumatic experience of a disaster. Lastly but quite importantly , *Resilience*, a capacity for successful adaptation, positive functioning, or competence despite high risk, chronic stress, or prolonged or severe trauma has been considered as a potent protective factor against the adverse effects of disasters (Egeland, Carlson, & Stroufe, 1993). Block and Block, (1980) call it ego-resiliency which , according to them , is the ability to adapt one's level of control temporarily up or down as circumstances dictate .As a result of this adaptive flexibility, individuals with a high level of resiliency are more likely to experience positive affect, and have higher levels of self confidence and better psychological adjustment than individuals with a low level of resiliency. When confronted by stressful circumstances, individuals with a low level of resiliency may act in a diffused manner resulting in a kind of behavior which is likely to be maladaptive (Block & Kremen, 1996).

The Present Study

The Kashmir earthquake (also known as the South Asia Earthquake or Pakistan Earthquake) of 8th October, 2005 considered to be the worst catastrophe in the history of the region killed more than 73,276 people, and left thousands injured and millions homeless. Occurring in the North West Frontier Province (NWFP), the five most heavily affected districts were Abbottabad, Mansehra, Kohistan, Batagram, and Shangla, whereas three most affected districts in Azad Jamu & Kashmir (AJK) were Muzaffarabad, Poonch, and Bagh . According to the official sources , 3.5 million people were affected by the Earthquake. Most of the buildings and houses collapsed. The earthquake destroyed 203, 5791 housing units and damaged another 196,574 (for more details of the devastations caused by the earth quake see sources like Encyclopedia Wikipedia, 2006) .

In the past, no studies have been carried out on psychological reactions to experiences of disasters like when India got partitioned in two states in 1947, three wars fought between

India and Pakistan since then , Afghan wars and conflicts still going on , countless incidents of violence which have taken place and are still not infrequent. The present study is first of its type and nature on psychological disorders observed among earthquake affected individuals after about a year of the happening of the disaster.

Method

Objectives

The present research aims at investigating the prevalence of Post Traumatic Stress Disorder, Depression, Anxiety and Stress among individuals affected by the earthquake of 8th October 2005 in Pakistan. The study was carried out after about a year of the disaster. It undertakes to compare the individuals who lived in earthquake-affected areas with those who were living at non-affected areas at the time of disaster. The personality characteristic of ego resiliency among those individuals who showed lower levels of trauma, depression, anxiety and stress despite belonging to affected areas were also studied.

Hypotheses

1. Levels of PTSD, Depression, Anxiety and Stress are higher in individuals living in affected areas as compared to individuals living in non-affected areas.
2. Ego resiliency among individuals living in affected areas is inversely related with their levels of PTSD, Depression, Anxiety and Stress.

Definitions and Instruments

Post Traumatic Stress Disorder: Post Traumatic Stress Disorder (PTSD) was measured with Impact of Event Scale (IES) (Horowitz, Stinson, & Field, 1991) . PTSD has been defined as the intrusive thoughts, nightmares, intrusive feelings and imagery and avoidance symptoms , numbing of responsiveness and avoidance of feelings, situations or ideas. The IES scale consists of 15 items, 7 of which measure intrusive symptoms (intrusive thoughts, nightmares, intrusive feelings and imagery), 8 tap avoidance symptoms (numbing of responsiveness, avoidance of feelings, situations, ideas), and also provide a total subjective stress score. All items of the IES are anchored to a specific stressor The IES scale was used after adaptation on Pakistani population by the present authors.

Depression, Anxiety and Stress Scale (DASS): The Depression Anxiety Stress Scale (DASS) is a 42-item self-report measure of anxiety, depression and stress developed by Lovibond and Lovibond (1995) which has been used in diverse settings. Each of the three DASS scales contains 14 items; The Depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, and lack of interest/involvement, anhedonia, and inertia. The Anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The Stress scale is sensitive to levels of chronic non-specific arousal. It assesses difficulty in relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient. The DAAS scale was used after adaptation on Pakistani population by the present authors .

Ego Resiliency Scale (ER89): The Ego Resiliency Scale (ER89) developed by Block and Kremen (1996) is a short inventory scale to assess (trait-based) psychological resilience defined as the capacity of the individual to effectively adjust to frustrating or stressful life encounters. The ER89 has 14 items and each question require a response on 4-point scale ranging from 1, with the answer “does not apply at all,” to 4 with the answer “applies very

strongly". Those who score low on this measure are expected to experience more emotional distress or problems compared to those who score high when adversity is controlled. Sample items include "I quickly get over and recover from being startled," and "I enjoy dealing with new and unusual situations." Coefficient alpha was .81 and the test–retest reliability was .67.The Scale was checked for face validity by the authors before using it in the present research.

Sample

The sample was selected by using purposive sampling method. In total, six hundred individuals participated in this study. Three hundred (300) of them were living in three most affected areas, namely districts Mansehra, Muzaffarabad and Bagh. An equal number of individuals were taken from non-affected areas of districts of Attock, Jehlum and Mirpur. The education level of he sample ranged between 10th grade to M.A and their age ranged 15-55 years.

Procedures

The participants were approached individually through schools, colleges, government and private organizations. After having the required consent, the three scales were given to the respondents asking them to read each statement carefully and respond to all items of the scales. The researcher remained present in the room and the participants who had problem in understanding of statements were individually helped. Confidentiality of information and its restricted use for research only were assured. For the demographic information i.e., age, sex, education, and locality of residence ,a separate sheet was was fille dup by each participant

Results

First hypothesis that levels of PTSD, Depression, Anxiety and Stress are higher in individuals living in affected areas as compared to individuals living in non-affected areas is supported by the results of the study. These results are presented below.

Table 1

Comparison of individuals living in affected and non-affected areas on Impact of Event Scale (IES) (N=600)

	Affected Individuals (*n*=300)		Non-affected Individuals (*n*=300)			
	M	*SD*	*M*	*SD*	*t*	*p*
Impact of Event Scale	35.11	9.7	17.6	7.40	24.7	.001

df = 598

Table 1 shows that two groups differentiated significantly (t =24.7, df =598) on PTSD measured by Impact of Event Scale among participants of both the groups.

Table 2 shows that that individuals living in affected areas scored high on depression, anxiety , and stress subscales of DASS compared to those living in Non affected areas

(t= 13.9, df = 598, p<.001), anxiety (t= 14.9, df = 598, p <.001) and stress (t = 19.6, df =598 p<.001).

Table 2

Comparison of individuals living in affected and non-affected areas on Depression , Stress and Anxiety Scale (DASS) (N=600)

	Affected Individuals (n=300)		Non-affected Individuals (n=300)			
	M	*SD*	*M*	*SD*	*t*	*p*
Depression	17.8	7.90	10.4	4.7	13.9	.001
Anxiety	16.6	6.4	9.7	4.6	14.9	.001
Stress	19.6	7.41	10.04	4.08	19.6	.001

df = 598

As regards the second hypothesis that Ego resiliency among individuals living in affected areas is inversely related with their levels of PTSD , Depression , Anxiety and Stress, the findings given in Table 3 and Table 4 support it .

Table 3

Pearson correlation between ego resiliency and Impact of event scale(N=300)

	Impact of Event Scale	*p*
Ego resilience scale	-.26	.001

Table 3 shows the relationship between ego resiliency on one hand and total scores on the Impact of Event Scale is negative (r = -.26, p< .001).

Table 4 shows that there is a negative correlation between ego resiliency and depression, anxiety and stress.

Table 4

Relationship of ego resiliency and stress, anxiety and depression(N=300))

	Ego Resilience	*p*
Depression	-.43	.002
Anxiety	-.47	.000
Stress	-.44	.005

Discussion

Findings of the present study support earlier findings that people exposed to a natural disaster may have Post Traumatic Stress Disorder (PTSD), depression, anxiety and stress even after years of its experience. Their psychological disorders may persist somewhat longer than it is usually thought to be the case .

Though the present research provides empirical evidence to an otherwise well understood phenomenon but it has important practical implications in a country where not many empirical studies have been done on traumatized or stressed persons exposed to natural disasters. The present study provides basic research tools to study traumatized persons. It will also help in raising awareness about the needs of traumatized persons who may continue having problems years after exposure to trauma. PTSD, depression, stress and anxiety are debilitating disorders the studies like the present one may urge a society think of polices and plans and evolve strategies to beef up their mental health services. Scientific research like the present one is imperative for effective intervention and rehabilitative measures for individuals who are victims of disasters or have been traumatized as a result of grief, violence or some kind of abuse.

Future research may be planned keeping in mind the limitations of the present study. Epidemiological studies as regards the prevalence of stress and anxiety among different segments of both male and female populations should be carried out so that a base-line normative data are available to the researchers, policy makers and administrators of mental health services. Gender and age differences are important to study. Moreover, the findings of the present study are based on those who continued living in the earthquake affected areas and not on those, who moved out of the area after the earthquake. Another limitation of the study has been that disorders are not based on any clinical diagnostic investigation. Rather a self report method was used which could yield higher rates of disorder than structured clinical interviews would reveal. Equally important could have been information on past psychiatric

illness or disorders of the participants. Finally, the study shows that personality trait of resilience, post-disaster experiences and conditions which the affected individuals faced and the social support available to them are important factors to study as these may determine the nature and extent of their post disaster psychological disorders.

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