

EXPOSURE TO CLOUDBURST IN LEH: POST TRAUMATIC STRESS DISORDER AND ASSOCIATED FACTORS

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ABSTRACT

Disasters of any nature whether man made or due to nature's fury are well known to cause a variety of psychological sequelae. One such natural disaster took place in August 2010 in Leh, when cloudburst triggering torrential rains, flash floods and mud slides struck Leh town of Ladakh causing massive destruction to flora and fauna. The present study aims to gauge the effect of number of trauma events previously faced by an individual, positive affect, negative affect and social support on Post Trauma Stress Disorder (PTSD) among 98 (48 female & 50 male) residents of Leh who were exposed to the fury of the cloudburst in one way or the other. Participants were in the age range of 19-76 years with mean age being 33.6 years. Nearly 9 % of the participants reported to be in the diagnosable range of PTSD. Multiple regression analysis further revealed that number of previous trauma events faced by an individual, positive affect, negative affect, and social support together predicted 12.5% variance in PTSD. Relief and rehabilitation programmes to be effective should consider the factors that affect the trauma scores for the well being of individuals.

Keywords: Cloudburst, Post Traumatic Stress Disorder, Previous Trauma, Positive Affect, Negative Affect, Social Support.

INTRODUCTION

Cloudburst & PTSD

A natural disaster is the effect of a natural hazard that can lead to financial, environmental or/and human loss. The resulting loss depends on the vulnerability of the affected population to resist the repercussions of the hazard. One such natural disaster in the form of cloudburst took place on August 5 2010 over Leh region situated in the western Himalayas. It resulted in flash floods and mudslides which claimed over 180 human lives and left over 400 people injured.

It is a documented fact that natural disasters have negative consequence on the mental health of those affected by the calamity. Studies reveal that many victims meet the criteria for Post Traumatic Stress Disorder (PTSD) and other disorders like depression, panic disorder, generalized anxiety disorder Amstadter et, al., 2009; Kar,

Post Traumatic Stress Disorder

Mohapatra, Nayak, Pattanaik, Swain & Kar, 2007). Studies conducted within one year of disasters report prevalence figures for PTSD such as 4.5% three months after the 1999 earthquake in Anio Liosia, Greece (Roussos et., al 2005), and 3% in males and 9% in females 6 months after Hurricane Andrew (Garrison, Bryant, Addy, Spurrier, Freedy, & Kilpatrick, 1995). While disasters lead to loss and disturbance, however many protective factors play a vital role in combating the negative psychological impact of the disaster. However, not many non western studies have focussed on these factors.

PTSD & Previous Trauma Factors.

The evidence supporting the influence of prior trauma on the PTSD effects of a subsequent trauma comes primarily from cross-sectional studies in which retrospective data on earlier events are obtained from trauma-exposed persons with and without PTSD. Studies report elevated rates of prior traumatic events in adults with posttraumatic stress disorder (King, King, Foy & Gudanowski, 1996; Breslau, Chilcoat, Kessler & Davis, 1999). In a study on children, it was reported that two third of the children faced at least one traumatic event before age 16 years, and single event did not often result in experiencing of Post Traumatic Stress symptoms, however multiple trauma events did predict PTSD (Copeland, Keeler, Angold & Costello, 2007).

PTSD & Positive and Negative Affect

Positive and negative affect represent independent domains of emotions in the general population. Positive affect is strongly linked to social interaction and subjective well being. Individuals who are high in the trait of positive affectivity tend to have an overall sense of well-being, view people and events in a positive light, and tend to experience positive emotional state. In contrast, those high in the trait of negative affectivity tend to hold negative views about themselves and others, interpret ambiguous situations in a negative manner, and frequently experience negatively emotional state (Greenberg & Baron, 2005).

The concept of negative affect and neuroticism are overlapping and the latter is defined as the propensity to experience a wide variety of somatic and emotional dysphoric states including depression, anxiety, anger, and somatic symptoms (Kirmayer, Robbins & Paris, 1994). People high on negative affect are more sensitive to stressful life events than people low on neuroticism (Kendler, Kuhn & Prescott, 2004), and neuroticism and negative affect play a vital role in the development of PTSD (Norris, Friedman, Watson, Byrne, Diaz & Kaniasty, 2002; Fauerbach, Lawrence, Schmidt, Munster & Costa, 2000).

PTSD & Social Support

Social support is an important factor in predicting the physical health and well being of an individual and facilitates an individual in coping with stressful situations. Knowing that one has social support and is valued by others helps in overcoming the memories associated with the negative events, and facilitates in leading healthier lives. Research studies indicate that social support in particular is a protective factor for post disaster mental health problems (Wyatt & Mickey, 1987; Charuvastra & Cloitre, 2008). However, some studies reveal that benefits of positive social support also depend upon factors like who is providing the support (Pilisuk & Parks 1986), and whether the support given matches with the needs of the traumatized individual (Kaniasty & Norris 1992; Punamaki, Kompre, Qouta, El-Masri & de Jong, 2005).

For the present study our objective was to assess the predictive value of number of trauma events previously faced by an individual, positive affect, negative affect, and social support on PTSD in victims affected by Cloudburst in Leh Region.

Objectives

- To assess the percentage of participants falling in the diagnosable range of PTSD who were affected by Cloudburst in Leh Region. .
- To assess the predictive value of number of trauma events previously faced by an individual, positive affect, negative affect, and social support on PTSD in victims affected by Cloudburst in Leh Region.

METHOD

Sample

A sample of 98 participants (48 female, 50 male) was collected from Leh region. The age range was 19-76 years and the mean age was 33.6 years. All participants practiced Buddhism as a religion. Nearly 46 % (45) of the participants were married. Participants at the time of cloudburst were in the area of Saboo, Choglamsar, Nimoo, Shey, Manaytselding, Skalzan, Spituk, Tukcha, Housing Colony-Leh, Skara, Stok, Yangthag, Saspol, or Leh City.

Tools

- Brief Demographic Sheet: A brief demographic sheet was created which consisted of details like age, sex, religion and place of stay when the cloudburst took place.
- Previous Trauma Sheet: After review of literature and considering the cultural context, 17 trauma causing events were identified. The participants were asked to identify if they had faced any other events in the past and were

Post Traumatic Stress Disorder

to answer either as 'Yes' or 'No'. A score of 1 was given to 'Yes' and 0 to 'No'. This sheet was created in consultation with a Clinical Psychologist (author 1) and a Doctorate in Psychology who is also a faculty at the University of Jammu.

- PTSD Checklist- Civilian Version (PCL-C): PTSD Checklist Civilian Version (PCL-C): It was developed by Weather, Litz, Herman, Huska & Keane, 1993. It is a 17 item measure of the 17 DSM-IV symptoms of PTSD. Respondents rate each item using a 5 point scale (1= not at all to 5= extremely). For the purpose of scoring, in the present study we chose to use the overall cut off score method. Different cut off scores have been recommended, and a cut off of 50 was chosen for the present study as recommended by the later studies (Blanchard, Jones-Alexander, Buckley & Forneris, 1996).
- Positive and Negative Affect Schedule (PANAS): The Positive and Negative Affect Schedule originally developed by Watson, Clark & Tellegen (1988) and it comprises of two mood scales. The shorter form used for the present study is a 10 item self report Positive and Negative Affect Schedule. It was developed by Kercher (1992). One measures positive affect and the other measures negative affect. Each item is rated on a 5-point scale ranging from 1 = very slightly or not at all to 5 = extremely to indicate the extent to which the respondent has felt this way in the indicated time frame.
- Social Support Questionnaire (Hindi): The social support questionnaire was originally developed by Pollack and Harris (1983) and was adapted and translated in Hindi by Nehra and Kulhara (1987). It is a self report questionnaire with 18 items and the total score varies from 18-72. Higher score indicates more perceived social support. The test-retest reliability was found to be 0.91. The concurrent validity has also found to be significant.

Design

A cross sectional design was used to collect data and was collected individually from each participant during their free time.

Procedure

Data was collected through purposive sampling and individually from participants during their free time. Data was collected after 6 months of cloudburst in the month of February and March 2011. Verbal consent was taken from each participant and assured of confidentiality. Only those participants were included who had either (a) lost a loved one to the fury of cloudburst (b) had property damaged during the disaster (c) witnessed the cloudburst, or a combination of these factors.

Barring few, most participants could complete the questionnaires on their own. Debriefing was done with each participant and where the individual scored in the diagnosable range of PTSD, they were asked to visit the nearest Primary Health Centre.

RESULTS

Pearson Correlation was calculated to establish the direction of relationship between PTSD and independent variables. Multivariate analysis was done with the help of Statistical package of SPSS 17, and multiple regression was calculated.

Table 1: Results depicting the mean and standard deviation (S.D.) of the variable of PTSD, Number of trauma events previously faced by an individual, Positive Affect, Negative Affect and Social Support

Sr No	Variable	Mean	S.D.
1	PTSD	36.69	9.71
2	Number of trauma events previously faced by an individual	2.36	1.64
3	Positive Affect	15.5	3.77
4	Negative Affect	12.48	3.96
5	Social Support	48.73	4.48

Table 2: Results of Correlation between Number of trauma events previously faced by an individual (Factors), Positive affect (PA), Negative affect (NA), Social support (SS) and PTSD

	Factors	PA	NA	SS	PTSD
Factors	1				
PA	0.19*	1			
NA	0.096	-0.051	1		
SS	-0.26**	-0.012	-0.16*	1	
PTSD	0.298**	0.0783	0.29**	-0.17*	1

*p<.05

**p<.01

Post Traumatic Stress Disorder

Table 3 (a): Results of model summary of multiple regression.

Model	R	R Square	Adjusted R Square	Std Error of the estimates
1	.402a	.161	.125	9.08602

- a. Predictors: (Constant), Number of trauma events previously faced by an individual (Independent Variable 1), Positive Affect (Independent Variable 2), Negative Affect (Independent Variable 3), Social Support (Independent Variable 4)

Table 3 (b): Results depicting F Ratio

ANOVA^b

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1477.130	4	369.282	4.473	.002a
Residual	7677.687	93	82.556		
Total	9154.816	97			

- a. Predictors: (Constant), Number of trauma events previously faced by an individual (Independent Variable 1), Negative Affect (Independent Variable 3), Social Support (Independent Variable 4)
 b. Dependent Variable: PTSD

Table 3 (c): Results depicting Standardized Coefficients and t ratio

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	32.785	12.252		2.68	.009
Social Support	-.144	.216	-.066	-.67	.508
Negative Affect	.620	.237	.253	2.62	.010
Positive Affect	.110	.250	.043	.44	.662
Number of trauma events previously faced by an individual	1.476	.597	.249	2.47	.015

- a. Dependent Variable: PTSD

DISCUSSION

The fury of nature has devastating effect on both flora and fauna, and human being is no exception to it. The cloudburst over Leh region in August 2010 was one such natural disaster that resulted in loss of life and left many traumatized.

The present study aimed to study the predictive value of number of trauma events previously faced by an individual, positive affect, negative affect and social support on PTSD in people who were affected by the cloudburst over Leh region.

The mean and standard deviation of the number of trauma events previously faced by an individual was 2.36 and 1.64 indicating that on an average the participants had faced approximately 2 traumatic events out of the constructed 17 events prior to the cloudburst.

Results further revealed that approximately 9 % of the participants were in the diagnosable range of PTSD. It was further found that the four variables namely number of trauma events previously faced by an individual, positive affect, negative affect, and social support, significantly predicted 12.5 % of the variance in PTSD (F ratio = 4.47, $p < .05$) in victims affected by cloudburst disaster in Leh.

Further, it was seen that the variance in PTSD is significantly predicted by negative affectivity ($t = 2.62$; $p < .01$), and the number of trauma events previously faced by a victim ($t = 2.47$; $p < .02$). This is in line with literature which emphasises the association between negative affectivity and PTSD (Norris, Friedman, Watson, Byrne, Diaz & Kaniasty, 2002; Fauerbach, Lawrence, Schmidt, Munster & Costa, 2000). Research studies also indicate that prior trauma events have a role to play in the experiencing of Post trauma stress symptoms, with multiple trauma events increasing the likelihood of occurrence of PTSD (Copeland, Keeler, Angold & Costello, 2007).

On the other hand, protective factors like positive affect and social support failed to significantly predict variance in PTSD. Studies indicate that the effect of social support depends on who is providing the support and are they need specific (Pilisuk & Parks 1986; Punamaki, Kompre, Qouta, El- Masri & de Jong, 2005). Borja, Callahan & Long (2006) reported that positively provided support contributed to post trauma growth, however it was not correlated with PTSD symptoms.

Limitations

The result of this study should be interpreted with the following limitations in mind. Data was although collected from Leh region but was not randomly selected and not all regions affected by cloudburst could be equally represented in the study. The number of trauma events considered were not standardised however care was taken to have them reviewed by experts.

CONCLUSION

In the present study our objective was to gauge the predictive value of four variables namely number of trauma events previously faced by an individual, positive affect, negative affect and social support on PTSD in people who were affected by the cloudburst over Leh region. It was found that the variables significantly predicted the variance in PTSD. However, two variables vizly, number of trauma events previously faced by an individual, and negative affectively significantly predicted variance in PTSD individually. Our study emphasise the importance of certain factors in prediction of PTSD. Psychological measures undertaken for relief and rehabilitation should keep in view the influence of certain risk factors over other protective factors.

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REFERENCE

- Amstadter, A. B., Acierno, R., Richardson, L., Kilpatrick, D. G., Gros, D. F., Gaboury, M. T., ... Galea, S. (2009). Post-typhoon prevalence of post-traumatic stress disorder, major depressive disorder, panic disorder and generalized anxiety disorder in a Vietnamese sample, *Journal of Traumatic Stress*, 22 (3), 180-188.
- Blanchard, E. B., Jones-Alexnader, J., Buckley, T. C., & Forneris, C. A. (1996). Psychometric properties of the PTSD checklist (PCL). *Behavioral Research and Therapy*, 34, 669-673.
- Borja, S. E., Callahan, J. L., Long, P. J. (2006). Positive and negative adjustment and social support of sexual assault survivors. *Journal of Traumatic Stress*, 19(6), 905-914.
- Breslau, N., Chilcoat, H. D., Kessler, R. C., Davis, G. C. (1999). Previous exposure to trauma and PTSD effects of subsequent trauma: Results from the Detroit Area Survey of Trauma. *American Journal of Psychiatry*. 156 (6), 902-907.
- Charuvastra, A., & Cloitre, M. (2008). Social bonds and Post Traumatic Stress disorder, *Annual Review of Psychology*, 59, 301-328.
- Copeland, W. E., Keeler, G., Angold, A., & Costello, E. J. (2007). Traumatic events and Post traumatic stress disorder, *Archives of General Psychiatry*, 64 (5), 577-584.

- Faubach, J. A., Lawrence, J.W., Schmidt, C.W. Jr, Munster, A. M., Costa, P.T. Jr. (2000) Personality predictors of injury-related posttraumatic stress disorder. *Journal of Nervous and Mental Disorders*, 188, 510-517.
- Garrison, C.Z., Bryant, E. S., Addy C. L., Spurrier, P. G., Freedy, J. R., & Kilpatrick, D.G. (1995). Posttraumatic stress disorder in adolescents after Hurricane Andrew. *Journal of the American Academy of Child and Adolescent Psychiatry*, 34(9), 1193-1201.
- Greenberg, J. and Baron, R.A. (2005). *Behavior in Organizations: Understanding and Managing the Human Side of Work* (8th edition). Pearson Education, New Delhi, 87-88.
- Kar, N., Mohapatra, P. K., Nayak, K. C., Pattanaik, P., Swain, S. P., & Kar. H. C. (2007). Post-traumatic stress disorder in children and adolescents one year after a super-cyclone in Orissa, India: Exploring cross-cultural validity and vulnerability factors, *BMC Psychiatry*, 7:8. doi:10.1186/1471-244X-7-8
- Kaniasty, K., & Norris, F. H. (1992). Social support and victims of crime: Matching event, support, and outcome. *American Journal of Community Psychology*, 20(2), 211-41.
- Kendler, K.S., Kuhn, J., & Prescott, C.A. (2004). The interrelationship of neuroticism, sex, and stressful life events in the prediction of episodes of major depression. *American Journal of Psychiatry*, 161, 631-636.
- Kercher, K. (1992). Assessing subjective well-being in the old-old. The PANAS as a measure of orthogonal dimensions of positive and negative affect. *Research on Aging*, 14, 131-168.
- King, D.W., King, L. A., Foy, D. W., Gudanowski, D. M. (1996). Pre-war factors in combat-related posttraumatic stress disorder: Structural equation modeling with a national sample of female and male Vietnam veterans. *Journal of Consulting and Clinical Psychology*, 64(3), 520-531.
- Kirmayer, L. J., Robbins, J. M., & Paris J. (1994). Somatoform disorders: personality and the social matrix of somatic distress. *Journal of Abnormal Psychology*, 103, 125-136.
- Nehra, R., & Kulhara, P. (1987). Development of a scale for the assessment of social support: initial tryout in Indian setting. *Indian Journal of Social Psychiatry*, 4, 353-359.
- Norris, F. H., Friedman, M. J., Watson, P. J., Byrne, C.M., Diaz, E., & Kaniasty, K. (2002). 60,000 disaster victims speak: Part I. Empirical review of the empirical literature, 1981-2001, *Psychiatry*, 65, 207-239.

Post Traumatic Stress Disorder

- Pilisuk, M., & Parks, S. H. (1986). *The Healing Web: Social Networks and Human Survival*. University Press New England; Hanover.
- Pollack, L., & Harris, R. (1983). Measurement of social support. *Psychological Reports*, 53, 466.
- Punamaki, R.L., Komproe, I., Qouta, S., El-Masri, M., de Jong, J.T. (2005). The deterioration and mobilization effects of trauma on social support: Childhood maltreatment and adulthood military violence in a Palestinian community sample. *Child Abuse Neglect*, 29(4), 351–73.
- Roussos, A., Goenjian, A.K., Steinberg, A. M., Sotiropoulou, C., Kakaki, M., Kabakos, C., Karagianni, S., Manouras, V. (2005). Posttraumatic stress and depressive reactions among children and adolescents after the 1999 earthquake in Ano Liosia, Greece. *American Journal of Psychiatry*, 162 (3), 530-537.
- Watson, D., Clark, L. A. and Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063-1070.
- Weather, F.W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M. (1993). PTSD checklist civilian version (PCL). Retrieved December 19, 2010 from http://www.tgorski.com/terrorism/ptsd_checklist_civilian_version.htm
- Wyatt, G., & Mickey, M. (1987). Ameliorating the effects of child sexual abuse: An exploratory study of support by parents and others. *Journal of Interpersonal Violence*, 2, 403–14.



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