A Study to Determine the Prevalence of Post Traumatic Stress Disorder and Associated Triggering Factors among Disaster Affected People in Selected Area of Dehradun District, Uttarakhand, India

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Abstract: *A cross - sectional exploratory survey was conducted to determine the prevalence of post traumatic stress disorder and associated triggering factors among disaster affected people in selected area of Dehradun district, Uttarakhand, India. Study done one year after the disaster. One hundred five affected people participated in the study by consecutive sampling. Data collection was done by interpersonal interviews using PCL – C version to assess the prevalence of PTSD and a socio demographic Performa. Subjects were classified into PTSD (>50 score) and non PTSD (≤50). Study shown that, among all the samples, 44(42%) were males, and 61 (58%) were females. The prevalence of probable PTSD was found to be 26 %. Result shows that there were no statistically significant association between PTSD and some of the socio demographic variables like age, gender, occupational, educational status except marital status and family income of the sample and most associated triggering factor was found i.e. loss in disaster among PTSD affected sample. On the basis of present study, the researcher concluded that marital status and lower socioeconomic status are the main contributors of occurrence of PTSD among sample. Due to loss of house and material there is higher possibility of developing PTSD rather than loss of land among disaster affected people. The findings of the study highlight the need for conducting screening and awareness programs after any traumatic event to find out the stress disorders and other mental health problems and subsequently providing interventions to affected victims.*

Keywords: Disasters, posttraumatic stress disorders, PCL – C version, triggering factor, affected people

1. Introduction

Humans have been victims of disasters throughout recorded history. By 2015, on average over 375 million people per year are likely to be affected by climate-related disasters. On the average, a disaster occurs somewhere in the world each day (Norris, Friedman, & Watson, 2002) [1]. During the life time, 51.2% of women and 60.7% of men are estimated to have experienced at least one traumatic event. Human sufferings caused by disasters may have exact a high toll to human life. WHO defines disaster as "any occurrence that causes damage, economic distraction, loss of human life and deterioration in health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community or area [2]. In other words disaster are natural unforeseen circumstances which result in physical, psychological, social and emotional consequences the impact of which is substantial to create severe distress in an individual, family and the community.

1.1 Need of the study

India is one of the most disaster prone countries with all sorts of hazards being visited in some parts of the country or the other every year. Over the last two decades the natural disasters have claimed over three million lives and adversely affected 800 million people worldwide with 90 percent of the victims being from developing countries. In India, there are a total of 593 districts, of which 199 are most disaster prone [3].

Uttarakhand is one of the more disaster prone states of India. Every year Uttarakhand witness to numerous occurrences of landslides, flash floods, forest fire, and road traffic accidents etc. that affects the thousands of people and cause many deaths.

Disaster is a common problem that affects almost all of us at some point in our lives and humans have been victims of disasters throughout recorded history. If individual are not able to deal or cope up with the situation, it can lead to many mental health problems like anxiety, phobia, depression and post traumatic stress disorders etc. which directly or indirectly affect the individual day today life, relationship with the family or friends and many more.

Studies conducted in the aftermath of disasters during the past 40 years have shown that there is a substantial burden of PTSD among persons who experience a disaster. In the National Co-morbidity Survey, 18.9 percent of men and 15.2 percent of women reported a lifetime experience of a natural disaster [4]. Posttraumatic stress disorder (PTSD) is the most commonly studied and probably the most frequent and debilitating psychological disorder that occurs after traumatic events and disasters [5].

There are few recent disasters faced by India include earthquake in UP in 1991, Later earthquake in Maharashtra in 1993, Chama earthquake in Gujarat, super cyclone in Orissa in 1999, Bhuj earthquake in Gujarat in 2001, Tsunami in 2004 and Mumbai – Gujarat flood in 2005, flood

in Bihar in 2008, and flash flood in Uttarakhand in 2013.

So it is important to find out more about mental health problems like PTSD among disaster victims in post disaster phase and facilitate early referral in view of secondary prevention of psychiatric morbidity.

The present study can be helpful to look into the various measures that can be taken by the government to address the issues of victims which will be helpful for the disaster affected people to overcome the problems of post disaster which provide a help to people directly or indirectly to deal with the situation so that it will reduce the risk of post traumatic stress disorder or any other mental problems.

1.2 The objectives of the study

1) To determine the prevalence of PTSD among disaster affected people
2) To determine the selected triggering factors of PTSD among disaster affected people.
3) To find the association between the selected triggering factors and level of PTSD
4) To find out the association between the prevalence of PTSD and selected demographic variable.

1.3 Hypothesis

$1H_1$. There will be significant prevalence of PTSD among disaster affected people.
$2H_1$- There will be significant association between PTSD and triggering factors.
$3H_1$-There will be significant association between prevalence of PTSD among disaster affected people with their selected demographic variables.

1.4 Conceptual Framework

This study was based on the **Ehlers and Clark's** a cognitive model of PTSD.

2. Review of Literature

Based on the objective review of literature have been categories into two sections.

2.1 Section 1:- Literature reviews related to the prevalence of PTSD

2.2 Section 2:- Literature reviews related to associated factors of PTSD

Section 1:- Literature reviews related to the prevalence of PTSD
Catherin Nisha, Pretesh Kiran, Bobby Joseph conducted a cross – sectional study 3 months after the disaster in 2013, in Uttarkashi district, Uttarakhand on assessment of post traumatic stress disorder among 268 disaster affected student by administering traumatic screening questionnaire. Result revealed in which 32.8% with post traumatic stress disorder and found no association between post traumatic stress disorder and specific socio demographic factor. The study recommends that in future disasters; this highlights the need

for trained counselors in disaster management teams, screening, and intervention for PTSD [6].

Vankar GK, Banwari G, Parikh V, Shah H(2007) conducted a study four years after exposure to communal violence in Ahmadabad .PTSD was found in 4.7% of children and adolescents; and 9.4% had major depression. PTSD was associated with age older than 12 and residence in Ahmadabad, the worst affected city; it was not associated with gender, religion, change of residence, income or education [7].

Kar G.C.(2000) conducted a study within three months of the Bhopal gas tragedy yielded a 22.6% prevalence of mental disorders. Most of the patients were females (81.1%), and under 45 years of age (74%). The main diagnoses were anxiety neurosis (25%), depression (20%) and adjustment reaction with predominant disturbance of emotions (16%). Cases of psychosis were rare [8].

Section 2:- Literature reviews related to associated factors of PTSD
Kar N, Mohapatra PK, Nayak KC et.al.(2007) conducted a study to find out the prevalence of the Post-traumatic stress disorder and factors associated with it and compare the effect in high and low exposure areas among 447 children and adolescents one year after a super-cyclone in Orissa. Data were collected by using symptoms checklist and semi-structured questionnaire. Result shown that Post-traumatic stress disorder (PTSD) was present in 30.6%, and an additional 13.6% had sub-syndrome PTSD. Significantly more (43.7%) children in high exposure areas had PTSD than that (11.2%) in low exposure areas. Depression was significantly associated with PTSD. Binary logistic regression analysis indicated that high exposure, lower educational level and middle socioeconomic status significantly predicted the outcome of PTSD [9].

Yali Tian et. al. (2014) conducted a study on to explore the prevalence of posttraumatic stress disorder (PTSD) in 4,604 adolescent survivors three years after the Wenchuan earthquake in china, and to find out risk factors of PTSD. Instruments included the demographic questionnaire, questionnaire about earthquake exposure, the Social Support Appraisal Scale (SSA), the Posttraumatic stress disorder Checklist-Civilian Version (PCL-C), and the structured clinical interview for DSM-IV Disorders (SCID). Result of study conclude that the prevalence rate of PTSD was 5.7% (frequency: n = 261). Loss of houses and property, being injured, deaths of family members, and witness of death are positive risk factors of PTSD, and physical exercise and social support are negative risk factors of PTSD [10].

3. Methodology

Research methodology provides a brief description of the method adopted by the investigator in the study.

3.1 Research Approach

In view of the nature of problem selected for the study and objective to be accomplished, quantitative research was

considered as an appropriate research approach for the present study.

3.2 Research Design

In this study, exploratory survey design is adopted to explore the prevalence of PTSD among disaster affected people.

3.3 Sample Size and Sample Technique

All the disaster affected people (105) who are currently living in selected setting during the period of data collection. The sample technique for this study is consecutive sampling.

3.4 Criteria for selecting sample

3.4.1 Inclusive criteria
- People who are age above14 years.
- People, who can read, write and understand Hindi and English.
- Those who are interested and willing to participate in research study

3.4.2 Exclusion Criteria
- Those who are not interested and not willing to participate in research study
- Age below 14 years who are affected with disaster

3.5 Method of data collection and tool

The instrument used for this study composed of two parts: Part 1: Socio-demographic Variable and part 2: Post Traumatic Stress Disorder Civilian Checklist Version (PCL-C) was used to assess the prevalence of PTSD among disaster affect people with the help of interview method.

3.6 Data Analysis

In order to interpret the data in a logical order, both descriptive and inferential statistics were used. The analysis of the data was done based on the objectives and hypotheses of the study. All data were coded and transferred to master data sheet for analysis using SPSS 20 (trial version).

4. Result

4.1 Descriptions of Demographic variables of study subject

Table 1: Frequency and percentage distributions of samples according to their socio demographic variables of the sample

N = 105			
Socio Demographic Variables		Frequency	Percentage
Age in yr	15 – 34	51	48.5
	35 - 54	34	32.3
	55 - 74	17	16.1
	75 - 94	3	2.8
Gender	Male	44	41.9
	Female	61	58.0
Education	Illiterate	41	39.0
	Primary	14	13.3
	High school	29	27.6
	Intermediate	14	13.3
	Graduation	7	6.6

Occupation	Farming	63	60
	Business	3	2.8
	Service	4	3.8
	Unemployed	35	33.3
Income (per month)	<5000	72	68.5
	5000 -15,000	28	26.6
	>15,000	5	4.7
Marital status	Unmarried	32	30.4
	Married	67	63.8
	Divorce/separated/ widow	6	5.7
Type of family	Nuclear	28	26.6
	Joint	77	73.3

Table 2: Frequency and percentage distribution of Prevalence of PTSD, N = 105

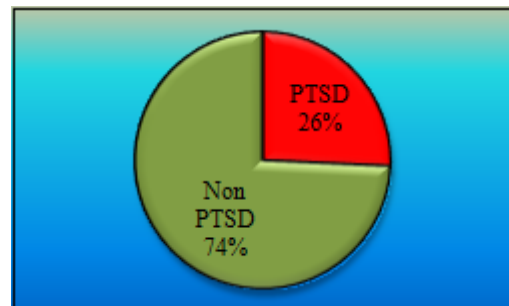| Prevalence of PTSD	Frequency (f)	Percentage %
PTSD (>50)	27	26%
Non PTSD (≤50)	78	74%

Figure 1: Percentage distribution of prevalence of PTSD

Table no 2 and figure no. 1 shows the prevalence of PTSD among disaster affected people in selected area of Dehradun (Uttarakhand). Out of 105 sample, 78 (74%) were free from PTSD, but 27(26%) were suffering with PTSD. As the data shows a significant prevalence of PTSD among sample, the researcher has rejected the null hypothesis. Hence, the alternative hypothesis ($1H_1$) was accepted.

Table 3: Frequency and percentage distribution of Selected triggering factors of PTSD among disaster affected people, N = 105

Triggering Factors		Frequency	Percentage
Frequency of exposure	One Time	98	93.34
	More than one time	7	6.67
Duration of exposure	< 1 week	93	88.57
	1 - 2 week	6	5.71
	More than 2 week	6	5.71
Form of exposure in disaster	Full of danger	105	100
	No danger	0	0
Loss in disaster	Human	0	0
	House	22	20.95
	Material	17	16.19
	Land	95	90.47
	Nothing	10	9.52
History of chronic illness	No	95	90.47
	Yes	10	9.52
Availability of support system	No	85	80.95
	Yes	20	19.04

Table 4: Association between the selected triggering factors and level of PTSD among disaster affected people, N=105

Post-traumatic stress disorder as an outcome and associated triggering factors			χ^2	df	P
Triggering Factors		PTSD	Non PTSD		
Frequency of exposure	One Time	23	75	2.32***	1	0.0704
	More than one time	4	3			
Duration of exposure	< 1 week	23	70	0.08***	1	0.5004
	>1 week	4	8			
Form of exposure in disaster	Full of danger	27	78	0**	3	1
	No danger	0	0			
Loss in disaster	House	11	11	8.672**	4	0.033*
	Material	9	8			
	Land	27	68			
	Nothing	0	10			
History of chronic illness	No	25	70	0***	1	>0.999
	Yes	2	8			
Availability of support system	No	25	60	2.26***	1	0.0917
	Yes	2	18			

*Significant at the level of p<0.05   * chi square test
** chi square with Yates correction *** Fisher exact test

Table 4. Shows the association between PTSD and triggering factors among affected people. Chi square with Yates correction test was used. There was a significant association between loss in disaster with PTSD at significant p value ≤0.005 and especially those who was lost their house and materials. Rest of triggering factors such as frequency, duration, and form of exposure in disaster and availability of support system had no association with the PTSD.

The association between the prevalence of PTSD and selected demographic variable.

Table 5: Correlation of age with PTSD, *N=105*

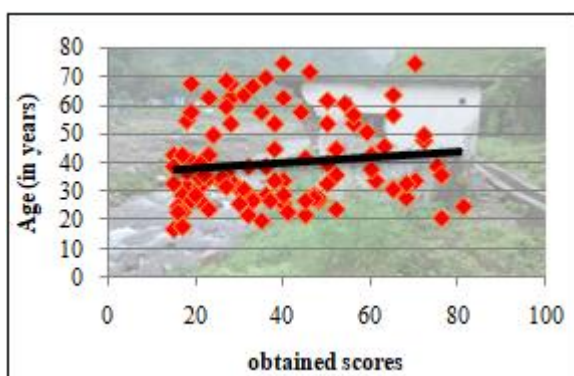|	*Correlation "r"*	*p*
Age & PTSD	0.110	o.263

df=103 at p ≤0.01

Figure 2: Scattered diagram showing correlation between age and level of PTSD

Table 5 and figure 3 Shows the correlation between age and PTSD of affected people. The Pearson coefficient of correlation value r=0.110 indicates no correlation between age and level of PTSD as tabulated value is greater than calculated. Hence it is interpreted that age of the people had no impact on the PTSD.

Table 6: Association of level of PTSD with their selected demographic variables, N=105

Variables		PTSD	Non PTSD	χ^2	df	p
Gender	Male	11	33	0.01*	1	0.920
	Female	16	45			
Education	Illiterate	14	27	3.069**	4	0.546
	Primary	5	9			
	High school	4	25			
	Intermediate	3	11			
	Graduation	1	6			
Occupation	Farming	20	43	4.22**	4	0.377
	Business	0	3			
	Service	0	4			
	Unemployed	7	28			
Income (per month)	<5000	24	48	7.22*	2	0.027*
	5000 -15,000	3	25			
	> 15,000	0	5			
Marital status	Unmarried	3	29	6.43***	2	0.024*
	Married	22	45			
	Divorce/ separated/ widow	2	4			
Type of family	Nuclear	5	23	0.74*	1	0.389
	Joint	22	55			

*Significant at the level of p<0.05   * chi square test
 ** chi square with Yates correction   *** Fisher exact test

Table 6. Shows association between gender, education, occupation, marital status, income and type of family with level of PTSD. The chi square test was used to find the association between gender, income, and types of family with level of PTSD. Here, p value ≤ 0.05 states that there is no association between gender and types of family with level of PTSD but family income per month shown significant association. The chi square with Yates correction test was used to find out the association between education and occupation with level of PTSD Here, p value ≤0.05 states that there is no association between education and occupation with level of PTSD. The fisher exact test was used to find out the association between marital status with level of PTSD. Here, *p* value ≤0.05 states that there is significant association between marital statuses with level of PTSD. So the researcher has rejected the null hypothesis (3H[1]) and accepted the research hypothesis in respect of marital status.

5. Conclusion

The present study support earlier findings that people exposed to a natural disaster appear more vulnerable to develop PTSD, even after years of its experience. The present study concludes that marital status and lower socioeconomic status are the main contributors of occurrence of PTSD among sample. Due to loss of house and material there is higher possibility of developing PTSD rather than loss of land among disaster affected people.

The findings of the study highlight the need for conducting screening and awareness programs after any traumatic event to find out the stress disorders and other mental health problems and subsequently providing interventions to affected victims.

6. Future Scope

On the basis of the findings of the study, the following recommendations are offered for future research:

- The large sample size could be included in study to generalize the findings.
- The study can be done in children also.
- An experimental study can be done.
- Governmental and non governmental agencies can be do research related to particular field.
- State and central government should aid financial support to all the disaster affected people.
- All the affected people visiting the hospital should be screened regarding any mental health problems.
- Awareness programs can be arranged in the community areas regarding preventive measures from disaster and mental health problems after disaster.
- In future disasters, this highlights the need for trained counselors in disaster management teams, screening, and intervention for PTSD, especially so since mental health care is not usually instituted – from the beginning along with other disaster-related support.

References

[1] Norris, F., Friedman, M., & Watson, P. 60, 000 disaster victims speak, Part II: Summary and implications of the disaster mental health research. *Psychiatry (Internet) 2002; 65:* 240-260.Retrieved from www.ncbi.nlm.nih.gov/pubmed/

[2] Community Emergency Preparedness: A Manual for Managers and Policy-Makers, WHO Geneva, 1999. ISBN 92 4 154519 4.Retrieved from https://www.who.int/hac/techguidance/preparedness/emergency_preparedness_eng.pdf

[3] www.**yourarticlelibrary**.com/essay/environment-essay/...and.../**39728**/

[4] Kessler RC,sonnega A, Bromet E, et al.Posttraumatic stress disorder in the National Comorbity Survey,Arch Gen Psychiatry 1995;52:1048-60.

[5] Norris FH, Friedman MJ, Watson PJ, et al. 60,000 disaster victims speak: part I. An empirical review of the empirical literature,1981–2001. *Psychiatry* 2002;65:207–39.

[6] Catherin Nisha, Pretesh Kiran, Bobby Joseph. Assessment of Post‑traumatic stress disorder among disaster affected children in a high school in Uttarkashi district, Uttarakhand, India. *International Journal of Health System and Disaster Management* (Internet) *2014; 2(4):237 – 240. Retrieved from* http://www.ijhsdm.org

[7] Vankar GK, Banwari G, Parikh V, Shah H. PTSD in children and adolescents: Four years after the communal violence. Indian J Psychiatry (Internet) 2007; 49:4. 24. Retrieved from www.ncbi.nlm.nih.gov › NCBI › Literature › PubMed Central

[8] Kar GC.Disaster and mental health. Indian J Psychiatry (Internet) 2000; 42: 3 -13. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles

[9] Kar N, Mohapatra PK, Nayak KC. 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* (Internet) 2007;7(8), Retrieved from http://www.biomedcentral.com/1471-244X/7/8

[10] Yali Tian. Posttraumatic stress disorder and its risk factors among adolescent survivors three years after an 8.0 magnitude earthquake in China, *BMC Public Health (Internet) 2014;* Retrieved from http://www.biomedcentral.com/1471-2458/14/1073

[11] Disorder in the National Comorbidity Survey. Arch Gen Psychiatry 1995;52:1048–60

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