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...

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

1H₁. There will be significant prevalence of PTSD among disaster affected people.
2H₁. There will be significant association between PTSD and triggering factors.
3H₁. 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, Pratish Kiran, Bobby Joseph conducted a cross-sectional study 3 months after the disaster in 2013, in Uttarakashi 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 above age 14 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 affected 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

<table>
<thead>
<tr>
<th>Socio Demographic Variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in yr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 - 34</td>
<td>51</td>
<td>48.5</td>
</tr>
<tr>
<td>35 - 54</td>
<td>34</td>
<td>32.3</td>
</tr>
<tr>
<td>55 - 74</td>
<td>17</td>
<td>16.1</td>
</tr>
<tr>
<td>75 - 94</td>
<td>3</td>
<td>2.8</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>44</td>
<td>41.9</td>
</tr>
<tr>
<td>Female</td>
<td>61</td>
<td>58.0</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>41</td>
<td>39.0</td>
</tr>
<tr>
<td>Primary</td>
<td>14</td>
<td>13.3</td>
</tr>
<tr>
<td>High school</td>
<td>29</td>
<td>27.6</td>
</tr>
<tr>
<td>Intermediate</td>
<td>14</td>
<td>13.3</td>
</tr>
<tr>
<td>Graduation</td>
<td>7</td>
<td>6.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming</td>
<td>63</td>
<td>60</td>
</tr>
<tr>
<td>Business</td>
<td>3</td>
<td>2.8</td>
</tr>
<tr>
<td>Service</td>
<td>4</td>
<td>3.8</td>
</tr>
<tr>
<td>Unemployed</td>
<td>35</td>
<td>33.3</td>
</tr>
<tr>
<td>Income (per month)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;5000</td>
<td>72</td>
<td>68.5</td>
</tr>
<tr>
<td>5000 -15,000</td>
<td>28</td>
<td>26.6</td>
</tr>
<tr>
<td>&gt;15,000</td>
<td>5</td>
<td>4.7</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unmarried</td>
<td>32</td>
<td>30.4</td>
</tr>
<tr>
<td>Married</td>
<td>67</td>
<td>63.8</td>
</tr>
<tr>
<td>Divorce/separated/ widow</td>
<td>6</td>
<td>5.7</td>
</tr>
</tbody>
</table>

| Type of family              |           |            |
| Nuclear                     | 28        | 26.6       |
| Joint                       | 77        | 73.3       |

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

<table>
<thead>
<tr>
<th>Prevalence of PTSD</th>
<th>Frequency (f)</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTSD (&gt;50)</td>
<td>27</td>
<td>26%</td>
</tr>
<tr>
<td>Non PTSD (≤50)</td>
<td>78</td>
<td>74%</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Triggering Factors</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of exposure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One Time</td>
<td>98</td>
<td>93.34</td>
</tr>
<tr>
<td>More than one time</td>
<td>7</td>
<td>6.67</td>
</tr>
<tr>
<td>Duration of exposure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1 week</td>
<td>93</td>
<td>88.57</td>
</tr>
<tr>
<td>1 - 2 week</td>
<td>6</td>
<td>5.71</td>
</tr>
<tr>
<td>More than 2 week</td>
<td>6</td>
<td>5.71</td>
</tr>
<tr>
<td>Form of exposure in disaster</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full of danger</td>
<td>105</td>
<td>100</td>
</tr>
<tr>
<td>No danger</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Human</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Loss in disaster</td>
<td></td>
<td></td>
</tr>
<tr>
<td>House</td>
<td>22</td>
<td>20.95</td>
</tr>
<tr>
<td>Material</td>
<td>17</td>
<td>16.19</td>
</tr>
<tr>
<td>Land</td>
<td>95</td>
<td>90.47</td>
</tr>
<tr>
<td>History of chronic illness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>95</td>
<td>90.47</td>
</tr>
<tr>
<td>Yes</td>
<td>10</td>
<td>9.52</td>
</tr>
<tr>
<td>Availability of support system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>85</td>
<td>80.95</td>
</tr>
<tr>
<td>Yes</td>
<td>20</td>
<td>19.04</td>
</tr>
</tbody>
</table>
Table 4: Association between the selected triggering factors and level of PTSD among disaster affected people, N=105

<table>
<thead>
<tr>
<th>Triggering Factors</th>
<th>PTSD</th>
<th>Non PTSD</th>
<th>χ²</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of exposure</td>
<td>One Time</td>
<td>23</td>
<td>75</td>
<td>2.32***</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>More than one time</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration of exposure</td>
<td>&lt; 1 week</td>
<td>23</td>
<td>70</td>
<td>0.08***</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>&gt; 1 week</td>
<td>4</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Form of exposure in disaster</td>
<td>Full of danger</td>
<td>27</td>
<td>78</td>
<td>0**</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>No danger</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss in disaster</td>
<td>House</td>
<td>11</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Material</td>
<td>9</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Land</td>
<td>27</td>
<td>68</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nothing</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>History of chronic illness</td>
<td>Yes</td>
<td>25</td>
<td>70</td>
<td>0***</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>7</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of support system</td>
<td>Yes</td>
<td>25</td>
<td>60</td>
<td>2.26***</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Age (in year)</th>
<th>Correlation “r”</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age &amp; PTSD</td>
<td>0.110</td>
<td>0.263</td>
</tr>
</tbody>
</table>

df=103 at p ≤0.01

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

<table>
<thead>
<tr>
<th>Variables</th>
<th>PTSD</th>
<th>Non PTSD</th>
<th>χ²</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>11</td>
<td>33</td>
<td>0.01*</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>16</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>Illiterate</td>
<td>14</td>
<td>27</td>
<td>3.069**</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Primary</td>
<td>5</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High school</td>
<td>4</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intermediate</td>
<td>3</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Graduation</td>
<td>1</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td>Farming</td>
<td>20</td>
<td>43</td>
<td>4.22**</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Business</td>
<td>0</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Service</td>
<td>0</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income (per month)</td>
<td>Unemployed</td>
<td>7</td>
<td>28</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>≤5000</td>
<td>24</td>
<td>48</td>
<td>7.22*</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>&gt; 5000-15,000</td>
<td>3</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 15,000</td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td>Unmarried</td>
<td>3</td>
<td>29</td>
<td>6.43***</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>22</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Divorce/ separated/widow</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of family</td>
<td>Nuclear</td>
<td>5</td>
<td>23</td>
<td>0.74*</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Joint</td>
<td>22</td>
<td>55</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

Table 7: Correlation of age with PTSD, N=105

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

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


Author Profile

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