

RESEARCH ARTICLE

## Prevalence of PTSD in People Affected by Flood in Kashmir

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**Abstract:** Disaster is defined as a severe disruption and sudden unexpected event, in which protective mechanisms of society are likely to fail and which results in major losses in the ecological, economical and psychosocial spheres. Psychological reactions after any disaster can vary from individual to individual and from disaster to disaster depending upon the level of exposure, extent of loss, coping mechanisms, and social support available at that time. The prevalence of psychological problems is witnessed in very high proportion of the survivors ranging from 20% to 35% after a natural disaster. Mental disorders such as post-traumatic stress disorder (PTSD) and depressive illness are the common psychological effects among survivors of natural disaster. On the 6th of September, 2014, Jammu and Kashmir witnessed massive floods that left thousands stranded inside their submerged houses. The floods directly affected more than 2,600 villages in the state and submerged 30 percent of the urban areas. Out of the 2,600 villages, almost 400 villages were completely submerged and 2,225 partially submerged with more than 300 villages completely cut off (inaccessible). This study will examine the prevalence of Post-traumatic stress disorder among flood affected population in Kashmir. Aims And Objectives to identify the prevalence of symptoms of posttraumatic stress disorder in people affected with flood in Kashmir & the socio-demographic profile such age, gender, residence, education, and socio economic status in people affected with flood in Kashmir. To study the distribution as per Level of water within houses of people affected with flood in Kashmir, Displacement of people affected & Evacuation. Evacuation. Materials and Methods Study Area This study was conducted in different areas of Srinagar and south Kashmir which was most affected during flood of September 2014. The study was approved by the institution's ethical committee of Sheri-Kashmir-Institute of Medical Science. A total of 500 individuals were assessed who had been directly exposed to floods. The study was conducted three month after the event. These areas were chosen because of the feasibility of carrying out the survey. People were assessed at their homes, relief camps and at their relative's houses. Semi structured proforma and few standardized questionnaires were used to collect information regarding socio-demographic details such as age, gender, socioeconomic status, residence, education. In this study standardized questionnaires PTSD check list (PCL-CV) was used. Results out of 500 victims who participated in our study, majority of our participants were in the age group of 35-49, the range were between 20- 66. The mean age was 40.7±9.98. Majority of flood victims who participated in our study were females 329 (65.8%), Majority of studied participants were belonging to rural areas i.e 296 (59.2), Majority of the studied participants were married 437 (87.4%). Majority of the flood victims who participated in the study, 273 (54.6%) had no formal education, 117 (23.4%), Majority of flood victims who participated in our study were unemployed. 309 (61.8%). Out of 500 326 (65.2%) participants had partially damaged property and 174(35.4%) had fully damaged property. Prevalence of Symptoms of Anxiety were present in 231 (46.2%), Symptoms of Depressive symptoms were present in 163 (32.6%), and Post-traumatic stress disorder were present in 124 (24.8%). Conclusion exposure to higher level of water in their homes frightens the individuals as well as fear of loss of object and property belonging to them which has a sentimental and symbolic value, might have become a cause of mental illness. In our study it was seen that individuals who were not evacuated from their homes during the floods had more PTSD than who were evacuated. They remained in their houses and continuously suffered from stress because of fear of death. The influence of social support, coping strategies and early intervention and medication in the development of mental distress are needed to improve the mental health strategy of the disaster preparedness program. It is necessary to strengthen mental health care and psychological consultation facilities, in order to control and prevent mental illness. This will reduce the number of long term psychological cases. Health education and health promotion are vital in increasing mental health knowledge among the population. Education regarding disaster management and early forecasting will help people to improve their coping strategy. It is our hope that future research will identify resources of communities that are beneficial to decrease mental health problems after a traumatic event.

**Keywords:** PTSD, People Affected, Flood.

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## Introduction

Disaster is defined as a severe disruption and sudden unexpected event, in which protective mechanisms of society are likely to fail and which results in major losses in the ecological, economical and psychosocial spheres [1]. Disasters, depending on their sources, have been classified as either natural disasters and manmade. Natural disasters include volcano eruptions, tsunami, earthquake, etc. The effects of disaster on an individual or group of individuals can have several dimensions, physical, psychological, financial and social.

There can be physical injuries, death, loss of homes, loss of job and disruption in social relationships. Besides the physical loss, it also has a massive impact on individual's mental health. Psychological reactions after any disaster can vary from individual to individual and from disaster to disaster depending upon the level of exposure, extent of loss, coping mechanisms, and social support available at that time [2].

The prevalence of psychological problems is witnessed in very high proportion of the survivors ranging from 20% to 35% after a natural disaster. Mental disorders such as post-traumatic stress disorder (PTSD) and depressive illness are the common psychological effects among survivors of natural disaster.

India, due to its location and geo-climatic conditions, is one of the most disaster-prone areas of the world. About 58.7 % of the total land mass is prone to earthquakes of moderate to very high intensity. About 40 million hectares, or 12% of land in India is prone to floods, and 68 % of the land is vulnerable to drought [3]. Post traumatic stress disorder (PTSD) is a common disorder among victims of various disasters such as road traffic accidents, violent crimes, hurricanes, earthquakes and floods. PTSD is also a severe and complex disorder precipitated by exposure to psychologically distressing events.

It is characterized by persistent intrusive memories about the traumatic event, persistent avoidance of stimuli associated with the trauma and persistent symptoms of increased arousal. These disorders occur due to effect of witnessing destructions of life and

property. It can affect anyone at any age and occur as a result of natural or man-made disaster like flood, fire, war, imprisonment, rape etc [4]. On the 6th of September, 2014, Jammu and Kashmir witnessed massive floods that left thousands stranded inside their submerged houses.

The floods directly affected more than 2,600 villages in the state and submerged 30 percent of the urban areas. Out of the 2,600 villages, almost 400 villages were completely submerged and 2,225 partially submerged with more than 300 villages completely cut off (inaccessible). 10 out of the 22 districts were badly hit with the districts in South Kashmir experiencing severe devastation. People witnessed loss of human lives, vehicles and animals were floating in the flood, buildings and bridges got collapsed.

Over 10,000 animals and 33,000 sheep and got perished in the floods [5]. There have been many researches done on the impact of disaster on mental wellbeing but there is disparity in research practices, prevailing policies, and the services provided in developing countries like India depriving the vast majority of the benefit of modern psychiatric treatments.

In light of scanty research on the topic of the impact of floods remains unclear. In an attempt to address this gap, this study will examine the prevalence of Post-traumatic stress disorder among flood affected population in Kashmir. In addition to it, role of risk factors particularly incident management variables, has been included in the study as these can be modified or addressed in the future to minimize the psychosocial impacts associated with flooding.

## Aims and Objectives

- To identify the prevalence of symptoms of posttraumatic stress disorder in people affected with flood in Kashmir.
- To study the socio-demographic profile such age, gender, residence, education, and socio economic status in people affected with flood in Kashmir.
- To study the distribution as per
- Level of water within houses of people affected with flood in Kashmir

- Displacement of people affected.
- Evacuation.

## Materials and Methods

### Study Area

This study was conducted in different areas of Srinagar and south Kashmir which was most affected during flood of September 2014. The study was approved by the institution's ethical committee of Sheri-Kashmir-Institute of Medical Science. A total of 500 individuals were assessed who had been directly exposed to floods. Variables include; flooding, displacement and evacuation. Each of these variables was assessed by certain questions.

### Flooding

The presence of water in

- street or garden outside the house;
- below floor level in the ground floor rooms;
- Above floor level in ground floor rooms).

### Displacement

Was measured by the question: 'did you have to move out of your home and could be answered by 'yes' or 'no.'

### Evacuation

- Request to evacuate
- Request made and refused.

### Interview Schedules

The study was conducted three month after the event. These areas were chosen because of the feasibility of carrying out the survey.

The aim, reason and procedure for conducting the study were explained to the victims of flood. Confidentiality of information was assured, and then informed consent signed by them was obtained.

### Participants

This study was conducted in different areas of Srinagar and south Kashmir which was most affected during flood of September 2014. 500 individuals were assessed who had been directly exposed to floods. The study included both males and females. People were assessed at their homes, relief camps and at their relative's houses.

This study was conducted in order to study the prevalence of symptoms of PTSD among the people affected with flood. Semi structured proforma and few standardized questionnaires were used to collect information regarding socio-demographic details such as age, gender, socioeconomic status, residence, education. In this study standardized questionnaires PTSD check list (PCL-CV) was used [6, 7].

The scale was translated to Urdu language and then was back translated to English with the help of department of linguistic university of Kashmir. If there was a problem in understanding, then the proforma and questionnaire were explained verbally. In case the participants were not literate then whole proforma and questionnaire was read in the language they understood. PTSD check list (PCL-C)

## Results

**Table 1: Sociodemographic profile**

Age (years)	Frequency	Percentage
20-34	132	26.4
35-49	269	53.8
≥ 50	99	19.8
Total	500	100
Gender		
Male	171	34.2
FEMALE	329	65.8
Residence		
Rural	296	59.2
Urban	204	40.8
Occupation		
Employed	105	21
Unemployed	309	61.8
Labour	36	7.2
Student	50	10
Education		

No Formal Education	273	54.6
Primary	16	3.2
Secondary	117	23.4
Graduate	64	12.8
Post Graduate	30	6
Marital status		
Married	437	87.4
Unmarried	63	12.6

**Table 2: Prevalence of post-traumatic stress disorder in studied flood victims**

Prevalence of Post Traumatic stress disorder in studied flood victims			
Symptoms		Frequency	Percentage
PTSD	Present	124	24.8
	Absent	376	75.2

Out of 500 participants, Prevalence of Post-traumatic stress disorder was present in 124 (24.8%)

**Table 3: Showing association of PTSD with age and gender in studied flood victims**

Showing association of PTSD with age and gender in studied flood victims						
Demographic Variables		PTSD Present		PTSD Absent		P-value
		No.	%age	No.	%age	
Age (years)	20-34	14	10.6	118	89.4	<0.001*
	35-49	85	31.6	184	68.4	
	≥ 50	25	25.3	74	74.7	
Gender	Male	19	11.1	152	88.9	<0.001*
	Female	105	31.9	224	68.1	

\*Statistically Significant Difference (P-value<0.05) The above results show that PTSD were more present in age group 35-46years in 85 (31.6%) victims and more in females 105(31.9%) than males 19(11.1%) and is statistically significant (P-value =<0.001\*)

**Table 4: Showing association of PTSD with exposure variables in studied flood victims**

Exposure Variables		PTSD Present		PTSD Absent		P-value
		No.	%age	No.	%age	
Level of water	Above Floor Level n=(230)	88	38.3	142	61.7	<0.001*
	Below Floor Level n=(232)	35	15.1	197	84.9	
	Outside House n=(38)	1	2.6	37	97.4	
Evacuated	Yes n=(379)	62	16.4	317	83.6	<0.001*
	No n=(121)	62	51.2	59	48.8	
Displacement	Yes n=(235)	69	29.4	166	70.6	0.026*
	No n=(265)	55	20.8	210	79.2	

\*Statistically Significant Difference (P-value<0.05) The above results shows that PTSD were present more in those flood victims who had water level above floor level and who were not evacuated and remained displaced. The above results were statistically significant (P-value =<0.001\*)

## Discussion

The trauma literature has yet to provide a consistent distinction between individual traumatic events and disasters [8]. Disasters have been classified based on their aetiology, impact and the required response. In terms of the impact and the required response, disasters have been classified as central, intermediate and peripheral [9]. Disasters frequently involve populations who are directly exposed to the trauma and those which are indirectly exposed to trauma such

as people who experience loss of family members or friends or colleagues, or those who suffer property loss. The present study set out to gain insight in impact of flood on mental health. This study focused on the impact on mental health of fluvial flooding caused by heavy rain in the river catchments, in kashmir. In our study participants were in the age group of 20-66 years. The mean age was 40.7±9.98. Mostly above and below this age group were at their relatives or safer

places. We decided to conduct the study three months after the event, so that the initial reaction of fear, despair, anger, frustration, confusion which were very much a part, though transitory phenomena in the post disaster period, which in majority cases settle down within sometime. In our study it has been observed that about 24.8% had posttraumatic stress disorder.

A number of studies have shown a range of symptoms resulting from flooding. Micheal et al found almost similar results in their study in which the prevalence of clinically significant PTSD was 21% [10]. Post traumatic stress disorders were found more in females than in males. This is in concordance with many other studies showing that females have a higher risk of developing mental illness especially PTSD after the flooding [11, 12].

Studies have suggested that women have greater emotional attachment with home than men [13]. Those participants who had water above floor level seem to have more PTSD. This is in concordance with other studies found the higher water levels are significantly associated with mental illness among the victims of the floods which is consistent with our findings. Victims who had higher levels of water in their homes suffered more post traumatic disorder than those with lower levels of water in their homes [14, 15].

The explanation for the above results might be that exposure to higher level of water in their homes, frightens the individuals as well as fear of loss of object and property belonging to them which has a sentimental and symbolic value, might have become a cause of mental illness. In our study it was seen that individuals who were not evacuated from their homes during the floods had more PTSD than who were evacuated.

They remained in their houses and continuously suffered from stress because of fear of death. The influence of social support, coping strategies and early intervention and medication in the development of mental distress are needed to improve the mental health strategy of the disaster preparedness program. It is necessary to strengthen mental health care and psychological consultation facilities, in order to control and prevent mental illness. This will reduce the

number of long term psychological cases. Health education and health promotion are vital in increasing mental health knowledge among the population. Education regarding disaster management and early forecasting will help people to improve their coping strategy. It is our hope that future research will identify resources of communities that are beneficial to decrease mental health problems after a traumatic event.

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