

## PSYCHOSOCIAL IMPACT IN FLOOD DISASTER AFFECTED AREA: EXPERIENCE IN JAMMU & KASHMIR

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### Abstract

**Background:** In September 2014, the Jammu & Kashmir region was hit by heavy floods. Medical camps to provide medical relief were set up by the army in this area. The disaster relief team from National Institute of Mental Health and Neurosciences got to work and collect data on impact of event at these camps. This study analyses and compares the data collected from two camps one of which consist of evacuees rescued through air sorties from flood affected area and the second camp consisted of patients who were not relocated. The aims & objective is to assess the psychological impact of floods on patients presenting to a medical relief camp after flood disaster. **Materials and Methods:** Participants were chosen randomly from the patients that presented with medical complains to these camps. Verbal consent from patients was taken before scale administration. Impact of Event scale – R (IES-R) was administered to enrolled patients by the psychosocial care team. A total of 185 (evacuees camp: 61, non evacuees camp: 121) patients were interviewed. **Result:** The difference in scores at the two camps was statistically significant. Patient who suffered physical trauma had significantly high IES-R scores as compared to rest of the patients in intrusion scale as well as the full scale scores. On gender comparison females had a higher IES-R score. As per age group people between 18-20 years of age showed significantly high scored then others. **Conclusion:** J & K flood has acute adverse psychological impact on the survivors especially among those rescued by air sorties (evacuees), suffering from physical trauma, young aged and females. The long term stability of these findings needs to be evaluated through further studies.

## INTRODUCTION

In September 2014, the Jammu & Kashmir region was hit by heavy floods caused by torrential rainfall. By September 24, 2014, nearly 284 people had died due to the floods. According to the Home Ministry of India, several thousand villages across the state had been hit and 350 villages had been submerged. So far 2,00,000 people have been rescued, including 87,000 from Srinagar city.<sup>[1-3]</sup>

In Srinagar city, most of the city areas were submerged under water. The flood waters spilled over submerging Sonwar, Rajbagh, Jawahar Nagar, Gogji Bagh and Wazir Bagh neighbourhoods of city.<sup>[1-3]</sup>

Medical camps to provide medical relief were set up by the authorities in this area. This study analyses the data collected from two such camps. First camp was situated at airport adjacent to the helicopter

landing area, it started on 10th September; it was meant mainly to attend to medical needs of people rescued through air sorties and consisted of evacuees, this camp continued for 5 days.

The second camp started on 12th September and was situated just adjacent to flood hit area Rajbagh in Srinagar and provided medical services to flood affected population in this area, the camp ran for 7 days. This camp was mainly visited by patients who were affected by floods but were not displaced from their homes. This Camp was also created using tent adjacent to busy road and there was no arrangement for inpatient admission.

The authors as a part of disaster relief team from National Institute of Mental Health and Neurosciences (NIMHANS) got to work and observe proceedings at both these camps and along with medical care were able to assess the psychosocial needs of patients presenting there and provided psychological first aid. Team was able to

administer Impact of Event Scale – revised (IES-R) to patients showing up at these camps to assess the psychological impact of flood.

### Review of Literature

Many studies suggest the occurrence of specific mental health disorders such as post-traumatic stress disorder (PTSD) following disasters,<sup>[12-17]</sup> and is found to be the most commonly found psychological problem in developing countries after a natural disaster.<sup>[18]</sup> In various studies risk factors for the development of PTSD are identified as female sex, young age, urban lifestyle, low socioeconomic status and displacement.<sup>[7-12]</sup> There is a lack of literature that assess the severity of impact of event related to evacuees as compared to non-evacuees using standard scales.<sup>[7]</sup> Also little is known about the severity of impact in medically ill population. This study focuses on studying these parameters along with other variables.

### Aims and Objectives

To assess the psychological impact of floods on patients presenting to a medical relief camp after flood disaster.

## MATERIALS AND METHODS

Participants and data: participants were chosen randomly from the patients that presented with medical complains to these camps. Verbal consent from patients was taken before scale administration. Impact of Event scale - R was administered to enrolled patients by the psychosocial care team.

The IES-R is a 22-item self-report measure that assesses subjective distress caused by traumatic events. It is a revised version of the older version, the 15-item IES (Horowitz, Wilner, & Alvarez, 1979). The IES-R contains seven additional items related to the hyperarousal symptoms of PTSD, which were not included in the original IES. Items correspond directly to 14 of the 17 DSM-IV symptoms of PTSD. Respondents are asked to identify a specific stressful life event and then indicate how much they were distressed or bothered during the past seven days by each "difficulty" listed.<sup>[5-7]</sup>

Items are rated on a 5-point scale ranging from 0 ("not at all") to 4 ("extremely"). The IES-R yields a total score (ranging from 0 to 88) and subscale scores and can also be calculated for the Intrusion, Avoidance, and Hyperarousal subscales. The authors recommend using means instead of raw sums for each of these subscales scores (SCL-90-R; Derogatis, 1994).

Though the IES-R is a self-administered questionnaire, bearing in mind the low literacy levels of the local population and lack of familiarity with questionnaires, IES-R was used as an interviewer administered questionnaire in this study. A single interviewer read out the questions to each

of the subjects in a subsample of this study population and recorded their oral response.

### Inclusion Criteria

1. Evacuees group consisted only of medically ill patients airlifted from flood affected area.
2. Comparison group consisted only of medically ill patient who were directly affected by flood but were still residing in their community.
3. Patient who were above 18 years of age and were able to give verbal consent for interview were taken.

### Exclusion Criteria

1. Patients who required emergency medical treatment, patients with head injury, patients who were unable to communicate and patient who were unable to walk with or without support were not included in the study.
2. Patients who fit in more than one of the medical illness categories.

A total of 64 (male: 34 and female: 30) patients who were interviewed at the evacuee camp while 121(male: 64 and female: 57) patients who were interviewed at the other camp met the inclusion and exclusion criteria and were selected for the study.

- a. No of patients interviewed at two camps:

Day	Evacuees camp	Other camp	Total
1	10	12	22
2	15	10	25
3	15	20	35
4	17	20	37
5	07	20	27
6	-	20	20
7	-	19	19

- b. Medical complains of the patients were divided into following groups:

1. Trauma: include laceration, abrasion, infected wound, contusion, hematoma, sprain, pain and other effects of injury were classified as trauma.
2. Acute upper respiratory infections with their symptoms and signs were regarded as acute respiratory problem.
3. GIT related complains: comprising mainly of diarrhea and abdominal cramps
4. Chronic problems: Patients who had chronic conditions of diabetes and hypertension were being classified as chronic problem.
5. Others: rest which cannot be classified in any above category.

	Type	Evacuees camp	Other camp	Total
1.	Trauma	24	37	61
3.	Acute respiratory problems	17	32	51
4.	GIT problems	5	17	22
5.	Chronic problems	15	25	40
6.	Others	3	11	13

c. Age group distribution of patients:

**Table 2**

	Evacuees camp	Other camp	Total
18-30 years	14	25	39
31-40 years	15	27	42
41-50 years	14	24	38
51- 60 years	8	26	34
Above 60 years	13	19	32

Statistics were processed using SPSS version V20. Statistical analysis among the various comparison groups was done using paired t test with .05 level of significance.

## RESULTS & DISCUSSION

Impact of event scale scores:

### A. Comparison at the two camps

**Table 3**

	Evacuees camp(N=64)	Others (N=121)	Total (N=185)
Avoidance subscale mean	11.66	11.12	11.30
Intrusion subscale mean	16.2	14.1	14.82
Hyperarousal subscale mean	14.4	12.4	13.09
Full scale mean	42.26	37.76	39.31

The difference in scores at the two camps was statistically significant for the intrusion subscale, hyperarousal subscale and the full-scale scores. This finding reflects that persons who are displaced from their residential areas and rescued by others are more prone to adverse psychosocial impact as compared to those who are able to rescue themselves and are residing in their locality. The difference in degree of helplessness experienced in both the groups may account for the difference in impact of event. Moreover the loss of property is likely to be more in the displaced group. They are also more likely to have experienced fear of death while waiting for the help to arrive as compared to others who were able to stay at their residences due to relatively safer conditions. These findings are similar to previous study done in Andaman and nicobar following tsunami which compared displaced and undisplaced population.<sup>[7]</sup>

### B. Comparison as per medical complains:

**Table 4:**

	Trauma (N= 61)	Acute respiratory problems (N=49)	Chronic problems (N=40)	Git problems (N=22)	Others (N=13)
Avoidance subscale mean	12.15	10.02	10.35	12.8	12.52
Intrusion subscale mean	17.57	13.12	14.2	12.78	13.64
Hyperarousal subscale mean	13.45	12.91	13	13.05	12.4
Full scale mean	43.17	36.05	37.55	38.63	38.56

On comparison of IES-R scores as per medical complains it was found that patient who suffered physical trauma had significantly high values as compared to rest of the patients in intrusion scale as well as the full-scale scores. Similar post injury stress was also seen in other studies,<sup>[22]</sup> the main causes of trauma in this disaster was fall, cuts and wounds due to walking in flood water and falling of houses. Physical trauma represents a direct consequence of disaster and hence may cause greater impact as compared to other illnesses.

### C. Comparison as per gender: 98 males and 87 females

**Table 5:**

	Male (N=98)	Female (N=87)
Avoidance subscale mean	10.2	12.53
Intrusion subscale mean	14.1	15.63
Hyperarousal subscale mean	11.32	15.08
Full scale mean	35.62	43.24

On gender comparison females had a higher IES-R score. The difference in scores as per gender was statistically significant for hyperarousal subscale and full scale mean score. This finding is in accordance with various other studies and points to the facts that female gender is more vulnerable to adverse psychosocial impact of a flood disaster as compared to males and need additional attention and care.<sup>[19-21]</sup>

### D. Comparison as per age group:

**Table 6:**

	18-30(N=39)	31-40(N=42)	41-50(N=38)	51-60( N=34)	>60(N=32)
Avoidance subscale mean	12.66	11.21	10.26	10.41	11.94
Intrusion subscale mean	17.85	13.9	13.86	14.6	13.70
Hyperarousal subscale mean	16.62	10.34	11.12	13.2	14.61
Full scale mean	47.13	35.45	35.24	38.21	40.25

As per age group people between 18-20 years of age had the highest IES scores in all three subscales and full scales which was statistically significant when compared to rest of the group in Intrusion, hyperarousal and full-scale scores. These findings are similar to other studies.<sup>[8,9,11,12]</sup>

**E.** Out of 185 participants 154 were having scores higher than 33 which signifies the likely presence of PTSD as per IES scale showing that J&K flood had an adverse psychological affect on majority of the flood victims in the initial 10 -15 days after the event. Only 31 patients were having scores less than or equal to 33.

**Profile of patients with scoreless than or equal to 33 (N= 31):**

**a) Gender:** male-25 female- 8

**b) Age group**

	Total
18-30 years	2
31-40 years	15
41-50 years	9
51- 60 years	4
Above 60 years	1

**c) Evacuees vs others**

	Total
Evacuees	4
Others	27

**d) Medical illness**

	Type	Total
1.	Trauma	1
3.	Acute respiratory problems	8
4.	GIT problems	3
5.	Chronic problems	11
6.	Others	8

The data shows that male gender, middle age group especially 31-40, non-evacuees and patients with chronic problems represented the majority in IES-R score below or equal to 33 group although statistical significance can only be determined for male gender and non-evacuees because of small sample size.<sup>[23,24]</sup> thus these factors may determine resilience towards adverse impact of disaster.

**Limitations**

1. As the patients visiting these camps were already having some physical illness that can aggravate their stress which may reflect as higher score in IES scale.
2. Medical illnesses were not coded as per ICD or any other such guidelines
3. Due to stringent exclusion criteria, ethical issues and disaster situation patients with high severity of medical illness were not included in this study.

**CONCLUSION**

J &K flood has acute adverse psychological impact on the survivors especially among those rescued by air sorties (evacuees), suffering from physical trauma, young aged and females. The long-term stability of these findings needs to be evaluated through further studies and appropriate measures to address the situation should be taken to prevent psychosocial distress among the survivors.

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