INNSPUB

Journal of Biodiversity and Environmental Sciences (JBES)
ISSN: 2220-6663 (Print) 2222-3045 (Online)
Vol. 6, No. 3, p. 342-350, 2015
http://www.innspub.net

RESEARCH PAPER

OPEN ACCESS

Psychological effects of attaabad natural disaster on upstream communities of upper Hunza, district Hunza-Nagar, Pakistan

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Article published on March 28, 2015

Key words: Disaster, Psychological, communities, Symptoms, Resources.

Abstract

This paper examine psychological impacts of 2010 Attaabad landslide induced lake on upstream communities of upper Hunza. Natural hazards are unexpected, occur suddenly, and cause widespread damage are understood to be traumatic and associated with a high degree of psychological disturbance. The affected people psychologically are most often seen as having significantly disrupted in their life activities which require lengthy period for the recovery. The primary data has collected from four villages which were directly or indirectly affected due to Attaabad landslide and its induced lake. The analysis revealed that majority of the respondents (95%) in the area has been directly or indirectly affected by the landslide hazard. For data collection some psychological based questions were developed regarding the psychological effects of the disaster on community. Studies have shown that posttraumatic stress symptoms rates increased due to severity of the disaster. Persons who directly suffered in this natural disaster are likely to have more symptoms than those who indirectly suffered from the disaster. These events almost always result in additive and interactive stressors which may contribute to symptoms of psychological distress weeks, months and even years after the disaster.

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Introduction

A natural hazard is a geophysical, atmospheric or hydrological events such as earthquake, landslide, tsunami, windstorm, flood, glacier lake outburst flooding and drought that has the potential to cause harm or loss, while a natural disaster is the occurrence of an extreme hazardous event that effect communities and causing damages, disruption and casualties, and leaving the affected communities unable to function normally without outside assistance (Twig, 2007).

Natural disaster is a severe disruption of society in economically, psychosocially, and ecologically which greatly exceeds the coping capacity of the affected community. It can be defined as constituting the direct, indirect and intangible losses caused on environment and society by a natural disaster (Swiss, 1998). Direct losses include physical effects such as destruction and changes that reduce the functionality of an individual or structure. Damages to people (death/injury), buildings, their contents, and vehicles are included. Indirect losses affect society by disrupting or damaging utility services and local businesses. Loss of revenue, increase in cost, expenses connected to the provision of assistance, lodging, and drinking water, and costs associated with the need to drive longer distances because of blocked roads are included. Intangible losses include psychological impairments caused by both direct and intangible losses that individuals personally suffer during the disaster and after the disaster (Swiss, 1998).

From a societal perspective, it is important to acknowledge that the impacts of natural disasters are rarely random or evenly distributed throughout communities. The impact of natural events almost always reflects pre-existing resource relationships and socioeconomic resources which underlie human vulnerability and recovery capacity (Hartsough, 1982). Every nation, community, people try to protect their resources such as their entities like housing, possession, employment, marriages, time and monetary investments, and personal characteristics like self-confidence. But due to some unprecedented or threatened or actual loss of these resources as caused by a natural disaster leads to psychological distress (Lazarus *et al.*, 2008).

On 4th January 2010, a rockslide blocked the Hunza valley at Attabad in northern areas of Pakistan. The landslide, which had a volume of c.45 million m3, generated a natural dam c.120 metres high and 1.5 km long. Subsequently, a 22 km long lake developed behind the barrier, reaching a maximum volume of >500 million m3 (Petley, 2010). The Attabad landslide occurred within the valley of the Hunza River in northern Pakistan (Fig. 1). The Hunza flows in a generally southward direction from its source on the Tibetan Plateau into northern Pakistan, where it joins the Indus River. The Attabad village was located in Gilgit-Baltistan and approximately 130 km upstream of the town of Gilgit (Petley *et al.*, 2010). The main objective of this study was to investigate psychological effects of Attaabad natural disaster on upstream communities of upper Hunza.

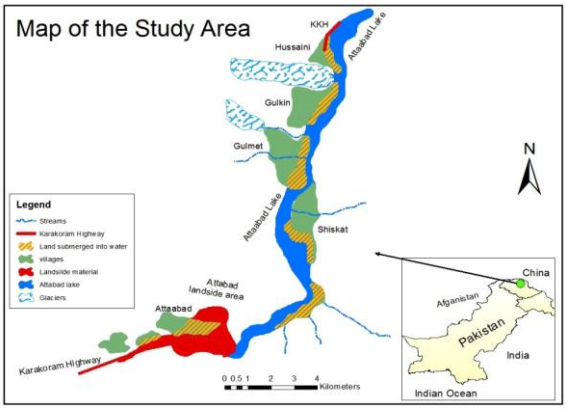

Fig. 1. The map showing location of the study Area.

Materials and methods

Conducting interviews is considered one of the preferred ways of data collection because interviews accumulate better data in a cost effective way. The aim of an interview is to provide an opportunity for the participants to discuss things of interest to them and to cover matters of importance to the researchers

in a way that allows the participants to use their own concepts and terms (Toya *et al*., 2007).

Researcher used a standardized interview protocol that consists of a set of questions carefully worded and arranged with the intention of taking each respondent through the same sequence and asking each respondent the same question with essentially the same words. A survey method of data collection was used. Primary data were collected from 128 adult respondents (35 from Shishkat, 55 from Gulmit, 24 from Gulkin and 14 from Hussaini village) by means of a structured questionnaire (table 1).

Table 1. Household survey.

Sample sites	Total Households (N_i)	percentage	Sample sizes	Sampling interval(K)
Gulkin	121	19 %	24	5
Gulmit	272	43 %	55	5
Hussaini	69	11%	14	5
Shishkat	175	27%	35	5
	637		128	

A Likert scale is a psychometric scale commonly involved in research that employs questionnaires. It is the most widely used approach to scaling responses in survey research. Questions made according to a 4 – point Likert Scale ranging from 0 = Not at all, 1 = Once per week, 2 = 2 to 4 times per week and 3 = 5 or more time per week.

Results and discussion

As information on physical and practical preparation, it is very helpful for people to know how to prepare psychologically before a natural disaster and how to cope emotionally during or after a disaster. Table 2 shows that the affected residents reported severe upsetting thoughts symptoms. It's important for people to tune into the specific feelings and thoughts they are having in response to a threatening natural disaster, as this will help them to find ways to manage them. As can be seen in fig. 2, majority of the respondents are involved in upsetting thoughts about the event.

Upsetting Thoughts

Table 2. Upsetting thoughts about the event in the mind after disaster.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	8	6.2	6.2	6.2
	Once per week	42	32.8	32.8	39.1
	2 to 4 times per week	35	27.3	27.3	66.4
	5 or more times per week	43	33.6	33.6	100.0
	Total	128	100.0	100.0	

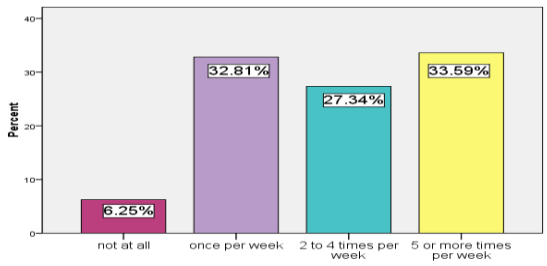

Fig. 2. Upsetting thoughts about the event in the mind after disaster.

The responses given to the question (Have you been having bad dreams or nightmares about the event?) in the Interview schedule was analyzed and % of participants giving a particular response were found (Table 3). Symptoms in the respondents are higher about the event related bad dreams or nightmares

Bad Dreams

Table 3. Bad dreams or nightmares about the event.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not at all	35	27.3	27.3	27.3
	once per week	42	32.8	32.8	60.2
	2 to 4 times per week	40	31.2	31.2	91.4
	5 or more times per week	11	8.6	8.6	100.0
	Total	128	100.0	100.0	

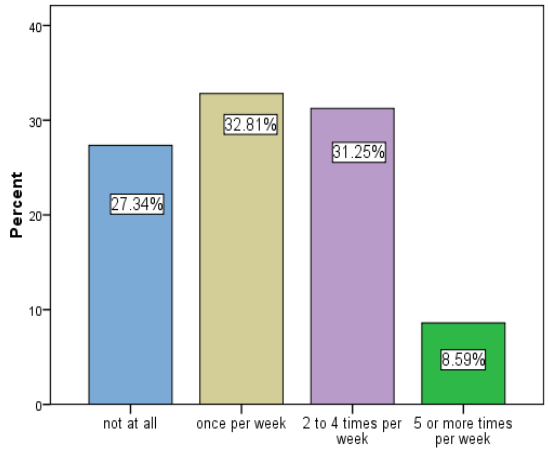

Fig. 3. Bad dreams or nightmares about the event.

It is inevitable in disaster prone areas that some loss or damage will occur. Many people have strong emotional or physical reactions following a disaster. Emotional distress following a disaster can include anger, anxiety, sadness or grief and a tendency to unfairly blame people or agencies. The analysis shows in table 4 that emotionally upsetting symptoms are higher in the respondents after the disaster, therefore, there should need of emotional support for the victims.

Emotionally upset

Table 4. Emotionally upset when the event reminds.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not at all	18	14.1	14.1	14.1
	once per week	41	32.0	32.0	46.1
	2 to 4 times per week	36	28.1	28.1	74.2
	5 or more times per week	33	25.8	25.8	100.0
	Total	128	100.0	100.0	

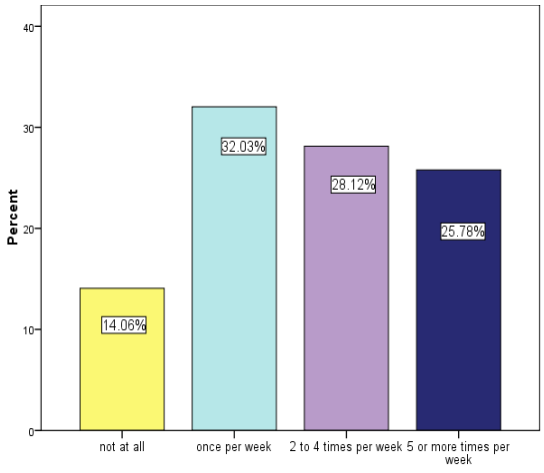

Fig. 4. Emotionally upset when the event reminds.

An extensive body of research has shown that many victims of disasters suffer from mental health problems, such as depression and anxiety symptoms, intrusions and avoidance reactions, physical symptoms and fatigue in either the short or long term. Mental health problems decline over time, although a minority of survivors suffers from persistent mental health disturbances, such trying to avoid activities, people, places which associate with the event (Galea *et al.*, 2002). The responses given to the question (Have you been trying to avoid activities, people or places that you associate with the event?) in the Interview schedule was analyzed and % of

participants giving a particular responses, where high symptoms were found which shown in (Table 5).

Avoiding Activities

Table 5. Trying to avoid activities, people or places that associate with the event.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not at all	10	7.8	7.8	7.8
	once per week	50	39.1	39.1	46.9
	2 to 4 time week	47	36.7	36.7	83.6
	5 or more time per week	21	16.4	16.4	100.0
	Total	128	100.0	100.0	

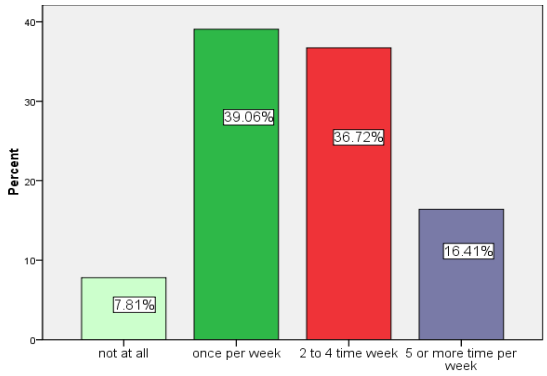

Fig. 5. Trying to avoid activities, people or places that associate with the event.

Natural disasters strike suddenly and leave behind lives shattered by physical injury or the loss of home, properties and job. The field experiences reveal that the community has lost any interest in the personal goals. The responses given to the question (Have you found that you are much less interested or participate much less often in important activities?) in the Interview schedule was analyzed and % of participants giving a particular response were found severe symptoms which shown in (Table 6).

Disassociation

Table 6. Less interested or participation in an important activities after the event.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not at all	13	10.2	10.2	10.2
	once per week	31	24.2	24.2	34.4
	2 to 4 times per week	60	46.9	46.9	81.2
	5 or more times per week	24	18.8	18.8	100.0
	Total	128	100.0	100.0	

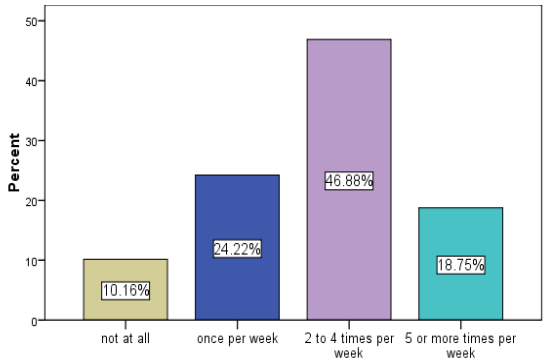

Fig. 6. Feeling of less interest or participation in an important activities after the event.

The 2010 Attaabad landslide blocked Hunza River, Karakorum highway and formed 24km huge lake behind the landslide location which is known as Gojal Lake. This disaster has serious implication on upstream communities especially for communication to the downstream region in order to bring for their basic needs. The answer given to the question (Have you felt distant or cut off from others around?) in the Interview schedule was investigated and % of contributors giving a particular responses where severe symptoms found which shown in (Table 7).

Distant from others

Table 7. Feeling of Distant or cut off from others around.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not at all	6	4.7	4.7	4.7
	once per week	28	21.9	21.9	26.6
	2 to 4 times per week	61	47.7	47.7	74.2
	5 or more times per week	33	25.8	25.8	100.0
	Total	128	100.0	100.0	

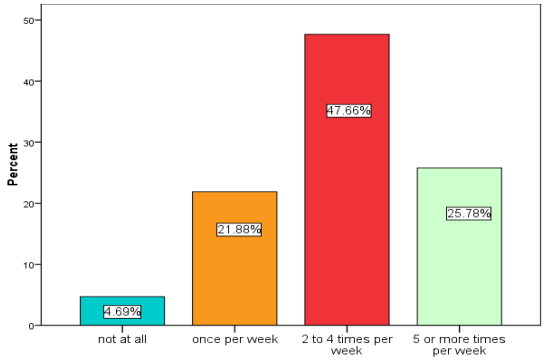

Fig. 7. Feeling of Distant or cut off from others around.

Table 8 shows that the affected residents reported more severe emotionally numb or unable to have love feeling symptoms. The analysis revealed that 58% of respondents feel emotionally numb 2 to 4 times per week and 40% respondents once per week. These individuals often avoid internal/external reminders and experience emotional numbing, social detachment and amnesia.

Emotionally numb

Table 8. Feel emotionally numb or unable to have loving feelings.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not at all	5	3.9	3.9	3.9
	once per week	40	31.2	31.2	35.2
	2 to 4 times per week	58	45.3	45.3	80.5
	5 or more times per week	25	19.5	19.5	100.0
	Total	128	100.0	100.0	

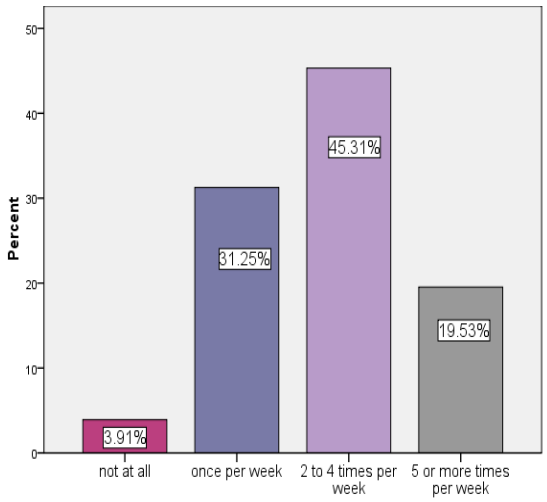

Fig. 8. Feel emotionally numb or unable to have loving feelings.

The responses given to the question (Have you felt that your future plans or hopes will not come true (e.g. will have no career, marriage, children, or long life?) in the Interview schedule was analyzed and % of participants giving a particular response were found severe symptoms which shown in (Table 9).The investigation reveals future plans anxiety to be higher in the community. The affected population has high symptoms for their future hopes and has made them look for more secure future of their families and children.

Future plans

Table 9. Feel about future plans or hopes will not come true.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not at all	3	2.3	2.3	2.3
	once per week	38	29.7	29.7	32.0
	2 to 4 times per week	43	33.6	33.6	65.6
	5 or more times per week	44	34.4	34.4	100.0
	Total	128	100.0	100.0	

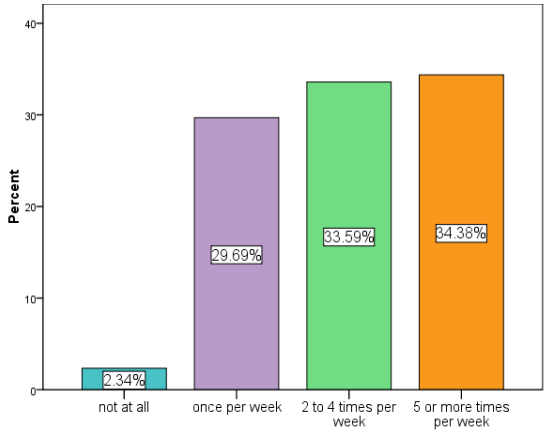

Fig. 9. Feelings about future plans or hopes after the disaster.

The field experience reveal that these affected people experience recurrent unwanted memories, while either awake or asleep and often experience psychological distress when confronted with reminders of the trauma they have experienced. Table 10 shows that the affected residents reported more severe kind of problems falling or staying asleep after the disaster. The analysis revealed that 39% of respondents feel emotionally numb 2 to 4 times per week and 38% respondents once per week and 32% respondents 5 or more times per week. Nightmares and inability to sleep are very common as is decreased, or sometimes increased, appetite. They often appear sad and can be much more withdrawn and quiet than normal. Some will show irritability, fussiness, or become argumentative. The responses given to the question (Have you been having problems falling or staying asleep?) in the Interview schedule was analyzed and % of participants giving a particular response which shown in (Table 10).

Conclusion

Disasters more accurately represent collective stress situations occurring at a community level as result of major unwanted consequences. The recent Attaabad disaster has increased mental health problems in a significant proportion of those directly or indirectly affected. The finding reveals that post disaster psychological effects are commonly identified in the respondents. The symptoms are higher in directly affected people than those who are indirectly affected from Attaabad disaster. Many people have strong emotional or physical reactions following a disaster. Emotional distress following a disaster can include anger, anxiety, sadness or grief and a tendency to unfairly blame people or agencies. This is not to suggest that disasters do not have significant psychosocial impacts. These events almost always result in additive and interactive stressors which may contribute to symptoms of psychological distress weeks or months and even years after the disaster. This disaster has serious implication on upstream communities especially for communication to the downstream region in order to bring for their basic needs of life. It is very common in the aftermath of a disaster that survivors will experience a range of ongoing stressors that can compound their reaction. Relocation, loss of employment, property, pain, physical injury, legal procedures, and financial loss are some of the common burdens that disaster survivors may need to endure. Effective disaster management therefore needs to ensure that the diverse interests and priorities of communal life are integrated into planning and response, especially those of vulnerable persons and groups.

Acknowledgement

This research was possible due to generous grant for research projects by the government of Italy through EvK2CNR and Socio-economic and environmental development project to KIU and also thankful to finance section of KIU for their cooperation. Authors have no conflict of interest.

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