

Understanding Mental Health as a function of Social Vulnerabilities in a Disaster Situation: Evidence from recurrent flooding in Bahraich district, Uttar Pradesh

P. Khattri¹, P.C. Joshi², T. Wind³, I. H. Komproe⁴ and D. Guha-Sapir⁵

ABSTRACT

It has been well documented that the impact of disasters on mental health is less differentiated by the type of disasters and more strongly affected by the pre-disaster characteristics of the individual and already existing social vulnerabilities determining the individual characteristic that qualifies to become the diathesis in the event of a stress inducing circumstances like floods or other extreme events

With this background, mental health impacts of flooding in the case of Bahraich district of Uttar Pradesh will be discussed. Bahraich is flooded every year due to heavy discharge of water in the river Ghaghra. This flooding leads to large scale damage to property in the form of land erosion, complete destruction of the household and damage to livelihood. Apart from constituting an extreme experience, the flood disrupts social functioning of both victims and their social networks. The combination of a collective extreme experience and the collapse of social networks predisposes the community to an increase of mental health problems and impaired functioning.

The study collected data from flood affected and non flood affected population of Bahraich. There was a vast negative impact of the recurrent floods in Bahraich district on mental health outcomes. There were large to very large differences between the flood affected

¹ Assistant Professor of Anthropology, Mahatma Gandhi Antarrashtriya Hindi Vishvavidyalaya, Wardha, Maharashtra- 442005 (prashant_khattri2002@yahoo.co.in)

² Professor and Asia Coordinator, Microdis, Department of Anthropology, Delhi University, Delhi- 110007.(pcjoshi@anthro.du.ac.in)

³ Doctoral Candidate, Healthnet TPO, Amsterdam, The Netherlands. (twind@healthnettpo.org)

⁴ Director, Research and Development, Healthnet TPO, Amsterdam, The Netherlands (ikomproe@healthnettpo.org)

⁵ Director and Coordinator, Microdis, Centre for Research on Epidemiology of Disasters, Brussels, Belgium (debby.sapir@uclouvain.be)

group and the control group on anxiety, depression and total distress. These differences has been attributed to a group of stressors that act on the community due to their varying degrees of social vulnerabilities and differential coping based on differential resource allocation. The present paper tries to interpret the results of the mental health study in the light of qualitative data collected through Focus Group Discussion (FGD). Our study reveals that there is an interplay of basically three categories of stressors- proximal, distal and perpetual which leads to increased symptoms of anxiety, depression and distress due to the presence of a physical hazard or floods.

INTRODUCTION

If one looks into the background of mental health studies in disaster situations in India then one would find that the first ever disaster in which the mental health effects were described was the floods in Andhra Pradesh in the late 1970s (Murthy R.S., 2004). Since then, India has been struck by severe disastrous events like the, Orissa super-cyclone in 1999, Gujarat earthquake in 2001 and the Indian Ocean Tsunami in 2005. The mental health dimensions that were explored in the above mentioned events were focused on knowing the levels of psychological disturbances, as in the case of Gujarat earthquake (Vankar and Mehta, 2004) and PTSD, major depressive disorders or generalized anxiety disorders as in the case of Orissa super-cyclone (Sekar , 2004). It has been well documented however that the impact of disasters on mental health is less differentiated by the type of disasters and more strongly affected by the pre-disaster characteristics of the individual and already existing social vulnerabilities determining the individual characteristic that qualifies to become the diathesis in the event of a stress inducing circumstances like floods or other extreme events (Bourque et al, 2006). Taking lead from this argument the present paper tries to understand the issues that are involved in creating social vulnerability that leads to increased level of anxiety, depression and total distress in the event of a flood. The analysis is based on the Focused Group Discussions that were collected from the four severely flood affected villages of the district Bahraich in Uttar Pradesh, India. The Bahraich region in India is annually hit by floods, and in July and September 2008 the region was severely hit by floods. Within Bahraich, the four most flood affected Gram Panchayats (the local name for the smallest political unit in the region) were chosen on the basis of impact of the flood and their geographical location between the river and the embankment that made them most vulnerable upon discussions with the district officials and with several Non-Government Organizations (NGOs) in the region.

The increased levels of anxiety, depression and total distress among the flood affected population has been understood in this paper, within the framework of the diathesis-stress model. Diathesis is a relatively distal necessary or contributing cause and is understood as the vulnerability that predisposes a particular group or section of the community to anxiety and depression (Carson et al 2003). This kind of vulnerability is present in the society in the form of class, caste, gender and religion in the society and are engrained in the social fabric and structure of the society at large (Bolin, 2006) and in the presence of a stressful event like floods they tend to affect the levels of anxiety, depression and total distress in the community. This was found to be true in the present study as the

statistical analysis of the data collected showed a significantly higher level of anxiety, depression and total distress among the flood affected population than the non flood-affected population (Khattri et al. 2009). The central argument here is that, in the event of floods, people face an adjustive demand to cope with the situation and this leads to a higher level of anxiety, depression and distress, considering the pre-existing social vulnerabilities (diathesis) which are themselves sometimes highly potent stressors (Carson et al, 2003).

Methodology

Setting

The study was undertaken in Bahraich district of eastern Uttar Pradesh, India. This district is annually flooded due to heavy rainfall and discharge of water from the adjoining country, Nepal. The district is traversed by two main rivers- Ghaghara and Saryu that are tributaries of the mighty Ganga. The various focused group discussions were held at the Khadi Prashikshan Kendra, Fakharpur block (administrative division of the district) office and in the district hospital.

Participants

In all six focus groups were recorded. This included a focus group with men of the flood affected villages, marginalized women (minority and other backward caste groups), upper caste women of the flood affected villages, village pradhans of flood affected and non flood affected villages, doctors of the district hospital and NGO workers involved in the district flood relief and mitigation. The total number of participants in all the FGDs combined together was forty-five.

Process

The usual procedure of facilitating and recording the focus groups were followed in all the six FGDs. The recording was made on a video recorder, which later facilitated in writing the FGDs verbatim. FGDs started with a formal introduction of the purpose of the study, introduction of the researchers and the participants. The facilitator asked the questions one by one and gave chance to each of the participants to speak before moving on to the next participants. It was also instructed that if one of the participant is speaking then the other should not interrupt in between, however this was not followed for all the questions equally. There were questions that were emotional, which enquired about the loss and damage due to floods which saw people answering, sometimes together and sometimes starting without waiting for the others to finish. The facilitator in such situations acted patiently and requested people for better cooperation. Before starting few FGDs like with the village men and women, a Participatory Rural Appraisal (PRA) techniques was used as a warm-up exercise so that the participants can interact with each other and know each other well before starting the process. In the PRA, they were asked to tell the intensity of floods in the past five years by placing kidney beans on a chart paper that was divided into five sections with the help of *bindis* that were placed vertically, with the number of *bindis* indicating the years that has passed from the current year and going up-to five years back in time. Another PRA technique that was used before the FGD with

the *pradhans* (village headman) was to trace the course of the river Ghaghra on the district map with coloured chalks.

Categories of stressors:

The FGDs started with asking the participants about, how they define floods. What does flood mean to them?, was the question asked from the respondents. If one goes into the analysis of kind of answers that were provided on the question, then they can be grouped into two categories:

1. Problem oriented definition of floods and
2. Floods defined as a phenomenon/ as a natural calamity.

There was a difference in the source of the two definitions. The first kind of definition came from the victims (men, women and the village headman). On the other hand the second category of definitions came from the relief providers (NGOs). In the problem oriented definition of floods, problem is seen as ingrained into the phenomenon. Flood is defined as *“displacement from our house”, “flood for us means moving to higher lands, as our houses collapse, there is no food left to eat.”* When flood is defined as a phenomenon or a natural calamity, the explanation revolves around defining floods as something which happens due to the fury of the nature, due to human intervention in the natural world and due to physical phenomenon of soil erosion. *“Floods are natural phenomenon, due to natural reasons, - it is not a new phenomenon, - it has been happening for long times. So I feel this is a natural phenomenon, but it is also a reaction to the human activities such as obstructive activities which stops the free flow of water..”*

Coping/relief is largely dependent upon the meaning that is given to the crisis (Boin and T’Hart, 2006). The NGOs in the village, with government facilitation provide relief, there are some NGOs that are well known in the area for distributing polyethene sheets during the floods, that can be used for making temporary houses or shelters and also carrying out other relief activities during the floods. However the argument here is that, having different genre of definitions for the same phenomenon (as in this case) dilutes the magnitude of the problem. There occurs a difference in the gravity of the situation and the problem viewed by the victims and by the relief agency. This can lead to a mismatch in the demand and supply of the relief during the crisis situation. This mismatch in defining the problem and providing relief on the basis of differential definitions can be the potential source of stress for the families (Edwards, 1998).

Adjustive demands or stressors, stem from sources that fall into three basic categories (Carson et al., 2003) of frustration, conflict and pressure. The qualitative data collected can be grouped into these categories based on the defining characteristics of each category.

Frustration can be seen as an obstacle which is either external or internal, that blocks progress towards a desired goal (Carson et al, 2003). One out of many sources of frustration which is relevant in the context of the data collected is related to the prejudice and discrimination that is directed and is felt by the minority community in the region. To quote few examples from the FGDs:

Lak (name of the participant in FGD with marginalized women): *“Floods for us means displacement from our homes, people who have their means stay under the polythene sheets (tirpal) while the unfortunate ones stay in the open (madaan), floods for us is a calamity in all its forms(har cheez ka sankat), which rids us of our house, we have no food, no where to go.”*

A dichotomy exists in the statement in the form of “us” and “they”. There is a position of superiority and subjugation that emerges during the floods. The “us” that pertains to minorities is perceived as “unfortunates” who has to stay in the open when the flood arrives. They also perceive floods as a calamity in all its forms. This depicts the vulnerability of the minority community. During the floods they are rendered homeless and have no food. This situation places an adjustive demand which has to be met in order to survive.

Resh (name of the participant in FGD with marginalized women): *“There has been an obvious partiality in the distribution of the relief material. The material never reaches the poor and needy, it always finds itself in the hands of rich and financially well off people. We are always left out and ignored.”*

Jum (name of the participant in FGD with marginalized women): *“People with 100 “Beegha” (local measure of land) or more of land, always get the maximum benefit from the government, they always elbow out the already weak sections of the society. Government should always distribute the goods equally, but even in that case people tend to lie about the number of members in the family in order to get more material.”*

The above two statements here indicate that the act of discrimination on the basis of class and religion has been internalized. In other words, based on the discrimination and prejudiced attitude of the rich and the religious majority towards the poor and the minority has given rise to the formation of schemas about other people and the world around. This has led to an organized representation of the prior knowledge about the discriminatory attitude which in turn guides the processing of the current information (Alloy and Tabachnik, 1984; Fiske and Taylor, 1991).

Frustration as a category of stressor is also evident from the FGD with men of the villages. One of the participant goes by saying that- Ram (name of the participant): *“When floods come, we are helpless, we have to deal with it – we have no other option if we get some support then we take our children and go at higher places. We were not able to save our houses this time; was not able to get a tarpaulin, our mud houses collapsed and our crops were destroyed too; but we are surviving somehow.”*

Coming to the next category of stressors, that is pressure, it would be worth quoting people directly:

Kisa (name of the participant in FGD with men): *“All go out to lucknow and Punjab and Jalandhar for work. There is no govt. programe over here. Here the govt gives rice and pulses –but we get 10 kg of rice only, the rest is sold away. We did not get the rice provided by the govt. We do not have lands from the ancestral times, – we live on daily wages all the twelve months. In Boundi (name of the village) we have built a house, we stay in it. There are seven to eight persons in our house and I am a lone earner.”*

Jum (name of the participant in FGD with marginal women): *“We want land to live safely, there are times when there is just one member taking care of more than ten people in the family. There are families where maximum members are females and the male members are immature enough to endure the family’s financial needs.”*

The statements above reflect the amount of economic pressure that exists. Pressure acts as a stressor since it forces to speed up and intensify efforts to meet the needs.

Jum (name of the participant in FGD with marginal women): *“There are instances when the frustration reaches the apogee and the head of the family is forced to commit suicide for they cannot find a better solution. They either drown themselves in the flooded river or they hang themselves and sometimes even consume sulphas (name of the drug).”* Another example of pressure that leads to maladaptive behavior to commit suicide since the resources available are not sufficient to cope in the given situation of distress.

The third category of stressor is the category of conflict. In many instances stress results from the simultaneous occurrence of two or more incompatible needs or motives. On this basis there are many types of conflicts like the approach-avoidance, double-approach and double –avoidance types (Carson et al, 2003). The kind of conflict that emerged from the FGDs is the one with double-avoidance. Among the upper caste women, during the FGD it was revealed that caste becomes a source of the conflict. During the floods there is a dilemma in the minds of the men folk that compels them to avoid working in the area nearby on daily wages since they had to share the space with other lower caste people working in the same area. They also want to avoid going out of the area for work since it will take them away from their families. Thus a double-avoidance conflict is seen in this situation.

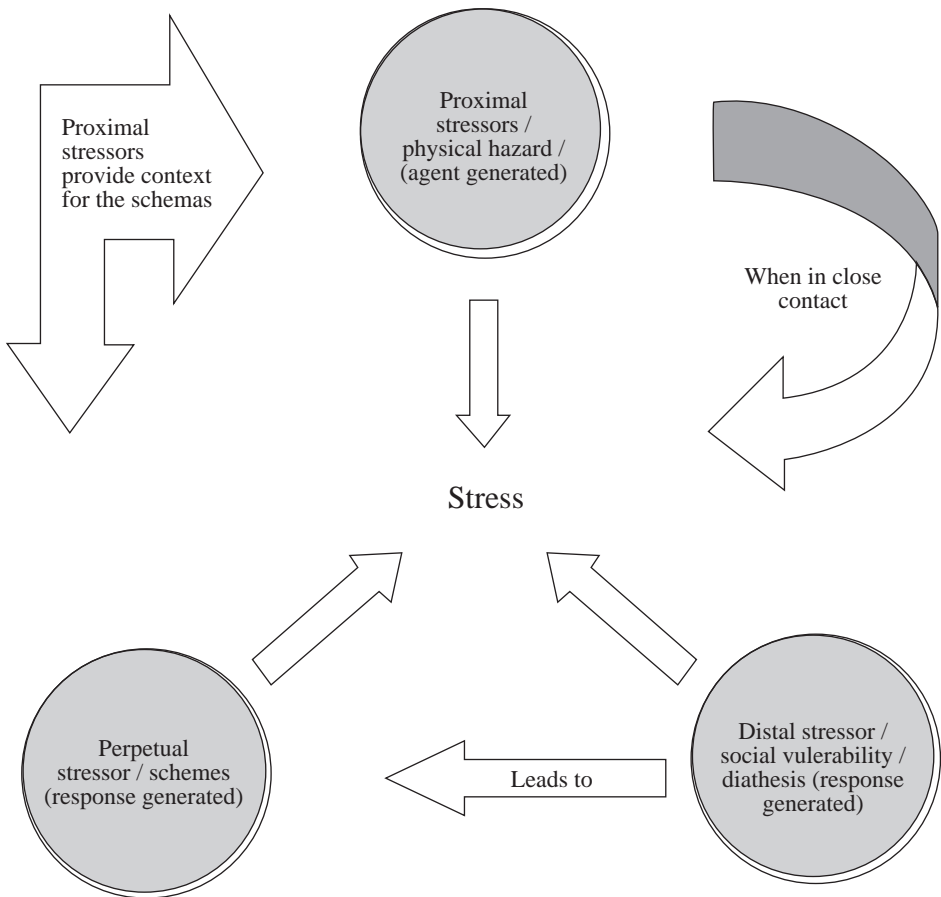
Based on the data available in the form of FGDs, the various stressors can be re-grouped to form more elaborate and inclusive categories of stressors that are more relevant to a disaster situation (Carson et al. 2003). Hereby we propose three categories of stressors into which the available data can be grouped and classified, namely- Proximal stressors, distal stressors and perpetual stressors.

Proximal stressors arise due to the occurrence of floods. They should be viewed as a natural/physical hazard that evoke response and place adjustive demand which had to be met with immediate effect. They act as a pressure on already existing distal stressors that can also be viewed as social vulnerabilities or diathesis. The categories of stressors that were earlier called as frustration and conflict can be grouped together into the distal stressors. In this context frustration finds its origin in social inequalities in the form of class, caste and gender inequalities that are based on stereotypes. These stereotypes and inequalities in turn give rise to perpetual stressors that are present over a generation in the form of schemas. These schemas are instrumental in perceiving the social vulnerabilities as stressors and hence a combined effect of the three give rise to stress in the form of symptoms of anxiety, depression and total distress.

Another way of looking at stressors can be to group them according to the stress that they generate- agent generated and response generated stress (Quarantelli, 1979). When the

stress is generated due to the event itself, it is termed as agent generated. From this perspective, disasters have been defined as “psychologically..... traumatic enough to induce distress in almost anyone” (Saylor, 1993:2). However when the stress is perceived as a function of, or a consequence of, how the government and communities organize and provide post disaster assistance (Bolin 1982 and Tierney, 1989), then it is termed as response generated (Quarantelli, 1987). Thus the feeling of frustration, pressure and conflict that victims report are defined as reasonable responses for people trying to meet their daily needs with limited, disorganized and differentially distributed resources (Edward, 1998).

PDP-Stressor Model



Difficulties in coping:

It is argued that stress is a by-product of poor or inadequate coping (Neufeld, 1990). This in turn emanates from lack of resources and economic constraints in the wake of abject

poverty and discrimination. As in one of the FGDs with marginalized women of the community it was stated that- *“Jum (name of the participant): what management should we do when we have no money in hand? There is no opportunity for us as labourers, when we don’t even have money for food what should we do to prepare our self for the floods even though we have full knowledge of them. Every individual helps only their near and dear ones, people like us are always ignored.”* It is evident here that in the absence of opportunity to earn their livelihood leads to economic constraints in dealing with the flood situation. Also in the statement it is evident that there is a sense of prejudice and discrimination that is felt among the minority community of the area, considering the fact that the respondent here is a Muslim. In the event of floods, poor economic condition, lack of resources and the feeling of being discriminated against, is an obstacle that place adjustive demands and forces a person or a group to do something about the situation. This brings in the dimension of coping. To an extent coping is affected by the uncertainty and unpredictability of the disaster. It has been argued that recurrent floods are predictable as compared to the sudden flash floods. This is true as far as we are talking in terms of flood as an event, owing to its seasonal nature. But looking into the magnitude and degree and extent of spread of the flood waters makes this event as unpredictable and uncertain. This fact is reflected in the FGD to quote as an example in this context. Rams (name of the FGD, upper caste women participant): *“we were never prepared for this kind of flood, flood did happen in the past also but the water would recede in some three to four days, hence movement was easier, but this time the river cause a havoc on the villages situated near it since it was very slowly eroding the banks and nobody got an inkling of it.”* It was also revealed in the PRA technique that this year (2008), floods were unprecedented.

The kind of economic difficulties that people face affect their coping capabilities. When a flood strikes the region, people living on the banks of the river face the problem of their houses and lands getting washed away with the flood water. This affects their livelihood. The immediate need of making a new dwelling emerges. Problem is however further aggravated due to shortage of money that can buy resources in difficult times. Sit, one of the participants in the FGD with men points out to this dilemma in the minds of most of the people in the event of floods, he says- *“We have lot of difficulties. But how can we go out immediately for work? We need to put our houses – which have collapsed in order before leaving. Otherwise animals – will enter our houses. This time, we had sowed some paddy – all of which is washed away in the floods, we have problems.”* To minimize this economic burden, people take loans. This however further increase their difficulties as taking loan from money lender remains the only feasible option at the time of floods, since there is water all over and this makes movement restricted. Also people say that there is lot of paper work involved if they take loan from other sources like banks. However, taking loan from moneylender ensures their exploitation since the rate of interest is extremely high, rupees 20 on every 100 rupees per month. The same point is illustrated in the words of people in an FGD.

Chot: *“What can we do, we have no money? Our main difficulty is lack of money and we take loans to make up for the lack. For example, when we get guests we have to borrow from different people – we tell them that we will return the money when we earn.”*

Sohna: *“When you have no money, and no food, then what can you do? We borrow money and give 20 rupees on every hundred rupee taken as interests on monthly basis.”*

Flood has an effect on the important resources that people possess in the form of land and house. This loss of resources is considered to be stressful and has an impact on the psychological well being of the people (Hobfoll, 1988). According to the ‘conservation of resources’ stress model, people possess resources, which are important for their existence and are also valued since it provides them with secondary status in the form of enhancing their socio-economic positions. When people perceive that there exists a threat to their resources, they try and protect that, and this gives rise to stress. The stress model also explains the behavior of people when there is no threat to the existing resources. It states that in such conditions of no-threat people try and strive to develop resource surplus in order to offset the possibility of future loss (Schlenker, 1987; Thibaut and Kelley, 1959). However, when individuals or groups are ill equipped to gain resources, then they are likely to be vulnerable (Rappaport, 1981). From the FGDs stated in the above paragraph, it is evident that in the absence of resource surplus, people are bound to take loans at higher rates from money lenders in order to sustain themselves. Floods are instrumental in depleting their resources, but in the absence of any surplus resource, they are forced to replenish their resources at the cost which demands further depletion of resources in the form of higher interest rates on loans. This is described by Hobfoll as a ‘loss spiral’.

Loss of resources or a threat of the loss in the form of house, which are washed away in flood waters, puts people in the phase of transition, which demands a physical shift from the present location to another safer location. Transition has been seen as stressful (Hobfoll, 1988). However, it has been argued that transitions are linked events, which entails multiple losses and hence become stressful (Wilcox, 1986). In the present context, loss of house is linked to the economic loss and loss of the sense of a shared space, loss of land is linked to the loss of livelihood that in turn is economic in nature and this forces people to take loan from money lenders at higher rates that becomes a loss spiral for people. Thus, this situation fits to be stressful.

There has been growing focus on the concept of “protective factors”, which are influences that modify a person’s or groups response to an environmental stressor, making it less likely that the person will experience the adverse consequences of the stressor (Masten and Coatsworth, 1995, 1998; Rofl et al., 1990; Rutter, 1985). An attempt to understand the protective factors in the case of floods leads us to analyze the kind of help that is present and generated at the time of floods. It has been found that there are organizations at the village level, that look after the needs of the people before, during and after the floods. However, people are of the view that these organizations are made of people belonging to different villages, which makes it difficult for them to extend help at the time of crisis. People want that these organizations should be functional at the individual village level. Jai Singh points out this issue in an FGD when he says- *“Yes, there are organizations – which are supposed to do disaster management and preparedness work in the villages. But there are problems. The organization has members from different villages. Now how can a person from Silota (name of the village) help somebody from Atodar (name of the village) if there is a crisis in Atodar? By that time the help from*

Silota arrives, the person in Atoka would have drowned in the floods. You need organizations at village level – where members live in close connectivity with each other. For example, if there is fire, can the person from the next village come and help?” These protective factors in the form of village organizations help to induce core values of security under conditions of uncertainty (Boin and ‘T Hart, 2006).

An important agency that can augment protective factors is that of the government. But data from FGD indicate that the people are not satisfied with the help they receive from them. As Ram points out- *“NO we have not received any help from the government. The government official go and get the people on embankments – that is the only help we receive.”* Here also, a condition of uncertainty prevails, that they may or may not get the help from the government, as Situ says- *“There is no certainty – you may or may not get any help from the government.”* It has been found out that exposure to multiple uncontrollable and unpredictable events are likely to leave a person vulnerable to anxiety (Barlow, 1988 and Mineka, 1985). It is however understood that most protective factors are probably contributory rather than necessary or sufficient to produce resilience (Carson et al., 2003). On the contrary, our attempts to cope with existing problems increasingly seem to create new problems that are as bad or worse. The resulting despair, demoralization and sense of helplessness are well-established predisposing conditions for symptoms of anxiety, depression and distress (Dohrenwend et al., 1980; Seligman 1990, 1998).

Gender specific vulnerability as a distal stressor:

Vulnerability to disaster is a social dynamic rooted in gender, class, caste and other power relationships (Enarson et al., 2006). The political-ecology approach to disaster research understands that disasters are fundamentally human constructs and there are conflicts, competition and inequalities in the social system, rejecting the notion that a community is a single, autonomus social system and conceptualizing community as an ecological network of interacting social systems (Peacock and Ragsdale, 1997). From this perspective social systems are no more gender neutral than they are race neutral or caste neutral (Enarson and Morrow, 1997; Yelvington, 1997). Thus there is a presence of stressors in the form of social position of women that predisposes them to anxiety and distress. This has been found true in the study that revealed a difference in the level of anxiety and distress between male and female members of the society in the flood affected area (Khattri et al, 2009). Males scored significantly less on the scale of anxiety and total distress than the females. The reason for this difference is rooted in the social dynamics and gender politics. However, there was no difference found in the level of anxiety and distress for the control group. This draws our attention to the fact that vulnerabilities or diathesis is not sufficient alone to cause a difference in the level of anxiety and distress. It needs stressors which are more proximal in the form of floods that are necessary to be able to manifest the difference.

Looking from a feminist political ecological perspective, women are seen as primary resource users and managers, and in terms of the responsibilities they have towards the dependents in the household and community (Rocheleau, Thomas-Slayter and Wangarai, 1996). This argument finds basis in the light of data collected from FGDs among the women of flood affected area. Jum explains (name of the participant): *“Men go out in*

order to feel some change but the mothers are the ones to whom children demand. As a man and a father, no one ever goes to the extent of seeking help at the cost of his self respect but women will not be able to withstand the hunger and plight of her children hence she would even beg for them in spite of being abused and ridiculed. Her only aim is to feed her children at the cost of her self esteem." To this Sama, another participant in the FGD further adds: *"There are times when the troubles of the women are more than that of men because men do not have to look after the basic needs of the children like where to feed them, what to feed them, where to make them sleep."*

Conclusion

In the light of the above discussions, it can be stated that: distal stressors in the form of vulnerability, when comes in close contact with more proximal stressors in the form of physical hazards in the backdrop of perpetual stressors that are persistent in the form of schemas, produce a situation which can be labeled as a threat to mental health that should be perceived as a crisis in order to resolve the issue. Crisis induces a sense of urgency (Boin and 'T Hart, 2006).

This sense of urgency is also evident in the definition provided to floods by the victim. A mismatch is observed in the definition of floods given by the NGOs and the victim. This mismatch is manifested at the level of support that the community should provide to these agencies and trust which is missing for most of the relief agencies except for some. One of the NGO worker reveals- *"The reality is that there is not enough support of the community – both to the NGOs as well as government."* This lack of support is due to the differential understanding of demand and distribution of relief material and support. It is an example where the need for support to the community in the form of allocating and distributing resources has exceeded its availability, and this difference is due to a differential understanding of the flood situation. This mismatch between the demand and availability of relief material is also documented in the study on Kentucky floods (Kaniasty and Norris, 1995). This acts as a stressor for the community in crisis. People have been demanding that they should be provided with the houses to live in, proper places where they can keep their belongings safe, shelter at the time of floods that can protect them, they want measures that can prevent them from evacuating their houses, each time the flood comes. Perceived social support from external aid agencies is a function of congruent understanding of the problems of flood and not just describing floods as a phenomenon. The deterioration of perceived social support exert their adverse effects on the psychological well being (Kaniasty and Norris, 1995). The perceived social support is dependent on the initial level of received social support in a disaster situation, which in turn is dependent upon the allocation of relief material and other resources based on the proper analysis of the problem that people face during an event of flood (Kaniasty and Norris, 1995).

Whatever relief material is distributed at the time of floods goes to people who are powerful, both economically and socially. At this level also there is a differential understanding of the needs of the people who are socially and economically vulnerable, thus fitting in the PDP stressor (Proximal, Distal and Perpetual) model of interacting stressors.

Ethics

Ethical clearance was obtained from the Department of Anthropology, University of Delhi, India. Apart from this, participants were given food packets after the FGDs. The village pradhans (headman) were also provided with some monetary compensation as travelling allowance and dearness allowance, complying with the procedure for an elected representative of the people. Also the names of the participants that are used in this paper have been changed to preserve the anonymity.

Acknowledgements

This research was conducted as part of the MICRODIS project funded by the European Commission under the 6th Framework Programme.

Conflict of interest

The authors declare that they have no conflict of interest.

References

- Alloy, L.B. and N. Tabachnick. (1984) "Assessment of Covariation by humans and animals: the joint influence of prior expectations and current situational information." *Psychological Review*, 91: 112-149
- Barlow, D.H. (1988) *Anxiety and its disorders: The nature and treatment of anxiety and panic* (New York: Guilford.)
- Boin A. and P. 'T Hart (2006) "The Crisis Approach." In Rodriguez H., E.L. Quarantelli, and R.R. Dynes (ed.) *Handbook of Disaster Research* (New York: Springer) 42-54
- Bolin R. (1982) *Long-term family recovery from disaster* (Boulder: University of Colorado, Institute of Behavioural Science)
- Bolin B. (2006) "Race, Class, Ethnicity and Disaster Vulnerability" In Rodriguez H., E.L. Quarantelli, and R.R. Dynes (ed.) *Handbook of Disaster Research* (New York: Springer) 113-129
- Bourque L.B., G.M. Siegel, M. Kano, and M.M. Wood (2006) "Morbidity and Mortality associated with Disasters" In Rodriguez H., E.L. Quarantelli, and R.R. Dynes (ed.) *Handbook of Disaster Research* (New York: Springer) 97-112

- Carson R.C., J.N. Butcher and S. Mineka (2003) *Abnormal Psychology and Modern Life* (Singapore: Pearson Education)
- Dohrenwend B.P., B.S. Dohrenwend, M.S. Gould, B. Link, R. Neugebauer and R. Wunsch-Hitzig (1980) *Mental illness in the United States: Epidemiological estimates* (New York: Praeger)
- Edwards M.L.K. (1998) "An interdisciplinary perspective on disasters and stress: The promise of an ecological framework" *Sociological Forum*, 13(1): pp 115-132
- Enarson E. and B.H. Morrow (1997) "A gendered perspective: The voices of women" In Peacock W.G., B.H. Morrow, and H. Galdwin (ed.) *Hurricane Andrew: Ethnicity, gender and the sociology of disasters* (London and New York: Routledge) 116-140
- Enarson E., A. Fothergill and L. Peek (2006) "Gender and Disaster: Foundations and Directions" In Rodriguez H., E.L. Quarantelli, and R.R. Dynes (ed.) *Handbook of Disaster Research* (New York: Springer) 130-146
- Fiske S. and S. Taylor (1991) *Social Cognition*, (New York: McGraw Hill)
- Hobfoll S.E. (1988) *The Ecology of Stress* (Washington D.C: Hemisphere)
- Kaniasty K., and F.H. Norris (1995) "Mobilization and Deterioration of Social Support Following Natural Disasters" *Current Directions in Psychological Science*, 4(3): 94-98.
- Khattri, P., T. Wind, I.H. Kamproe, and P.C. Joshi, (2009) "Anxiety, Depression and Functioning among the population struck by recurrent floods in Uttar Pradesh, India" Unpublished Manuscript.
- Masten A.S. and J.D. Coatsworth (1995) "Competence, Resilience and Psychopathology" In D. Cicchetti and D.J. Cohen (ed.) *Psychopathology : Risk, Disorder and Adaptation* (New York: Wiley) 715-752
- Mineka S. (1985) "Animal Models of Anxiety based disorders: Their usefulness and limitations" In A.H. Tuma and J.D. Maser (ed.) *Anxiety and the Anxiety disorders*, (Hillsdale, NJ: Erlbaum)
- Murthy R.S. (2004) "Evolution of Disaster Mental Health in India" In Diaz J.O.P., R.S. Murthy and R. Lakshminarayan (ed.) *Disaster Mental Health in India* (New Delhi: Voluntary Health Association of India in collaboration with Indian Red Cross Society).

- Neufeld R.W. (1990) "Coping with stress, coping without stress and stress with coping:" In interconstruct redundancies *Stress Medicine*, 6: 117-25
- Peacock W.G. and A.K. Ragsdale (1997) "Social Systems, Ecological Networks and Disasters: Towards a socio-political ecology of disasters" In Peacock W.G., B.H. Morrow, and H. Galdwin (ed.) *Hurricane Andrew: Ethnicity, Gender and the Sociology of Disasters* (London and New York: Routledge) 20-35
- Quarantelli E.L. (1979) "The Consequences of Disasters for Mental Health: Conflicting views." Cincinnati, OH: University of Cincinnati, Tufts lecture series.
- Quarantelli E.L. (1987) "Disaster studies: An analysis of the social historical factors affecting the development of research in the area" *International Journal of Mass Emergencies and Disasters* 5: 285-310
- Rappaport J. (1981) "In Praise of paradox: A social policy of empowerment over prevention" *American Journal of Community Psychology*, 51: 770-78
- Rocheleau D.,
B. Thomas-Slayter and
E. Wangarai, ed. (1996) *Feminist political ecology: Global issues and local experiences* (New York: Routledge)
- Rolf J., A.S. Masten, D. Cicchetti,
K. Nuechterlein and
S. Weintraub, ed (1990) *Risk and protective factors in the development of psychopathology* (New York:Cambridge University Press).
- Rutter M. (1985) "The treatment of autistic children" *Journal of Child Psychiatry* 26 (2): 193-214.
- Saylor C.F. ed. (1993) *Children and Disaster*: (New York:Plenum Press)
- Schlenker B.R. (1987) "Threats to identity: Self-identification and social stress" In C.R. Snyder and C.E. Ford (ed.) *Coping with negative life events* (New York: Plenum Press)
- Sekar K. (2004) "Orissa Super-cyclone" In Diaz J.O.P., R.S. Murthy and R. Lakshminarayan (ed.) *Disaster Mental Health in India* (New Delhi: Voluntary Health Association of India in collaboration with Indian Red Cross Society)

- Seligman M.E.P. (1990) "Why is there so much depression today? The waxing of the individuals and the wanning of the commons" In R.E. Ingram (ed.) *Contemporary psychological approaches to depression*. (New York:Plenum Press)
- Seligman M.E.P. (1998) "Afterword-A plea" In P.E. Nathan and J.M. Gorman (ed.) *A guide to treatment that work* (New York:Oxford University Press) 568-71
- Thibaut J.W. and H.H. Kelley (1959) *The social psychology of groups* (Wiley:New York).
- Tierney K.J. (1989) "The social and community context of disaster" In R. Gist and B. Lubin (ed.) *Psychological Aspects of Disasters* (New York. John Wiley and Sons) 11-39
- Vankar G.K. and K. Mehta (2004) "Gujarat Earthquake" In Diaz J.O.P., R.S. Murthy and R. Lakshminarayan (ed.) *Disaster Mental Health in India* (New Delhi: Voluntary Health Association of India in collaboration with Indian Red Cross Society)
- Wilcox B.L. (1986) "Stress, coping and the social milieu of divorced women" In S.E. Hobfoll (ed.). *Stress, social support and women* (Washington D.C:Hemisphere)
- Yelvington K. (1997) "Coping in a temporary way: The tent cities" In Peacock W.G., B.H. Morrow, and H. Galdwin (ed.) *Hurricane Andrew: Ethnicity, Gender and the Sociology of Disasters* (London and New York: Routledge) 92-115