

# Chapter 12

## **Mental Health Impacts of Disasters in India: Ex-Ante and Ex-Post Analysis**

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## CHAPTER 12

### **Mental Health Impacts of Disasters in India: Ex-ante and Ex-post Analysis**

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*This paper aims to provide a qualitative analysis of a broad range of issues in disaster psychosocial support and mental health services often experienced and reported in India during the past two decades. The paper is limited to the analysis of the issues in disasters caused largely by natural hazards. The key objectives of the paper are to: (i) provide a desk review of the available global and Indian literature on disaster psychosocial support and mental health service, (ii) analyze the policy, legal and institutional framework related to the overall disaster psychosocial and mental health service provisions in India, and (iii) review the impact of disasters on the mental health of survivors affected by natural disasters in India, then to identify the gaps in support services. Accordingly some suggestions will be provided for India and for regional cooperation in disaster mental health research and service provision practices.*

## 1. Introduction

### 1.1. Overview: Disaster Profile of India

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 (12% is prone to very severe earthquakes, 18% to severe earthquakes and 25% to damaging earthquakes and the rest to non-damaging earthquakes). About 40 million hectares, or 12% of Indian land, is prone to floods, and 68 % of the land is vulnerable to drought. In addition, India has increasingly become vulnerable to tsunamis since the 2004 Indian Ocean tsunami. India's coastline of 7,516 kilometers is exposed to nearly 10 per cent of the world's tropical cyclones. About 8% of the land is vulnerable to cyclones of which coastal areas experience two or three tropical cyclones of varying intensity each year. In the hilly terrain of India, including the Himalayas (a total of 3% of land), landslides have been major and widely spread natural disasters that often strike life and property and occupy a position of major concern. Cold waves and heat waves are recurrent phenomena in different parts of India. Hundreds of people die of cold and related diseases every year, most of them living in poor urban areas in the northern parts of the country.

According to India's tenth Five Year Plan, natural disasters have affected nearly 6% of the population and 24% of deaths in Asia caused by disasters have occurred in India. Between 1996 and 2001, 2.5% of national GDP was lost because of natural disasters, and nearly 12% of government revenue was spent on relief, rehabilitation and reconstruction during the same period. A World Bank study in 2003 stated that natural disasters pose a major impediment on the path of economic development in India

The table below shows major disasters in India:

SR. NO.	Name of Event	Year	Fatalities
•	Kangra earthquake	1905	20,000
•	Bihar earthquake	1934	6,000

SR. NO.	Name of Event	Year	Fatalities
•	Bengal cyclone	1970	500,000 (include Pakistan and Bangladesh also)
•	Drought	1972	200 million people affected
•	Andhra Pradesh cyclone	1977	10,000
•	Drought in Haryana & Punjab	1987	300 million people affected
•	Latur earthquake	1993	7,928 deaths and 30,000 injured
•	Orissa super cyclone	1999	10,000
•	Gujarat earthquake	2001	25,000
•	Indian Ocean tsunami	2004	10,749 deaths 5,640 persons missing
•	Kashmir earthquake	2005	86000 deaths (include Kashmir & Pakistan)
•	Kosi floods	2008	527
•	Cyclone Nisha in Tamil Nadu	2008	204
•	Sikkim earthquake	2011	101
•	Cyclone Thane	2012	183

## 1.2. Aim and Objectives

Apart from the disaster risk and vulnerability profile of India in the introductory part, this paper has two parts. One part focuses primarily on providing a selective account of disaster psychosocial issues, major studies in this area and various mental health services in India. The other part commences with an overview of disaster management policies and agency responsibilities in India and their relationship to psychosocial and mental health service provision during disasters in India. This

analysis also includes and proposes a broad perspective on regional collaboration in this field for the ASEAN region.

The paper aims to provide a qualitative analysis of a broad range of issues in disaster psychosocial support and mental health services often experienced and reported in India during last two decades. *The paper is limited to the analysis of the issues in disasters caused largely by natural hazards.* The key objectives of the paper are to: (i) provide a desk review of the available global and Indian literature on disaster psychosocial support and mental health service, (ii) analyze the policy, legal and institutional framework related to the overall disaster psychosocial and mental health service provisions in India, (iii) review the impact of disasters on the mental health of survivors affected by natural disasters in India, then to identify the gaps in support services. Accordingly some suggestions will be provided for India and for regional cooperation in disaster mental health research and service provision practices.

## **2. Impact of Disasters on Psychosocial and Mental Health in India: Ex ante and Ex post Review**

### **2.1. An Overview of Disasters and Mental Health**

The word “disaster” conjures up horrific images of humanity being affected in multifarious ways, economically, socially, physically and psychologically. In other words, a disaster is a complex multi-dimensional phenomenon having short and long-term ecological, political, economic, developmental, psychological and social impacts. There is adequate research evidence at national and international level regarding the mental health and psychosocial consequences of disasters. It has been recognized that most of the people affected by a disaster experience stress and emotional reactions after disaster as a ‘normal response to an abnormal situation’, and are able to cope well with a little psychosocial support.

Trauma after any disaster and the psychological reactions to it varies from *individual to individual* and *from disaster to disaster* in terms of *exposure, extent of*

*loss, personal coping mechanism, and support system available at that time and more importantly the culture of that society, and country's socio-economic and political structure.* It has been seen that a significant proportion of people may not be able to cope effectively with the situation and experience significant signs and symptoms of mental health problems, thus requiring appropriate and adequate psychosocial support and mental health services.

### *2.1.1. Common Psychological Reactions or Responses to Disasters*

First of all one needs to understand that any psychological and emotional reaction is not itself all negative, for it can increase the chances of the survival of the victims. Stress becomes a threat to mental health when it overwhelms the capacity of the victims to cope with their new situations by mastering their reactions. A cauldron of emotional reactions can come to boil after a disaster. Although people react differently to traumatic events on the basis of their experiences and personality, and other important factors mentioned in the paragraph above, there are number of common responses that are experienced by the majority of those affected and involved. These common post-disaster responses include: ***emotional*** (panic attacks, shock, fear, irritation, anger, sadness and guilt feeling), ***psychosomatic*** (sleep disturbances, eating problems, physical problems such as muscle tension, palpitation, headaches, nausea, diarrhea or constipation, breathing difficulties, etc), ***cognitive*** (repeated thoughts and involuntarily triggering of memories, nightmares, confusion, flashbacks, difficulty in concentrating and making decisions, memory problems, shortened attention span, etc), and ***behavioral and attitudinal*** (disruptions in social relationship, habits, poor motivation and concentration, lethargy, hopelessness, loss of interest, etc) difficulties.

Normally, these reactions 'settle' over the first week. If, however, they remain protracted and intense and moreover, if symptoms persist for a period of more than a month or after that the person is very likely to suffer from various psychological disorders.

Although there is no general agreement on one single scale or classification (Beigel & Berren, 1985; Quarantelli, 1985), a broad classification of the reactions, specific reactions to specific disasters, and of the victims should help us to do an

evaluation of the needs for the support activities intended for the target groups. The three main psychological disorders usually described and encountered among the affected population are: acute stress reactions/disorders, post-traumatic stress disorders (PTSD), and adjustment disorders

## **2.2. Literature Review**

### *2.2.1. Global Research on Mental Health Impacts of Disasters*

The first systematic study on the psychological consequences of a disaster was done in Zurich after a mining disaster in 1906 and an earthquake in Messina, Italy in 1908 (Stierlin, 1909 and 1911). The study reported that the recovery was faster among the survivors who ventilated their grief. A study following the Coconut Grove night club fire disaster in Boston (Lindermann, 1944) corroborated the earlier findings. Early classical descriptions of post-disaster psychological problems revealed that the range of percentage of disaster survivors exhibiting typical disengaged behavior (“disaster syndrome”) varied from 25% (Frederick, 1981) to 75 % (Duffy, 1988). Findings of psychological morbidity affecting 30-40% of the disaster population within the first week of the disaster (Raphael, 1986) also supported other studies in this area. A study investigating the 109 worst natural disasters occurring between 1960 and 1987 (Benz, 1989) revealed that developing countries suffered the most in terms of loss of life and property, disability, diseases, and damage to the public infrastructure. Interestingly, the psychopathological profile of war trauma survivors (Veeken, 1998; Baily, 1996) resembled that of survivors of disasters. The impact of a disaster is felt more in developing countries due to the economic status of the population, population density, and limited resources with limited accessibility (Juvva & Rajendran, 2000). Disasters increase the prevalence of psychopathology by approximately 17% on average compared to pre-disaster control groups (Rubonis & Bickman, 1991).

The past two and half decades have provided an increasing number of articles documenting the mental health effects of natural and man-made disasters. Disasters have been found to be associated with increased prevalence of severe psychiatric symptomatology, posttraumatic stress disorder, anxiety, depression, somatic

complaints, and nightmares (Maj, *et al.* 1989; Madakasira & O'Brien, 1987; Escobar, *et al.* 1992; Bravo, *et al.* 1990; Shore, *et al.* 1986a; Shore, *et al.* 1986b; Wood & Bootzin, 1992; Murphy, 1984; Papadatos, *et al.* 1990). The long-term sequelae have been studied less extensively. However, reports do suggest that: 1) there may be a latency period or delayed onset of some symptoms (Green, *et al.* 1990); 2) that symptoms may wax and wane (Phifer, *et al.* 1988); 3) and that significant psychiatric symptomatology may remain for as long as 14 years (Green, *et al.* 1990).

In fact, the issue of mental health impacts following any disaster has gained attention across the globe during the recent decade only, peaking during the 2000-09 decade. The mental health and behavioral consequences of natural disasters have ranged from mild to very severe (Galea, *et al.* 2005). A lot of studies revealed that disasters involving exposure to the dead and dying, lingering social and community disruption, and massive destruction lead to severe and chronic psychological problems (Bodvarsdottir & Elklit, 2004; Norris, *et al.* 2004; Armenian, *et al.* 2000; Fukuda, *et al.* 1999; Bland, *et al.* 1996; Glesser, *et al.* 1981). Exposure to earthquakes has been found to be associated with increased psychological distress (Karanchi & Rustemli, 1995; Rubonis & Bickman, 1991; Papadatos, *et al.*, 1990; Lima, *et al.* 1987; Lima, *et al.* 1993). Higher rates of prevalence of PTSD as a reaction to natural and technological disaster was also found (Acierno, *et al.* 2006). Studies examining the prevalence of psychological and psychiatric morbidity among disaster survivors reported long-term effects (Salcioglu, *et al.* 2007, Carr, *et al.* 1997a; Goenjian, *et al.* 2000) from these disasters. Some studies also suggested earthquake related psychological distress to be permanent (Bland, *et al.* 1996; Kato, *et al.* 1996). Posttraumatic stress disorder (PTSD) was found as a common mental health problem among victims of natural disasters both in western countries (Acierno, *et al.* 2007; Altindag, *et al.* 2005; Brown, *et al.* 2000; McMillen, *et al.* 2000) and Asian countries (Kumaret, *et al.* 2007; Lai, *et al.* 2004; Shinfuku, 2002; van Griensven, *et al.* 2006; Wang, *et al.* 2000; Wang, *et al.* 2009). Depending on assessment methodologies, instruments, and timing, the prevalence rate of PTSD related to natural disasters in this region was reported between 8.6% and 57.3% (Udomratn, 2008).



### *Prevalence*

There is no consensus regarding the prevalence of psychological disorders after exposure to disasters. Some authors have indicated that not more than 25% of people exhibit psychological disorders after a disaster (Fredrick, 1981), while some indicated it to be not less than 75% (Duffy, 1988). Girolamo of the World Health Organization (WHO) Mental Health Division has found that the prevalence ranges between 20% to 35% after a natural disaster. The “disaster syndrome”, characterized by stunned, apparently disengaged behavior, may vary between 25% to 75% of disaster survivors. Using a psychiatric victim status screening schedule it was found out that over 70% of survivors react in the first week. By 10 weeks, there is usually a significant drop, with gradual decrease over one year. However, according to Raphael (1986) psychological morbidity tends to affect 30-40 % of the population within the first year. A recent study has analyzed the relationship between disasters and subsequent psychopathology in 52 studies using quantitative measures. The study (Rubonis & Bickman, 1991) also reported the relationships between characteristics of the victim population, characteristics of the disaster, study methodology and type of psychopathology.

Following exposure to traumatic events, approximately 40-70% of the population is identified to be at risk of developing PTSD (Yule, *et al.* 1999). This indicates that not all people develop major stress reactions, influenced by individual differences and type of trauma. Approximately 13% of sexually assaulted adult women, 15-50% exposed to combat, and 50% exposed to natural disasters develop PTSD. These figures change across the year from 20-70% in the first week, 30-40% in the first year and 15-20% in the second year following a disaster (Canterbury & Yule, 1999).

A significant portion of people exposed to traumatic events go on to develop severe and prolonged psychological reactions (Canterbury & Yule, 1999), indicating the need for effective psychological interventions. In most of the comprehensive studies it has therefore been reported that the psychological morbidity after an exposure to disaster affects at least 30% of the exposed population in the first year following the impact. It is also now evident that post-traumatic stress disorder

(PTSD) and its associated co-morbid conditions such as depression and anxiety are becoming major issues in the disaster-affected communities.

### *ASEAN Region*

There has been a great mismatch in the areas of mental health research, practice, policy and services in this region as compared to the developed countries. A number of studies have investigated major mental health problems prevailing in these countries after disasters, but research studies into the efficacy of psychological intervention are extremely few. Some of the key studies are mentioned below to provide a birds-eye view of the prevalence of psychological problems after disasters in this region.

Stress related disorders, acute stress reactions, anxiety, adjustment and panic disorders were the most common mental sufferings developed in the maximum number of diagnosed psychiatric victims after the massive earthquake in **Pakistan** in 2005. Around 20-40 % reported to have mild psychological distress, while 30-50 % was entrapped in moderate or severe psychological distress. Those with mild and moderate mental disorder amounted to 10 to 20% (Husain 2006).

The prevalence of PTSD, anxiety and depression among the natural disaster and exposed to traumatic events in **Thailand** has not been assessed previously (van Griensven, *et al.* 2006). The rapid mental health needs assessment after tsunami, 2004 (= 392 displaced and 323 non-displaced) was done by these researchers as a part of public health emergency response. The report revealed that while symptoms of PTSD were found among 12% of displaced and 7% of non-displaced persons, anxiety symptoms were found among 37% of displaced and 21% of non-displaced, and depression was reported by 30% of displaced and 21% of the non-displaced survivors. A study done (Chakrabhand, *et al.* 2006) with a sample of 7,130 tsunami affected revealed that 30% of the victims had mental health problems during the first two months of the tsunami. Assessment, referral, treatment, psycho-education and group activities were also provided as outreach services up to three months. Facilitating community resilience, addressing quality of life among the vulnerable groups, advanced mental health support to people suffering from various mental health problems, a mental health surveillance system, and establishing “mental health

recovery centres” in communities and a “mental health operations centre” at the Department of Mental Health were very appropriate initiatives that were taken up by the Thailand Government in the recovery and rehabilitation phase (Chakrabhand, *et al.* 2006).

Adverse psychological and psychiatric impacts of various disasters on children (Arunakirinathan, *et al.* 1993; Sivashanmungarajah, *et al.* 1994; Vivo, 2005a; Vivo 2005b), women (Sivachandran, 1994) and family systems (Jeyanthi, *et al.* 1993; Kumerandran, *et al.* 1998) have been reported in the last few years in **Sri Lanka**. Development of a comprehensive and efficient psychosocial intervention at community level after a disaster should recognize the importance of dead body management as an integral part of the intervention (Sumathipala, *et al.* 2006). Management of post-disaster mental health problems is reported to be provided on the basis of a three-tier service model, with provision of trained workers at the community level, a multidisciplinary team at the primary health care level, and psychiatric care at the district level. Therapeutic interventions for disaster survivors included psycho-education, crisis intervention, psychotherapy, Cognitive Behavior Therapy (CBT), relaxation (both traditional and Jacobson’s), pharmacotherapy, group therapy, family therapy, and other emotive methods. However, research on the efficacy of these service provisions is rarely reported.

The profile of psychosocial distress found among the tsunami affected communities affected by the tsunami in the **Maldives** included emotional problems, such as, excessive crying, immense grief, survivors’ guilt, fear, hopelessness, nightmares, hyper vigilance and anger; and somatic problems such as headache, chest pain, loss of appetite, increased fatigue and insomnia (Ibrahim & Hameed 2006a).

A study after the Wenchuan earthquake in **China** (Zhang & Ho, 2011) reported that results showed that PTSD symptoms affected 84.8% of survivors one to two months after the earthquake. Significant risk factors associated with PTSD symptoms included: (1) being female; (2) being older; (3) higher exposure to traumatic events during the earthquake; and (4) negative effect in a personality disorder.

The low priority accorded to mental health by policy makers, the scarcity of trained and sustainable human resources, the lack of culture-specific study

instruments, the inadequate number of empirical papers in scientific journals have been some of the impediments to mental health research in these countries. In addition, lack of community participation and absence of sound mental health policies have deprived the vast majority of people of the benefit of modern psychiatric treatments. Recently, with increase in collaboration in research, availability of treatment including low-priced psychotropic drugs, and a growing emphasis on the need for mental health policy in some low-income countries, the bleak scenario has begun to change (Isaac, *et al.* 2007).

A particular country's response to a disaster is based on a multitude of factors. Some of these factors operate at the national level, such as having a disaster management Act/Policy/Plan or a Mental Health Act/Policy/Plan and some factors operate at the affected community level in terms of service provision by the government along with reputable international organizations. The studies included in this paper varied greatly in terms of approach, objectives, methodology, and variables studied. However, given the need to consolidate existing mechanisms and initiatives in this field it is very important to understand the regional perspective on the application of disaster psychosocial support and mental health services in all these countries, so that regional cooperation in this area is clearly outlined.

### *2.2.2. Evidence Based Research on Mental Health Impact of Disasters in India*

This global trend of evidence-based research has also been seen in India. The first well-documented research study in this area in India was on the survivors of a fire disaster (Narayan, *et al.* 1987) and this revealed not only the symptoms of mental disturbances but also the reduced coping behavior of the families of the deceased. The Bhopal gas tragedy (1984) was the most important disaster to draw national attention due to its severe impact and the sensitivity of the politico-economic issues involved therein. The psychosocial impact was studied systematically although intervention programs were more psychiatric in nature. The Marathwada earthquake (1993) and the Andhra Pradesh super cyclone (1996) were disasters in which mental health professionals took an active part in terms of providing mental health services and undertaking research to study the psychosocial impact of these disasters. A review of Indian work on the psychosocial support and mental health

services (PSSMHS) aspects of disasters in India in terms of service delivery, training and research activities carried out over more than the past two decades revealed a progressive shift in the nature and scope of services, the focus and objectives of training activities and in the issues pursued in the research activities. This shift is well reflected in the developments that have taken place during five major disasters viz. the Bhopal gas tragedy (1984), the Marathwada earthquake (1993), the Orissa super cyclone (1999), the Gujarat earthquake (2001), and the Indian Ocean tsunami (2004). The developments in the area of service, training and research have been occurring in parallel to each other as well as following a combined approach.

The studies on the Bhopal gas disaster (Sethi, *et al.* 1987; Srinivasa Murthy, 1990; Cullinan, *et al.* 1996) reported increased neuro-psychiatric symptoms among the survivors attending different health care facilities. A study by Srinivasa Murthy and Isaac within three months of the disaster reported a 22.6% prevalence rate for mental disorders such as anxiety neurosis (25%), depression (20%), and adjustment reaction with predominant disturbance of emotions (16%), mostly found among the females (81.1%) and those in their middle adulthood (under 45 years of age-74%) (Kar, 2000). More studies on this disaster (Srinivasa Murthy, 2004) also revealed additional health problems and disability found amongst the disaster survivors.

Increased psychiatric morbidity was also reported from the Bombay riots (Shetty and Chhabria, 1997), the Marathwada earthquake (Aghase, 2004), Orissa super cyclone (Sekar, 2004; Kar and Bastia, 2006), the Gujarat earthquake (Vankar and Mehta, 2004; Ramappa and Bhadra, 2004). Some studies highlighted the importance of both mental health of workers (Juvva and Rajendran, 2000, and Davar, 2001) and the mental health of disaster affected people (Srinivasa Murthy, 2000). While, some studies reported peoples' needs and feelings of vulnerability (Parasuraman and Acharya, 2000) as important mental health indicators of people affected by disaster, other studies focused on the extent of poverty, homelessness and violence (Lohokare and Davar, 2000), thus indicating the risk of mental health in people in disaster affected areas.

The psychosocial impact of the Orissa cyclone was reported by Sekar Kasi, Kar and Bastia, and some others. In fact, acceptance of the existence of psychological impacts and the need for focused services for the survivors became much clearer

only after the cyclone. The emergence of this field as an independent area of research was widely recognized by various funding agencies after this disaster. Innovations in service provision, comprehensive community networked care service models, the nature and extent of mental health morbidity research, and capacity building programs were very promising, and perhaps laid a robust foundation for the growth of a distinct area of service provision and research after this disaster.

A study through a WHO-funded research project in Gujarat on the economic implications of health care use by comparing survivors who received psychosocial help and those who did not demonstrated a positive impact on overall well-being.

On the basis of the literature reviewed above, especially for ASEAN countries, it is evident that the magnitude and pattern of psychosocial and mental health problems in all these ASEAN countries are very similar, mainly highlighting the existence of largely stress-related disorders and common psychosocial problems, as well as incidences of anxiety-depressive disorders, PTSD and associated psychosomatic problems. The empirical research primarily focused on assessing the impact of a disaster on mental the health of the survivors and less on the efficacy of psychological interventions.

#### *Ex-ante and Ex-post Analysis: India*

The review of Indian research on the psychosocial and mental health aspects of disasters in terms of service delivery, training and research activities carried out during over more than two decades reveals a progressive shift in the nature and scope of services, the focus and objectives of training activities and the issues pursued in the research. This shift is well reflected in the developments that have taken place during some major disasters viz. the Bhopal gas tragedy (1984), the Marathwada earthquake (1993), the Orissa super-cyclone (1999), the Gujarat earthquake (2001), the Indian Ocean tsunami (2004) and Jammu and Kashmir Earthquake (2005). Although there are sufficient studies on the psychosocial and mental health impact (Srinivasamurthy, 1990; Sethi, *et al.* 1987; Narayanan, *et al.* 1987; Srinivasamurthy, 2004; Srinivasamurthy, 2004; Agashe, 2004; Vankar and Mehta, 2004; Ramappa and Bhadra, 2004; Desai, *et al.* 2002; and service provision (Srinivasamurthy and Isaac,

1987; Joseph, 2000; Prewitt-Diaz, *et al.* 2004; Chachra, 2004; Vijaykumar, 2006c) in the aftermath of disasters, these studies mainly covered 1) the natural disasters as compared to the manmade disasters, and 2) the mental health impacts. *The Indian studies on the mental health consequences of disasters have mainly covered the mental health impacts of large-scale natural disasters.* Very few studies have been reported from any small scale disasters in terms of impacts or psychopathology or service intervention (Desai, *et al.* 2004; Satapathy and Walia, 2006; Satapathy and Walia, 2007).

The interventions were primarily basic psychosocial services, psych-education, relaxation/meditation, individual therapy, child focused intervention (Vijaykumar, *et al.* 2006a, 2006b), behavioral therapies, group play therapies for children, yoga, meditation, religious discourse and psychiatric treatment. These services were provided in the community by trained community-level volunteers, and mental health professionals. While mental health professionals such as trained psychologists and psychiatric social workers took care of overall community volunteer training, monitoring and supervision of psychosocial service provisions along with the specified home-based therapies wherever needed, the trained community-level volunteers were responsible for delivering seven basic psychosocial support skills comprising ventilation, empathy, active listening, social support, relaxation, externalization of interest and spirituality. These seven primary psychosocial skills of the volunteers were feasible, culturally appropriate and well designed, therefore have been successfully implemented. However, more focused research on Randomized Control Trials of these interventions would be highly required so as to contribute the global research on effectiveness and efficacy of these culturally acceptable interventions.

The nature of psychosocial and mental health services provided after disasters has also undergone a significant change during the last two decades. After the Bhopal gas tragedy the focus was on identification and treatment of those who suffered from clinically diagnosable mental disorders and who visited the health clinics started after the disaster. Identification and treatment of psychiatric disorders by mental health professionals in the field, or identification and referral of persons with psychiatric disorders, continued as a major mental health service activity in the

subsequent disasters. However, a number of non-disorder oriented interventions to restore mental health and psychosocial well being, including crisis intervention, emotional first aid, counseling for grief reactions, group therapy, play therapy for children, facilitating community self-help groups by the trained workers as well as mental health professionals were all started begun in subsequent disasters, especially after the Orissa super cyclone and the Gujarat earthquake. However, only a small fraction of the needy people in need could receive it the help in the absence of an institutionalized approach and appropriate coordination mechanisms. A beginning was made during after the Orissa super-cyclone in understanding the inter-relationship between mental health services (MHS) and psychosocial support (PSS) when a combined approach of delivering MHS and PSS through trained community workers with referral support of from mental health professionals was adopted.

After Tsunami the Indian Ocean tsunami, these interventions were provided in a more systematic and widespread manner as a result of greater institutionalization and well established coordination mechanisms between Government and non-government organizations (GO-NGOs collaboration). All organizations offering to work with the survivors had to register with the district administration and a standardized capacity building training was provided by the National Institute of Mental Health and Neurosciences (NIMHANS), WHO, the International Federation of Red Cross and Red Crescent Societies (IFRC), etc to these organizations for a coordinated and qualitative service provision. Group activities like including prayers and, religious discourses by leaders contributed to psychosocial well being and played a significant role in preventive and promotive mental health. Other indigenous practices and alternative medicinal system have also been utilized and have got obtained wide acceptance. In fact lot of many spiritual and Yoga institutions such as the Ramakrishna Mission, and the Vivekananda Yoga Institute were involved in helping the survivors for rebuilding their internal harmony through group meditation and yoga camps during the relief stage of disaster management. Prevention and treatment of substance abuse and alcoholism has also been one of the focuses of interventions after disasters, as research evidence supports such a need.



Nevertheless, the Government of India initiatives subsequent to the Orissa super cyclone, in terms of the high- power committee recommendations and the national disaster management plan (2000), provided impetus not only to the overall disaster management and mitigation plan but also to the varied stakeholders and disaster service provision agencies. Indian experience in the area of disaster mental health during more than the past two decades showed the evolutionary nature of psychosocial support and mental health services in disaster situations. From a mental disorder based approach after the Bhopal gas tragedy, the approach has been modified to community based mental health or psychosocial care in the cases of the Marathwada earthquake, the Orissa super Cyclone and the Gujarat earthquakes, and further broadened to psycho-social and mental health care following the Indian Ocean tsunami. *The pure clinic/hospital based planning and delivery of services has given way to community based services with active utilization of community resources. This helps to rebuild sustainable community resiliency.*

*The nature of the manpower involved in service delivery has also therefore undergone a significant change from psychiatrists alone to all mental health professionals (including clinical psychologists, psychiatric social workers, etc) to professionals, paraprofessionals and trained community-level workers/volunteers.* This mode of service provision not only addressed the problem of the ratio of disaster survivors and inadequate mental health professionals in the country but also received wider acceptance from the disaster affected communities, and hence became further institutionalized after The tsunami and the Jammu and Kashmir earthquake.

Besides service delivery, training and research activities have also evolved during the same period. *Development of appropriate training materials and tool kits and standardization of psychosocial care* and training in accordance with the phases of disasters was an outcome of such interventions.

Involvement and continuous support of Government agencies such as NIMHANS, the Indian Council of Medical Research, the WHO, the Institute of Human Behavior And Allied Sciences, the National Institute of Disaster Management, the Defence Research and Development Organization, etc; and the Ministries of Health, Women and Child Development, and Social Welfare; and

NGOs including Action-aid, Care India and the Red Cross emerged as a strong coordinated GO-NGO partnership.

The results of such a coordinated effort in the area of mental health in the country's disaster management framework will be discussed in the next section.

### **3. Disaster Risk Management Framework**

The increasing frequency and ferocity, the rising extent as well as the mounting human and economic toll due to disasters has necessitated a reappraisal of institutional and policy frameworks and the development of new frameworks for holistic management of disasters. On the basis of the philosophy of sustainable development, a holistic **National Disaster Management Framework** was developed in 2004, which highlighted the interdependence of economy, environment, and development. This framework also linked the issues of poverty alleviation, capacity building, community empowerment and other structural and non-structural issues of prevention and preparedness, response and recovery for effective disaster risk mitigation and management.

#### **3.1. Policy Responses towards Effective Disaster Risk Management in India**

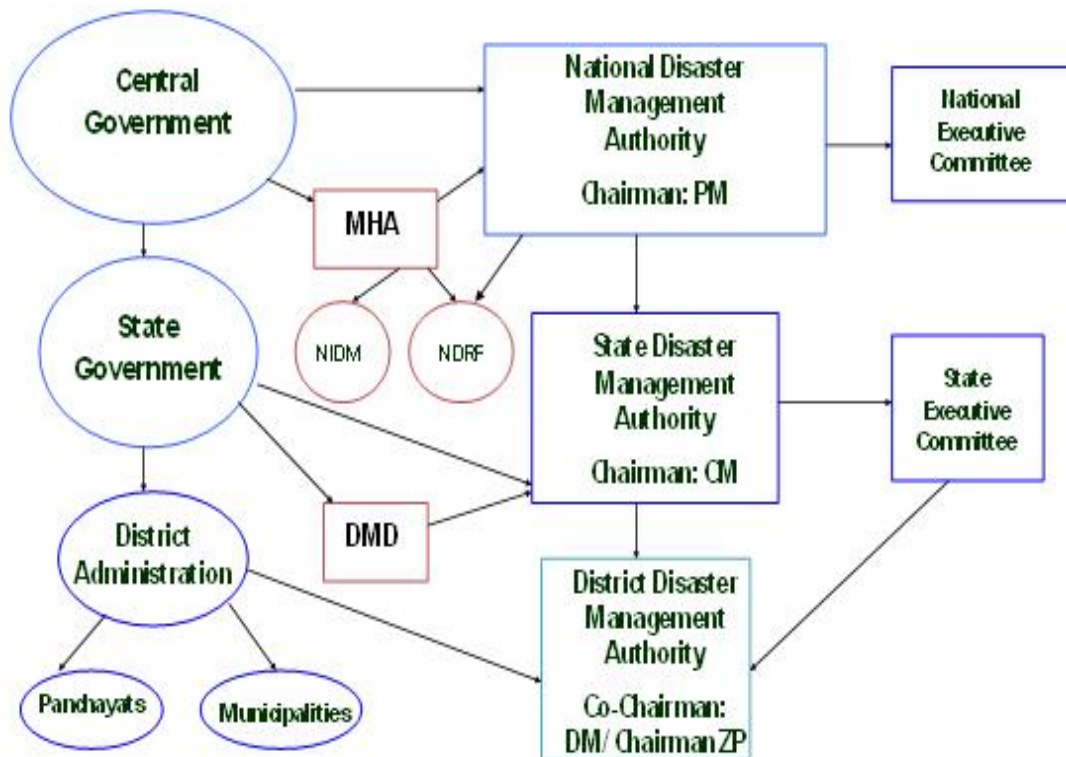
A comprehensive legal and institutional framework for disaster management has been set up through the **Disaster Management Act** passed by the Indian parliament in December 2005 and the **National Policy on Disaster Management** was approved in 2009.

**The Cabinet Committee for Management of Natural Calamity (CCMNC)** oversees all aspects relating to the management of natural calamities including assessment of the situation and identification of measures and programs considered necessary to reduce their impact, monitor and suggest long term measures for prevention of such calamities, formulate and recommend programs for public awareness so as to build up society's resilience to them. **The Cabinet Committee on Security (CCS)** deals with the matters relating to nuclear, biological and chemical emergencies. **The National Crisis Management Committee (NCMC)**

under the Cabinet Secretary oversees the command, control and coordination of the disaster response.

### 3.2. Institutional Mechanisms for Disaster Management

The Disaster Management Act, 2005 has created new institutions at the national, state, district and local levels. The new institutional framework for disaster management in the country is as under:



**The National Disaster Management Authority (NDMA)** under the chairmanship of the Prime Minister is the apex body responsible for laying down policies, plans and guidelines for disaster management, and for coordinating their enforcement and implementation throughout the country. The policies and guidelines will assist the Central Ministries, State Governments and district administration to formulate their respective plans and programs. NDMA has the power to approve the National Plans and the Plans of the respective Ministries and Departments of Government of India. The general superintendence, direction and control of the National Disaster Response Force (NDRF) are vested in and will be exercised by the NDMA.

**The National Executive Committee (NEC)** is mandated to assist the NDMA in the discharge of its functions and further ensure compliance with the directions issued by the Central Government. The NEC comprises the Union Home Secretary as the Chairperson, and the Secretaries to the GOI in the Ministries/Departments of Agriculture, Atomic Energy, Defense, Drinking Water Supply, Environment and Forests, Finance (Expenditure), Health, Power, Rural Development, Science and Technology, Space, Telecommunications, Urban Development, Water Resources and the Chief of the Integrated Defense Staff of the Chiefs of Staff Committee as members. Secretaries in the Ministry of External Affairs, Earth Sciences, Human Resource Development, Mines, Shipping, Road Transport & Highways and the Secretary, NDMA are special invitees to the meetings of the NEC. The National Executive Committee is responsible for preparing the National Plan and coordinating and monitoring the implementation of the National Policy and the guidelines issued by NDMA.

**The Ministry of Home Affairs (MHA)** in the Central Government has the overall responsibility for disaster management in the country. For a few specific types of disaster the concerned Ministries have the nodal responsibilities for management of the disasters, as under:

Drought	Ministry of Agriculture
Epidemics & Biological Disasters	Ministry of Health and Family Welfare
Chemical Disasters	Ministry of Environment & Forests
Nuclear Disasters	Ministry of Atomic Energy
Air Accidents	Ministry of Civil Aviation
Railway Accidents	Ministry of Railways

**The National Institute of Disaster Management (NIDM)** has the mandate for human resource development and capacity building for disaster management within the broad policies and guidelines laid down by the NDMA. NIDM is required to design, develop and implement training programs, undertake research, formulate and implement a comprehensive human resource development plan, provide assistance in

national policy formulation, assist other research and training institutes, state governments and other organizations in successfully discharging their responsibilities, develop educational materials for dissemination and promote awareness among stakeholders in addition to undertaking any other function as assigned to it by the Central Government

**The National Disaster Response Force (NDRF)** is the specialized force for disaster response which works under the overall supervision and control of the NDMA.

At the State Level the **State Disaster Management Authority (SDMA)**, headed by the Chief Minister, lays down policies and plans for disaster management in the State. It is also required to coordinate the implementation of the State Plan, recommend provision of funds for mitigation and preparedness measures and review the developmental plans of the different departments of the State to ensure integration of prevention, preparedness and mitigation measures.

In the district level the **District Disaster Management Authority (DDMA)** is headed by the District Magistrate, with the elected representative of the local authority as the Co-Chairperson. DDMA is the planning, coordinating and implementing body for disaster management at district level. It will, inter alia prepare the District Disaster Management Plan and monitor the implementation of the National and State Policies and the National, State and the District Plans. DDMA will also ensure that the guidelines for prevention, mitigation, preparedness and response measures laid down by the NDMA and the SDMA are followed by all departments of the State Government at the district level and the local authorities in the district.

The Local Authorities, are both the rural local self governing institutions (Panchayati Raj Institutions) and urban local bodies (Municipalities, Cantonment Boards and Town Planning Authorities) These bodies will ensure capacity building of their officers and employees for managing disasters, carry out relief, rehabilitation and reconstruction activities in the affected areas and will prepare DM Plans in consonance with guidelines of the NDMA, SDMAs and DDMA.

### **3.3. Current Status of Psychosocial and Mental Health Support in Disaster Risk Management in India**

As a part of the comprehensive disaster management framework of the country, The National Guidelines on Psychosocial Support and Mental Health Services (PSSMHS) in disasters were released in December 2009 so as to provide overall guidance for the efficient and effective qualitative service provision to the survivors. This document defined psycho-social support in the context of disasters as comprehensive interventions aimed at addressing a wide range of psychosocial and mental health problems arising in the aftermath of disasters. These interventions help individuals, families and groups to build human capacities, restore social cohesion and infrastructure along with maintaining their independence, dignity and cultural integrity. Psycho-social support will comprise the general interventions related to the larger issues of promoting or protecting psycho-social well-being through relief work, meeting essential needs, restoring social relationships, enhancing coping capacities and promoting harmony among survivors. Psycho-social support helps in reducing the level of actual and perceived stress and in preventing adverse psychological and social consequences amongst disaster-affected communities. In addition, psycho-social support interventions are aimed at promotion of mental health and psychological well-being, and prevention of psychological and psychiatric symptoms among disaster-affected communities.

Mental health services in disaster interventions are aimed at identification and management of stress related psychological signs and symptoms or mental disorders among disaster-affected persons and persons with pre-existing mental health problems.

The Psycho-Social Support and Mental Health Services are considered as a continuum of interventions as an important component of general health services in disaster situations. And the overall goal of the Psycho-Social Support and Mental Health Services is restoration of well-being of the disaster-affected community.

There are three important aspects of these guidelines: preparedness, response, and implementation, which will be very briefly described below.

### *Preparedness for PSSMHS*

Preparedness for PSSMHS, as described in the national guidelines, includes proper planning and resource mapping at all levels, along with capacity development and up-grading of infrastructure and hospital preparedness. The need for creating a network of institutions has also been emphasized, with the intention of preparing adequate knowledge bases and modules for training a variety of workers at different levels. The need for activation of psycho-social support, enhancing manpower for psychiatry and psychology, psychiatric social work, psychiatric nursing, community level workers and other trained community level volunteers is outlined. Adequate emphasis has also been laid on proper documentation, international co-operation and the role of NGOs in providing PSSMHS. Appropriate attention to vulnerable groups and the necessity of creating proper referral systems for disaster-affected people have been highlighted.

### *PSSMHS Response*

The critical role of response mechanisms for the PSSMHS at national, state and district levels, by various ministries and departments and all the other stakeholders including International Non- Government Organizations (INGOs), Non-Government Organizations (NGOs) and communities has been identified in the guidelines. Integration of PSSMHS in the general relief work, disaster health plans and community practices has also been stressed. Guidelines also highlight the important aspect of inclusion of long-term PSSMHS services in the recovery, rehabilitation and reconstruction phases of disasters. In addition, the importance of providing special care to the vulnerable groups, as well as to the care-givers, to enhance the quality of service delivery is stressed.

### *Implementation of PSSMHS Guidelines*

These Guidelines provide a framework for action at all levels. The Ministry of Health and Family Welfare (MoH&FW) shall prepare an Action Plan to enable all sections of the government and administrative machinery at various levels to prepare and respond effectively. The PSSMHS plan shall be prepared during the pre-disaster phase which will be integrated, coordinated and monitored by nodal agencies at

national, state and district levels. This shall cater to immediate and long-term needs of the affected communities.

The Government has initiated various programs, such as the National Mental Health Program and the District Mental Health Program as part of a national health plan to reach out to every citizen of the country. In order to strengthen PSSMHS in disasters it is imperative it be integrated into these programs to provide both short and longer-term psycho-social support and mental health care.

The time-lines proposed for the milestones for implementation of the various activities listed and explained in the PSSMHS preparedness and response mechanism are to be rolled out in three periods viz 3 years, 5 years and 8 years.

The Ministry of Health and Family Welfare (MoH&FW), the nodal ministry for medical preparedness, is mandated to formulate and implement national health policies and programs in the country, including mental health. All the other line ministries are required to follow the policies and plans laid down by the nodal ministry for any health plan activation for service provision for any type of disaster.

## **4. Policy Recommendations**

### **4.1. National Level**

There is an urgent need to address some issues of paramount importance in this area, at the policy level of the Govt. of India and also at the institutional level.

#### *Evidence Based Research and Development:*

The institutions working in this area should now focus on the long-term psychopathology of man-made and small scale natural disasters to understand the country profile of the epidemiology of the mental health impacts of disasters on survivors.

A randomized clinical control trial of various intervention packages should be undertaken to report the effectiveness of interventions scientifically.

Age specific psychopathology and interventions should be highlighted in all types of research initiative. Other risk factors should also be identified.



As a part of the concept of the economics of psychology and the psychology of economics, a cost-benefit analysis of these interventions should be recorded and reported to increase the applicability of these interventions in wider similar situations.

#### *Implementation of Guidelines*

There is also an immediate need to implement the national guidelines for the preparedness of PSSMHS. There is no clear institutional mechanism to implement the regular care services in this area during disasters. The service is entirely convenience driven by some organizations and is often based on an ad hoc approach.

Integration of psychosocial care and mental health services into general relief, recovery and rehabilitation is yet to be properly organized with adequate financial provisions.

#### **4.2. Regional Cooperation**

Psychosocial and mental health problems are particularly important for low-income countries, which face a high burden of illness due to infectious disease and greater socio-economic disparities, and have limited resources for mental health care. The psychosocial and mental health impacts of these disasters have been exacerbated by the multiple losses due disaster and subsequent stressful life events and consequent uncertainty of the future. The Inter Agency Standing Committee Guidelines on Mental Health & Psycho-Social Support in 2007 mentioned, “Emergencies create a wide range of problems experienced at the individual, family, community and societal levels. At every level, emergencies erode normally protective supports, increase the risks of diverse problems and tend to amplify pre-existing problems of social injustice and inequality”. Hence, the disaster management policies of the countries need to consider their own vulnerability factors in socio-economic situations and look for best alternatives to rebuild their support system at the earliest opportunity. Facilitating psychosocial support services therefore needs to be a continuous process within the developmental projects of the country.

### *Research and Development*

A fairly comprehensive review study on psychosocial support and mental health services in eleven ASEAN countries has identified the following few important areas of research, which could be explored by future researchers (Satapathy and Bhadra, 2009):

The process and method of standardization of psychosocial and mental health need assessment tools in few or all countries.

Specific psychosocial and mental health intervention for more vulnerable groups and focusing on the pre and post intervention qualitative as well as quantitative studies.

The correlates of sustainable community-based mental health and psychosocial interventions such as mental health nurses in primary health care systems and mental health surveillance systems.

It was also found from the review that research and development in disaster related psychosocial support and mental health services is yet to focus on the role of cultural differences in service provision and in natural coping strategies/resources; indigenous practices to manage physical, social and psychological recovery from a disaster; and to develop a comparative picture of culture-specific psychopathology in these countries and variation during disasters.

This study also reported that in most of the South and South –East Asian countries the community-based structures at the grass-root level are quite strong through initiation of the women’s groups and youth groups or through development of micro finance structures and income generation activities.

In addition to the above, other specific emerging areas of research could be:

#### **Research & Development**

More methodologically strong damage and loss assessment/cost analysis, especially developing indicators of cost of loss of productive life days and cost of mental health illness of survivors

Economic benefits of psychosocial intervention in terms of effectiveness of rehabilitation services. More specifically, quantifying the benefits of community-

based PSSMHS service provision and other forms of psychological services after disasters.

Institutional networking/collaboration for a pilot project study on cross cultural differences in disaster psychopathology, expression of psychopathology, assessment tools for diagnosis, psychological interventions, social interventions, mechanism of treatment of psychiatric problems, financial arrangements for PSSMHS, etc should be looked at in ASEAN countries.

In fact, post-tsunami initiatives in research and service provision in the area of PSSMHS in many countries reported successful experimentation in the community-based approach with the support of the World Health Organization, the Red Cross & Red Crescent Society and other non-government organizations. Facilitating psychosocial care support at this level, therefore, could perhaps ensure the building of resiliency and preparedness for dealing with stress and disaster-related events at the individual, family and community levels. This, however, needs to be established by longitudinal studies. Empowering the existing community-based organizational structures and strengthening the existing mental health service delivery mechanism, and integrating these two in many countries, may ensure a continuous flow of services, which is essential for development of the resiliency among the people. The Government mental health care service delivery structures in many countries are reported to be over-burdened, which may become a bottleneck in the development of uninterrupted services to the disaster-affected communities. Hence, ensuring adequate resources in developing robust structures may be possible by integrating government and eligible non-government organizations and community-based organizations. This may be considered as an important matter, not only to meet the urgent PSSMHS needs but also to reduce the risk of long-term psychiatric disorders, and their financial and social burden among the survivors.

As mentioned earlier, psychosocial and mental health service provision after any disaster depends largely on factors such as existing government mechanisms for health care service delivery, the type and magnitude/severity of a disaster, the number of people affected, culture and community characteristics, trained manpower, religion, agencies responsible/interested, quality of community capacity building, impact and need assessment tools, well designed intervention packages, etc. Hence,

it may be easier and feasible to adapt a particular service delivery system prevalent in some countries and verify if the adaptation brings required outcomes. Support of mental health professionals may make it implementable administratively and technically.

Regional experience-sharing platforms should be created for information exchange and lessons learning from each other's experiences. Field practices and their cultural adaptation and effectiveness should be focused on. As the field practices in PSSMHS in major ASEAN countries are reported to be community-based with unique features and this is different from western psychological intervention practices and institutional mechanisms, this would contribute a lot to the global evidence-based research if pursued systematically.

## **Conclusion**

Any disaster resulting from either natural or manmade hazards will affect countries in multifarious way, resulting in undermining all major developmental measure and the financial stability of the countries. Apart from the quantifiable and tangible damage and loss, there is loss of quality and productivity of life in a disaster situation, which are still not measured or quantified. The impact of any disaster on the mental health of the survivors is enormous and affects a country's development directly and indirectly.

The psychological and mental health services and interventions are very much country and culture specific, therefore, any tailor-made intervention in one country may not be applicable in a similar disaster in other countries. For example, similar magnitudes of earthquake in India and Iran would be two different contexts all together, therefore, mental health and psychosocial services would certainly vary, although the core recovery objectives and principles may remain similar and constant in both the countries. *However, good intervention practices in one country may be adapted for the specific needs of another country's disaster affected population.* The severity of symptoms is directly related to the magnitude and extent of trauma experience, and the associated factors either aggravating life conditions or supporting the speedy recovery of the survivors in the aftermath of a disaster. And, due to these

factors, service provision in this sector would also vary from place to place, community to community, hence country to country.

Evidence-based research in India reveals that to overcome the issues of inadequate mental health professionals, absence of institutional mechanisms for service provision and ambiguous financial provisions for the same, the existence of community-based psychosocial support and mental health services was successful in past large scale disasters. Such community-based services, therefore, would perhaps remain as a viable, more culturally approved and less stigmatized option available to the country. Nevertheless, the ASEAN countries are still evolving with their own successful models of mental health care service provision after a disaster. And learning from and adapting a good practice prevailing in one country may result in expediting their initiative in this regard. Regular experience-sharing platforms in this region would enable all the countries to overcome many challenges so as to achieve the objectives.

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