

## Disaster Management: Mental Health Perspective

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### ABSTRACT

Disaster mental health is based on the principles of 'preventive medicine' This principle has necessitated a paradigm shift from relief centered post-disaster management to a holistic, multi-dimensional integrated community approach of health promotion, disaster prevention, preparedness and mitigation. This has ignited the paradigm shift from curative to preventive aspects of disaster management. This can be understood on the basis of six 'R's such as Readiness (Preparedness), Response (Immediate action), Relief (Sustained rescue work), Rehabilitation (Long term remedial measures using community resources), Recovery (Returning to normalcy) and Resilience (Fostering). Prevalence of mental health problems in disaster affected population is found to be higher by two to three times than that of the general population. Along with the diagnosable mental disorders, affected community also harbours large number of sub-syndromal symptoms. Majority of the acute phase reactions and disorders are self-limiting, whereas long-term phase disorders require assistance from mental health professionals. Role of psychotropic medication is very limited in preventing mental health morbidity. The role of cognitive behaviour therapy (CBT) in mitigating the mental health morbidity appears to be promising. Role of Psychological First Aid (PFA) and debriefing is not well-established. Disaster management is a continuous and integrated cyclical process of planning, organising, coordinating and implementing measures to prevent and to manage disaster effectively. Thus, now it is time to integrate public health principles into disaster mental health.

**Key words:** *Disasters, mental disorders, disaster psychiatry, disaster mental health, psychiatry, post-traumatic stress disorder, survivors*

### INTRODUCTION

In the contemporary world, disasters are inevitable truth of our life, preventable but completely unavoidable and they are part of our living in this complex globalised, industrialized and civilized world. Disasters are as old as mankind. Disaster is a very a broad term, which implies a diverse set of circumstances from an act of terrorism

(manmade disaster) to natural calamities like earth quake. Developing countries are at high-risk for disaster proneness and also they have to face challenges like poverty, meager resources, illiteracy, poor infrastructure, corruption, lack of trained manpower and poor knowledge of disaster mental health.<sup>[1]</sup> Disasters are known to have substantial effect on both physical and mental health of the affected population.<sup>[2]</sup> The burning issue is, what constitutes a disaster? Can a railway accident be a disaster? Terrorist attack? Religious Riots? War? Rapid spread of Ebola virus? Difficulty to define a disaster has been further accentuated by the inconsistent use of terminologies such as calamity, catastrophe, crisis, emergency, misfortune, tragedy, trauma and stress. Defining 'Disaster' is inevitable because it poses a real challenge to any country to know what to include and what not, for planning, policy

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making, legislation and for research purpose. Disasters cannot be avoided completely but we need to learn how to prepare, respond, recover, rehabilitate and re-integrate. There is a need to understand the effects of disaster on health so that precautionary measures can be adopted to mitigate the suffering. Hence, this article attempts to define, classify and discuss the management of disasters from mental health perspective.

## METHODOLOGY OF THE REVIEW

The authors conducted an electronic search of articles published in 'Pubmed' from 1978 to March 2013. The term 'disaster planning' was introduced in pubmed MeSH vocabulary as early as 1978. The MeSH term such as 'disaster planning' [Mesh] were combined with various terms using Boolean operator (AND). A PUBMED search for all published studies involving disaster mental health/disaster psychiatry was performed till 2013. To answer the objectives of the review following MeSH terms (keywords) were employed: 'disasters' 'mental health' 'mental disorders' 'psychiatry' 'post-traumatic stress disorder' 'psychological techniques' 'psychotherapy' and 'drug therapy'. Boolean operator (AND) was also employed in combination of the above key words. In addition, the reference sections of major articles, and reviews were also screened. We employed the usual hierarchy of evidence to write the review. Systematic reviews and meta-analyses of randomised controlled studies (RCT) were considered the best evidence base followed by RCTs, open-label studies, case series and case reports. In addition, we also considered clinical, consensus and disaster guidelines in writing this educational review.

## WHAT IS DISASTER?

The root of the word *disaster* ("bad star" in Greek) comes from an astrological idea that when the stars are in a bad position a bad event will happen.<sup>[3]</sup> Disasters can be simply defined as violent encounters with nature, technology or humankind.<sup>[4]</sup> In 1978, Lazarus & Cohen defined it as a specific cataclysmic event, that is, a stressor depicted by immense power, large scope, suddenness, and placing excessive demands on individual coping.<sup>[5]</sup> Similarly, in 1992 the World Health Organisation's (WHO) defined disaster as 'a severe disruption, ecological and psychosocial, which greatly exceeds the coping capacity of the affected community'.<sup>[6]</sup>

In 1995, Federal Emergency Management Agency of US have defined 'disaster' as, 'Any natural catastrophe, regardless of cause, any fire, flood, or explosion that causes damage of sufficient severity and magnitude

to warrant assistance supplementing State, local, and disaster relief organization efforts to alleviate damage, loss, hardship, or suffering'.<sup>[7]</sup>

The Disaster Management Act 2005 of India<sup>[8]</sup>, disaster is defined as a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade causes, or be accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area.

From above various definitions it is clear that there is no one single acceptable definition of disaster. However, there are some common characteristics across all definitions. They are:

- a. Sudden onset,
- b. Unpredictability,
- c. Uncontrollability,
- d. Huge magnitude of destruction,
- e. Human loss and suffering and
- f. Greatly exceed the coping capacity of the affected community.

## HOW CAN WE CLASSIFY DISASTERS?

Disaster can be classified as natural and manmade ones.<sup>[9]</sup> Natural disasters are usually considered as 'Acts of God' to punish human beings for their past deeds and are frequently referred to as '*Karma*'. This attribution has positive consequences in terms of coping and negative consequences by way of hindering planning and preparedness.<sup>[9]</sup> In terms of evoking mental health morbidity, natural disasters are mild in nature, human errors and technological accidents are moderate in nature and willful acts like terrorism are most severe in nature.<sup>[10]</sup> Furthermore, in rare instances these survivors may become perpetrators of the disaster to avenge their sufferings. This is well-known in war and terrorist attack.<sup>[11]</sup>

## WHAT IS THE PRINCIPLE OF DISASTER MENTAL HEALTH?

Disaster mental health services are based on the principles of 'preventive medicine'.<sup>[12]</sup> This principle of 'prevention' has necessitated a paradigm shift from relief centered post-disaster management to a holistic, multi-dimensional integrated community approach.<sup>[13]</sup> This has ignited the paradigm shift from curative to preventive aspects of disaster management. This can be understood on the basis of six 'R's such as Readiness (Preparedness), Response (Immediate action), Relief

(Sustained rescue work), Rehabilitation (Long term remedial measures using community resources), Recovery (Returning to normalcy) and Resilience (Fostering).<sup>[14,15]</sup>

## WHAT ARE THE DIFFERENT PHASES OF DISASTER MENTAL HEALTH?

Community's and individual's reactions to the disaster usually follow a predictable phase as shown in Figure 1. They are heroic phase, honeymoon phase, disillusionment phase and restoration phase.<sup>[1]</sup> Immediately after the disaster, survivors in the community usually show altruistic behaviour in the form of rescuing, sheltering, feeding, and supporting the fellow human beings. Hence this phase is called as heroic phase. This phase usually lasts from a day to weeks depending upon the severity, duration of exposure and availability of the relief sources from various agencies. Once the relief agencies step in, survivors are relocated to safer places like relief camps. Media attention, free medical aid, free food and shelter, VIP visits to the camp, administrations' sympathy, compensation package, rehabilitation promises provides immense sense of relief and faith in survivors that their community will be restored in no time and their loss will be accounted through monetary benefits. Hence this phase is called honeymoon phase, which usually lasts for 2-4 weeks.

At the end of 2-4 weeks, relief materials and resources start weaning. VIPs and politicians visit stops. Media coverage reduces. Administration, relief agencies

and NGO's involvement start fading. This brings the survivors to the ruthless world of post disaster life. The reality of complex process of rebuilding and rehabilitating appears a distant dream because of administration hurdles, bureaucratic red tapism, discrimination, injustice and corruption. This harsh reality of the disillusionment phase provides a fertile soil for breeding mental morbidity which lasts for 3-36 months before the community restores to harmony. The role of mental health workers is immense during this phase.

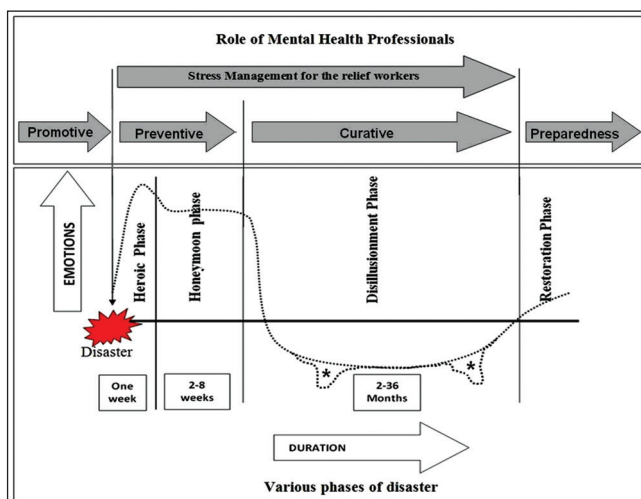
## WHAT ARE THE NORMAL HUMAN RESPONSES TO A DISASTER?

Grief is the response to any loss. Grief reactions are normal responses to abnormal situations. Its intensity is directly proportional to the severity, duration and intensity of exposure to the disaster. Grief process occurs through various stages<sup>[16]</sup> and are often experienced in waves or cycles or episodes with periods of intense and painful emotions. Usually normal grief follows the above phases with a possibility of some variation and resolves over a period of few months. Remember, survivors are normal people in abnormal situations. This issue needs to be kept in mind. The validation of their emotions needs to be done during the therapy to address the issue of:

- Survivor's guilt,
- Fear of losing control on overwhelming emotions,
- Becoming mentally ill,
- Substance use,
- Death wishes and suicidal ideas. By validation of emotions a sense of justification is provided to the overwhelming emotions.

## WHAT ARE THE ABNORMAL HUMAN RESPONSES TO A DISASTER?

A recent study reported that the existence of complicated grief in more than two-thirds of the survivors of the earthquake.<sup>[17]</sup> Abnormal grief reactions can be grossly classified into delayed, absent, oscillating and exploding grief responses.<sup>[18]</sup> Abnormal or complicated because they interfere in the process of healing and also interfere in the biological, social and occupational functioning.<sup>[19]</sup> Resolution of abnormal grief reaction can be facilitated in these groups by fostering the cultural-religious rituals of grieving. Hence, the mental health professional needs to liaison with the disaster relief administration, educate them regarding proper closure of the missing people and to facilitate the mass grieving through cultural-religious death rituals of grieving. Many of the survivors may



**Figure 1:** Depicts the various phases of disaster and role of mental health professionals. Immediately after the disaster, heroic phase sets in this is followed by honeymoon phase. Disillusionment phase is the longest and prevalence of mental health morbidity is high during this period. \* = Anniversary reactions

**Sources:** Modified from Young *et al.*, 1998<sup>[7]</sup> and published in International Review of Psychiatry, Math *et al.*, 2006<sup>[15]</sup> and further modified in Math *et al.*, 2013<sup>[15]</sup>

require trauma/grief-focused interventions, within a comprehensive disaster recovery programme.<sup>[20]</sup>

### WHAT IS THE PREVALENCE OF MENTAL HEALTH MORBIDITY IN DISASTER AFFECTED POPULATION?

Prevalence of mental morbidity in disaster affected population varies from 8.6 to 57.3 percent.<sup>[21]</sup> This magnitude of variation can be attributed to methodology of the study, defining a ‘case’, sampling procedure, timing of the study, recall bias, systematic under-reporting, cross-cultural differences and type and severity of the disaster.<sup>[22]</sup>

Mental health disorders noted during disasters can be classified into acute phase (1-3 months) and long-term phase (>3 months). Majority of the acute phase reactions and disorders are self-limiting, whereas long-term phase disorders require assistance from mental health professionals. Along with the diagnosable mental disorders, affected community also harbors large number of sub-syndromal symptoms population. Majority of them report of medically unexplained somatic symptoms, and unusual symptom clusters are classically seen.<sup>[23]</sup> Mental health professionals should be aware of this phenomenon and restrain themselves from labeling this population with mental disorder and treating them aggressively with medications.<sup>[12]</sup> Overall, prevalence rates of mental morbidity can be

approximately estimated to be two to three times higher than that in the general population.

### WHAT ARE THE COMMON MENTAL DISORDERS SEEN IN THE DISASTER AFFECTED POPULATION?

Common disorders are: Adjustment disorders, depression, post traumatic stress disorder (PTSD), anxiety disorders, non-specific somatic symptoms and substance abuse.<sup>[7,9,24-27]</sup> Researchers have assigned that the PTSD as the signature diagnosis among post disaster mental morbidity.<sup>[9]</sup> Prevalence of PTSD reported in literature varies from 4-60%.<sup>[7]</sup>

Mood disorders<sup>[28,29]</sup>, PTSD<sup>[29]</sup> and substances use disorders<sup>[30-32]</sup> are diagnosed frequently along with other psychiatric disorders. Depression is a well-known co-morbidity and can pose a challenge to any treating team.<sup>[33-35]</sup> Mental health morbidity continues to be prevalent even after 3-5 years in the disaster affected community.<sup>[26]</sup> Most commonly noted mental health problems during the initial phase among the Asian tsunami survivors were as follows in Table 1.<sup>[1,12,36]</sup>

### WHO ARE AT RISK OF DEVELOPING MENTAL HEALTH MORBIDITY?

Earlier studies predicted the following high risk variables: Severity of the disaster, threat to life, loss of

**Table 1: Mental health morbidity in disaster affected population (Sources: Math et al. 2006, Math et al. 2008a, Math et al. 2008b) <sup>[1,12,36]</sup>**

<b>Common mental health problems among adults were</b>
Relapse of any pre-existing psychiatric disorders
Adjustment disorders/Abnormal grief
Anxiety disorders like panic disorders, phobic disorders NOS, Non specific anxiety symptoms and startle response
Acute stress reactions
Insomnia
Depression/death wishes/suicidal ideas or attempts
Substance abuse & dependence (Monetary relief given is spent on substance abuse)
Post traumatic stress disorders
Non-specific somatic symptoms such as dizziness, head ache, body ache, recollection of the disaster events through images & thoughts, night mares, night terrors and so forth
Dissociative symptoms
Somatoform disorders
<b>Common mental health problems among children were</b>
Non-specific symptoms such as dizziness, vertigo, startle response, sleep wake cycle disturbances, clinging behavior, excessive crying, withdrawal, fear, anger, irritability, numbing of affect, food refusal and decreased appetite and regressive behavior.
School refusal, school dropout and academic decline
Anxiety disorders like panic disorders, phobic disorders NOS, Non specific anxiety symptoms and so-forth
ODD symptoms
Conduct symptoms – like truancy, stealing, lying and so forth
Post traumatic stress disorders
Depression
Somatoform disorders

life, loss of family members and duration of exposure.<sup>[27]</sup> Recent additions are: Female gender, children, elderly, physically disabled, single, ethnic minority, displaced population, poverty, substance use like smoking, loss of economic livelihood, poor social support and family support.<sup>[9,12,27,37-40]</sup>

Most children and young people are resilient, but also very vulnerable to the psychosocial effects of disasters.<sup>[40,41]</sup> People with pre-existing mental disorders are well known to relapse during disasters.<sup>[39,42]</sup> Similarly, people with poor coping capacity, substance use and chronic general medical conditions are also at the high risk.<sup>[9,43]</sup> Hence, general physician practicing in the area of disaster zone should be aware of high prevalence of mental health disorders in chronic medically-ill patients.<sup>[44]</sup> Similarly, disaster rescue workers are at high risk of developing psychiatric morbidity.<sup>[45]</sup>

## WHAT IS THE ROLE OF MENTAL HEALTH PROFESSIONALS IN DISASTER SITUATION?

Many mental health professionals have poor understanding of their role in a disaster response team. They are neither part of a pre-existing or post-disaster response team. They have to play a multi-dimensional role from educating, training, negotiating, administrative, fund raising, collaborative, skill transferring, treating, advocating and rehabilitating. Please see the Table 2.

In addressing the spectrum of problems during post-disaster, mental health clinics in relief camps are useful in identifying and treating moderate-to-severe cases only. Hence, the role of specialist as a clinician is very minimal. However, specialist has very important role in training local resources in simple community-based interventions. These include art therapy; informal education; group discussions; drama; structuring of daily activities; engaging in activities such as yoga, meditation, prayers, relaxation, sports, and games; spiritual activities; providing factual information; educating parents and teachers.<sup>[36,46]</sup> They were intended to provide important components of psychosocial rehabilitation such as normalizing, stabilizing, socializing, defusing of emotions and feelings, and restoration of a sense of identification with others and of safety and security.<sup>[13]</sup> These will not only help in the recovery of milder and sub-syndromal symptoms, but also in the prevention of adverse mental health consequences. Such interventions, when feasible, should begin as early as possible, targeting all high-risk populations in the affected area; however to encourage participation and avoid stigmatisation, the 'mental health/psychiatric' label needs to be avoided.<sup>[11]</sup>

Specialised care is required only in a small group of population. Majority of the care occurs informally outside the medical settings by community level workers. Training these community level workers is highly essential ingredient of the disaster management. There is a need to de-medicalise the survivor's disaster response and also to de-professionalise the service delivery and focus on capacity building of the local community. By de-medicalising and de-professionalizing, gives us an opportunity to train the survivors, lay-public, local administration, community leaders, NGO's, faith healers, religious leaders, community level workers and significant others in providing care to the survivors during disaster.

Another important role is providing care to the disaster relief workers. Disaster relief workers encounter considerable stress while providing services to people affected by a disaster and they are exposed to the same risk factors that affect clients, hence disaster workers are at risk for compassion fatigue, burnout and vicarious traumatisation.<sup>[47]</sup> In simple words it is the 'emotional cost on the relief workers by caring the disaster victims'. Vicarious trauma can also impact the relief worker's personal life, as well as the relief operation. It is essential to monitor the disaster relief workers mental and physical health status during disaster pre-deployment (assessment of personality and training), deployment (hand holding) and post-deployment phase (to build resilience).

Majority of the disasters require temporary external aids. These should be culturally appropriate and targeted towards empowering the affected community to enhance their camaraderie and competence to cope with future disasters.<sup>[12]</sup> Disaster management needs to follow the *principle of democracy*. That is 'of the people, by the people and for the people' for disaster assistance to be acceptable, accessible, adaptable and adoptable for long-term community participation and empowerment.<sup>[14]</sup> Similarly The Sphere Project advocates humanitarian charter and identifies minimum standards for disaster assistance to promote accountability and share standards of good practice.<sup>[48]</sup>

Recent, Uttarakhand Disaster relief work team in 2013 from National Institute of Mental Health Neuro sciences, Bangalore reported that the mental health infrastructure and manpower is abysmally inadequate, none of the district in the Uttarakhand had District Mental Health Programme and Substance use was highly prevalent in the community and at the same time it is to be noted that there are no treatment for de-addiction or de-addiction rehabilitation centre was available across the entire state of Uttarakhand.

**Table 2: Role of mental health professionals in disaster (Source: Math *et al.* 2011<sup>[14]</sup>)**

**I. During pre-disaster period (preparedness)**

Public Education Activities – Life skills education, educating about the disaster mental health  
 Disaster Response Network – to develop collaboration with various existing agencies like governmental agencies, NGO’s and community health workers  
 Disaster response training of trainers in –  
     disaster mental health  
     first aid training (both medical and psychological)  
     counseling skills  
     stress management  
     identifying common mental disorders and referral  
     life skills training  
 Psycho education regarding mental health in trauma/disaster for the general population  
 Community level support and community resilience training  
 Strengthening Information, Education and Communication (IEC) activities

**II. Immediately after the disaster (heroic and honeymoon phases)**

Being part of the multi-disciplinary relief team  
 Rapid assessment (mental health surveillance)  
     magnitude of the psychological impact  
     available mental health resources in the affected community  
     needs assessments  
     social, cultural and religious perspective of the community  
 Providing health care  
     medical and psychological first aid  
     the pre-existing mentally ill patients  
     substance intoxication and withdrawal in survivors  
     crisis intervention  
     establishing the referral system  
 Providing targeted disaster mental health interventions to the needy  
 Disaster psychiatry outreach teams to provide care  
 Promoting of resilience and coping  
 Dealing with the victims and volunteers stress (stress management)  
 Fostering the mass grieving / mourning  
 Collaborating with administrative and funding agencies  
 Mental health education – do’s and do not’s  
     Educating the administrative personnel, local leaders and public  
     Utilizing mass media to reach the survivors  
 Initiating collaboration with the local agencies for capacity building and outside agencies for support  
 Planning research

**III. During disillusionment phase**

Providing care for the mental ill patients  
 Attending to the referrals  
 Continuing and expanding the capacity building activities  
 Training of resourceful community members like private physicians/doctors, primary health care staff, paramedical staffs, school teachers, anganwadi workers, alternative complementary medicine personnel’s, religious leaders, spiritual leaders and faith healers  
 Community outreach camps  
 Hand holding of the community health workers  
 Assessment of the interventions and feedback mechanism

Hence, the disaster relief team submitted a report to the Government of India to implement the National Mental Health Programme to increase the mental health infrastructure at least in the four major disaster affected districts in Uttarakhand.<sup>[49]</sup> Thus, mental health professional plays crucial role in various forms from providing care, training, advocacy, rehabilitation to hand holding of the other disaster relief workers.

**WHAT IS THE EFFICACY OF THE PSYCHOLOGICAL INTERVENTIONS?**

**Psychological First Aid**

Survivors may exhibit a range of physical, emotional, and cognitive symptoms. This heightened emotional state is similar to classical fight/flight/freeze reaction of stress. Affected person may not be in a position

to think and act rationally during disaster. Similar to medical first aid, psychological first aid techniques can be performed by minimally trained nonprofessionals within the affected community.<sup>[50]</sup> Disaster relief workers need to be trained in assessing the high-risk survivors. The assessment need to be initiated by the relief worker for assessment of:

- a. Dangers to self and others
- b. Disoriented to time/place/person
- c. Death of family member/s in disaster
- d. Direct threat to life because of disaster
- e. Disaster related significant physical injury to self or family members
- f. Delayed relief/evacuation
- g. Missing family member/s and
- h. Past history of mental illness and substance use.

After the brief assessment appropriate steps needs to be taken by providing psychological first aid<sup>[51]</sup> as shown in Table 3.

More recently, there has been a revived interest in 'psychological first aid' (PFA). It was initially described by Raphael (1986) for use in the civilian domain.<sup>[52]</sup> The main goal of this is to relieve immediate distress and to prevent or minimize the development of pathological sequelae.<sup>[53]</sup> The concept of psychological first aid for individuals exposed to highly traumatic events has been used in the field of crisis management and disaster mental health for many years.<sup>[54]</sup> The psychological first aid was developed to reflect current best practices in disaster mental health based on research, expert consensus, and practical experience. However, there are no systematic studies to answer the efficacy and usefulness of the PFA.

### Debriefing

It is defined as group discussions that occur within 48-72 h after an event and are often referred to as 'psychological de-briefings'.<sup>[55]</sup> In general, these

sessions encourage participants to describe and share both factual and emotional aspects of their disaster experience.<sup>[43]</sup> Principle behind this debriefing is that immediate processing gives an individual the ability to cognitively restructure the perceived disaster event so that it is remembered in a less traumatic way.<sup>[7,55]</sup> There are various modified forms of debriefing such as Critical Incident Stress Debriefing (CISD)<sup>[56]</sup> and Critical Incident Stress Management (CISM).<sup>[57]</sup> Debriefing is successfully used and implemented in military combat settings and in relief workers.<sup>[58,59]</sup> However, effectiveness of debriefing in survivors is controversial. While some studies do suggest, it may actually produce harm.<sup>[60-64]</sup> However, debriefing occurring outside the therapeutic setting is unaccounted till date. Many of the survivors and relief workers like to talk about the disaster responses to family members, spouse, friends, colleagues and significant others.<sup>[65]</sup> Effect of such debriefing is not been explored in a systematic way.

### Cognitive Behavioral Intervention (CBT)

CBT have been found to be effective in reducing subsequent psychopathology after the exposure to disaster.<sup>[66,67]</sup> There are randomised controlled studies to support the findings that early intervention CBT group had less of PTSD when compared a control group.<sup>[68-72]</sup> Although these studies report of positive results but there are no long-term follow-up studies. Recent review by Robert and his colleagues<sup>[73]</sup> reported that trauma-focused CBT within 3 months of a traumatic event appears to be effective CBT appears to be promising in mitigating the suffering of disaster. However, in a developing country like India, where the availability of the trained manpower is meager, use of computerised version of CBT requires to be explored.<sup>[74]</sup>

### Other interventions

Recently there has been re-emergence of interventions such as Eye Movement Desensitization and Reprocessing

**Table 3: The principal components of psychological first aid (Source for this table is modified and adapted from World Health Organization 2011<sup>[51]</sup>)**

<b>Getting in touch with survivors:</b> to respond and to initiate contacts in a nonintrusive, compassionate, and maintain a calm presence with helpful manner.
<b>Protection from further threat and distress:</b> Providing accurate information about the disaster, about the current disaster response and available services. Protecting survivors from unnecessary exposure to additional traumatic events and trauma reminders.
<b>Immediate physical care:</b> Addressing physical health needs (medical first aid), injuries, access to medicine and referral to triage.
<b>Helping to locate family members:</b> To address issues like helping to locate family members, protection and safety concerns of loved ones.
<b>Sharing the experience (but not forced):</b> In simple words "telling one's story" in detail
<b>Normalization or Validation of the emotions:</b> To allow people to ventilate and process their thoughts, emotions, and experiences while providing them with appropriate validation or normalization of their reactions. At times brief handling of 'survivors syndrome'
<b>Facilitating a sense of being in control:</b> To provide psychoeducation to survivors about stress reactions and coping to reduce distress. Information on adaptive and maladaptive coping is provided, along with very brief relaxation techniques that can be used in acute post disaster settings.
<b>Linking survivors with sources of support and resources:</b> This includes using appropriate referral procedures. Linking with available resources and promoting continuity of services. Providing practical assistance in vulnerable individuals like children, females and elders. Information about social support and how they can seek or give support.
<b>Identifying those who need further help and referral:</b> Monitoring high-risk individuals like substance/drug users, pre-existing mental illness, prolonged or intense exposure to trauma, death of loved ones and survivors guilt for future interventions

(EMDR)<sup>[75-77]</sup> and trauma counseling<sup>[78]</sup> in management of disaster. However, the effectiveness of these procedures requires to be established. In a recent Cochrane review by Bisson and Andrew 2007, reported that there was evidence individual CBT, EMDR, stress management and group TFCBT are effective in the treatment of PTSD.<sup>[75]</sup>

### Community-Based Interventions

Non-specific community based interventions plays major role in fostering the healing process. These intervention include, structuring of daily activities; avoiding displacement; fostering the family, cultural and religious rituals; group discussions; validation of the emotions of the survivor's experience and also survivor's guilt; providing factual information; educating parents and teachers; engaging the children in various informal education methods with innovative ideas like drawing, sketching, singing, miming and so forth by using available community resources; engaging the adult survivors in camp activities like cooking, cleaning and assisting in relief work; to start schools in the disaster affected area at the earliest so that normalisation and structuring of the daily activities occurs in children<sup>[36]</sup>; at least to initiate informal education; teaching simple sleep hygiene techniques; educating survivors about harmful effect of substance use; community-based-group interventions can be planned like art therapy (painting/drawing), group discussions, dramas, storytelling, structuring their day, engaging in activities, prayers, yoga, relaxation, and sports/games; stress management of the relief worker is essential; engaging the willing survivors in spiritual activities and involving the survivors in re-building their community is essential.<sup>[12,36]</sup> These non-specific interventions not only help the high-risk population but also the affected disaster general population.

### WHAT IS THE ROLE OF PSYCHOTROPIC MEDICATIONS IN DISASTER MANAGEMENT?

Generally use of psychotropic medications is discouraged in disaster management because of the popular notions like a) disaster reactions are generally normal people in abnormal situations and b) majority of the symptoms are self limiting. Prophylactic uses of psychotropic medications in survivors are discouraged. There are no well controlled studies to say that prophylactic use of medicine decreases psychiatric morbidity. Various medications have been tried such as Propranolol<sup>[79,80]</sup>, Clonidine<sup>[81]</sup>, Guanfacine<sup>[82]</sup>, Prazosin<sup>[83]</sup>, Amitriptyline<sup>[84]</sup>, Imipramine<sup>[85]</sup> and Risperidone.<sup>[86]</sup> Use of benzodiazepines such as Clonazepam<sup>[87]</sup> and Temazepam<sup>[88]</sup> for longer duration have been considered to be greater risk factors for developing PTSD. None of the medication has been

found to be effective in preventing psychiatric morbidity in well-controlled studies. Majority of the studies were open label trial, small sample size and from different population such as combat veterans, accidents victims and burns victims. Extrapolation of data from these studies cannot be used as justification to use in a disaster settings. However, use of prophylactic psychotropic medications may be justified in pre-existing mental illness to avoid relapse, in acute substance withdrawal to avoid complications, suicidal attempt and severe depression. Considering the paucity of evidence it is difficult to recommend prophylactic psychotropic medication in the disaster setting.

### WHAT RESILIENCE FACTORS NOTED IN MITIGATING THE SUFFERING?

Resilience means the speed with which homeostasis is achieved after displacement.<sup>[89]</sup> This concept of resilience has been applied to describe the adaptive capacities of individuals or community in response to adversity like disaster. Majority of the research on disaster is on psychopathology rather than on resilience factors which protect the people in developing mental health morbidity.<sup>[90]</sup> There are no systematic studies, however preliminary research have yielded following resilience factors; a cohesive community, community resources, minimal displacement, good social support and network, preserved family system and support, altruistic behavior of the community leaders, minimal materialistic needs, religious faith and spirituality have been associated with the good outcome and community resilience. This was noted in the native population of the Andaman and Nicobar Islands of India<sup>[12]</sup> and in survivors of Thailand. Contemporary civilised world requires much learning from the native's of Andaman and Nicobar islands. The resilience factors need to be identified and studied systematically in a well controlled disaster population.

### CONCLUSIONS

Disasters are inevitable truth of life. Planning and preparedness is highly essential to meet challenges. Disaster management is a continuous and integrated cyclical process of planning, organizing, coordinating and implementing measures to prevent and to manage disaster effectively. Thinking from 'when' the disaster strikes to 'if' the disaster strikes has necessitated a paradigm shift from relief centered post-disaster management to a holistic, integrated and preventive approach based upon principles of disaster prevention, preparedness and mitigation. It revolves in responding to the emotional and psychosocial needs of people affected by disaster. Community-based group interventions should begin as early as possible, targeting all high-risk populations in



the affected area; however to encourage participation and avoid stigmatisation, the 'mental health/psychiatric' label needs to be avoided with disaster mental health programmes. Approach towards management should be conservative in medication and avant-garde in psychosocial approach. There is a need to de-medicalise the survivor's disaster response and also to de-professionalise the service delivery through local community level workers. Rehabilitation efforts planned should be culturally appropriate and targeted towards empowering the affected community to enhance their camaraderie and competence to cope with future disasters. Involving the local affected community not only helps in capacity building but also in community participation.

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