

# PSYCHOSOCIAL CONSEQUENCES OF DISASTERS

## PREVENTION AND MANAGEMENT

This document is a slightly revised version of one produced under the same title early in 1992. The need for reprinting has enabled minor changes to be made, responding to comments on the earlier version. The document examines the taxonomy of disasters, their epidemiology and their psychosocial consequences. It goes on to describe techniques and strategies of psychosocial response to disasters, with an emphasis on the possible models of supervision and training by mental health professionals.



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# INTRODUCTION

## Background

UN General Assembly Resolution 42/169, adopted on 11 December 1987, designated the 1990s as a decade for natural disaster reduction: this resolution reminds its readers that natural disasters, such as those caused by earthquakes, windstorms, tsunamis, floods, landslides, volcanic eruptions, wildfires and other calamities, have killed about 3 million people worldwide over the past two decades, adversely affected the lives of at least 800 million more people, and resulted in immediate economic damage exceeding US\$ 23 billion. "The smallest and poorest countries are affected most severely by natural disasters, and the poorest and most disadvantaged members of a disaster affected community are likely to experience the most serious consequences" (UNDRO, 1984). Therefore in the majority of developing countries, consequences of disasters, because of their severity and frequency, represent a real public health priority.

Several agencies of the United Nations have developed programmes which could help countries to be better prepared to cope with natural and man-made disasters. WHO is participating in this effort and has produced this document as part of its contribution to countries' preparedness, prevention and mitigation of the effects of disasters worldwide.

There are two United Nations Offices dealing specifically with matters related to disasters namely the UN Disaster Relief Co-ordinator's Office (UNDRO), which provided inputs into the development of this document, and the Office of the UN High Commissioner for Refugees (UNHCR). WHO is currently collaborating with UNHCR in the development of a manual on refugee mental health, with an emphasis on applications in refugee camps in developing countries.

Within WHO, the Division of Mental Health collaborates with the Division of Emergency Relief Operations, to provide a psychosocial input into the activities of the latter programme. The WHO Regional Office for the Americas

(the Pan American Health Organization) is also very actively involved in this area and has produced a slide programme on Mental Health Management in Disaster Situations (in Spanish and English).

There has been a general tendency in the past to consider that the basic needs of the populations affected by a disaster were to be met essentially in terms of providing shelter, food, sanitation and immunization against epidemics. Their psychosocial needs were seen as something too secondary to attract the attention of relief agencies and relief workers. Over the last few years however, a different trend has become evident and there is now wide recognition of the fact that populations affected by a disaster have special psychosocial needs.

WHO's role in disasters has gradually shifted from providing emergency relief to incorporating also disaster preparedness, including involvement in training and in the assessment of possible future needs. One of WHO'S strategies for emergency preparedness and response is strengthening the national capacity to cope with disasters. WHO's target for the Eighth General Programme of Work, covering the years 1990-95, is that by 1995 "70% of all countries will have developed master plans appropriate to their particular circumstances to deal with the health aspects of emergency and disaster situations" (WHO, 1987). Since in many countries disasters, because of their frequency and severity, lead to adverse affects on mental wellbeing, these master plans should include a mental health component.

In general, the key activities for coping with disasters and disaster risks are essentially **preparedness**, which involves all actions designed to minimize loss of life and damage, and to prepare for timely and effective rescue, relief and rehabilitation should disaster strike; **prevention**, which may be described as measures designed to prevent phenomena from causing or resulting in disasters or other related emergency situations; and finally **mitigation**, which means

reducing the effects of severely damaging events on man and his environment once they have occurred.

The importance of preventive measures and preparedness, the integration of an emergency response within regular WHO programmes, and the linkage with development have been emphasized in the resolutions adopted by WHO in 1981 and 1985. Each of these aspects of coping with disasters should include consideration of the related psychosocial components. These can have an impact on people's behaviour before, during and after a disaster occurs, as well as being important in influencing the overall patterns of post-disaster morbidity.

## Definition and description of disasters

### Definition

A disaster is a severe disruption, ecological and psychosocial, which greatly exceeds the coping capacity of the affected community. This will be the definition that is used in this document. However, what constitutes a disaster for one community might not necessarily do so for another. The difficulties of conceptualization arise because, "upwards a disaster is unlimited, downward one has to draw a line somewhere". In common daily usage, the term "disaster" refers to a great misfortune causing widespread damage and suffering.

There is, however, no consensus on a scientific definition of the term: there are in fact more than 40 different definitions of disaster in the literature (Korver, 1987). A disaster is a very complex, multi-dimensional phenomenon. An event may be a disaster along certain dimensions, such as ecological, economic, material, psychological or social, but is unlikely to be one along all of these in any specific event. Often the number of human lives lost is an important criterion for defining a disaster.

The definition may be dependent upon the event itself, or solely on the consequences of the event. The term disaster ordinarily emphasizes fast, destructive change. This may exclude permanent problems from the disaster definition, for instance famine in many parts of the world, even when the consequences of the starvation are disastrous. To declare an event a disaster may influence, among other things, the amount of help offered. The concept also has emotional and political implications.

Much of the confusion in defining a disaster is caused by the diverse interests of those dealing with the event, be it in medicine, sociology, political science or ecology. The definition adopted usually reflects the role of the organization using that specific definition.

From a psychosocial perspective, it is important to consider both the medical disaster definition (an emergency situation in which the victims are so numerous that the treatment needs far outweigh the resources available at the moment; here there is an immediate need to bring in extra resources) and the sociological.

Common elements to be considered in the conceptualization of disasters include:

1. A disaster disrupts the social structure and cannot be handled by the usual social mechanisms. This disruption may create more difficulties than the physical consequences (Quarantelli, 1980).
2. There are several important variables which can moderate the impact of disasters. These include, the ability of the victims to adjust psychologically, the capacity of the community structures to adapt to the crisis and the amount of help available.
3. The concept of disaster changes over time and among different cultures. Among some populations, especially in developing countries, a lengthy first-hand experience of coping with natural disasters has produced the creation of specific "disaster sub-cultures", which are likely to affect their pattern of psychosocial reactions to the disaster situation.
4. Since catastrophic events are frequent in many developing countries, this may unfortunately raise the threshold for an event to be considered a disaster. Nevertheless this should not lead to a failure to recognize and respond to the adverse effects that may occur, even with repeated disasters; these may undermine the morale and resources of the community even further, and may lessen its capacity to adjust.

The term "personal disaster" (Raphael, 1985) has been used to refer to a severe trauma affecting a small group or a single individual. This document however, deals only with those disasters affecting large numbers of people.

## Taxonomy

There are many possible ways to classify disasters which may have important consequences with regard to the way people react and the types of help required.

From the prevention and preparedness viewpoint, the following classification is generally used:

**Natural disasters** — Earthquake, flood, cyclone, hurricane, tornado, landslides, volcanic eruption, drought.

**Man-made disasters** — Technological disasters such as toxic, chemical and nuclear accidents, dam collapse or transport accidents.

Man-made disasters are caused by human failures or accidents, or are due to violence or war. The feeling that someone is to blame may make it more difficult for victims to cope with the situation. However, a clear distinction between what is man-made and what is natural is sometimes impossible, because of the increasing effects of man's actions on the overall ecological balance or other human contributions.

For instance in an earthquake, the poor construction of buildings can contribute significantly to damage and loss of life. The failure of authorities to provide adequate warning of a "natural" danger can contribute to the loss of life and damage. Any rise in the level of the oceans due to pollution causing a "greenhouse" effect, may increase the likelihood of floods. Famine or social conflicts may strike certain parts of countries, not just because of drought and crop failure but also because of transport problems, hindering the movement of food. Bush fires may or may not be started by man. These examples are just a few amongst many possible ones that demonstrate the blurring that can exist between natural and man-made disasters.

The speed of occurrence is another important dimension to be considered in assessing disasters and their consequences on the affected population. Perhaps the most well known typology of disasters however, is that of Barton (1969). He suggested four main dimensions: scope of impact (geographical, number of people); speed of onset (sudden, gradual, chronic); duration of impact (e.g. repeated episodes); and social preparedness of the community.

A further important dimension has been added (Green, 1982) which refers to whether disasters are *central* or *peripheral* with respect to a geo-

graphic community. In one which happens to a group of people who have come together by chance (e.g. an airplane crash), survivors return to their respective geographic communities where the physical setting and social support networks are still intact. Such disasters could be considered geographically peripheral. An intermediate type, according to this dimension, would be one which occurs to a group of people within a community and, hence, affects the whole community in some sense, but where there still unaffected members of the community and the physical settings (homes, neighbourhoods) remain unchanged.

The most central type of disaster would be one in which the whole physical and organizational structure of the community is deeply changed (e.g. earthquake, floods, etc.), because homes are destroyed, people are relocated in different surroundings with strangers, etc. In this central type the traumatic aspects are not limited to the impact of the physical event itself, but may continue for a relatively long period of time and include many subsequent additional traumas, changes, and disruptions especially of a psychosocial kind, requiring further adjustments.

## Transnational character of many disasters

Many disasters are transnational or international in their effects and impact. For instance nuclear or toxic accidents may have effects on many countries across frontiers and at considerable distances from the place where the event occurred. The nature of frontiers (legal, official, political) cannot prevent this, and there are many implications for disaster response. Similar problems may arise in international transport accidents such as air crashes.

An adequate response to such transnational disasters has to be set up at the same transnational level. This means that international coordination by a specialized health agency such as WHO is undoubtedly needed in terms of preparedness and intervention programmes, in order to ensure consistent and uncontradictory responses in the various countries affected. Moreover WHO is in a special position to ensure a common scientific international language among the various researchers and clinicians active in the medical and psychological field. The adoption at an international level of the 10th Edition of the ICD is an important step in this direction (WHO, 1990).

### **Epidemiology of disasters and morbidity profiles of the affected populations**

Estimates of the major disasters which occurred worldwide (excluding the United States) from 1900 up to 1988, indicate that, in these 9 decades, about 339 million people have been affected by floods, with a total of 36 million rendered homeless; 26 million have been affected by earthquakes, with similar numbers affected by typhoons and cyclones, creating another almost 10 million homeless people; finally, 3.5 million have been affected by hurricanes, resulting in 1.2 million people without homes. From 1970 to 1981, floods were the most frequent disaster, comprising more than one-third of all disasters occurring in that decade. Windstorms were the next most frequent disaster (one fourth of the total number), while earthquakes caused the greatest number of deaths and monetary loss.

The actual numbers killed in disasters is estimated to be some 3 or 4 times higher in developing countries than in the developed. The striking difference however is in the number of survivors who are affected, which is estimated to be some 40 times higher in the developing countries. One must presume that this indicates a massive psychosocial as well as physical need for this latter group.

The geographical distribution of disasters between developed and developing countries deserves attention, as there seems to be a relationship between the location of a disaster on the one hand, and the severity of its consequences on the other. Out of the 109 worst natural disasters which occurred between 1960 and 1987, as selected and studied by Berz (1989), 41 occurred in developing countries; however, the number of deaths caused among the affected populations was far greater in the developing countries (758 850 deaths in developing countries as compared to only 11 441 in developed countries).

In general the number of deaths and injuries and the amount of damage is closely related to the prevailing level of economic development. An UNDRO publication (1984) shows a list of disasters for the period 1960-81 resulting in the greatest numbers of people killed. All occurred in countries characterized by a low-income economy: Bangladesh (633 000 deaths), China (247 000 deaths), Nicaragua (106 000 deaths) and Ethiopia (103 000 deaths).

The extent of risk among many populations, especially in developing countries, has increased over the last few decades due to increasing population size, greater population density in vulnerable areas and the strong tendency of large populations towards urbanization. There has also been a concurrent increase in the magnitude of certain types of man-made disaster. Very little however is known about the stress-related disorders caused by such events, which represent an important area in need of investigation.

In disaster situations certain vulnerable groups tend to exist. High mortality may be seen among elderly people and young children. Children up to 2 years old may show lower mortality than their elder brothers or sisters, perhaps because parents protect their youngest children but cannot afford to help older ones. Pregnant or lactating women and persons already suffering from existing disease are also more vulnerable, as are the poor or certain minority groups who might for instance, have no choice but to live in flood-prone areas.

The morbidity: mortality ratio, as well as its relation to property destruction, is specific to each type of disaster. For example, in big earthquakes the ratio of morbidity: mortality is usually 3:1. Floods show high mortality rates but few injuries. Hurricanes cause fewer injuries and deaths, but great loss of property.



# EPIDEMIOLOGY AND DESCRIPTION OF PSYCHOSOCIAL REACTIONS TO DISASTER

## Historical perspective

The first systematic studies of the psychological and psychiatric consequences of a disaster were undertaken by Eduard Sticrlin (1909) from Zurich who investigated 21 survivors of a mining disaster in 1906 and 135 persons two months after the earthquake in Messina in Italy in 1908. The history of traumatic neurosis in European medicine is well described by Fisher-Homberger (1975) who demonstrated that the understanding of the disorder during the 19th and early 20th century was very much influenced by political, military, economic and cultural factors, with an over-emphasis on an organic basis for traumatic neurosis. However, during World War I the psychological nature of the disorder was better understood.

During World War II, the study of how civilian populations reacted to disaster traumas was further advanced. The air raids against cities was the background for a series of valuable investigations carried out in England during the early war years. A striking finding was that the expectations of "mass neuroses" in a bombed civilian population did not occur. Unfortunately the war time psychiatric experiences have not been fully incorporated into the disaster literature, although psychosocial interventions in disasters have been influenced by insights gained during war, lately the Vietnam war. Among wartime psychiatric cases both stable as well as vulnerable personalities were found, but the latter did not recover within weeks as did the former. The military psychiatric experiences from World War II influenced civilian clinical practice with the introduction of the therapeutic community, group treatment, forward psychiatric treatment and crisis intervention.

Of special note is the Coconut Grove night club fire disaster in Boston in November 1942, which claimed the lives of 491 persons. This disaster has come to occupy a special position in disaster psychiatry because it represents one of the first systematic civilian studies on the acute psychological reactions in victims of physical

injury, danger traumas and loss traumas (Lindemann, 1944). Until the 1970s however, the psychosocial disaster literature was periodic and unintegrated. Since the 1970s a rich literature, largely American and Australian, has been published. There is also important work in other languages (German, Russian, Spanish and French). As a research field, however, the study of the psychosocial consequences of disasters is still relatively untouched.

## Phases of emotional reactions to disasters

Emotional reactions may be divided into the immediate experience during the disaster and those reactions occurring after the event, some of which may appear soon and others late.

### *The immediate experience*

The immediate reactions reflect the most horrifying dimensions of disaster related to severe physical injury, exposure to extreme danger, witnessing death of close ones or mass deaths and injuries, traumatic experiences of helplessness, hopelessness, separations, and the need to choose between helping others or fighting for one's own survival. Maladaptive reactions during exposure to a disaster such as paralyzing anxiety, uncontrolled flight behaviour and group panic, may be incompatible with survival. In studies of disaster behaviour the individual's level of preparedness, disaster training and education have appeared as the most important determinants of a good outcome (Weisaeth, 1989). (Being able to cope in the immediate trauma situation also came out as a strong protector in terms of longer term psychiatric sequelae).

Panic is said to be rare in natural disasters, but in crowded areas like subways, trains and skyscrapers, disasters can evoke panic more easily. Health education programmes and previous training in simulated disaster situations can help affected populations to avoid panic and respond more appropriately.

*Emotional reactions after the "event"*

Many different emotional reactions may occur after a disaster. In the beginning many people feel numb, or even elated and relieved, often with strong positive feelings about having survived. Gradually however, the stress effects may show, although these reactions are usually relatively short-lived and may be considered a normal reaction to a traumatic experience.

Common post-disaster reactions include intense feeling of anxiety, which may be accompanied by "flashbacks" or intrusions and frightening memories of the experience. There may be nightmares, waking the person with panic. Any reminder may trigger these feelings, and the person may try to avoid all such reminders or to shut out feelings (avoidance response). Anxiety and intrusive memories or reexperiencing, especially of life threatening or gruesome encounters with death, may alternate with numbness and avoidance. The affected person may also be highly aroused, as he or she is fearful and trying to protect himself or herself from a return of the frightening experience. Normally all these reactions settle over the first weeks. If however, these reactions are maintained at a high level and for more than a few weeks, they represent a post-traumatic stress disorder (PTSD). Occasionally the symptoms may not appear for several months or more. Spontaneous recovery occurs in the majority of cases but in a small proportion the conditions can last many years.

In silent toxic or nuclear disasters, when no impressive destructive event occurs, the external danger may be invisible and people are likely to focus on their physical health. Uncertainty and insecurity may create anxiety and fear reactions and their accompanying somatic symptoms may induce a false perception of being physically ill, resulting in pressure on somatic health services.

### **Epidemiology of psychological disorders following a disaster**

As stated by Perry and Lindell (1978) and by UNDRO (1984), different views have been expressed by various authors about the extent of psychological disorders following a disaster. Some hold the position that disasters represent catastrophic events producing adverse psychological reactions among most victims, while others suggest that the extent of the problem has been overestimated, and that psychological problems due to the stressful event(s) appear only

among people with a preexisting vulnerability. The latter view can be found especially in some of the sociological literature, mainly from the US. There may be certain reasons why this view has been put forward: (a) some of the disasters cited involved little loss of life and mainly involve material damage, (b) poor detection methods were used to find psychological disturbance.

There may be a tendency in some cases to dismiss certain severe psychological reactions to disaster as only "natural". It should be noted however that severe bruising and fractures may be quite "natural" reactions to a fall from a height, but this does not diminish the intensity of the suffering or obviate the need to help those affected.

Up to a few years ago, little was known about the psychiatric epidemiology of disasters in developing countries. In fact with the exception of some recent work in the United States and Australia, very little is known of the true incidence of psychological traumas and related disturbances following disasters even in developed countries. Previous research was based on unsystematic clinical observations or crude indicators of psychiatric morbidity such as admissions to psychiatric hospitals (e.g. Ahearn, 1981). Only following disasters in recent years in Colombia 1985, Mexico 1985 and Puerto Rico 1985, have systematic studies been carried out. They suggest that victims present marked and prolonged psychosocial problems whose prevalence is significant. Because of the often devastating physical impact which natural disasters have on populations living in developing countries and because of the scarcity of resources there, interventions have generally been confined to rescue and to the provision of basic medical care, with a corresponding neglect of psychological needs and related epidemiological research and intervention. Furthermore, the existence of some clear "disaster sub-cultures" among populations with lengthy experience in coping with natural disasters, especially in developing countries, makes it difficult to apply findings from research carried out among populations only exceptionally affected by a disaster". The different culture patterns, social structures, and coping behaviours may reasonably modify the incidence, the severity, and the psychosocial outcome, pointing to a need for specific research on these populations.

The specific behavioural pattern, characterized by a stunned, dazed, and apparently disen-

gaged behaviour, called "disaster syndrome", has been described as a response to impact and immediate aftermath. It is said to occur in about 25% of those affected by disaster (Frederick, 1981; Raphael, 1986). On the other hand Duffy (1988) has stated that a "disaster syndrome", represented by the immediate post-disaster reaction, is present in up to 75% of victims during the first hours or days after the event. Anxiety or anxiety-related reactions are extremely common. They may continue from the high arousal that comes with impact or, more often, emerge after a latent period of a few hours or days. In different studies which employed a psychiatric screening schedule to assess the psychological status of the victims of the disaster, the percentage reacting over the first weeks as shown by the questionnaire score seems to vary from 70% or more to 20%, in large part correlating with the severity of the experience. Levels may remain high in the early weeks. Then, by 10 weeks, there is usually a significant drop with a gradual decrease continuing over the first year (Raphael, 1986).

Disturbances may carry over from the immediate disaster experience impact phase to the immediate post-disaster phase: for example in some industrial disasters studied, about 15% of the affected populations displayed the derealization/apathy symptoms of the disaster syndrome with absence of emotions, lack of response, inhibition of outward activity with stunned, shocked and dazed appearances. Disorganized flight behaviour is common, whereas brief psychotic reactions occur only in a small minority. The physical symptoms of anxiety and stress are more frequent. These symptoms are important in that they hamper the person's ability to carry out planned actions, and may become the starting point of a somatization process (which can be misinterpreted as physical injury, illness, toxic poisoning etc.).

According to Raphael (1986), psychological morbidity tends to affect some 30-40% of the disaster population within the first year following it. At two years, levels are generally less but with a persistent level of morbidity that seems to become chronic for some individuals and for some disasters. Disasters that are man-made and with high shock and destruction show persisting levels of over 30% severe impairment. Contrasting findings from different studies can be explained in terms of differences in sampling methods, methodologies, diagnostic categories, and types of disasters under study, as well as

differences in interpretations of the same data. More specific evaluations of morbidity patterns have examined mortality, psychosomatic illness, mental health problems, physical symptomatology, consultation-based health care utilization, hospital admission and alcohol and drug usage. Mental health problems, as defined by a range of different measures, are shown as increased in systematic studies. The diagnostic inconsistencies among different studies and different research groups are especially important. The ICD-10 (WHO, 1990) provides a useful conceptual framework for clinicians and researchers active in this field, recognizing three main diagnostic categories of disorders caused by exceptionally stressful life events producing an acute stress reaction, or by a significant life change leading to continued unpleasant circumstances which result in an adjustment disorder. The three main diagnostic categories are: (i) acute stress reaction (F43.0); (ii) post-traumatic stress disorder (F43.1); (iii) adjustment disorder (F43.2). In addition the ICD-10 recognizes enduring personality change after a catastrophic experience (F.62.0).

A recent thorough review has analyzed the relationship between disasters and subsequent psychopathology for 52 studies which used quantitative measures (Rubonis & Bickman, 1991). The authors examined relationships among four sets of variables: (a) the characteristics of the victim population, (b) the characteristics of the disaster, (c) the study methodology and (d) the type of psychopathology. In the studies examined, between 7 and 40% of all subjects showed some form of psychopathology. The type of psychopathology with the highest prevalence rate was general anxiety (almost 40% of the studied subjects), although its variability is also among the highest. Phobic symptoms (32%), psychosomatic symptoms (36%) and alcohol abuse (36%) appeared to show slightly lower levels of prevalence, with depression (26%) and drug abuse (23%) somewhat lower still. Using meta-analytic techniques, the authors showed that in these studies a positive relationship emerged between disaster occurrence and psychopathology, indicating an increase of approximately 17% in the prevalence rate of psychopathology (compared with a pre-disaster or control group rate) as a result of a disaster. The number of female victims in the samples studied, the death rates, and the amount of time that had elapsed since the disaster event were all directly related to the amount of psychopathology.

Finally, higher impairment estimates were found for naturally caused disasters (e.g. volcanic eruptions) as opposed to those caused, at least in part, by humans (e.g. nuclear accidents). This latter finding however contradicts much of the literature published so far.

The severity of the stressor (for example threat or loss) has been strongly correlated in all studies, with the severity of the pathology or reaction engendered, although other vulnerability factors are also important. The main clearly defined syndromes that appear following disasters are the PTSD, the survivor syndrome and the disaster bereavement syndrome. As regards the first, social withdrawal contributes most to impairment. An interesting finding from some studies is that irritability, anger and aggression increased over the four-year follow-up. Irritability is in fact, a very common reaction, and is perhaps especially so with "man-made" disasters in which a human agency can be blamed. Bereavement disorders, when chronic, are notoriously resistant to treatment.

Not only psychological disorders but also physical disorders and mortality rates have been shown to be higher in survivors of disaster. In particular the rate of coronary heart disease morbidity and mortality is increased. This has been shown in a study of earthquake survivors (Katsayanni et al., 1986). Studies have also shown that this increase in physical disease is particularly marked in the year after the disaster amongst the relatives of people who died at that time. It is presumed that this increase in disease is caused by psychological factors.

### **Relationship between type of disaster and the type and severity of reactions**

The severity of psychosocial reactions to a disaster will depend on many factors in the individual and the community. Where there is great loss of life there is likely to be much grief and perhaps disruption of family and community life. Loss of homes and property may destroy the sense of the community and create stress in association with the hardships. Where support is available and some meaning can be made of what has happened, and especially when there are opportunities for individuals and the community to be actually involved in their own recovery, the outcome is likely to be better. Where there is obvious blame, human negligence, malevolence or violence, and little support, the outcome is

likely to be adverse. Similarly when there is little support or people feel helpless and unable to take charge of their own recovery, this also has a negative effect on the outcome.

### **Specific psychosocial consequences following disaster**

#### **Post-traumatic stress disorder**

The most severe psychiatric disorder consequent upon disaster is represented by post-traumatic stress disorder. This arises as a delayed and/or protracted response to a natural or man-made disaster of an exceptionally threatening or catastrophic nature, which is likely to cause pervasive distress in almost anyone.

As stated in the clinical descriptions and diagnostic guidelines accompanying ICD-10, typical PTSD symptoms include episodes of repeated reliving of the trauma in intrusive memories ("flashbacks") or dreams, occurring against the persisting background of a sense of "numbness" and emotional blunting, detachment from other people, unresponsiveness to surroundings, anhedonia, and avoidance of activities and situations reminiscent of the trauma. Commonly there is fear and avoidance of cues that remind the sufferer of the original trauma. Rarely, there may be dramatic, acute bursts of fear, panic or aggression, triggered by stimuli arousing a sudden recollection and/or re-enactment of the trauma or of the original reaction to it.

There is usually a state of autonomic hyperarousal with hypervigilance, and enhanced startle reaction, and insomnia. Anxiety and depression are commonly associated with the above symptoms and signs, and suicidal ideation is not infrequent. Excessive use of alcohol or drugs may be a complicating factor.

Some people may respond to trauma with symptoms which last only briefly or with milder symptoms which hardly justify a diagnosis of "disorder". Some workers in the field have referred to these as "post-traumatic stress reactions".

The onset follows the trauma with a latency period which may range from a few weeks or months (but rarely exceeds 6 months). The course is fluctuating but recovery can be expected in the majority of cases.

#### **Grief**

For those people who have experienced significant loss, the emotional reactions which occur

after the disaster are likely to be those of grief. There may be grief for the loss of loved ones, or home, treasured possessions, livelihood or community. The severity of the morbidity is greater for the individual when associated with personal loss due to death of a loved family member. The emotional reactions of grief include sadness, distress, anger and longing and yearning for what has been lost. The bereaved person may be preoccupied and miserable. Usually grief reactions diminish to some extent by 4-6 weeks, although stresses may complicate or prolong them and anniversaries may induce recurrences. A number of studies have pointed out a number of factors that might increase psychological morbidity among the bereaved: lack or weakness of social supports, female gender, loss of a child. There are circumstances of violence and the dead body has been unable to be found or viewed by the bereaved. For some of those who have suffered losses, grief may become chronic and the emotional reaction may intensify into severe depression.

#### Alcohol, drug abuse and family problems

A few studies have shown increases in alcohol and drug consumption following a disaster, while social withdrawal, particularly in association with numbing, can be the most frequent form of morbidity in interpersonal relationships. The prolonged stress of the aftermath, the preoccupation with painful memories or losses, or the disruption of home, family and community life and even work, may all adversely affect adjustment. Family conflicts and problems may occur. Children may be overprotected and sometimes family violence may result. For most families and individuals these problems are short lived and transitional, but for some they are delayed or become chronic. Others may respond to the challenge of the disaster and appear to show greater strength and coping, so that rather than social pathology or community breakdown, there may be enhanced social and community functioning.

#### Secondary psychosocial stressors

Certain specific stresses can arise in the wake of disasters, consequent upon social changes. These include the displacement of individuals to other geographical areas, housing people in camps, unemployment, inactivity and lack of recreational possibilities, the fostering of dependency in survivors, general disruption of the social

fabric and the breakdown of traditional forms of social support. "Temporary camps" providing inadequate facilities, are known to house victims for years. Disruption of families can also have important psychosocial consequences upon the members and particularly on small children with no accompanying adults.

Unnecessary hasty procedures for dealing with dead bodies, under the guise of preventing outbreaks of communicable diseases, can lead to such rapid burials that proper identification may not be possible and full mourning procedures may not occur. Likewise, overenthusiastic vaccination programmes may be initiated for the same reason. Other misbeliefs may lead to unnecessary extra stress on victims of disasters.

#### Vulnerability

When disaster is not followed by new and additional stressors, early prediction based on an evaluation of risk factors (risk situations, risk individuals and risk reactions) may be possible, thus allowing the health workers to concentrate their interventions on high risk cases.

An immediate adverse psychological response to trauma can be a predictor of PTSD. Thus screening instruments measuring the mental state shortly after a disaster can be used to identify risk cases. By combining this with individual risk factors (such as previous psychiatric impairment) and the intensity of disaster stress exposure, high predictive power has been achieved.

The results from longitudinal studies can be summarized as follows: after exposure to a brief disaster trauma, a person without marked premorbid vulnerabilities may experience the symptoms of a post-traumatic stress reaction but should be expected to gradually overcome and finally to recover completely from these symptoms, provided that the conditions are made favourable for rehabilitation, that qualified treatment is offered when needed and that the person is motivated to work with his problems. The majority of survivors who develop long-standing PTSD have been found to suffer from some kind of pre-morbid vulnerability.

#### Stress upon rescuers

There are two categories of rescuer: the non-professional and the professional. The stress upon the non-professional rescuers may resemble that on the victims, inasmuch as they may be caught up in the impact of the disaster.

As volunteers or bystanders in the interim period before professional help arrives, they may suffer the terrible trauma of not being able to achieve success in their rescue attempt. Also for the professional, failure to be able to rescue victims, especially children, is a significant stressor, comparable only to the loss of a colleague. Even a professional rescuer, such as a fireman, may be overwhelmed by the magnitude of a big disaster as compared to an individual catastrophe. The available resources usually seem too small, creating feelings of powerlessness and of being terribly alone. As always, stress is better endured when experienced as an active participant rather than as a passive victim. In disasters affecting people one knows personally, such as in company and community disasters, rescuers especially need to adopt a very "professional attitude".

Exposure to death and dead bodies has been repeatedly identified as a major stressor following all such events. Children's bodies represent the most stressful types of exposures (Ursano, 1987). The psychosocial consequences on both survivors and rescuers of a large number of dead bodies also presents needs to be taken account of, and is probably best dealt with by having certain formal procedures laid down on how to deal with this situation. It is very unlikely that those who have died will have been suffering from infectious diseases. Some of the enforced "hygienic" measures seem to reflect people's fear of dead bodies, more than any actual health danger, and may lead to considerable psychological distress in the survivors.

It follows from the definition (exceeding the coping capacity) that in the initial phase of a disaster not only the victims but also the rescuers/health personnel are faced with a demanding situation where not everyone can be helped optimally. This is the essential difference between emergency medicine and disaster medicine. Although the practice of emergency medicine is the basis for disaster medicine, the latter calls for a much simpler and less resource demanding practice. Helpers may find it difficult to change their way of working. In particular, they may find it difficult to have to leave some people that need help without any help because of insufficient resources. It is important for the disaster workers to be well aware of the lowest level of interventions that is still acceptable and to be trained to tolerate feelings of insufficiency, powerlessness and helplessness.

### The psychological effects of disasters on children

It has been pointed out (Yule and Williams, 1990) that several of the early studies of children's response to disaster trauma suffered from methodological limitations. For instance several of the scales frequently used to assess the psychological consequences of disaster were never intended to measure the effects of trauma on children, or have a poor validity for this purpose. There is now a consensus that teachers report less psychopathology among child survivors than parents do, and that both teachers and parents report far less than the children themselves. In this type of research screening instruments used on their own, without detailed interviews with the child, are of limited value. In combination, however, they reveal a considerable amount of post-disaster stress reactions among affected children (Pynoos et al., 1987). Regressive behaviours with clinging to parents and heightened dependency are frequent findings.

The early studies showed that in the majority of cases the disturbances are shortlived (Garmezy and Rutter, 1985), but only a few studies have investigated the effect of major disasters in which the children had been exposed to life threatening factors. In the aftermath of the Buffalo Creek disaster, Newman (1976) found, among children under 12 years of age, an enhanced vulnerability to future stress, and an altered sense of power over the self. The effects upon the children seemed to depend upon their developmental level at the time of the trauma, their perceptions of family reactions to the catastrophic event and the degree of direct exposure of the children themselves to the trauma. It should be noted that studies (Bloch et al., 1956) have found that children tend to reflect their parents' reactions.

As in many adult survivors of acute trauma suffering from PTSD (Weisaeth, 1989b), psychic numbing has also been difficult to detect in children and adolescents, and often takes the form of withdrawal into uncustomary behavioural patterns (Frederick, 1985). The sense of foreshortened future, which is a symptom of PTSD, resulting from the exposure to mass deaths may have particularly severe effects in children, causing them to give up their involvement in education, expectation of having their own families in the future, etc.

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# PSYCHOSOCIAL INTERVENTIONS IN DISASTERS

## **Prevention and treatment of psychological disorders**

From the psychological point of view, the primary prevention of disasters must deal with denial as a common psychological reaction to be found among populations exposed to a threat. The negation of an imminent threat can make forewarning useless, and expose populations to avoidable risks by producing a delay in adopting preparedness measures. Therefore health workers may have an important role in reinforcing warnings and thus making timely and effective prevention possible.

Psychosocial prevention can also play an essential part in preventing and minimizing the psychological consequences of disasters, especially the occurrence of PTSD. In terms of intervention programmes aimed at preventing and treating psychological disaster-related disorders, the main needs following natural disasters exist in developing countries and among socioeconomically deprived individuals. Since in developing countries the resources devoted to mental health are often inadequate to meet even routine needs, the primary health care system is the first and often the only health network available in the case of a disaster. It should not be forgotten however that the population affected by a disaster might well retain considerable coping capacities. They should not be treated as completely helpless, and assistance should be directed at mobilizing local strengths wherever possible. Moreover, for socioeconomically deprived individuals, primary care is the only mean of extending health and mental health services. In addition, in many disasters, besides a certain number of people who have been severely affected by it, there will be a much larger number of less affected people who will however, display a variety of functional complaints and psychological disorders. Functional complaints and somatization disorders will be particularly common among people attending primary health care and medical facilities, as the majority of people in developing countries tend to express

psychological distress in somatic terms (Goldberg & Bridges, 1988). In order to cope with general anxiety and also uncertainty about the possible health effects of the disaster, people focus on the more tangible aspects of their physical state of health, seeking out the health care system and requesting explanations. Especially in the absence of reliable data about the health effects of the accident (for example in the case of toxic, chemical and nuclear disasters), medical workers lack adequate explanations and may well respond with extensive and intensive diagnostic screening of populations and individual patients. The paradox in the situation, however, is that attempts to reduce such illness behaviour and such extensions of the diagnostic procedures, in order to diminish the probably unfounded attribution of symptoms to the disaster, would deprive people of a coping strategy if no alternative were made available. For all these reasons, the primary health care worker represents the crucial locus for the intervention. The proper handling of the psychological problems associated with a disaster is of great importance and must be included in the training programme of all health workers potentially involved in the care of affected people. The training of primary health care workers to give appropriate treatment to people attending health centres and showing emotional distress due to a very stressful event, deserves priority (Lima, 1986); such training represents one of the main preparedness activities.

There are other considerations which underscore the importance of integrating mental health services within the framework of the existing health system, and especially the primary care system:

1. Many potential users do not come to a facility which is openly labelled as a mental health service, since they do not see themselves as people needing specialized help but consider themselves only as victims of extreme adversity.

2. It is well known that the large majority of cases of psychological distress among attenders of health centres go unrecognized, do not receive proper care and represent an important burden for the health services. Better and prompt recognition and management of these disorders, including PTSD, can improve their outcome and reduce the burden on the health services.
3. The primary health care network, thanks to its central position in the community, can guarantee proper follow-up of victims and their families for as long as they need.

In this framework, the role of the specialized mental health team should essentially be one of supervision and training, and only especially difficult cases should be referred for direct treatment.

Two recent papers have reviewed the empirical evidence for the effectiveness of a range of treatments for post-traumatic stress disorder (Davidson, 1992; Solomon et al., 1992). With regard to drug treatment, amitriptyline and imipramine are both effective, and will help with disturbed sleep. Doses up to 200-300 mg/day may be required, although attention should be given to possible side effects. Treatment should be continued for at least 8 weeks. Other studies have examined the efficacy of behavioural techniques, consisting of different forms of systematic desensitization or flooding; these techniques have been found helpful, especially in terms of reducing PTSD intrusive symptoms. Cognitive, psychodynamic and hypnotic techniques also hold promise. Clinical experience tends to suggest that brief short term counselling may be helpful in the early stages of the disorder, before it becomes entrenched. This is particularly so if the person is able to deal with the effects of helplessness and fear that surround everybody after a disaster, through catharsis, support and cognitive restructuring of the experience. Further research however, is needed before any firm conclusion can be drawn as to the comparative effectiveness of different treatment methods.

### Function of the mental health professional expert in preparedness activities

The mental health professional(s) at the national or subnational (e.g. provincial) level should be responsible for:

#### *Teaching preventive psychiatry*

This will involve educating and training the entire spectrum of professions concerned with disaster rescue operations in the basics of disaster psychiatry, such as emotional first aid. The target groups are not only the medical, paramedical personnel and ancillary staff (such as switchboard operators, who have a vital role to play) found in a hospital, but also personnel in the associated organizations such as the police, fire brigade, civil defence, the clergy, industrial safety personnel, and administrators with special responsibility for disaster planning etc.

#### *Leadership*

The senior professional should organize and lead the specialized disaster psychiatric teams made up of other mental health professionals as well as others that are activated during the acute phase of an actual disaster (loss support group, liaison psychiatric team, stress management/debriefing teams, as set out below).

#### *Mental health care during the first 6 months*

The first 6 months after a disaster may require general counselling for those who present to primary care with recognition and referral of those with special mental health problems such as PTSD, depression and grief. Early treatment may help to prevent problems.

#### *Planning long-term follow-up of victim groups*

The second 6 months or so after a disaster, that is between the acute phase and the longer term, is an important time, as much of the psychological work is done then.

During this stage, one should be aware that "anniversary" reactions tend to crop up; certain days may serve as reminders of what the victims have been through. There may also be a need to follow-up avoidance behaviour, because this may indicate a delayed onset of symptoms in victims who have not displayed the full post-traumatic stress syndrome.

#### *Mobilizing support at different levels*

This includes the giving of advice to victims and helpers about coping techniques and the mobilization of support from family, friends, work mates and neighbours. A clearing house for information on available resources should be set up.

It may be useful to have some model pamphlets presenting essential information that can



be rapidly adapted to a particular disaster situation and distributed to relevant groups, such as survivors, bereaved families, rescuers etc.

In massive disasters particularly in third world countries, killing tens of thousands of people, the only active element of the psychosocial organization that is possible in the turmoil of the acute post-disaster phase may be that at the senior staff level, trying to influence decisions and providing psychological support.

### **Functions of the mental health team at the disaster site**

While the considerations described so far apply both to developed and developing countries, the following proposals, focusing on the functions of the specialized mental health team, are applicable especially in the developed countries. Only these countries can usually afford the heavy burden of setting up and maintaining a specialist mental health service which can be mobilized at times of disasters. Nevertheless, it is hoped that the following guidelines can provide useful leads for those working in developing countries.

#### **Groups requiring psychosocial support**

Psychosocial support at the site of a disaster should in principle be carried out by the rescue workers and emergency health personnel. The leader of the mental health team with collaborators should establish the priorities of psychosocial support activities, mainly based on their evaluation of the particular traumatic aspects of the disaster, taking into account the different groups which are to be considered:

1. The next-of-kin
2. The injured survivors and their close ones
3. The uninjured survivors

These groups are likely to have suffered the most severe stressful experiences and thus require support and preventive activities. Often a family may include all three above. Other groups need to be considered, but they usually have less pressing needs, namely:

4. Onlookers (particularly at risk are the helpless helpers)
5. Rescue teams (particularly when failing to rescue, especially children)
6. Persons doing body handling (particularly when they are non-professionals)

7. Health personnel (mass injury situations that demand difficult prioritizing)
8. Persons holding responsibility
9. Workmates (in company disasters), and
10. Evacuees.

Individuals at the disaster site displaying grossly deviant behaviour or other severe psychological reactions should be rapidly referred to psychiatric care.

### **Establishing an information/support centre**

This centre can be located either at a hospital or at a convenient place not too far from the disaster area, (hotel, town hall school, etc.) but nevertheless far enough away from where rescue activity is taking place, so that congestion and interference is reduced. If the identity of the dead is uncertain (which is frequent), or the number of dead is unknown for a time, a great number of families will be distressed until they ascertain that their missing family member is safe. Establishing an information support centre has turned out to be useful. The existence of such a centre and its telephonic numbers should be distributed by radio and TV. Families who are worried that one of their number is amongst the victims should be invited to come to the centre. Survivors may also be asked to gather there. Particularly after transport/communication disasters when people die far away from their homes, this centre may be useful, for several reasons: it gives the bereaved a chance to meet survivors to get a first hand report about what happened to their loved ones, how they died, perhaps even what they uttered before they perished, and what was done to rescue them. The survivors and possibly also onlookers and rescuers have information that often cannot be given by others.

For the survivors it is often an important experience to be of help to the bereaved.

The main functions of such an information/support centre are:

1. To provide rapid, authoritative information about tragic news that can be conveyed in a humane, direct way in a setting sheltered from public and media attention,
2. To provide support and a holding environment for both survivors and helpers,
3. To serve as a forum or meeting place where affected individuals and families can support each other. Self-help groups may develop from this forum,

4. To be a place where the police can collect identification data about missing/dead persons from their close ones,
5. At times the police should be able to use the centre to interrogate survivors about the disastrous chain of events as a part of their investigation,
6. The information/support centre should help to reduce the convergence of people on the disaster site that may create congestion and therefore movement problems for rescuers.

A meeting may be organized for everyone affected (this may be possible for up to one thousand people) or at least one or two representatives from each affected family. At such a meeting information can be given about rescue, identification, investigation of causes, insurance, psychosocial support services and religious services.

Attempts can also be made for early identification of persons at risk. The **Post-Traumatic Symptoms Scale - 10** for instance, can be used after a few days. The survivors' mental state can be evaluated, as can the possibility for mobilizing social support from people's own networks (family, work colleagues, friends, neighbours).

#### Specific procedures for helping survivors

The mental health team should reach the scene of the disaster as soon as possible. There have been very positive responses to anticipatory guidance, i.e., information about the natural post-traumatic stress reactions that may be expected. Information meetings are effective means to talk about this and what the survivors themselves and their close network can do to help. Anticipatory guidance works by helping the victim accept the reactions as normal and expected, and not as pathological, thus reducing uncertainty and feelings of helplessness. Nightmares suffered by the victim are often alleviated by physical contact; if this fails it may be better to wake the patient and let him go back to sleep again afterwards. Hypnotics may be given briefly for severe sleep disorders.

At this early stage most survivors are psychologically open and willing to talk about their experiences, an attitude, however, that may soon change into a defensive, withdrawn, non-cooperative position if time is allowed to pass without attempting to make contact. Therefore it is of utmost importance that the survivors are encouraged to seek help if problems develop.

When disasters involve people away from their home areas, it may be necessary to help them to establish supportive contacts with health or social service professionals in their home district. One of the first needs of survivors in these circumstances, is to be able to inform their families about their fate, preferably even before the media have announced news of the disaster. Some may have an urgent need to get home themselves. This makes organization of a mental health support service more complicated than if the victims are local people or members of a homogenous social system.

#### Help for bereaved families

It has been demonstrated quite clearly that the family is the unit providing the most important source of strength for enduring a disaster loss. There is strong evidence that sudden and violent death causes more pathology in the bereaved than expected losses and this can be made worse by the terrible circumstances surrounding the death in disasters, perhaps even witnessed by the family. Equally distressing however, are deaths happening far away from them, possibly with times of waiting and uncertainty for the family until the death is confirmed.

Sometimes the bereaved may be unable to travel to the site or they may never see the dead because the remains may not be identifiable or even found. Frequently, this failure to retrieve the body or to identify the remains has complicated grief work. In the acute phase, measures taken to alleviate the consequences should have as the first goal, to help the family fully grasp the death of one or more of their number, and secondly to help start them on the road to accepting the loss. The full realization of the loss seems to be helped by the identification of the dead body and an awareness of the physical aspects of death, as well as the circumstances in which it happened.

#### *Experience in Norway*

The psychiatric team working with the bereaved families after a disaster, (the loss support group), usually sets up its headquarters at the local hospital, for example in the outpatient department of internal medicine. Each team consists of a psychiatrist, chaplain (priest), psychiatric nurse, clinical psychologist and sometimes a social worker or others experienced in loss and grief reactions. Gathering the bereaved families in one place pro-

fects them from wandering aimlessly around or engaging in unplanned searches for missing family members. Some experience indicates that the support group should work exclusively with the bereaved families and not combine this work with support to survivors, because of the entirely different needs of the clients. Each family has two group members designated as personal contacts. The group will work in close cooperation with the police which is the agency that carries out the identification work.

In disasters where people die away from their homes, the team will have some hours to organize the reception of the bereaved families. If there is a large number of dead, it is important to join the different families into a cohesive group by, for instance, lodging them in the same hotel. If the dead come from a similar background, as in a school-bus accident, the parents will already have a natural affinity with each other, and this will strengthen the bonds for an extended period. If the dead make up a group which has come together by chance however, as in a some airplane crashes, the bereaved may form a group only during the acute phase when they are sharing many of the same services and undergoing many of the same experiences.

The first day after a disaster is usually filled with a succession of practical problems to be solved. The bereaved families are encouraged to travel with a companion (who might be a local priest or a friend of the family), because it has been shown that the breaking of the strong bonds that often arise between the team and the bereaved family will be made less difficult in the aftermath of the event when a continuing link to an after-care service at the home place is provided through this person.

### Role of the Psychosocial Support Team

The psychosocial support team may be involved in the following activities for the bereaved families:

#### *Notification of death*

Seeing that this duty is carried out in an appropriate way by the local police, priest, etc. It is important that notification is given in such a way that the family can be helped to grasp what has happened. It is a common experience that the bearer of the sad message is not in possession of

the full facts about the death; this is a burden for both parties involved. If the body has not yet been recovered, the next-of-kin will nearly always express a strong wish to travel to the scene of the disaster.

#### *Identification of the body*

A member of the team should be present when the next-of-kin is asked by the police to make a positive identification of the body.

#### *Viewing the dead*

It is important that the bereaved are provided with an opportunity to see the body of the dead if they wish and if this is possible, and that they are provided with information about the death. It is also important that as far as possible, appropriate funeral and mourning rituals are provided in accordance with the practice of the bereaved's culture. An important task for the support group has been to arrange for this viewing of the dead bodies. This must be scrupulously planned after evaluation of each family and considering the state of the body. Meeting the dead gives the family a chance to see, talk and touch and to fully comprehend that the loss is real, that the uncertainty is over, and that they must take a final farewell. If the face is too mutilated to be seen, other parts of the body may be recognized. For children it can be a help to leave something in the coffin, a favourite doll, a drawing or a letter to the dead mother or father.

#### *Information about the circumstances of death*

Regularly the family has many questions about how the dead person was found and the manner of death. Therefore they should be given an opportunity to meet survivors who have something to tell, the rescuer who found the body, and any nurses and doctors who tried to resuscitate the victim. It may be necessary to ask the pathologist to provide information.

#### *Visiting the site of death*

The team normally encourages viewing of the scene of the disaster to be carried out in groups, and a rather private memorial ceremony may be arranged there. This allows the bereaved families to come close to their dead and express their solidarity. This final farewell must be shielded as much as possible from the intruding gaze of outsiders and the media.

#### *Public memorial service*

The bereaved families should also be helped to

attend some kind of public memorial service. Public mourning is an important symbol of the wider society's support to those bereaved.

Personal relationships are particularly important in the emotional reactions after disasters, providing support and help in dealing with the stress. People are also very distressed when separated from those they love during and after a disaster, and information and support services to help the reunion of family members are likely to be helpful. Special relationships and closeness between people of all social groups who have suffered the same stressful experience together may provide a "therapeutic community" effect after the disaster, where people talk through what has happened, share feelings and support one another in several ways that may help recovery. Similar bonds may be formed between victims and rescuers.

### The physically injured

Many hospitals are capable of handling 20 or more injured cases, but not many can take care of the one hundred or more close family members belonging to this number of injured. This may be a reflection of the usual emphasis on physical injuries in disaster planning. The surgical and intensive care personnel should therefore be reinforced by a psychiatric liaison team who can have responsibility for both the injured and for their family members. As regards handling the injured, the most common error in psychological handling is leaving the injured alone; they are especially vulnerable to being abandoned in darkness.

### Crisis intervention

"The good talk" is the psychotherapist's main tool. It is as important as the scalpel to the surgeon and contains several therapeutic elements: the interpersonal contact, the verbalization which increases control, the cathartic effect of ventilating emotions and the need for working through the experiences again and again, if the fragmented and overwhelming impressions are to be neutralized and integrated. To turn the passive reliving of the trauma, as in nightmares, into an active re-confrontation seems to work well if the patient feels that the therapeutic environment is safe enough. It is natural to use the group approach with victims of collective trauma because, having faced danger together, strong bonds have been created between them.

### Debriefing

The majority of rescuers report a need to work through the emotional disaster experiences by sharing their feelings with others. Debriefing should aim to:

- review the helper's role;
- ease the expression of feelings;
- explore particular problems encountered and solutions found;
- identify positive gains;
- explore consequences of disengagement;
- identify those at risk;
- provide education about normal reactive processes to acute stress;
- explain how to cope with stress adaptively.

The psychiatrist can act as the formal leader of the debriefing group or may give training to professionals in rescue organizations so that they can lead such activities. Frequently it is a great advantage to have taken part in the rescue operation when leading such a group, but there may be occasions when a neutral professional should take on this role. Debriefing involves going through, in detail, the sequence of events as experienced by each participant. The rescuers should also share with the rest of the group their thoughts and feelings during and after the disaster. It is generally easier to begin the debriefing by first reporting factual information. The description of the professional activities of the rescuers can lead on naturally to the more delicate issue of their emotional and psychological reactions. Reviewing how helpers felt and coped requires consideration of positive as well as negative aspects. On the negative side, these individuals may have experienced a sense of despair, a fear of being useless and overwhelmed, or they may be having problems at home because of their involvement in disaster work. Some may suffer from what has been called "performance guilt" believing that their contribution was inadequate. Positive reactions may include a feeling of satisfaction of a job well done, the finding of a victim alive, the forging of important relationships among helpers, or a sense of reassurance about having been able to cope. The sustained emphasis on the positive aspects of the work provides a powerful antidote to the sense of being overwhelmed, and helps to achieve a feeling of mastery over the unpleasant features of disaster work. The briefing session should encourage the expression of these positive aspects. Sometimes a powerful continuing rela-

tionship may develop between a helper and one or more of the person rescued. Both this and powerful relationships that may have developed with other helpers can cause problems by cutting across family relationships.

### Role of information

Accurate information is very important at every stage of disaster response. As part of preparedness, people should be provided with clear information about what to do in the event of a disaster affecting their community. Such information should be relevant to disasters that are frequent or likely to occur, but also be of general utility for unexpected circumstances. It should convey the nature of the threat and what to do about it in simple and concrete terms. Information in the event of an imminent threat should be reported through at least several channels including TV and radio and should be presented by those who are seen as trustworthy leaders. Training, including information on what to do, should be incorporated into community life in places which are frequently subjected to threat.

During disasters, particularly in developing countries, victims are often poorly informed about the events that are occurring. Rumours are frequent, authorities give conflicting information and ineffective action follows. Illiteracy, a multiplicity of languages or dialects and a lack of media, can all contribute to difficulties in disseminating information rapidly and accurately.

The responsibility for transmitting information rests with both public authorities and the mass media. The authorities should take and retain the initiative in communicating with the public in the event of an emergency. Communication within the government should be well coordinated, and the authorities should seek to establish a climate of trust with the media, which should handle the information given in an open and unambiguous manner. To achieve these objectives, the national authorities responsible for the various aspects of disaster protection should coordinate their actions as far as possible. International organizations may also be sending out information. Diverse interpretations from the various national and international organizations of the potential public health consequences of a disaster, can seriously confuse the public, and create difficulties for national authorities.

Developing country populations are notoriously non-compliant with warnings for evacuation. While a variety of psychological mechanisms can be invoked to understand these reactions, a more concrete approach must also be taken. The evacuation order expects the victim to leave behind all his possessions with no protection against looting. Often survival is dependent upon small-scale agriculture or livestock, making it very difficult for people to leave behind all their wealth and means of subsistence. Failures of prediction can also diminish trust, when evacuation orders are given for events that never occur.

Accurate, trustworthy, and easily understood information about a disaster should be provided to the population at a local level. Such information should be provided in collaboration with local leaders and community representatives. In particular:

- specially prepared brochures and pamphlets, updated as necessary, should be widely distributed to the population of the affected areas, as far as possible in collaboration with the local media;
- dialogue should be encouraged between the community, the authorities, scientists and health professionals, as also envisaged by the European Charter on Environment and Health;

### Possible adverse effects of public information

Public information can however lead to adverse psychosocial consequences by creating a sense of confusion and mistrust. Reassuring assertions by experts may be contradicted by other experts or by later events. It is the right, even the duty, of scientists to give an opinion on a scientific matter, but they must do it in a way that will avoid any confusion between facts and judgments on facts. A further difficulty is in the nature of communication between scientist and non-scientist. The latter may be trained to think in arbitrary terms requiring "yes" and "no" answers and they may in consequence be bothered by the scientist's answers in terms of gradation and multiple qualifying considerations. This pressure for what might be thought of as "bipolar" thinking and decision-making is bound to be a source of great exasperation, misunderstanding and irrational decision: the authorities feel they are getting answers which are impos-

sible to use, while the scientist feels he is being confronted with unanswerable questions and coerced or tempted into committing himself.

In considering the provision of information to "victims", it is necessary to consider their definition. Traditionally victims of a catastrophe would be defined as those who were physically touched by its effects. On the contrary, however, the notion of victim cannot be limited to those persons physically exposed to toxic emissions or physically affected by the disaster. The victim group of a major disaster potentially encompasses all those who receive the bad news of the accident. For larger populations, the bad news will not necessarily be accompanied by directly visible events or damage. This is especially the case of toxic/nuclear disasters, and many of the following considerations refer specifically to this type of disaster. The Chernobyl disaster was especially striking in this regard. In the first weeks and months after the accident, very limited public information was provided to the affected populations. Over the following years however, these populations have been exposed to a barrage of information, with many contradictory and inconsistent news items and rumours, all of which have resulted in an information overload. The "victims" therefore now include large numbers of people who are suffering because they think they may be affected by the accident, but who in fact have never been exposed to toxic levels of radiation.

International organizations with responsibilities in the field of public safety and health have therefore a clear duty to provide both general and specific background information. Diverse interpretations from these organizations of the potential public health consequences of an accident could seriously confuse the public, and create additional difficulties for national authorities. Accurate, trustworthy, and easily understood information about radiation and its

health effects should be provided to the population at a local level. Equally or even more important, is the way in which the authorities should present information if an accident occurs. In many cases, people have been flooded with information and nobody has shown them how to deal with it. One of the few "principles" in this field that seems to be useful is that comparisons are more meaningful than absolute numbers or probabilities, especially when these absolute values are quite small. The key role which can be played by an international organization is crucial at this level, since the information provided by it is generally seen as more "neutral" and "authoritative" than that coming from other sources, and it can therefore facilitate public compliance with necessary measures, prevent or minimize worries and fears likely to produce extensive psychosocial consequences, and finally help to restore a cooperative climate.

Building a better public understanding of risks and informing the public correctly in the case of an emergency is only a part of what needs to be achieved if people are to be enabled to respond more rationally to a future emergency. The central issue then is how to facilitate an evolution from the provision of information and recommendations, to a situation of effective learning, which allows people to develop better coping strategies during and after an accident. Setting up such effective learning implies more than providing available knowledge of the risks associated with industrial activities and substances through improved risk analysis and assessment. It also implies improving the knowledge and understanding of the reactions and needs of individuals and groups in times of emergency.

This last supposes a substantial change in the current methods of risk analysis, risk assessment and risk management (See MNH/PSF.91 document).

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# TRAINING AND INFRASTRUCTURE FOR A PSYCHOSOCIAL RESPONSE IN DISASTER RELIEF

## Training programmes for primary health care workers and other relief workers

Target groups for training programmes should come from both the health and other sectors as the first group. These should include primary health care workers, often medical doctors of first aid teams, community nurses, or other trained health care workers such as social workers, administrators from local and national administrations, policemen and firemen in reserve teams.

Training programmes for health care providers should include the health aspects of disasters, general psychological and psychophysiological concepts about people's reactions after a disaster and other stressful situations, and variations in the way different groups of people perceive the risk from different types of hazards. The programmes should also include simple ways of dealing with psychosocial problems and the teaching of simple skills for the recognition, possibly using a checklist, and the treatment of psychologically distressed victims (interviewing skills, counselling, brief and simple psychotherapeutic methods, targeted pharmacotherapy, group therapy, etc.).

For administrators the training can help them to identify vulnerable groups, demonstrate the reason why mental health services should be integrated into the general disaster plan and how a psychosocial component can be included in a comprehensive disaster plan.

The training of general health workers in mental health seems to be effective and long-lasting. In the context of a WHO collaborative study in six developing countries, general health workers were assessed after training aimed at improving their knowledge, attitudes, skills and capacity to provide mental health care; it was shown that the improvement was maintained up to follow-up at 18 months and was of equal magnitude in all countries (Ignacio et al., 1989).

## Planning and coordination of interventions in case of disasters

A senior mental health professional should be identified at a national level to head and plan mental health resources and consulting for disaster preparedness and relief measures. Since national or local disaster teams are primarily concerned with the provision of emergency medical care and are often headed by a surgeon for instance, it can be useful if the professional coordinating mental health inputs is also a physician (e.g. a psychiatrist), in order to be able to operate more easily in these circles and within the disaster circumstances. Such a specialist liaison officer will take part in the multidisciplinary decision-making groups and also coordinate mental health aspects and mental health teams when these are available. Most importantly, he or she can act as a consultant to train and support the preventive and other activities of the primary health care workers.

Attention should also be paid to the mental health needs of the care givers themselves, who are faced with heavy demands during disasters and who are themselves exposed to a substantial risk of stress-related disorders.

As for service planning, it must be remembered that services should be provided on the basis of the actual needs rather than on the basis of the demand: this applies both to the timing and to the magnitude of the interventions (Ross & Quarantelli, 1976).

A major boon for the overall field of disaster prevention, preparedness and mitigation should come from the UN General Assembly Resolution 42/169, designating the 1990s as the International Decade for Natural Disaster Reduction (IDNDR) (Lechat, 1990; WHO, 1989a, 1989b). The objective of this decade would be to reduce the loss of life, property damage and social and economic disruption caused by natural disasters, particularly in developing countries. In the context of the IDNDR, WHO will play a major technical role in the health sector, including in the specific area of mental health.

Given the above constraints and consideration, the following points need to be highlighted:

1. A long range plan, including a full scale mental health intervention strategy, should be developed at national and international level. Many preparatory steps must be taken. The comments that follow present a progression from the current position towards an ultimate goal which is unlikely to be fully reached in less than 5-10 years.
2. Concurrently work on preparedness response and rehabilitation is needed, with the full understanding that these levels may proceed at different paces and influence each other (e.g. while preparedness efforts are poor, response measures may need to be emphasized; when preparedness improves other response measures may be reduced).
3. Below, three possible models for a psychosocial response to disasters are described; these may vary from country to country and they will need to be adapted to local realities.

#### Model 1 (International reliance)

This is the current structure seen in most developing countries.

An international consultant may be called upon to provide mental health assistance after a disaster has occurred, typically to the Ministry of Health, through WHO. The consultant will meet with an emergency committee and will acquire information on the country and the disaster. The consultant can advise the national Ministry of Health and the health authorities of the disaster area (and a local mental health officer if one exists) on the setting up of an appropriate emergency structure for ensuring a psychosocial component within the disaster relief operation.

The mental health workers in the area will be involved in some direct patient care, but the international consultant should promote the development and implementation of a model of care in which the general or primary health worker will take the responsibility for providing mental health care to victims with the support of mental health professionals. The role of the international consultant will be of educating

the mental health officers at the national and local levels, who in turn will take the responsibility for training the local health workers in relevant mental health issues. The consultant should make available appropriate materials.

#### Model 2 (National reliance)

Continuing efforts to achieve disaster preparedness even before a disaster occurs, should be taken to ensure national capability for managing the mental health consequences of disasters. These include the development of appropriate training materials (e.g. manual, slides, video tapes) which will be used to train national staff to be responsible for the disaster mental health activities within their home country. Without there being a disaster, a workshop could be convened, to be led by one or more international consultants with the national mental health authorities and designated staff who would be responsible for a disaster mental health programme. The goal of the workshop would be to develop the appropriate training materials and plan for their use. When a disaster strikes a country, the international consultant should no longer be needed and the country will have attained a greater degree of self reliance.

Given that an international consultant does not have to be recruited for work to be initiated, interventions can be implemented much earlier, probably within one week of the disaster. It will also be possible to involve the mental health workers almost entirely in supervision and support of direct service providers.

To achieve Model 2, the following preliminary steps are suggested:

1. Development of a core of training material for national or Regional use: manual, slide set, video, etc. These should be available for various levels of staff, e.g.
  - (i) the mental health professional;
  - (ii) the general health professional;
  - (iii) the auxiliary health workers;
  - (iv) the community (non-health) workers.
2. Compilation of a literature review accessible to non-mental health professionals.
3. Workshop/conference on "disaster mental health training" for the national mental health leaders and/or persons designated by them.



4. Specific allocation of money from the general health budget should be obtained in order to implement the above mentioned plans.

#### Model 3 (Local reliance)

Later on, and in zones at clear risk for disaster, the local mental health team (if one exists) should be responsible for managing the psychosocial components of disaster relief in its area of responsibility, and a local disaster committee

should be formed, rather than relying on the national authorities when disaster strikes. This requires that the Ministry of Health organizes training for selected local mental health officers.

Using this model, mental health interventions can occur sooner. The mental health officers will only be directly responsible for those referred by the general health worker, including those requiring hospitalization. The greater proximity to the community allows for a much greater degree of community participation.

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## POSSIBLE RESEARCH PRIORITIES

1. Much of the research on the psychosocial effects of disasters has been carried out among Western populations. It is therefore imperative to carry out extensive research with populations from developing countries, those that are most affected by natural and man-made disasters, both large and small-scale; this research will allow the study of cross-cultural variations in frequency, symptomatology, temporal patterns and outcome of psychological disorders, and will clarify the moderating effect of culture on these disorders. This research, to be practically and ethically feasible, needs to follow strict guidelines, and should adopt a rigorous research methodology. To achieve this, every effort should be made to obtain reliable pre-disaster baseline health data (preferably from various sources); to have a control group; to have high follow-up response rates; to use a longitudinal design, and to find valid screening instruments to be employed as a first step in mass screening programmes in the acute post-disaster phase.
2. Although there is agreement that social support and intense kin relationships are highly supportive and facilitate post-disaster recovery among victims, little empirical evidence is available in this regard. Therefore, the specific role of these variables in modifying the overall frequency, severity and course of psychological disorders needs to be further explored, as do the importance of personal vulnerability and prior psychopathology in their occurrence. Specific groups, particularly dependent on social support (such as children, the elderly, the physically ill) should be carefully investigated.
3. Investigations into physiological determinants and correlates of psychological and psychiatric disorders, especially PTSD, so far mainly laboratory-based, should be strengthened and should be mainly clinically based. It would therefore be useful to find reliable, valid and feasible physiological measures of stress to be used as diagnostic tools. For practical reasons, this research is more feasible with individual victims of a single trauma or in more limited accidents or disasters occurring in developed countries.
4. The diagnostic specificity of the symptoms of PTSD also needs to be further explored, as does the natural history of this disorder.
5. An important area of research is comorbidity, especially among persons suffering from PTSD: for instance, substance abuse, frequently associated with PTSD, has been interpreted as a long-term attempt to numb oneself against intrusive images and nightmares, thus representing a secondary response to primary PTSD symptoms.
6. The experience of facing a trauma as an individual, versus the effect of trauma when experienced with others needs to be investigated.
7. Finally, treatment of the main psychological and psychiatric post-traumatic disorders is an important area for research. The main psychotherapeutic and pharmacological treatment methods deserve detailed consideration and need to be adequately tested and verified for cross-cultural applicability as well as for general effectiveness.

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