

# Coping with acute workplace disasters

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## **Coping with acute disasters at work**

Workplace disasters are inevitable, and can produce tremendous stress for the individuals involved. While much is known about work stress, particularly chronic work stress, far less is known about acute workplace disasters. In this chapter we review the literature on the effects of acute workplace disasters in order to understand their effects on employee health and well-being. We then ascertain how individuals cope with these situations. Understanding how people cope with workplace (or technological) disasters is particularly important because their negative effects may exceed those of natural disasters (Baum, 1988).

Defining a 'disaster' is no easy task (see Quarantelli, 1985). Issues concerning both the severity (i.e. its effect or outcomes) and the breadth of the events (i.e. the number of people involved) have typically been considered (e.g. Baum, 1987). Quarantelli (1985) suggests that the degree of social disruption is also critical in defining a disaster, irrespective of the degree of physical destruction. Thus, consistent with the notion that both the physical environment and its inhabitants are to be considered, a disaster occurs when the demands posed by a crisis exceed the resources, preparation and capabilities of a group to respond (e.g. Quarantelli, 1985). Thus, a disaster is an event characterized by great power, sudden onset, excessive demands on individual coping, and large scope (affecting many people). These events are generally beyond both the realm of normal, everyday experience and the immediate control of victims, and as close to universally stressful as any event can be (Baum, 1987). By viewing a disaster as a collective stressor, we invoke theory and research on stress to aid us in understanding and predicting the effects of a disaster on individuals and organizations.

Although the definition of the term 'stress' is no less problematic, there seems to be some agreement about the following terms which we will use throughout. *Stressors* are the originating events or objective environmental characteristics in a given stressful situation; they are quantifiable and objectively verifiable. *Stress* reflects the subjective interpretation or experience of stressors, i.e. different people experiencing the same event may interpret or perceive it in different ways. *Strain* refers to the outcome of stress (e.g. psychosomatic complaints, depression, anxiety). Also, there are different types of stressor. *Acute stressors* have a clear and specific onset, are of short-term duration and have a low probability of occurring again. In contrast, *chronic stressors* last a long time, are highly repetitive and it is usually difficult to specify the exact time of their onset (Pratt and Barling, 1988).

The distinction between acute and chronic stress can be obscure. For example, although DSM-III-R (1987) defined an acute stressor as any event continuing for six months or less, some researchers have suggested that acute stressors have a far shorter duration than this (e.g. Pratt and Barling, 1988). DSM-IV (1994) now defines an acute stressor as lasting for less than one month. On the other hand, Baum (1987) considers acute effects to last for a year. Perhaps more importantly, some events which begin as acute stressors may become chronic and exert long-term effects (e.g. the Three Mile Island (TMI) nuclear disaster). Thus, just when acute stressors should be viewed as chronic remains unclear.

An important observation when studying acute workplace (i.e. technological) disasters, is that most workplace or technological disaster research has focused on chronic events whose long-term consequences are uncertain, such as gradual toxic exposures to chemicals or radiation, as in TMI. In some cases, chronic disasters are not even marked by a clear point of onset (e.g. asbestos inhalation in Baum, 1988). In contrast, the majority of natural disasters studied have been acute (i.e. short-term) events with a recognizable *low point*, when the worst is perceived to have passed (e.g. hurricanes or floods). This leaves some uncertainty in drawing conclusions concerning acute technological or workplace disasters, which are the focus of this chapter.

Some unique aspects of workplace disasters should be noted. First, they may unleash tremendous destruction, yet are difficult to predict. This is important, as it reduces perceived and actual controllability. Second, they usually provide some focus for blame (e.g. the organization). Third, there may be some confusion about the actual degree of damage done in workplace disasters (e.g. Three Mile Island, where spouses could not even agree on whether or not to evacuate). By contrast, natural disasters generally seem to trigger more social cohesion, with communities working together to overcome the adversities of nature (Handford, Martin and Kales, 1988).

There are several characteristics inherent in a disaster that are typically associated with subsequent pathology. When considering the trauma potential of disasters in general (i.e. regardless of whether they are acute or chronic, natural or human made) there seem to be certain event and victim

characteristics that are consistently associated with subsequent disruption and pathology (Bolin, 1985; Baum, 1987). According to Baum (1987), the extent of horror (witnessing death or dealing with dead or dying victims) or terror (related to the proximity of victims to the raw physical events of the disaster, e.g. collapse of buildings or bridges) to which victims are exposed appears to affect the degree of trauma: the suddenness or scope (i.e. impact ratio), and intensity of the event are important. Also, the degree of preparedness of those affected, their familiarity with the given type of disaster event and the extent of warnings are all important in determining the effects of the event. Finally, low points appear to be important (i.e. if there is no clear low point, consequences may become chronic or may increase).

One additional point warrants clarification. There are three separate groups of workers that can be considered. First, and perhaps most obvious, are on-site workers who are employed in the organization experiencing the disaster. However, there are two additional groups of workers directly involved in the consequences of a disaster, namely on-site rescue workers (i.e. those who aid those affected at the scene of the event), and off-site rescue workers (e.g. medical personnel receiving victims at a nearby hospital). We will focus primarily on on-site workers and on-site rescuers, due to the minimal information available on off-site rescuers. The disaster site becomes the place of work for on-site rescue workers as well as on-site employees. Although it would be helpful to consider on-site employees and on-site rescue workers separately, the state of the literature does not permit this.

We will also attempt to limit our discussion to *acute* workplace disasters (i.e. events with a clear and specific onset, short-term duration, and a low probability of recurrence). Where the literature is scarce, we will incorporate findings from disasters of an acute/chronic or chronic nature.

### **The effects of acute workplace disasters on employee health and performance**

The most common response to an acute natural disaster is the disaster syndrome, in which 'dazed behaviour and psychic detachment, is frequently followed by shock, a sense of loss, anxiety, and in some cases, activity directed towards saving lives or restoring property to its former state' (Baum, 1987: 18). Contrary to the media image of disasters, people tend not to panic or compete for scarce resources, but rather proceed in a rather organized fashion and often engage in prosocial behaviour (e.g. rescue attempts and group formation). Natural disasters are typically associated with acute (i.e. short-term) strain (e.g. disruption of normal activities, anxiety) (Baum, 1987). Although it is possible that this might simply reflect a paucity of studies addressing long-term effects, when long-term effects do occur, they are usually a function of the severity of interference with individuals and social functioning.

Smith, North and Price (1988) summarize typical emotional response to

technological disasters. They include repeated recall of the event, reliving the trauma, 'psychic numbing', searching for a scapegoat, searching for meaning, demoralization, somatic symptoms, hostility, distrust of authorities, alienation, increased alcohol consumption, sleep disturbances, and recurrent dreams or nightmares. The notion of 'survivor guilt' (i.e. the feeling of responsibility felt by those who escape death in a disaster in which others perish) has also been identified, and arose from studies of the survivors of the Coconut Grove fire in 1942 (Handford *et al.*, 1988). In that incident a violent fire swept through Coconut Grove, a popular Boston nightclub, causing the death of nearly 500 people.

In contrast to focusing on individual symptoms, some researchers have concentrated on psychiatric illnesses or syndromes in those affected by disasters. Lifton and Olson (1976) identified a survivor syndrome in response to disasters, that includes death anxiety, death guilt, 'psychic numbing', impaired human relationships, and a struggle to give significance and meaning to the disaster experience. Others refer to 'reactive disaster syndrome' characterized by the expression of anxiety, depression, sadness and loss of concentration (e.g. Lopez-Ibor *et al.*, 1985). Post-traumatic stress disorder (PTSD) is also specifically trauma-related and its study is most useful in understanding a variety of mental health reactions to acute stress resulting from disaster situations (Handford *et al.*, 1988). Indeed, some authors conclude that PTSD is the psychiatric disorder most closely associated with the experience of disaster (Smith *et al.*, 1988).

A few additional comments concerning PTSD are necessary. Some researchers suggest that pre-existing personality factors are more likely to be responsible for PTSD following a disaster than the event itself (e.g. McFarlane, 1988). Others argue that the nature of the disaster is a more significant determinant of PTSD than prior personality (e.g. Leopold and Dillon, 1963; Hoiberg and McCaughey, 1984). Some authors caution that there is a tendency for clinicians to over-diagnose PTSD when there is ongoing litigation (Rosen, 1995). Leopold and Dillon (1963) stated that if PTSD is untreated it tends to worsen with time. Finally, some authors feel that PTSD is attracting too much attention as a negative psychological consequence of exposure to disasters, and are working on the development of a measure to assess both the positive and negative responses to disaster experiences (Joseph, Williams and Yule, 1993).

On-site workers who are present during the disaster and may be responsible for bringing it under control are sometimes referred to as 'first party victims'; in industrial plants these would be, for example, plant workers, maintenance personnel and security personnel. They are usually the first people exposed to the effects of the disaster and are at greatest risk of severe injury or even loss of life as a result of the event. They are also most likely to be exposed to scenes of death, decomposing bodies, dismemberment, disfigurement, or other severe injury. Handford *et al.* (1988) consider these individuals to be a special group that may be uniquely affected by technological and workplace

disasters, and subsequently require specialized mental health services to assist them in coping.

Some studies have considered the well-being of workers on the job at the time of an acute workplace disaster. Findings suggest that the strain experienced by workers following an acute workplace disaster dissipates quickly after the event. For example, Barling, Bluen and Fain (1987) studied an explosion at the world's largest dynamite factory in which fourteen people were killed and fourteen others injured. Two weeks after the event, no significant effects existed in either the personal functioning (marital satisfaction and psychological distress) or organizational functioning (organizational commitment and job satisfaction) of workers physically exposed to the explosion or those performing a different job function at the same plant. Furthermore, in another study the responses of police officers to an acute stressor (viz. retrospective reports of having been involved in a shooting in the previous twenty years) indicated that the strain associated with this acute stressor dissipated within a week of the event (Loo, 1986). This research suggests that for these workers the strain following an acute stressor may dissipate fairly quickly after the event.

Barling *et al.* (1987) did raise the possibility that effects not seen immediately after the disaster may become apparent later. Theorell *et al.*'s (1994) findings support this. In a study of train drivers who had experienced a 'person under train' incident, sickness absence was elevated for three weeks following the disaster. There were no effects for the following two months. Thereafter, however, there was again a significant increase in sickness absence from three to twelve months following the incident. The possibility that acute events exert long-term effects, therefore, cannot be excluded.

Unfortunately, not enough is known about on-site workers experiencing acute disasters. Obtaining information from employees who were on the job when an acute disaster occurred can be difficult. For example, Wilkinson (1983) surveyed official, unofficial and off-site rescuers, as well as victims and observers after the collapse of the Hyatt Regency Hotel's Skywalks in Kansas City in 1981. He was prevented from obtaining data from hotel employees who were on the job at the time of the accident, possibly because of the company's fear of legal reprisals.

Before definitive conclusions can be reached, other factors that might moderate the psychological effects of the workplace should be considered. For example, the degree of terror and horror experienced by individuals in Barling *et al.*'s (1987) study might be considered relative to the Coconut Grove fire, which was also an acute disaster event but which had a greater degree of terror and horror associated with it (and higher subsequent degrees of pathology). Markowitz *et al.* (1987) studied firefighters and found short-term psychological effects one to two months after responding to a chemical fire (e.g. demoralization, specific emotional distress). But can a chemical fire really be considered an 'acute stressor', given the 'persistent threat' that would follow (e.g. uncertainty regarding how harmful the chemicals really were)?



Such questions make it difficult to determine whether or not there are long-term effects following an acute disaster.

What happens when an acute workplace disaster turns into a chronic situation? Koscheyev *et al.* (1993) studied chief operators at the Chernobyl power plant at four time periods following the nuclear disaster which occurred in 1986. They found that health concerns, depression and other indicators of strain increased significantly over time. They suggest that this may be due to the continuing uncertainty concerning the safety of working at the Chernobyl plant (i.e. no 'low point' was reached). Kasl, Chisholm and Eskenazi (1981) found that six months after the TMI accident, nuclear workers at the plant differed from a matched sample of controls in their reported exposure to radiation at the time of the accident and in their feeling that their health had thus been endangered. They had lower job satisfaction and reported more uncertainty about their occupational futures. TMI workers also reported greater frequency of anger, anxiety and various psychophysiological symptoms six months after the accident. In contrast, twelve months after the accident, using different measures, Bromet *et al.* (1980) found that there was only a small difference between TMI and control workers, although TMI workers reported feeling more rewarded by their jobs.

In 1983, Raphael *et al.* noted the paucity of research on the aftermath of disasters for rescue workers. By 1988, Dunning acknowledged that the psychological well-being of emergency services personnel sent to disasters was at risk, and noted that there was little empirically-based data that could serve as a guide for prevention. Dunning (1988) argued, from a review of the limited research examining on-site rescuers, and from anecdotal reports of emergency workers after involvement in disasters, that participation causes psychological, physical and/or behavioural impairment that is usually temporary but sometimes permanent. Although there has been some movement towards filling this gap in the literature in the past decade, we still know very little about the emotional, cognitive and behavioural responses, coping strategies and long-term effects of disaster work on these rescue workers. We will present what is known at this stage.

In 1977 a crowded train in Granville, near Sydney, Australia was derailed and hit the supporting pillars of a bridge, which collapsed, killing eighty-three passengers and injuring over 200 others. In their study of the rescue workers involved in the disaster Raphael *et al.* (1983) showed that most rescue workers found the event to be personally stressful. They identified five main stressors: helplessness, the magnitude of the destruction, the sight and smell of mutilated dead bodies, witnessing the anguish of the relatives and the suffering of the injured, and working under time pressure (because the collapsed bridge had not stabilized by the time of rescue). One month after the disaster about 25 per cent of the rescue workers still had symptoms of anxiety, depression and insomnia. Certainly, involvement in graves registration duty (for on-site rescuers) was found to be associated with subsequent PTSD for almost half the rescue workers involved (Sutker, Uddo, Brailey, Vasterling and

Errera, 1994). However, working in a disaster situation can also have positive effects. Three-and-a-half per cent of the rescue workers in Raphael *et al.*'s (1983) study felt more positively about their lives as a result of their involvement in the disaster. Thus, it should also be noted that there is considerable variability in the experiences of workers both during and following a disaster. The major sources of stress for nurses (i.e. on-site personnel) are the urgency of the situation and the desire to perform at maximum levels, problems of organizing disaster care, identification with victims, the need to avoid conflict with other workers, and conflicts between their nursing and family roles (Miles *et al.*, 1984).

Wilkinson (1983) found that after the collapse of the Hyatt Regency Hotel Skywalks in 1981, the most common symptoms among official, unofficial or off-site rescuers, and victims and observers were repeated recollections of the disaster, sadness, fatigue, recurring feelings of anxiety and depression, dreams of the disaster, and sleep disturbances. Wilkinson (1983) also recognized the possibility of feelings of guilt after the accident. However, the reasons for the guilt feelings were diverse. For instance, several rescuers wished that they had done more to relieve pain and suffering, or death; others expressed guilt because they were alive.

### **Coping with acute workplace disasters**

Once an understanding of the psychological consequences of workplace disasters is achieved, the next logical step involves moving towards a consideration of how any such effects can be alleviated. When we speak of 'coping' we typically mean the cognitive and behavioural efforts a person makes to manage those internal and external demands that exceed personal resources (Lazarus and Folkman, 1984). In the area of work stress, researchers have often relied on Lazarus and his colleagues' concepts of emotion- versus problem-focused coping. Emotion-focused coping involves strategies that an individual uses to control emotional distress resulting from a stressful incident. Problem-focused coping reduces the actual stressor by attempting to modify the environment or the individual's behaviour within that environment. A third type of coping, also considered in the literature, is that of appraisal-focused coping. In this case, cognitive strategies such as denial or redefinition of the stressful situation are used in order to cope (Moos and Billings, 1982).

Baum, Fleming and Singer (1983) found that in coping with chronic stress following the Three Mile Island incident, both emotion-focused coping and self-blame were associated with less stress than were problem-focused coping and denial. Given that individuals are far more likely to gain control over their emotions than the events at hand, emotion-focused coping may be most effective in this type of situation and lead to the greatest sense of control. Also, emotional regulation and assuming responsibility for difficulties were related to each other and to perceived control. They concluded that a

'control-oriented' coping style (in which the perception of control is actively created and maintained by whatever means necessary) can be effective in reducing the distress associated with technological catastrophes. Baum, Fleming and Davidson (1983) concluded that technological or workplace catastrophes are more likely than natural disasters to cause chronic stress and widespread effects: technology is supposed to be under our control. However, incidents like TMI, the leak of toxic gas at Bhopal and Chernobyl show that this is not always the case. Where people are unable to regain a sense of control in their lives, chronic stress seems to be the result.

One method of coping with work stress that has received considerable attention is social support (House, 1981). McCarroll *et al.* (1993) discuss the coping strategies of personnel dealing with violent deaths. They found it important that the personnel received social support and full disclosure of gruesome details before they participated in body handling. During the work, the following strategies were used to maximize coping: concealing odours in any way possible, wearing gloves, viewing remains as non-human, avoiding emotional identification with the deceased, humour, professionalizing the job, and work-group support. Finally, after exposure, debriefings with the work group (professional counselling was seen as unacceptable), social support from family, alcohol, and in some cases memorial services, were all seen as helping workers cope with this unique stressor. Although these appear to be effective in the short term, their long-term consequences (e.g. use of alcohol) are unclear.

The family can also be an important source of support for rescue workers (e.g. Paton and Kelso, 1991). Wilkinson (1983) found that after the Hyatt Skywalks disaster, the family was considered to be an important resource for post-disaster coping for rescuers. Friends were the second most important source of support. Paton and Kelso (1991) also suggest that spouses could be a valuable resource for the organization responsible for the relief workers. Wives' perceptions of their husbands' reactions to a disaster (all relief workers were male in this study) could limit the use of denial, which is important as these individuals may be at risk for developing longer term problems (e.g. Horwitz *et al.*, 1980).

Wilkinson (1983) found that after the Hyatt Regency disaster, the most common coping strategy among those interviewed (half of whom were official, unofficial or off-site rescuers) was talking about the event (for 37 per cent of the sample this was their principal outlet), although whom they were talking to is not identified. Thus, whether from family, friends or co-workers, social support is an important part of the coping process.

It should be noted that coping can be occupation specific. Employees within occupations have unique ways of coping with their work stress. Palmer (1983) studied emergency medical technicians who are in constant contact with people who are injured and/or dying, and found unique and apparently functional ways of coping. For example, the use of humour (using comedy as an escape or safety-valve), psychological distancing through technical language (e.g. death becomes a 'signal 27') and rationalization (e.g. you 'lose'



a few, but without us none would survive) are used within this occupation but may be of little use in other occupations.

### **The role of the organization in facilitating personal coping**

Despite the obvious need for coordination in successful disaster management, organizations are sometimes hesitant to assume responsibility for overall coordination, usually because of ambiguity about who has legitimate authority in a disaster (Baum, 1987).

Disaster-related interventions can be implemented before, during or after the disaster under the advice of mental health professionals. The most appropriate and cost-effective role for the mental health worker during times of disaster is that of a consultant to primary caregivers such as family physicians, clergy and full-time disaster personnel. Handford *et al.* (1988) state that to help the victims of technological accidents or disasters cope successfully, mental health systems must be ready to change their normal procedures and reach out to the community. This can be achieved by mental health professionals training temporary emergency mental health workers (e.g. college students) in how to deal with disaster-related human reactions, as was the case after Hurricane Agnes in Pennsylvania, in 1972. The services provided by the mental health system can include individual supportive counselling, working with other social service agencies to arrange for secure shelter and food, establishing 'crises lines', training volunteers to interact with victims, offering advice to planners, monitoring the psychological well-being of rescue workers, advising the media (e.g. about the nature of responses to a disaster and the availability of resources), and promoting public education (e.g. through offering immediate one-day seminars for community mental health workers, clergy and other community leaders). The underlying goal is to provide a social support network until people can re-establish their own support networks.

The importance of early intervention cannot be overstated. In their study of the rescue workers involved in the Granville rail disaster, Raphael *et al.* (1983) advocated early intervention after stressful rescue experiences and also highlighted the importance of debriefing sessions for rescue workers. In debriefing sessions, experiences, fears and triumphs are shared, and horrifying experiences discussed in the safety of the group. Both empirical findings and personal reports from participants forcefully support the necessity of including programmes in organizational interventions following disaster rescue work. This would assist with personal coping and returning the individual to normal functioning as soon as possible.

Group information sessions or therapeutic approaches may also be particularly useful. Wilkinson (1983) found that after the Hyatt Regency disaster, 30 per cent of those interviewed had attended group sessions after the disaster

and found them helpful. Members of such support groups often continue to support one another after formal therapy sessions have stopped (Handford *et al.*, 1988). The clergy and other community leaders also fulfil an important role in interpreting the meaning of disastrous events. They can help victims and rescue workers put the event in a larger context (Handford *et al.*, 1988), and be an important source of social support. However, to facilitate this process, any stigma associated with participation in support or therapeutic groups must be diminished.

One problem that can reduce the chances for successful coping is the 'trauma membrane': the tendency for well-meaning relatives, friends, therapists, and/or whole communities to shield victims from memories of the event. This might encourage denial, and decrease the likelihood of seeking help when in need (Lindy, 1985). In contrast, Handford *et al.* (1988) suggest that the value of mental health intervention is that individuals soon reach the point where remembering the disastrous event becomes tolerable rather than a cause for concern or despair.

With respect to emergency workers, there is sometimes a reluctance by management to acknowledge the effects of duty-based disaster work because it is believed that the selection process should have excluded the most vulnerable individuals, and also because disasters are perceived to bring out the best in rescue workers (Dunning, 1988). Further, formally recognizing the possibility of duty-related trauma reactions occurring might increase the likelihood of successful workers' compensation claims and duty disability requirements (Dunning, 1988).

Where an organization's culture encourages denial of psychological strain following disasters, problems will be concealed and people will suffer. Even if potential decrements in organizational functioning and productivity caused by workers suffering from work-related trauma was not an adequate incentive for management to implement programmes to help them deal with work-related trauma, growing legal concerns would provide a sufficient impetus concerning organizations' responsibility for the health and safety of their employees (Dunning, 1988; Sells, 1994).

In an attempt to understand how organizations can facilitate the coping of rescue workers, it is helpful to look at one specific organization. Dover Air Force Base in Delaware is the designated East Coast mortuary for the US Military and has handled several disasters through the years (e.g. the Jonestown massacre, the bombings in Beirut, and the plane crash in Gander, Newfoundland in 1985). They customarily deal with about sixty deaths a month. In the case of the plane crash in Gander, the base was forced to handle the remains of nearly five times that number at one time. Consequently, they engaged the help of volunteers from the military. Thus, these volunteers were on-site workers, almost none of whom had been exposed to such a traumatic experience previously, but who were expected to be involved with the ill, the dead and the dismembered, and then return to and continue their normal job assignments.

The following observations and recommendations are gleaned from the extensive debriefings of rescue workers involved in the Gander disaster (Ursano and Fullerton, 1988):

- There are good reasons for using on-site volunteers in the case of mass tragedies (it is difficult to force someone to take part in body identification when this not part of their normal duties; large numbers of people are necessary and volunteers will often go the extra mile).
- Although some volunteers could be seeking the recognition that typically follows assisting in such a crisis (e.g. medal, promotion), and others may be curious, most seem to do it because of camaraderie (i.e. if they were the one who had been killed, they would want someone to do it for them and their families).
- Communication is important throughout the disaster, including an acknowledgement of the horrors that might be encountered and the symptoms that workers might experience.
- The primary stressors for workers seem to be the intensity of the sensory experience, (e.g. viewing, smelling and touching human remains, and identifying with the victims as human beings).
- Working with faulty equipment can be a significant stressor in addition to the human aspects of the tragedy.
- Some administrators felt that it was critical that the commanders and supervisors should assist in the mortuary to gain exposure to what was experienced by the volunteers. This would make them more sensitive to resultant problems in volunteers should they appear later. However, this suggestion was somewhat controversial.
- Policies and procedures for these types of event need to be documented. Many workers commented on 'reinventing the wheel' each time a disaster struck.
- There should be compulsory breaks, and frequent rotation of volunteers. (In the disaster following the bombing of a federal building in Oklahoma City in 1995, rescuers worked for no more than two hours before they were given a compulsory break).
- Rescue workers or body handlers need a transition place to go to before returning to the outside world: e.g. a place where they can sit with other volunteers after their shift, have something to eat and drink and talk about the gruesome nature of the event. (In the Oklahoma disaster, a specific area was set up for rescue workers, and at the end of every two-hour work shift they attended mandatory debriefing sessions.)
- Minute details must be attended to in order to minimize the trauma on workers. For instance, regarding food preparation, it would not be appropriate to serve barbecued ribs to rescue workers who had been identifying charred bodies all day.
- It can be 'therapeutic' to get into another work setting immediately after the disaster (assuming there has been closure on the tragedy).

- Deprogramming sessions can be very important, not only in terms of the information they provide, but also in terms of giving workers access to mental health professionals, opening the lines of communication and encouraging a feeling of community.
- Chaplains are often the primary mental health workers in disaster situations. They are used as confidants by leaders and workers alike.
- Awards of recognition given to workers after the disaster can acknowledge the value the organization places on the efforts of these workers. However, there are often problems in ensuring that everyone is recognized.
- Individuals who had been involved in rescue work before the Gander disaster stated that it 'only gets worse' the more often you do it. Thus, whether rescue workers ever become accustomed to the stressors is questionable.

### **Studies on acute disasters: some methodological problems**

There are some methodological problems that commonly apply to studies on acute workplace disasters. First, problems emerge because of the sudden onset of events and the difficulty in planning studies beforehand. Second, because the precise occurrence of a disaster is virtually impossible to predict, it is unlikely that non-retrospective baseline data will be available. Another challenge emerges from the difficulty associated with choosing the appropriate temporal lag between measuring the stressor and the strain associated with it (Barling, 1990). Moreover, the duration of an acute stressor may be extended beyond its physical life by virtue of victims re-experiencing the event or associated events; intrusive imagery or secondary events can keep the trauma alive (Baum, O'Keefe and Davidson, 1990). Another problem emerges because the literature on the psychological consequences of disasters has proceeded without a formal theory, making it difficult to organize research findings that might guide future research (Green, 1985). Finally, studies providing information on rates of occurrence of symptoms yield much higher rates of psychopathology than those studies reporting data on psychiatric syndromes or illnesses (Smith *et al.*, 1988). Thus, although there can be large differences in the estimated rates of occurrence of survivor impairment from one study to another, these differences are often more attributable to how, when and from whom data were collected than to genuine differences in impairment. In general, adverse mental health consequences are found in much higher rates in studies using in-depth, open-format interviews, or self-report than those using standardized structured research instruments (Smith *et al.*, 1988).



## Conclusion

The reality is that, as much as we attempt to prevent them, disasters will continue to happen. It is our hope that even if we cannot stop them from occurring, we can at least minimize their negative effects on the victims and on-site and off-site rescue workers.

Much is left to be learnt, and critical questions remain. Just some examples of these questions are: How long can volunteers engage in acute disaster work before they should take time off? Are there any positive effects following successful disaster work? What are the effects on mental health professionals and chaplains who counsel on-site and off-site rescue workers? When do acute disasters become chronic? What predicts whether a workplace disaster will exert a short-term or long-term effect (Theorell *et al.*, 1994)?

Having researched the literature, our overriding conclusion is that the various groups of disaster workers provide an invaluable service to others in time of need. It is now time for researchers to provide sufficient information and offer viable strategies to enable these workers to cope more effectively when they perform this important function.

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