

# Crisis Intervention

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Impact of Crises  
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## Glossary

*Crisis* The critical turning point of a situation or event; can be an individual crisis or a population-level/community crisis.

*Psychological first aid* A group of evidence-informed interventions that can be helpful in the immediate aftermath of a crisis or traumatic event.

*Resiliency* The dynamic process of healthy response and coping in the face of adversity.

*Risk communication* Scientifically based method for communicating effectively under high-stress conditions.

*Terrorism* Intentional acts of human malevolence with the primary goal of causing terror; implemented by those who wish to coerce societies by inducing fear, shock, horror, and revulsion, often with ideological, religious, and political agendas.

A crisis is defined as a critical turning point of a situation or event. Crises can occur at the individual or community levels and affect one person or an entire population. Typically crises arise for after severely stressful events. For example, stressful events include traumatic events (i.e., car accidents) affecting individuals and large-scale disasters (i.e., hurricane, earthquake, or terrorism) that have profound effects on communities and nations. Crises are of variable

duration; they can be short-lived or persist for months and years. Over time, crises attenuate, resolve, or worsen, depending on the nature of the inciting event and its management. During severe crises, affected individuals often experience a period of stress, uncertainty, and anxiety and are concerned about their own safety or the safety of others. Each crisis often is followed by a series of crises (e.g., secondary crises such as loss of job, illness, or dislocation) that further stress the individual, group, and community.

### Impact of Crises

Crises evoke a variety of reactions. Resilience and recovery are the rule, and most individuals do not develop chronic problems. For some, however, there are adverse psychological and behavioral responses. In crises precipitated by traumatic events such as disaster or terrorism, many people may experience sleeping difficulties; feel worried, sad, and anxious; increase alcohol and tobacco use; and change their regular behavior (e.g., alter their usual means of travel). Challenges to their faith and spiritual beliefs may also occur (Figure 1).

Many acute negative behavioral and emotional responses remit over time and do not require formal treatment. This tendency toward recovery is often credited to resiliency, a dynamic process of health recovery and coping in the face of adversity. Optimism, intelligence, humor, creativity, and active coping are related to resilience and positive outcomes after crises. Through active coping, individuals accept the impact of traumatic events and implement attainable, concrete measures to improve things.

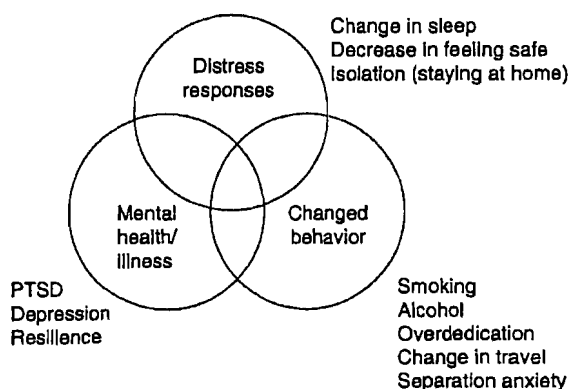
Although many people experience distress after a crisis, some experience more persistent psychological

sequelae, such as anxiety, insomnia, increased smoking, increased alcohol consumption, and bereavement. This group may benefit from supportive psychological interventions, including psychological first aid and brief pharmacological interventions for sleep or anxiety. A still smaller group will develop psychiatric illness, including anxiety disorders (acute stress disorder, ASD; and posttraumatic stress disorder, PTSD), major depressive disorder, and substance use disorders. Such individuals require more formal (and perhaps more prolonged) interventions, including psychiatric treatment.

Individual responses to a crisis, which can include a traumatic event, a severe life stressor, or disaster, depend on a number of factors. Responses are influenced by proximity and involvement with the precipitating event. For a traumatic event, this means the severity of the trauma (e.g., degree of life threat). Responses are affected by psychological factors as well as interpersonal, family, and community stressors. In addition, research suggests social contexts, past experiences, future expectations, and genetic makeup interact with the characteristics of traumatic event to produce an individual's psychological response. Other identified risk factors that appear to increase the severity and/or duration of negative response include gender (e.g., women are more likely than men to develop acute PTSD), low level of social support, previous psychiatric illness, previous history of trauma, and ongoing negative life events after the trauma.

Groups and communities are also affected by crises, including the closing of a major community employer, the death of a beloved leader, and disasters. A community's response to a disaster often runs a predictable, but at times paradoxical, course. Communities temporarily coalesce immediately after a traumatic event. This is also known as the honeymoon period. During this time, individual heroics, a sense of working for a common cause, altruism, and "we will survive" attitude pervade the community. As time evolves, however, this optimism can change to disillusionment and often exposes the social fault lines of conflict, suspicion, and differential resources that are present along racial, ethnic, economic, and religious divides.

Community (as well as individual) responses to disasters are more pronounced when the trauma is intentional or the disaster humanmade. A relevant, modern-day example is terrorism. Here, acts of human malevolence are implemented with one primary goal – to cause terror. Terrorist acts are implemented by those who wish to coerce societies by inducing fear, shock, horror, and revulsion, often with ideological, religious, and political agendas.



**Figure 1** Psychological consequences of disasters, terrorism, and crises. PTSD, posttraumatic stress disorder. Adapted from Institute of Medicine (2003), *Preparing for the psychological consequences of terrorism: a public health strategy*, Washington, DC: National Academies Press.

Although acts of terrorism may lead to death, injury, property damage, and the evacuation and displacement of communities, the main aim is to challenge a society's sense of well-being, cohesion, and security. The severity and length of the crisis may increase if chemical, biological, nuclear, radioactive, or high-yield explosives (CBNRE) agents are used because these agents are particularly effective in causing terror. The infectiousness of biological agents, the persistence of chemical weapons, and the delayed effects of radioactive agents, in particular, perpetuate fear and induce terror.

A variety of interventions are used to attenuate the course of and speed the recovery from a crisis. Although all such interventions have been developed to be helpful for those affected, it should be noted that some interventions are more helpful than others, and there are some interventions that may be harmful. The effectiveness of any crisis intervention depends on a number of factors, including timing and availability. Some interventions, for example, must take place immediately after the onset of a crisis (such as ensuring safety and basic needs). Others interventions take place weeks to months later, as the focus, concerns, and emphasis shift over the evolution of the crisis. Beyond life-saving actions, subsequent interventions can help mitigate the risk of or the degree of problems for those who survive. The principles of crisis intervention for large-scale disasters are discussed in the following sections.

### Planning for Crisis

Large-scale community crises, such as a disaster, illustrate the range of principles important to crisis intervention. Although the term crisis intervention may seem to refer to actions taken only after disasters occur, steps that can be taken prior to the occurrence of such events should also be part of public health planning for crisis intervention. For example, an inventory of available resources (including personnel, material, and monetary) can be developed before a crisis. Important government and community leaders and spokespeople can be identified, at-risk populations accounted for (Table 1), and gaps in the current support and response systems can be examined. Educating leaders in the principles of risk communication may provide them with skills to assist in calming people, dispelling rumors, and maintaining the leaders' credibility after a disaster. Similarly, pre-event education of the populace about personal preparedness is also an important part of crisis intervention. Preparedness plans include forming a communication plan with loved ones, establishing and mapping out

**Table 1** Populations at risk for psychological problems after disaster

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Previous exposure to trauma, particularly childhood
Direct exposure to the trauma/event (to include physically injured)
Those with premorbid psychiatric illness
Those experiencing acute losses
First responders (police, firefighters, emergency medical technicians)
Female gender
Those with minimal social support
Body handlers
Children
Elderly
Physically disabled
Those with negative life experiences after the trauma

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evacuation routes, having extra medical supplies, developing care plans for pets, and having extra necessities on hand in the event of an evacuation (e.g., at least a half tank of gas in the car at all times, extra batteries, plenty of bottled water, and nonperishable food items).

### Interventions During and After the Crisis

In the immediate aftermath of a large-scale crisis such as a disaster, the most important interventions focus on medical emergencies and life-threatening emergencies. Although it is not known (and it is difficult to predict) how the public will react to a large-scale disaster such as the Madrid or London bombings or the anthrax attacks in the United States, previous responses to disasters have shown generally effective and collective action. Depending on the cause of the traumatic event, there may be a large number of people seeking medical care. These numbers will very likely increase and overwhelm medical capacity if CBRNE agents are involved. Biological, chemical, and radioactive agents (due to their invisible, odorless nature) tend to induce a great number of people who are not at actual risk of exposure to believe they might have been exposed.

Crisis intervention, from a mental health standpoint, includes working with medical personnel to perform initial triage. Those who are not reassured easily may benefit from a brief stay in an area that has been set aside, preferably close to the emergency room. In this way, acutely distressed patients have the opportunity to reconstitute while still being monitored. In dealing with this population, terms such as the worried well and psychological casualties should be avoided. These terms are pejorative and convey a message that it's all in their head. Recognizing that these individuals are experiencing distress and require

caring responses can produce calm. The creation of a voluntary registry for individuals who are seen in the emergency room is not only a good public health intervention but can be therapeutic as well.

In addition to attending to the immediate medical needs, early crisis intervention addresses the basic needs of the survivors and includes safety from further harm as well as providing food, water, and shelter. As these needs are met, psychological first aid (PFA) can be employed. PFA is an evidenced-informed intervention that can be helpful in the immediate aftermath (hours to days) of an event (Table 2). The principles of PFA include establishing a sense of safety, facilitating social connectedness, fostering optimism, decreasing arousal, and restoring a sense of self-efficacy (e.g., the ability to take positive action). PFA can be thought of as flexible, supportive, and unlikely to cause harm; its main objectives are to limit distress, emphasize healthy behavior and activities, and minimize negative health behaviors. Although education and training in the PFA principles are required, the application of PFA can be accomplished by laypeople and does not require specific mental health expertise.

Brief simple conversations and informal on-site talks with survivors and responders can be of great assistance. This early crisis intervention avoids mental health labeling, offers support, education, and problem-solving techniques. Later interventions include cognitive-behavioral therapy (CBT). CBT has demonstrated efficacy in the prevention of PTSD in those with acute stress disorder after trauma exposure. One well-publicized disaster intervention known as psychological debriefing has not been shown to prevent PTSD and may be harmful in certain settings. Supportive and educational groups should be conducted by experienced and well-trained personnel; should be accompanied by clear objectives, evaluation, and referral procedures; and should never be mandatory.

Crisis intervention also includes good risk communication, a scientifically based method for

communicating effectively under high-stress conditions. The development of an effective risk communication strategy (as part of preevent intervention) is of vital importance in enabling leaders to inform and direct diverse populations. Individuals in the community look to their leaders for information, inspiration, a sense of control, optimism, and help during their period of grief. A major goal of the leaders should be to enlist the public as a partner. Information must be delivered frequently by credible and consistent sources. Messages should avoid speculation, never mix facts with reassurance, recommend specific steps people may take to protect themselves, and inform people when the next messages will be delivered. Good risk communication helps reduce negative psychological responses, encourage responsible safety behaviors, build trust, and minimize rumors and misinformation.

### Critical Incident Needs Assessment Teams

Community crisis intervention that incorporates these principles in population health strategies must allocate and target resources at the individual, group, and community levels. Deploying critical incident needs assessment teams (CINATs) can be a helpful initial response to community disasters and crises. Such teams initiate planning, obtain on-site assessment, begin leadership consultation, and provide initial on-site guidance and support. CINATs thus are mental health-public health disaster response teams. CINATs are multidisciplinary and combine a public health approach and mental health knowledge to identify and respond to crisis. Teams initially quantify and identify needs in order to appropriately direct intervention and outreach resources.

CINATs recognize that interventions and responses are integrative, depend on a collaborative effort, and must use the community's inherent resiliency to help promote recovery. Teams can work effectively in responding to crises at workplaces (e.g., a shooting at a school or an airport after a crash). They target the individual and group levels that share a common task, mission, culture, structure, and/or physical proximity.

To be effective, CINATs require familiarity with the community or group they are deploying to assist. They may already be familiar with the given community or have received education and training about the community structure, culture, and leadership. These multidisciplinary groups include psychiatrists, psychologists, social workers, and mental health technicians. Additional individuals with particular areas of expertise, such as clergy and individuals responsible

**Table 2** Principles of psychological first aid

Establish safety; identify safe areas and behaviors
Maximize individuals' ability to care for self and family and provide measures that allow individuals and families to be successful in their efforts
Teach calming skills and maintenance of natural body rhythms (e.g., nutrition, sleep, rest, exercise)
Maximize and facilitate connectedness to family and other social supports to the extent possible
Foster hope and optimism while not denying risk

**Table 3** Grief leadership actions after disasters<sup>a</sup>

Performs public announcements, appearances, and briefings
Presents calm demeanor
Organizes memorial services
Attends funerals, grieves
Endorses the various assistance programs
Attempts to describe loss in positive terms (acknowledging sacrifice and contributions)
Presents future goals and objectives

<sup>a</sup>Adapted from Wright K. M. and Bartone P. T. (1994), Community responses to disaster: the Gander plane crash. In: Ursano, R. J., McCaughey, & Fullerton C. S. (eds.) *Individual and community responses to trauma and disaster*, pp. 267–284, Cambridge, UK: Cambridge University Press.

for security, communications, management, employee assistance, and human resources may be added.

In the aftermath of a community crisis, these pre-identified teams deploy to evaluate mental and behavioral health needs, identify high-risk groups, assist leadership function, and identify needed resources. CINATs avoid pathologizing appropriate responses to trauma and loss, and they identify those at greatest risk for subsequent problems. CINATs are a first population-level intervention. Subsequent care is arranged and distributed based on this epidemiological assessment. These teams also provide early support, education, PFA, and teaching about grief leadership (Table 3). CINATs may identify the need for additional supports including family support centers complete with legal assistance, casualty affairs assistance, Red Cross, and adult and child mental health counseling.

## Conclusion

Crises affect both individuals and communities. Disasters are a severe form of crisis. Interventions can foster resiliency and mitigate adverse responses and health risk behaviors for individual and community crises. Interventions include PFA for individuals, CINAT for community assessment and early intervention, and traditional health care for those more severely affected. With appropriate planning, proper implementation, considerate timing, and coordinated execution, an effective and efficient response can foster resiliency, limit impairment, and speed recovery.

Crisis intervention is not one size fits all approach and requires thoughtful consideration and planning. Crisis interventions must always be acceptable to the survivors and their culture. Even the most well-thought-out plans cannot account for every possibility. Leaders and helpers require flexibility in their

approach and must meet disaster victims where they are – both literally and figuratively. Finally, those providing crisis intervention require support. They often do so with altruistic and noble intentions, and it is imperative that they take care of themselves as well as those they attempt to help.

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## Critical Thermal Limits

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This article is a revision of the previous edition article by J Roth, volume 1, pp 598–600, © 2000, Elsevier Inc.

Critical Thermal Limits of Ambient Temperature  
Critical Thermal Limits of Body Temperature

### Glossary

<i>Homeotherm</i>	The pattern of temperature regulation in a species in which the cyclic variation in core temperature is maintained within arbitrarily defined limits ( $\pm 2^\circ\text{C}$ ) despite much larger variations in ambient temperature.
<i>Thermal balance</i>	Equality between heat gain and heat loss to maintain body temperature at a constant level.
<i>Thermoeffector</i>	An organ and its function that affects heat balance in a controlled manner as a part of the process of temperature regulation.

Critical thermal limits can be defined for homeotherms (1) as the highest and lowest ambient temperatures at which the rate of evaporative heat loss or the rate of metabolic heat production must be increased to maintain thermal balance, (2) as the highest and lowest ambient temperatures at which the capacity for temperature regulation is exceeded and core temperature changes (the development of hyper- or hypothermia), or (3) as the lethal highest and lowest body core temperatures.

### Critical Thermal Limits of Ambient Temperature

#### Critical Thermal Limits for Activation of Thermoeffectors

Within a certain range of ambient temperature, heat production is at its minimum. This temperature range is called thermoneutral zone or metabolically indifferent zone. Within the thermoneutral zone, there are no regulatory changes in metabolic heat production or evaporative heat loss. The absolute highest or lowest limits, as well as the width of the thermoneutral zone, depend on body size, heat insulation, the heat transfer coefficient of the surrounding medium (e.g., water, wind), and the status of acclimation. For example, the metabolism of the arctic white fox does not start to rise until the ambient temperature decreases below  $-40^\circ\text{C}$ , whereas a nude human starts to increase heat production at external air temperatures of  $27^\circ\text{C}$  and lower. The zones of thermal neutrality for a number of representative homeothermic species are shown in Figure 1.

#### Critical Thermal Limits for the Thermoregulatory Capacity

The so-defined highest critical thermal limit depends on the capacity of the thermoeffector (i.e., the capacity to dissipate heat by evaporation of water) and on body size. At a low relative humidity of approximately 15%, the average external heat tolerance limits are  $60^\circ\text{C}$  for humans,  $56^\circ\text{C}$  for dogs and cats,  $42^\circ\text{C}$  for rabbits,  $39^\circ\text{C}$  for rats, and  $37^\circ\text{C}$  for mice. As long as a sufficient amount of water is supplied, these species can tolerate the listed ambient temperatures for longer periods. The limit of cold tolerance primarily depends on the effectiveness of the heat insulation that covers the body. Thus, it is not surprising that naked humans,