The Armero Tragedy: Lessons for Mental Health Professionals

Raquel E. Cohen, M.D., M.P.H.

A U.S. mental health consultant worked closely with medical personnel soon after a volcanic eruption and mud avalanche killed about 22,000 persons and devastated the area around Armero, Colombia. The consultant conducted workshops and courses on crisis intervention for health personnel operating disaster relief units and for mental health professionals, pediatric nurses, and family workers; she also provided consultations to clinic and shelter directors and case consultation with hospitalized victims. Observations of early postdisaster responses of hospitalized victims showed recurring themes such as victims' ambivalence about learning the full extent of the disaster and their own losses, delayed mourning because many bodies could not be recovered, somatic expressions of anxiety and fear, and the use of primitive defenses, such as magical thinking.

Opportunities for mental health professionals to join emergency intervention teams following catastrophic disasters are increasing (1). During the last decade mental health professionals have gained competence in working with disaster victims. In addition, professionals' capacity to respond earlier has been improved through more prompt communication between national and international agencies concerned with the aftermath of disasters, such as the National Institute of Mental Health, the Pan American Health Organization, and the Agency for International Development, as well as through continuing development of curricula, training programs, books, and journal articles related to psychiatric intervention in disasters (2).

Dr. Cohen is professor of psychiatry at the University of Miami School of Medicine. Address correspondence to her at 1925 Brickell Avenue, Apt. D-1013, Miami, Florida 33129. This paper is part of special section on mental health issues in disasters.

Editor's Note: In recent years mental health professionals have taken a more active role in the delivery of crisis services to disaster victims and have gained a more sophisticated understanding of victims' responses to disasters. This special section on mental health issues in disasters features papers on intervention in the aftermath of disasters in Colombia, Mexico, Australia, and the U.S. Guest editor of the section is Raquel E. Cohen, M.D., M.P.H., professor of psychiatry at the University of Miami. She is also a consultant to the Pan American Health Organization and to the emergency services branch of the National Institute of Mental Health and has special expertise in intervention after disasters in Latin America.

This paper will focus on the initial reactions of victims and caretakers as observed during the first weeks after a catastrophic disaster. The setting was the aftermath of the eruption of a volcano that buried the city of Armero, Colombia, on November 13, 1985, and killed 22,000 residents of the region. The paper is based on the observations and experiences of a mental health consultant (the author) who worked in collaboration with the Colombian government for 15 days soon after the disaster. The consultant's role was to incorporate mental health content into the international disaster relief program already under way.

The consultant's involvement in the postdisaster activities presented a rare chance to observe the early responses of both victims and caregivers and their coping behaviors. Following most disasters outside the U.S., political, bureaucratic, and other barriers delay the involvement of foreign medical and psychiatric personnel for weeks or even months; thus most reports in the literature are based on observations made some months after the event. In addition, the consultant was able to work directly with hospital personnel in a transcultural setting, also a less common occurrence.

The author's theoretical and clinical frame of reference was based on her experiences in disaster intervention over the past 15 years (3–6), beginning with the Peruvian earthquake in 1970 and including the Managua earthquake in 1972 (5) and the Boston blizzard of 1974 (6).

Development of a disaster literature

Over the past decade the psychiatric research community has been working to improve the accuracy of observations of postdisaster behavior responses (1). This objec-

tive has been supported by the development of research instruments and by the opportunity to apply scientific research designs with a postdisaster population, as in Gleser and associates' study (7) of reports of symptoms after the Buffalo Creek flood.

Earlier literature includes Wallace's account (8) of individual and community behavior following a tornado that hit Worcester, Massachusetts, in 1956. He suggested that victims' responses have several sequential stages, beginning with the isolation that occurs before the victim is rescued. This approach of identifying the characteristic stages of response has influenced data gathering about and the understanding of posttraumatic behavior for the past decade, although there is no general agreement on the characteristics inherent in each stage. Reports and studies of victims' behavior published as far back as the 1940s and 1950s by Cobb and Lindemann (9), Tyhurst (10), and Glass (11) and, more recently, by Lifton (12) and Krystal and Niederland (13) have also enriched the body of knowledge used to conceptualize current emergency programs.

Garmezy (14) described three approaches of increasing sophistication that have characterized disaster research: clinical-descriptive, epidemiological, and quasi-experimental. The clinical-descriptive approach is based on opportunistic observations of professionals who, for various reasons, have been personally involved in disaster relief efforts and has been the trail-blazing methodology in this field. It has set the stage for increasingly sophisticated studies of victims' reactions, such as those after the flood at Buffalo Creek (15), the nuclear accident at Three Mile Island (16), and the eruption of Mount St. Helens (17).

Another important contribution has been studies based on theories of stress and coping. Currently increased interest is shown in differentiating the psychic trauma that results from an event from the grief and mourning processes that also occur. As Eth and Pynoos (18) write, "Although trauma and grief are profoundly different human experiences, a single event can precipitate both responses." In a disaster, the suddenness of death and the catastrophic impact on individual lives produce both trauma and grief, which are sequential responses to the catastrophic event.

Research by Burgess (19) points to the conflicting thoughts and feelings aroused by a major stressor. The victim is inundated by anxiety, which interferes with organized processes of reality testing and the resolution of mourning and may alter the course of the grief response. According to Cohen and Ahearn (20), attention to the victims' anxiety reactions is the main objective of early intervention after a disaster. Parkes and Weiss (21) hypothesize that a sudden and untimely death, in contrast to an anticipated death, interferes with the expression of grief and delays its onset. Reactions to untimely death (22) and sudden death (23) involve a shock, or psychic trauma, that is separate from the process of grieving.

The Armero disaster and its aftermath

The eruption of the Nevado del Ruiz Volcano in north-central Colombia occurred at about 10 p.m. on Wednesday, November 13, 1985. It consisted of an intense double eruption of built-up molten rock and trapped gases that produced explosions of heated ash. The explosion illuminated the skies and melted the tons of ice and snow that cover the top 2,000 feet of the peak. This mass found its way to the entrance to several river beds that originate at the base of the volcano.

One of the river beds, the Lagunilla River Canyon, curves around Armero, about 30 miles away. This town, which had a population of about 23,000, was a thriving agricultural center, blessed by a rich soil, a benign climate, and a family-centered lifestyle. Armero received the brunt of the steaming, mile-wide avalanche of gray ash, mud, rocks, tree trunks, and everything else in the path of the river. By some calculations the initial velocity of the mud avalanche was 90 miles per hour, with a velocity of 30 miles per hour when it entered the town.

Within hours, the catastrophe had left about 22,000 people of Armero and the surrounding region dead or missing under 50,000 million cubic feet of boiling mud. Thousands more were injured, orphaned, or homeless.

Rescue operations were initiated at dawn by one helicopter surveying the grotesque, not-to-be-believed mud blanket, 15 feet deep, that had overflowed the river bed and entombed Armero. It also identified survivors who had been able to climb onto rooftops or hold on to branches of trees. Many had been able to run for the city's highest ground, its hilltop cemetery, or other surfaces above the mud crest, where they huddled, frightened but passively quiet, awaiting rescue.

Some victims were unable to reach a high location but were able to keep their heads just inches above the surface of the mud. Many were buried up to their necks, or were entwined in tree branches or in the arms and legs of those who did not survive. All were encrusted with hardened mud and remnants of volcanic material.

Full-scale rescue operations were undertaken by a fleet of helicopters, whose pilots heroically lifted hundreds of victims individually, by harness, and took them to medical receiving stations in the nearby towns and later to hospitals elsewhere in Colombia. Some victims were unable to survive the 40-plus hours of waiting for rescue.

The Colombian government set up emergency units in the six surrounding towns, including medical receiving units and camps and shelters for the homeless. Physicians, nurses, and rescue personnel were brought in from all parts of Colombia. The Colombian Ministry of Health and the Health Depart-

ment of Tolima, the region in which the disaster occurred, were heavily involved in relief efforts, as were the Red Cross and numerous public and private agencies.

All available relief services were overwhelmed by the necessity to wash the malignant mud from each victim and to triage the injuries. Only after the victims were washed was the devastation to skin, bone, and muscle discovered. Some victims had been carried a mile or more by the hot mud, battered by tree limbs and other debris; severe burns, infections, and gangrene were common.

Over the next two weeks, fears of a second eruption sent occasional flashes of panic through the hospitals and rescue centers. Whenever a rumor started, people began seeking refuge in higher, more secure places. Hospitals tried to discharge patients quickly so that if evacuation was necessary, a minimum of bedded surgical cases would have to be moved. Detailed evacuation plans were printed and posted in all major buildings, reinforcing the awareness of continuous and imminent danger. The possibility of a second disaster monopolized the concern and energy of all hospital personnel.

Initiating consultation and training activities

The consultant's involvement began when the dean of the medical school at the University of Miami cabled the Colombian Ministry of Health to offer the assistance of a Hispanic mental health consultant. The director of the ministry's Division of Mental Health answered by telephone and initiated the arrangements for the consultant's trip to Colombia, and the Pan American Health Organization supported and assisted the effort.

In contrast to the inevitable delays that usually occur in transnational collaborations, all arrangements were made with extraordinary speed and efficiency, and the consultant was on the scene within two weeks. The Division of Mental Health and the Health Department of Tolima facilitated the consultant's transportation, site visits, schedules, and workshop arrangements, which permitted the best possible utilization of her time over the next two weeks. Such assistance is generally very difficult to obtain at the field level so soon after a disaster.

Because the consultant was able to meet immediately with the director of the Division of Mental Health and key health personnel, and because her postdisaster work in Latin America was known, she was able to begin consultation activities immediately. The general goal was to share with concerned administrators and emergency personnel the mental health knowledge that would facilitate assistance to victims.

More specifically, the consultant planned to provide technical assistance to the national and regional health systems; to provide consultation to all levels and organizations involved in providing emergency relief services; and to increase the mental health awareness of health professionals and the public.

The consultation activities

The consultation activities took several forms.

- The consultant met with national and state government professionals who were involved in the early, acute planning phases for assisting the victims. The objective was to describe the role that mental health plays in the field of emergency medicine after a catastrophic disaster.
- Educational presentations on crisis intervention were made to health personnel in the six surrounding towns in which emergency units had been organized. They included the phenomenology of responses to disasters (such as denial, mourning, and depression), techniques for mental health crisis intervention, and the effects of disaster and caretaking on the workers themselves. Through these presentations the consultant had the opportunity to exchange information with the medical directors of the victims' assistance programs.
- Courses on crisis intervent· were given to mental health pr· fessionals in Ibague, the capital · Tolima, and in Bogota. Include were the stages of response after disaster, various consultation tech niques and how they might be ap plied across agencies, and tech niques for community educatio about the psychological after effects of disaster.
- A course in the crisis behavio of children was given to pediatri nurses in Ibague.
- A course in crisis behavior wa given to the staff of the Colombia Institute of Family Welfare. Thes staff members were dealing with large number of families who wer separated during the rescue opera tions and were also caring for chil dren orphaned by the disaster.
- The consultant provided cas consultation for disaster victim who were patients at the Federic Lleras Acosta Hospital in Ibague This regional hospital had receive a large number of physically trau matized victims, including chil dren. Victims who had undergone surgical amputation of one or more extremities were often among those with the most severe psycho logical traumas.
- Consultation was provided to the directors of the ambulatory health clinics in the nearby towns
- Consultation was provided to the directors and personnel of shelters or camps for the homeless

The postdisaster clinical course

The following observations are based on experiences with hospitalized victims of the Armero disaster and the health professionals who were caring for them.

To identify the early postdisaster behaviors of hospitalized victims, one must separate out the manifestations of medical shock and reactions to rescue procedures. The latter include the effects of being lifted out of the mud by helicopter, carried to an emergency receiving station, and subsequently transported to a distant hospital. Around Armero the human environment was character-

ized by emotional expressions of intense excitement and confusion as well as the chaos of rapidly changing orders for evacuation and transport.

After surgery or intensive medical treatment, the biochemical effects of medications on emotions and cognitive abilities must also be taken into account; for instance, medication effects may cover, exaggerate, or mimic depression. At the early stages of hospitalization, it is difficult to differentiate the psychophysiologic signs of physical trauma and effects of medication from the emotional states that are precursors of postdisaster psychic trauma reactions or early expressions of bereavement.

All patients showed physiologic signs of psychological distress. For example, two weeks after the disaster, many children had large pupils and a constant, intense stare, a sign of autonomic reactions. Patients reported such diffuse signs of anxiety as fluctuating sensations of warmth, perspiration, and fear reactions whenever there were rumors of another avalanche. A large number of victims (and caregivers) reported sleep disturbance, with a lack of dreams.

Most patients expressed a need to be active, showing an inability to relax This drive for action was coupled with complaints about inability to make decisions. Patients had difficulty channeling their low level of interest into social behavior. They reported that the familiar patterns of social interactions that used to exist had lost their value. They carried out the routine daily activities that were expected of them in the hospital in an automaton fashion.

Early manifestations of psychic trauma. Psychological evidence of the victims' postdisaster reactions began to appear when their medical course was stabilized. One aspect was victims' ambivalence about learning the details of the mud avalanche and the losses of home, family members, job, and community they had sustained Nurses and other medical personnel often sought consultation about the most favorable time, and manner, in which to inform patients of their losses and to help them deal with them.

Consultation was also aimed at helping medical professionals recognize the victim's need to express anger, to help him express it without fear of staff retaliation, and to encourage him to maintain social relationships. A related issue was to help professionals understand that a victim may suddenly exhibit unusual, aggressive, or explosive behaviors when he becomes aware that vital parts of his world have disappeared.

Initial grief reactions. Many hospital professionals had difficulty sorting out the psychophysiological concomitants of a patient's somatic trauma from the psychophysiologic expression of acute grief. Because lack of energy, motivation, and interest in social activities can accompany either state, these signs must be carefully evaluated. Many hospital staff tended to believe that as the patient's physical recovery progressed, he would return to his normal emotional state, with a parallel emergence of interest in social activity.

The hospital professionals were advised that continuing apathy may herald the first signs of bereavement. Sometimes as signs of bereavement became evident, all sensory systems appeared altered. Patients described feelings of unreality, including illusions, hallucinations, and delusions. Many reported seeing winged creatures and hearing the flutter of their wings and soothing messages of hope both before and after they were rescued.

The victims reported a preoccupation with questions about the disaster that they felt no one wanted to answer. They also reported a need to keep an emotional distance from people, and they had a tendency to respond to demands by health professionals with irritability. The professionals, in turn, made efforts to be warm and sympathetic and were puzzled by the patients' behavior.

These feelings were a source of discomfort to both groups, who did not want to admit to them. As part of consultation efforts, the professionals were helped to recognize these kinds of behaviors as part of the bereavement process and to find ways of facilitating the expressions of feelings by both groups. They also were encouraged not to resort to withdrawal and isolation themselves, which tended to interfere with the social interactions between victims and caregivers.

Therapeutic social interaction, early stages. A recurring theme early in patients' medical recovery phase was the nurses' concern about how and when to tell the victim about the extent of the disaster and his own losses, perhaps loss of family members and neighbors, home, and land or workplace. The nurses were unsure of the appropriate timing for responding to the victim's questions. They wondered whether describing the situation that the victim would have to face would relieve some of his anxieties or add further to the traumatic experience.

It was difficult to advise whether the nurse should help the patient face his grief work immediately or delay it. Theoretically a patient should carry through his grief work without undue delay in order to dissolve his bonds with the lost objects; however, for most patients the disaster had caused intense somatic and psychic traumas, leaving them with few resources. Delaying the initial work of mourning would mean giving the patient more time for medical recovery before confronting his other losses. The consultant suggested that the nurses evaluate each situation individually and titrate the amount of details they gave a patient about his losses according to his physical status and mental condition.

At this early stage of handling traumatized victims' feelings and behaviors, it was necessary to consider the social impact of the hospital's rotating personnel schedules. Because of the rotating schedules, the contacts between

health professionals and victims were fragmented. Staff members' relations with the victims were superficial, and they were giving the victims little information about the outside world. This environment reinforced the victims' sense of utter bewilderment and confusion about time and place; they felt they had been thrust by fate into a situation without meaning.

The consultant suggested that patients needed to be linked with staff members who could maintain stable schedules, could start informing the patients about the specific painful events, and could be available to help patients manage painful emotional reactions as they appeared. Such interventions were possible with some reorganization of schedules.

The nurses also asked how they could help patients adjust to their losses once they accepted the reality of them. The nurses reported many variations in victims' reactions, ranging from denial about amputated limbs or disfigured bodies to obsession with finding their loved ones to apathy, inertia, and expressions of anxiety about their forced dependency on the hospital personnel.

Another theme reported by the caregivers was patients' preoccupation with potential rescuing behavior if they believed they had not acted altruistically. Patients were poignantly self-critical when they described scenes of individuals who were at the mercy of the torrential avalanche or who were lying a few feet away in the mud, sinking slowly, as they extended a hand that finally also disappeared. The patients, now lying in a safe hospital bed, would confess their anguish, ruminating about all the actions they could have taken—for example, somehow reaching out to the hand and keeping the victim above the surface. They would accuse themselves of selfishness, exaggerating their inability to act promptly and effectively and not acknowledging their own panic and terror. The consultant was able to help the nursing staff to listen to the patient without moralizing, so that he could achieve some ventilation of his feelings, and then to discuss with the victim the reality of the past events.

Acute postdisaster behavior: delayed mourning. Besides the pervasive uncertainty about when to fully inform the patient of his losses and permit grieving to begin, the initiation of the mourning process was often obstructed by the lack of confirmation about who was dead and who was among the "desaparecidos," or missing. In fact, many bodies were still buried under the tons of mud in Armero. This uncertainty reinforced the human tendency to avoid the extreme distress connected with facing the reality of a loss; further reinforcement came from the dramatic newspaper and television coverage of the happy reuniting of many families.

Thus many victims remained in a state of expressed tension, manifested by tightened facial musculature, frozen expressions, inability to let go of fixed beliefs, and disregard of the logical reason that the absent individual could not be found. They often refused to be persuaded that a loved one was dead, in spite of evidence such as a neighbor's seeing a child covered and carried away by a wave of mud. They found many rationalizations for the survival of the missing individual, and they appeared unable to accept the degree of feelings that would be produced by facing reality.

The knowledge, or the fantasies, about the type of suffering and death that resulted from burial under the mud was overwhelming to many patients. Although they occasionally allowed their suspicions of that possibility to exist, they used all types of ego defenses to ward off the excruciating awareness. They used magical as well as primitive, delusional thinking about a loved one's disappearance. Even though they could carry out complicated, reality-oriented job functions and perform tasks that entailed good cognitive skills, they manifested a variety of expressions of displaced or repressed emotions, such as increased verbalization, frenzied activity, and an inability to relax.

The delayed bereavement process was also prominent among health professionals, as many had been involved in the actual catastrophe, had lost relatives or jobs or were emotionally bonded to the lost city. They were suddenly confronted with an overwhelming load of medical and psychological tasks while having to maintain the morale of their staff. To be able to accomplish this, they had to postpone any awareness or expression of psychological pain.

Two weeks after the disaster these caregivers were beginning to notice difficulties in their social interactions and a conspicuous alteration in their relations with friends, patients, and authority figures. They reported increased irritability, and some acknowledged that patients' demands made them impatient, a feeling they controlled by avoidance. They distanced themselves from their colleagues, expressed no interest in family affairs, and noticed increased inertia in their daily functions. They continued to struggle against these behaviors, which they realized were not typical of their usual social interactions. They tried to control and hide them from others or rigidly structuring their activities.

The consultant used this typical postdisaster behavior as a theme in educational interventions with caregivers, both in more formal consultation and informally, as when traveling with staff to shelters, having coffee, or walking back to hotel rooms. Caregivers expressed some relief when they were helped to understand what to them were strange and unfamiliar reactions.

Conclusions

The problems of sorting out psychophysiological reactions to rescue and medical procedures, early manifestations of psychic trauma, and delayed mourning phenomenology present a difficult challenge to the mental health professional who wants to join his medical colleagues working in disaster

areas. In the situation described here, a mental health consultant was able to collaborate closely with medical personnel in a transcultural hospital setting soon after a disaster occurred, and thus to make early observations of postdisaster behavior among hospitalized victims and their medical caretakers.

Two sets of lessons were learned. The first relates to early postdisaster manifestations of psychic trauma.

- After a traumatic event, victims were ambivalent about "finding out" the details of the event. Many of the victims' behavioral expressions signaled "approximation-evasion" behavior in facing reality.
- Affective signals of distress and anxiety were prominent during this early phase, while sadness and depression did not appear.
- Verbalization of painful feelings lagged behind bodily expressions of anxiety, fear, disorientation, and confusion.
- The use of primitive defenses, such as denial, avoidance, and magical thinking, were prominent in the first weeks after the disaster.

The second set of lessons relates to service-centered consultation offered in the early stages of disaster recovery.

- Collaborative consultation linkages can be effective in the first weeks after a disaster if certain conditions exist: high motivation among consultees; open communication between consultees and administrative groups, such as relief agencies; and the ability of the consultant to mobilize the infrastructure (transportation, schedules, and supplies) in order to be at the assigned place at the right time.
- Consultation with health professionals in hospitals, community health centers, and emergency shelters promotes effective psychological intervention in the early stages of healing and mourning after a disaster.
- Early consultation to caregivers enhances their individual coping mechanisms to help them avoid the burnout syndrome, which can appear after three or four extended shifts in emergency service units.
- Initial education and consultation assistance to health professionals can help them understand the confusing and paradoxical messages given by victims in their early psychic reactions to trauma.

The need for psychological assistance after disasters is manifested from the first hours after victims are evacuated to hospitals or temporary housing. Observations and consultation experiences after the Armero disaster indicated the early emergence of psychosocial dysfunctions in victims, families, and caretakers. The opportunity to offer early assistance through mental health consultation has great potential for reducing the amount of psychological disability that occurs, for making better use of the human resources available after a disaster, and for refining the techniques used to assist victims in the early stages of crisis.

Acknowledgments

The author gratefully acknowledges the assistance of Jairo Luna, M.D., former director of the Colombian Division of Mental Health.

References

1. Ahearn FL, Cohen RE (eds): Disasters and Mental Health: An Annotated Bibliography. Rockville, Md, National Institute of Mental Health, 1984
2. Lystad M (ed): Innovations in Mental Health Services to Disaster Victims. Rockville, Md, National Institute of Mental Health, 1985
3. Cohen RE: Consultation in disasters: refugees, in Psychiatric Consultation With Children and Youth. Edited by Bernstein NR, Sussex JN. Jamaica, NY, SP Medical & Scientific Books, 1984
4. Cohen RE: Reacciones individuales ante desastres naturales. Boletin de la Organizacion Panamericana de la Salud 98.171–180, 1985
5. Cohen RE: Post-disaster mobilization of a crisis intervention team. the Managua experience, in Emergency and Disaster Management: A Mental Health Sourcebook Edited by Parad HJ, Resnik HLP, Parad LG Bowie, Md, Brady, 1976
6. Cohen RE: Intervening with disaster victims, in The Modern Practice of Community Mental Health. Edited by Schulberg HC, Killilea M. San Francisco, Jossey-Bass, 1982
7. Gleser GC, Green BL, Winget CN: Quantifying interview data on psychic impairment of disaster survivors. Journal of Nervous and Mental Disease 166:209–216, 1978
8. Wallace AFC: Tornado in Worcester: An Exploratory Study of Individual and Community Behavior in an Extreme Situation. Disaster Study No 3. Washington, DC, Committee on Disaster Studies, National Academy of Sciences/National Research Council, 1956
9. Cobb S, Lindemann E: Neuropsychiatric observations after the Coconut Grove fire. Annals of Surgery 117:814–824, 1943
10. Tyhurst JS: Individual reactions to community disaster: the natural history of psychiatric phenomena. American Journal of Psychiatry 107:764–769, 1951
11. Glass AJ: Psychological aspects of disaster. JAMA 171:222, 1959
12. Lifton RJ: Death in Life: Survivors of Hiroshima. New York, Random House, 1967
13. Krystal H, Niederland W Clinical observations on the survivor syndrome. in Massive Psychic Trauma. Edited by Krystal H. New York, International Universities Press, 1968
14. Garmezy N: Children under severe stress: critique and commentary. Journal of the American Academy of Child Psychiatry 25:384–392, 1986
15. Gleser GC, Green BL, Winget C: Prolonged Psychosocial Effects of Disaster. A Study of Buffalo Creek. New York, Academic Press, 1981
16. Bromet E: Three Mile Island: Mental Health Findings. Pittsburgh, Western Psychiatric Institute and Clinic and the University of Pittsburgh, 1980
17. Nania J, Bruya TE. In the wake of Mount St. Helens. Annals of Emergency Medicine 11:184–191, 1982
18. Eth S, Pynoos SR: Interaction of trauma and grief in childhood, in Post-Traumatic Stress Disorder in Children Edited by Eth A, Pynoos SR. Washington, DC, American Psychiatric Press. 1985
19. Burgess AW: Family reaction to homicide American Journal of Orthopsychiatry 45:391–398, 1975
20. Cohen RE, Ahearn FL. Handbook for Mental Health Care of Disaster Victims. Baltimore, Johns Hopkins University Press, 1980
21. Parkes CM, Weiss RS. Recovery From Bereavement. New York, Basic Books, 1983
22. Lehrman SR: Reactions to untimely death. Psychiatry 30.564–578, 1956
23. Levinson P: On sudden death. Psychiatry 35 160–173, 1972