

Post-Traumatic Stress Reactions in Children and Adults After the 1988 Spitak Earthquake in Armenia

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This presentation described the findings of evaluations at one and one-half years after the devastating earthquake in Armenia of children, younger adults and elderly from three cities at increasing distances from the epicenter. Subjects were evaluated for post-traumatic stress reactions (PTSD).

Among children, there was a strong positive correlation between dose of exposure (nearness to the epicenter) and the overall severity of post-traumatic stress reaction, as well as severity of core component symptoms of PTSD. Very high rates of chronic, severe post-traumatic stress reactions were identified among children in the two most damaged cities, Spitak and Gumri. Analyses controlling for exposure indicated that

girls reported more persistent fears as compared with boys.

Adults in Gumri, a city close to the epicenter, had significantly more severe post-traumatic stress reactions than did adults in Yerevan. Compared to previous studies of natural disasters, much higher rates of chronic severe post-traumatic stress reactions were found among the highly exposed individuals. Despite no difference in overall severity of post-traumatic stress reaction, a significant difference in symptom profile was found for the elderly in comparison with younger adults, with the elderly scoring higher on arousal and lower on intrusive symptoms. Death of a nuclear family member was associated significantly with a more severe post-traumatic stress reaction.

The severity and symptom profile of post-traumatic stress reactions of adults exposed in 1988 to political violence in Azerbaijan and/or the earthquake in Armenia were evaluated. High rates of

severe post-traumatic stress reactions were found among the most highly exposed individuals, irrespective of the type of trauma. There was no difference in symptom profile for subjects exposed to earthquake versus violence. These similarities in severity and symptom profile may be attributable to common features of the exposures, which included experiencing life-threat and witnessing injury, mutilation, and death. Prior exposure to violence contributed to the severity of reaction to the earthquake.

These findings indicate that after a catastrophic natural disaster, post-traumatic reactions in children, adults, and the elderly may reach epidemic proportions, remain high for a prolonged period and jeopardize the well-being of the population of a large region. Post-disaster systematic screening for PTSD can provide critical information for a rational, post-disaster, public, mental health program.

Selected References

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The Crash of United Flight 232: Rescue, Recovery, and Identification of Victims

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Abstracted by Editor from *Disaster Management* 1992;4:86-91.

Abstract

United Flight 232 crashed on a runway at

the Sioux Gateway Airport, Sioux City, Iowa, USA, on 19 July, 1989, at 16:01 hours, with 185 survivors and 111 dead. Rescue operations took approximately two hours. The author described the crash, rescue efforts, body recovery, and identification of the dead. He also included comments on the media, security, critical incident stress and made recommendations to all disaster personnel.

The Crash

While cruising over the State of Iowa on 19 July 1989 at an altitude of 37,000 feet,

a loud bang was heard at 15:16 hours by the 296 passengers and crew on board United Airlines Flight 232. The bang was followed by a shudder that traveled through the plane. Almost immediately the captain and cockpit crew sensed a loss of control as the plane dropped 3,000 feet. The main bulk of the plane landed on its back and slid through a soybean field.

The Rescue

Within minutes, the first fire vehicle

arrived at the burning bulk of the fuselage and started to blanket the plane with foam.

Body Recovery

On 20 July, a co-ordinate baseline method of measuring was used on the main and crossing runways to establish victim location. Spray paint was used to mark the runways at 30 foot intervals. Three victim collection teams were formed to deal with the bodies on the runways and in the fields. Each team had a pathologist, a scribe, a photographer, a measurer, two body handlers and a tagger.

Identification

A temporary morgue was set-up in an Iowa Air National Guard aircraft hanger located in the airport. Nine steel bedded refrigerated trucks were parked just outside the morgue. Six-foot, portable walls were constructed around six work areas. The flow pattern for the morgue included a reviewing area, body X-ray, FBI fingerprinting, dental area, autopsy area, and an embalming area. Gurneys were used to transport the bodies throughout the identification process. Volunteer trackers followed the bodies throughout the identification process to maintain accurate files.

Critical Incident Stress

Critical incident stress was a factor affecting most of the disaster workers. Some experienced acute critical incident stress at the scene, but most experienced delayed critical incident stress after returning home. General signs of stress that surfaced included general irritability, depression, anger, difficulty

concentrating, nightmares, numbness, flashbacks, increased substance use, etc.

Those assumed to be immune from critical incident stress, such as, pathologists, morticians, dentists, and police, also were affected. The American Red Cross sent 20 teenage volunteers to work in the morgue. These volunteers had no experience with death and were not briefed on what to expect in the morgue. These individuals experienced acute critical incident stress, and required many months of therapy to help them recover from this experience.

Debriefings were offered at the scene and later after returning home. A debriefing is a time for people to share their experiences with others and receive stress education in the hope of accelerating a normal recovery and avoiding post traumatic stress disorder.

Critical incident stress debriefing teams primarily consisted of volunteer mental health professional and peer support personnel drawn from the fire, emergency medical services, police, medical, and other emergency response organizations.

It is suggested that all emergency services organizations utilize the critical incident stress debriefing method for all personnel involved in large or small critical incidents. This method includes: 1) on scene, one-on-one interventions if needed; 2) stress education or a short debriefing immediately after workers are released from the scene; 3) and formal debriefings for all emergency workers 24 to 72 hours after the incident. Critical incident stress teams also could be used to advise command personnel on worker stress problems.

Conclusions

- 1) Mock disasters should be utilized for training disaster workers and should involve all agencies that would respond to a disaster. It is very important to know the "players" who are to be involved in the rescue and identification process.
- 2) Critical Incident Stress Teams should be called-in during and after the disaster.
- 3) Volunteer personnel should be screened carefully for those who have experience in dealing with the dead.
- 4) A comprehensive system of disaster-worker identification is imperative.
- 5) Comfortable accommodations should be secured by command personnel for all disaster workers immediately after the disaster occurs.
- 6) Disaster workers need to take frequent breaks in an area away from the scene, and should work no longer than 12 hour days.
- 7) A mutual-aid system should be established with agencies in the area; large scale disasters require more emergency personnel and equipment than many agencies have available. Military bases tend to have a wealth of personnel and equipment resources that should be utilized.
- 8) The recognition and commendation of all persons assisting in the disaster is essential.
- 9) Assign an individual to the press and have frequent press releases with accurate information.

Stages of Recovery: Community Level

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I. Introduction

- A. A disaster, by definition, is something that occurs to a community of people.
- B. It is not always clear who comprises the "community."
- C. *Personal responses to a disaster take place in the context of the individual's community.*

D. The community provides the resources that are most accepted by the individuals and families in the community to aid in their recovery.

II. Stages of Disaster

- A. *Standard* stages of a disaster
 1. Impact
 2. Response
 3. Recovery
- B. *Expanded* stages of a disaster
 1. Stages

- a. Warning
- b. Threat
- c. Impact
- d. Inventory
- e. Rescue
- f. Remedy
- g. Recovery
2. Notes on expanded stages
 - a. Not all stages have to occur in a disaster
 - b. There can be considerable overlap of stages