Responding to Mass Emotional Trauma: A Mental Health Outreach Program for Turkey Earthquake Victims

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Abstract

The August, 1999, earthquake in Turkey devastated the area physically, and the population emotionally. Less than a month later, another earthquake struck the same area. Six weeks after the first earthquake, a small team of psychologists from the United States journeyed to the ravaged area and developed a six-step mental health intervention program for the survivors. The program, Mental Health Outreach Program (MHOP), was implemented successfully for the traumatized people in the tent camps; in addition, children and personnel in a number of schools in Istanbul benefitted from the intervention. MHOP is described in this paper with background material, and the rationale for the six-step intervention is presented with documentation. The authors suggest constructive recommendations for the future development and implementation of global mental health support programs pre-, during, and post-disaster.

Introduction

On August 17, 1999, an earthquake registering 7.4 on the Richter scale hit western Turkey, centering on Golchuk, Izmit, Adapazari, Yalova, and Kocaeli in the country's industrial heart, and within fifty miles of Istanbul (see figure 1). The death toll near the epicenter (Golchuck and Izmit) was estimated at a staggering 45,000. Istanbul suffered only isolated damage to buildings and property; nevertheless, the population was traumatized. On September 13, another earthquake stuck western Turkey, registering 5.8 in magnitude. It was classified as an aftershock from the first earthquake. It collapsed buildings already damaged in the previous earthquake and injured people, many as they jumped in panic from their apartments.

Figure 1. Turkey map.

The physical damage was stunning, as most buildings in the affected area collapsed (see figure 2). The time of the earthquake was 3:01 a.m., when most of the victimswere at home in bed. Official estimates of the death toll began near 17,000 while unofficial estimates put the number between 45,000 and 50,000. As apartment buildings collapsed, people were buried alive. A frantic effort to dig loved ones out of the rubble ensued for days. International rescue teams came into the area within hours, but the Turkish government did not respond for three days, leaving the citizens to fend for themselves. Basic services such as, hospitals, communication networks, electricity, and water supplies were paralyzed. The earthquake was characterized as one of the half-dozen deadliest earthquakes of the century. (Newsweek, 1999)

Rescue experts say that the outside limit of survival in a collapsed building is about one week, although as a general rule the great majority of victims succumb within 72 hours to dehydration, shock, or compression of the internal organs. This is also the point beyond which the will to live becomes critical for people trapped in the stifling dark, often with loved ones dead and dying around them.

The earthquake and ensuing circumstances clearly traumatized the population. Survivors camped out in parks without electricity or running water; many put together makeshift shelters in open spaces near their collapsed homes; 1.5 million people were temporarily homeless (Newsweek, 1999) (see figure 3).

Figure 3. Tents.

The damage was so extensive it raised questions as to the quality of the buildings, yet most of the buildings were constructed in recent decades under modern earthquake-resistant standards. In fact, the building codes used in this area are similar to the ones used in California. A difference from California earthquake damage, many authorities suspected, was that some Turkish contractors erected substandard buildings, and the country has no inspection process to prevent this. In some cases thinner grades of steel reinforcing bars were used and more sand mixed with less cement resulting in poorer quality concrete. Public awareness of these practices added to the devastation of the victims and in some cases provided a focus for anger and faultfinding.

With man-made disasters (war, bio-terrorism) or even general violence in society (murder, rape), there is an "enemy" to fault. The book, The *Gift of Fear* (1997) suggests that there are "signs" of warning that can be learned to help us cope with these disasters. The author, Gavin de Becker notes, that in retrospect victims of violence report "cues" leading to the victimization that they did

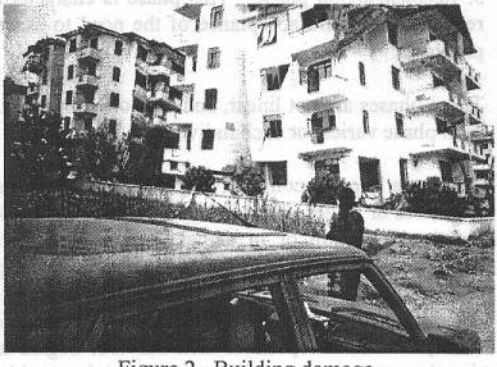

Figure 2. Building damage.

not pay attention to. The author further suggests that survivors can learn from these signs and learn to pay attention to these signs to avoid future violence.

The need to regain control over one's life is similar for the natural disaster victim, the war victim, and the survivor of violence. The goal of helping the victim to learn about the enemy/perpetrator/natural disaster and prepare himself or herself, provides a common thread in post-intervention, and falls in the category of preparedness.

Preparedness is a key component of recovery for survivors as they move on with their lives after the traumatic event. This element of preparedness was incorporated into the MHOP. In addition, elements for recovery from grief, clinical experiences, and knowledge of human behavior, plus basic psychological assessment tenets were utilized in the development of the program. The program evolved from the assessment and the expertise of the team members. The goal was to provide a mental health intervention for the survivors of the earthquake.

The Effect of Natural Disasters on the Victims

According to the American Red Cross Manual on Disaster Health Services I (1992) victims are likely to experience five psychological phases after a disaster.
1. *Initial impact phase.* This phase is characterized by increased anxiety and fears.
2. *Heroic phase.* During this phase, the survivors help each other to deal with the catastrophe.
3. *Honeymoon phase.* The honeymoon phase is characterized by experiences of joy and happiness at having survived and the feeling of being important and special as the receiver of attention and aid from private and government organizations.
4. *Disillusionment phase.* During this phase, there is increased resentment and frustration at officials and agencies for failing to provide assistance in a more timely fashion.
5. *Reconstruction phase.* This phase is characterized by thoughts and plans for reconstruction and acceptance of the need to assume responsibility for personal problems.

These phases are not linear, and they often overlap. The amount of time spent in each phase varies for each individual.

There are known, common reactions to trauma that include the following four responses or stages. First, victims experience **shock and disbelief.** Survivors are emotionally numb or in denial because the psychic pain is severe - in fact, unbearable. Second, there is a **strong emotional response.** Survivors are cognizant of their situation and feel overwhelmed and unable to cope with it. Their response is emotional and encompasses behaviors ranging from withdrawal to acting out. Third, there is **acceptance.** The survivor begins to accept the magnitude of the situation and makes an effort to deal with it. At this stage, the survivor feels more hopeful and is able to look toward the future and set goals. Survivors are able to take

more specific actions to help themselves, their friends, and families. Finally, the survivors feel as if they have returned to their pre-disaster level of functioning. A sense of well-being and adjustment is restored and realistic memories of the experience are developed. This is the fourth and final stage, that of **recovery** (Kalayjian, 1995). These stages are similar to the stages terminally ill individuals pass through as they approach death, and similar to the stages of grief one undergoes after losing a loved one (James, 1989).

These universal stages are important to understand when designing a program for victims of a disaster. A program that provides for the expression of emotion and helps guide the survivor to stage three, acceptance, and stage four, recovery, is most helpful. Many people have difficulty moving out of stage two and continue exhibiting symptoms, including: withdrawal, sleep disturbances, anger, loss (or gain) in appetite, loss of concentration, increase in alcohol and drug use, and sometimes an increase in domestic violence. A continuation of symptoms beyond one month may lead to a diagnosis of Post Traumatic Stress Disorder (PTSD).

PTSD is defined by the American Psychiatric Association in the category of anxiety disorders (Diagnostic and statistical manual for mental disorders 4th ed 1995). A person exposed to a traumatic event who persistently re-experiences the event, avoids stimuli associated with the trauma and evidences persistent symptoms of increased arousal is at risk for PTSD.

The Six Step Mental Health Outreach Program

The American team spent two weeks in the earthquake area -- one week in the camps in and around Izmit and Golchuk, and one week in several schools in Istanbul and the vicinity. The team implemented the program and collected data from a total of 556 individuals ranging in age from 5 to 62. The group members were self-selecting, as the team arrived in a camp and generally gathered a group through word of mouth, sometimes going from tent to tent informing them of the group's existence. In the schools in Istanbul, a schedule was set up for school assemblies, classroom visits, and teacher workshops. The MHOP program was adapted to these varying audiences through varying the emphasis on one step or another. For example, with the teacher groups, the program focused more on information, whereas with the children and also in the camps, the process and discussion and/or the experiential intervention became the focus.

The program is composed of six steps in which various aspects of the traumatic exposure are assessed, identified, explored, and processed. The six steps are: 1) Assessment, 2) Expression of Feelings, 3) Empathy and Validation, 4) Discovery and Expression of Positive Meaning, 5) Information Dissemination, and 6) Diaphragmatic Breathing Exercises.

1. **Assessment**: Levels of post-traumatic stress were assessed using the Reaction Index Scale (RIS) (Frederick, 1986) RIS is a written questionnaire that determines the severity of Post Traumatic Stress Disorder symptoms. This instrument was chosen for clarity and brevity, and it had been used with survivors in previous earthquake research (Kalayjian, 1995). The camp participants were asked to fill out a demographic questionnaire and the brief Reaction Index Scale at the beginning of each session. In the schools, the participants completed the information outside of the group session.

Preliminary analysis of the questionnaire data appears to be congruent with the majority of post-traumatic responses by survivors of other earthquakes in Armenia, Japan, California and Mexico.

It is important to note that the subject population in the camps cannot be viewed as the norm of those affected by the earthquake, nor even the norm within the greater Turkish population. The people in the camps had limited resources. The team was in the camps six weeks after the first earthquake by which time many of those with resources had moved out. In addition, the majority of the individuals in the groups were women. These factors must be taken into consideration in the final data analysis.

2. **Expression of Feelings:** One at a time, participants were encouraged to express what they were feeling in the present, in relation to the earthquake. The predominant feeling was fear -- fear of another earthquake, as well as uncertainty for the future (where to live, what work would be available, school for the children, etc). PTSD symptoms such as flashbacks, reports of hearing the sounds of the earth rip apart and buildings topple, and fear of sleep were common. Some survivors reported staying up all night and only sleeping in the daylight. These fears can be linked to the fact that the earthquake struck at 3:01am.

In addition, feelings of anger (generally at the slow response of the government) and strong feelings of grief were expressed. For many, this was the first opportunity to express grief over the death of loved ones. In particular, the camp workers and leaders had a double burden, serving as caregivers while they themselves had suffered loss, both human and property. For example, many of the camp workers came from the local community (teachers, shop owners, factory workers). These workers, by the nature of the jobs thrust upon them during the disaster, were exposed to many of the hazards experienced by seasoned disaster workers (Kowalski, 1999).

3. **Empathy and Validation**: The feelings of the survivors were validated by the team members using statements such as, 'I can understand. . .' or 'it makes sense to me. . .' as well as sharing information about how survivors from around the world have coped in the wake of a natural disaster. The team took into consideration the importance of communication of "accurate empathy" during this step in the MHOP. "Accurate empathy" according to Eagan (1982) requires three elements of skill:

awareness of the individuals circumstance, the ability to understand both the content and the affect the individual expresses, and assertiveness - the ability to engage the individual in dialogue, the kind of dialogue that leads to movement through the phases toward recovery and acceptance. This is a key step in the program and takes a skilled and experienced practitioner.

Intentional therapeutic touch was also used, such as holding a survivor's hand or putting a hand on the shoulder of someone clearly distressed. In this step, the feelings of grief, fear, anger, and the joy of surviving were reinforced as natural responses to disaster survival, and the need for these feelings to be expressed was emphasized. Sometimes an individual becoming emotional in a group is upsetting for the individual, creating a sense of isolation, disarray, and helplessness. Providing validation and empathy for both the individual and the group will correct these negative effects by re-establishing the mutual exchange between the individual and the group.

4. **Discovery and Expression of Meaning:** The group was asked, "What lessons, meaning, or positive association did you discover as a result of the earthquake?" This question is based on Auschwitz survivor Victor Frankl's logotherapeutic principle: There can be a positive meaning discovered in the worst catastrophe (Frankl, 1962).

Each member of the group was invited to focus on the strengths and meanings that naturally arise out of any disaster situation. Based on the survivor's answers, some of the positive lessons learned in Turkey included: interpersonal relationships are more important than material goods; the importance of releasing resentment and showing forgiveness; the importance of taking charge of one's own life - not relying on the government to take care of you; the goodness of neighbor helping neighbor; the coming together of nations, especially those with historic animosity with Turkey, such as Greece and Armenia, coming to the aid of Turkey. "Even our enemies came to help. . ." said many earthquake survivors.

5. **Information Dissemination:** Next, the team provided information to the survivors in Turkish. The form of information was dependent upon the circumstances of the survivor. Camp survivors were given instruction on how to continue the six-step program on a weekly basis. Handouts were given to teachers and group leaders on how to conduct earthquake drills and how to create safe and accessible exits from buildings. Booklets were given to parents and teachers on how to relate to their children's nightmares, fears, and disruptive behaviors. Issues of preparedness were discussed including how to develop a family plan in the event of a future disaster - i.e., determining a place to meet, establishing a common contact person, creating an emergency bag. Developing such a plan helps survivors gain back a sense of control over their lives. For those survivors planning on returning home but afraid to stay inside at night, practical tools and information were given on how to gradually move back home, utilizing the systematic desensitization process.

This is a process of gradual exposure to the goal, desensitizing the individual and allowing him or her to benefit from small behavioral changes until the goal is accomplished.

The importance of preparation was reinforced for all groups. Handouts were provided on grief as well as self-care for caregivers and camp workers functioning under especially stressful circumstances. Assessment tools were given to psychologists and psychiatrists to aid them in their future work with the survivors.

6. **Diaphragmatic Breathing Exercise:** The program concluded with an experiential, therapeutic, mindful breathing exercise. The underlying premise of this type of intervention is that if the startle response or alarm reaction adversely affects the respiratory patterns (e.g., gasping, thoracic breathing, breath holding), then normalizing the respiratory patterns with diaphragmatic breathing will lead to an improvement in health, performance, and the lessening of the negative effects of the human stress response.

In breath intervention, training individuals to increase exhalation and making sure the individual exhales completely is an important component. The goal is to exhale twice as long as the inhale. This feels counter-intuitive for the individual usually because one tries to inhale more (gasping for breath) under duress.

FIGURE 4

COACHING STRATEGIES FOR EFFORTLESS BREATHING

CLIENT:

- Place hands on abdomen and chest and observe patterns.
- Place hands on lateral side at the waist, touching the lower ribs; press toward the center of the body during exhalation; pull hands outward during inhalation.
- Imagine a balloon expanding and contracting in the abdomen.
- Imagine smelling a rose, inhale very slowly while enjoying the fragrance.
- Imagine the air flowing in and out through the legs and feet.
- Draw stomach in and relax (expand), then repeat more rapidly.
- Stroke arms from shoulder to hands in rhythm with exhalation.
- Exhale through a very small opening between the lips.
- Whisper "HAAAaaa" during exhalation.
- Loosen belt and other constructive clothing that inhibit abdominal expansion (designer jeans syndrome).

COACH/TEACHER/THERAPIST:

- Place hands on lateral side at the waist, touching the lower ribs; press towards the center of the body during exhalation; pull hands outward during inhalation.
- Place hands on abdomen and apply pressure to abdomen during exhalation.
- Rock/shake shoulder gently during exhalation and inhalation to relax breathing.
- Exhale audibly at the same time and slightly longer than when the client is exhaling.
- Discuss psychological associations related to abdomen expansion such as self-image, emotional release, and vulnerability.
- Guide exhalation with imagery such as exhaling through straws in the legs.

In Roland, M. & Peper, E. (1987) Inhalation volume changes with Inspirometer Feedback and Diaphragmatic breathing coaching. Clinical Biofeedback and health, 10(2), 89-97.

The breathing intervention, which concluded the MHOP, followed basic coaching strategies for effortless breathing (see figure 4) and included imagery to assist the participants.

FIGURE 5

ANABOLIC AND CATABOLIC STATES

ANABOLIC STATE

- Increased synthesis of protein, fat carbohydrate (growth, energy storage)
- Decreased breakdown of protein, fat, carbohydrate (growth, energy storage)
- Increased production of cells for immune system (white blood cells of thymus and bone marrow)
- Increased bone repair and growth
- Increase in sexual processes (cellular, hormonal, psychological)

CATABOLIC STATE

- Halt in synthesis of protein, fat, carbohydrate
- Increased breakdown of protein, fat, carbohydrate (energy mobilization)
- Elevated blood levels of glucose, free fatty acids, low density lipoprotein, cholesterol (for energy)
- Increased production of red blood cells and liver enzymes for energy
- Decreased repair and replacement of bone
- Decreased repair and replacement of cells with normally high turnover (gut, skin, etc.)
- Decreased production of cells for immune system (thymus shrinks, circulating white cells decrease)
- Decreased sexual processes
- Increased blood pressure, cardiac output
- Increased salt and water retention

In Nixon, PGF (1989). Human functions and the heart. In: Seedhouse, D. & Cribb A. (Eds). Changing Ideas in Health Care. New York: John Wiley & Sons, 37.

This portion of the program was very well-received. After the first five stages, which were both emotional and cognitive, participants were ready to participate in physical activity and to learn a technique to help themselves. The breathing intervention became an important practical tool for the survivors, for the present and for the future.

Analysis of Diaphragmatic Breathing Exercise

Respiration is under both voluntary and involuntary control and often occurs without awareness, unless specific symptoms are present such as breathlessness. Even with awareness breathing can be dysfunctional.

During the stress of a trauma such as a disaster, dysfunctional breathing patterns are common. Respiration is customarily described in terms of rate, volume, gas exchange (oxygen and carbon dioxide), airway resistance, airway reactivity, and mast cell activity (Wietjas, 1993). However, a major omission in this description is the *breath pattern.*

According to researchers at the Institute of Holistic Healing Studies, San Francisco State University, respiratory patterns take into account: location of major breathing movement (thoracic or abdominal), presence or absence of upper thoracic muscle activity, timing and flow rates of air during inhalation and exhalation and the exhalation pause (Peper 1994). These patterns are reflected in such phrases as "a sign of relief," "catch my breath," "gasping for air," and others. These expressions reflect the mind/body/consciousness interrelationships in which changes in breath patterns affect the soma and vice versa.

In clinical and research reports, it is commonly recognized, that anxiety states are accompanied by breathing disturbances that may consist of a combination of irregularity, shallow breathing, increased breathing rate, and increased ventilation

(Fried, 1987). During the stress of a trauma, the tendency to breathe in the upper thorax is characterized by an absence of abdominal movement.

Other dysfunctional patterns include shallow and rapid breathing punctuated with gasps and sighs, breath holding, gasping, and a reduction of respiratory sinus arrhythmia (RSA). RSA is the change of heart rate associated with respiration such that heart rate increases during inhalation and decreases during exhalation. When dysfunctional thoracic breathing dominates, as when an individual experiences trauma, a shift toward excessive arousal occurs, entering the body into a catabolic state. Diaphragmatic breathing reduces sympathetic system arousal and promotes an anabolic state. Note the illustration of catabolic and anabolic states described in figure 5. Diaphragmatic breathing has been demonstrated to be effective in the treatment of a variety of disorders including asthma, coronary heart disease, hypertension, hyperventilation, and panic attacks (in Peper, 1994).

Conclusions/Recommendations

The authors are aware that many times the mental health component is far down in the triage process after a major earthquake or natural disaster. Certainly, the immediate physical, medical, and emergency rescue needs must be addressed initially. In addition, training first responders to identify PTSD symptoms would allow for mental health triage in the field.

As the world becomes more heavily populated around major fault lines and along hurricane coastlines, massive human trauma derived from natural disaster will become more prevalent. The authors strongly recommend the establishment of permanent natural disaster mental health response teams in countries and cities affected by natural disasters. In addition, mental health disaster training needs to be incorporated into emergency management planning.

Finally, long-term studies of survivors' behaviors and the utilization of stress measurement would contribute important information about the human reaction to mass trauma.

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References

1. American Red Cross (1992). *Disaster manual on health services I.* New York.
2. American Psychiatric Association (1995). *Diagnostic and statistical manual for mental disorders* (4th ed) Washington, D.C.: American Psychiatric Association.
3. De Becker, G (1997). *The Gift of Fear and other survival signals that protect us from violence.* Dell Publishing, Random House, New York, NY.
4. Eagan, G (1982). *The Skilled Helper.* Brooks/Cole Publishing, Monterey, CA.
5. Frankl, VE (1962). *Man's Search for Meaning.* New York. Simon & Schuster.
6. Frederick, CJ (1986). Children traumatized by catastrophic situation. In S. Eth&R. Pyhoos (Eds.) Post traumatic stress disorder in children. Washington, DC: American Psychiatric Press.
7. Fried, R (1987). The Hyperventilation Syndrome: Research and Clinical Treatment. The Johns Hopkins University Press, Baltimore, MD.
8. James, JW, Cherry, F (1989). *The Grief Recovery Handbook.* Harper Perennial, Harper and Row Publishers, New York.
9. Kalayjian, AS (1995). *Disaster & Mass Trauma, Global Perspectives on Post Disaster Mental Health Management*, Vista Publishing.
10. Kowalski, KM, Vaught, C (1999). *Issues Regarding the Safety and Health of Emergency Workers.* The International Emergency Management Conference, TIEMS 1999. University of Delft, The Netherlands.
11. Newsweek (1999). August 30; *"The Big One"* p. 21-25.
12. Nixon, PGF (1989). Human functions and the heart. In: Seedhouse, D. & Cribb A. (eds). Changing Ideas in Health Care. New York: John Wiley & Sons, p.37.
13. Peper, E, Tibbetts, V (1994). *Effortless Diaphragmatic Breathing, Monograph 10, Electromyography, Applications in Physical Therapy.* Institute for Holistic Healing Studies, San Francisco State University, San Francisco, CA.
14. Roland, M, Peper, E (1987). Inhalation volume changes with Inspirometer Feedback and Diaphragmatic breathing coaching. Clinical Biofeedback and health, 10(2), 89-97.
15. Wietjas, CJE (1993). *Psychological Influences Upon Breathing: Situational and Dispositional Aspects.* Soesterberg: TNO Institute for Perception.