Posttraumatic Stress Disorder as a Result of Mass Trauma

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There is a large body of literature on the psychological consequences of trauma experienced by individuals, but there are few studies of the acute and long-term effects of mass trauma on victimized communities. Acute stress reactions are expected, and overall resilience in the aftermath of major disasters is the rule rather than the exception. However, the available literature on mass trauma suggests that certain factors may provide clues to identifying persons at greater risk for posttraumatic stress disorder (PTSD). The severity of the trauma and the accessibility of support systems may affect long-term outcome. In industrialized countries, mass violence caused by malicious human intent may be a more virulent precursor to PTSD than other types of mass trauma, such as technological or natural disasters. School-aged children, women, persons with existing psychiatric illness, those who experienced significant losses or threat to life, those who have insufficient psychological and social support systems, and persons who exhibit symptoms of functional impairment may be at greater risk for PTSD. The findings of a population study of 2 traumatized communities are discussed. Early intervention in communities suffering mass trauma should consist of general support and bolstering of the recovery environment rather than psychological treatment; some forms of early psychological interventions may worsen outcome. There is a great unmet need for treatment and intervention guidelines for victims of mass trauma, and well-designed studies are warranted.

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War, terrorism, natural disasters, and other catastrophic events affect large populations in certain geographic regions of the world. Earthquakes and river or coastal flooding occur with relative frequency in some parts of the world and result in high rates of death, disease, dislocation, and destruction of property. The scale of the terrorist attacks of September 11, 2001, was unprecedented in the United States, causing significant psychological sequelae and economic repercussions for citizens of New York and elsewhere.[1] Widespread ethnic cleansing in the Balkans during the past decade resulted in killing, destruction of the region's infrastructure, and widespread dislocation of refugees.[2]

There is a large body of literature on the natural course, risk factors, and acute and long-term treatment of the sequelae of trauma experienced by individuals.[3–6] However, few randomized, controlled studies have been done on the acute and long-term effects of mass trauma on victimized communities.[7] Symptoms of acute stress in the immediate aftermath of a traumatic event are widespread consequences of a large-scale disaster. However, posttraumatic stress disorder (PTSD) does not develop in all persons in a community who are exposed to a traumatic event, nor among all those who express early PTSD symptoms; indeed, most of the latter recover with time. Thus, important questions remain regarding the interplay between individual factors and environmental conditions that lead to developing prolonged mental disorders.

Identification of the factors that contribute to development of PTSD is essential in the design of a treatment strategy for persons and communities confronted with mass violence or natural disaster. The response of the mental health and general medical communities to episodes of mass trauma is also an important public health issue. The purpose of this article is to consider mass disasters or other catastrophic events as a model for risk factor assessment and acute intervention in exposed populations. Data from a recently conducted population study of a traumatized community will be reviewed, and the clinical implications of the acute management of stress reactions in the aftermath of mass trauma will be discussed.

DEFINITION OF MASS TRAUMA

Given the heterogeneity of traumatic events, an operational definition of the term "mass trauma" has not been determined. Mass trauma could be considered purely quantitatively, e.g., by the number of victims, in which

case it could relate to single catastrophic events such as earthquakes or major acts of terror. Mass trauma also could be conceptualized as exposure to *persisting and pervasive* traumatic conditions, such as those occurring in high-crime areas or in refugee or concentration camps. Another definition of mass trauma could relate to particularly devastating effects (e.g., when a traumatic event occurs during a critical period of an individual's development). An example of the latter is the lifelong effects of early maternal separation.[8–9] Relatively minor events can create widespread fear in masses of individuals (e.g., the anthrax scare in the United States beginning in October 2001 or the Washington, D.C.–area sniper shooting episodes in October 2002). Finally, events of unexpected novelty, such as the use of biological or chemical weapons, may create mass panic above and beyond their directly damaging potential.

A common denominator of all the above may be the occurrence of significant imbalance between demands and resources and between damage and the potential for reparation. Mass trauma, therefore, is a condition in which adaptive mechanisms fail and vulnerabilities emerge and dominate—at least temporarily. Given such a generic definition, it is important to specify, for each condition, the level at which vulnerabilities emerge and dominate (e.g., psychological, medical, need for food and shelter) and what is the balance between destruction and eventual reparation or containment.

RISK FACTORS FOR PSYCHOLOGICAL SEQUELAE AFTER MASS TRAUMA

In recent years, PTSD has become a prototype for the prolonged psychological sequelae of traumatic events. Conservatively, we acknowledge that this disorder may be only one of many psychological outcomes of mass trauma and that other disorders or human conditions may become the focus of attention during the early aftermath of mass trauma.[10]

Although exposure to a traumatic event is necessary for the development of PTSD, most persons who experience trauma do not develop the disorder. A number of factors, such as individual vulnerability, type and severity of the trauma, and individual response to the trauma, are critical to the development of PTSD.[11] There is a large body of literature on risk factors for PTSD. However, available studies address widely different populations, including combat veterans, victims of rape, survivors of motor vehicle accidents, and sufferers of interpersonal violence. Extrapolation of the data to the setting of mass trauma may be difficult because most of the available literature pertains to PTSD that follows acute transient events.

In an attempt to better understand the risk factors associated with PTSD, Brewin and colleagues[12] conducted a meta-analysis of the adult literature to determine effect sizes for 14 different risk factors. Their findings are of interest and should inform decisions about clinical risk assessment and acute intervention following a trauma. These investigators found that in both military and civilian populations, individual risk factors such as gender, socioeconomic status, education, psychiatric history, and childhood adversity modestly predicted the occurrence of PTSD. Factors that were related to the trauma itself (i.e., trauma severity) and to environmental conditions after the trauma (i.e., level of social support or presence of life stressors) emerged as stronger predictors of PTSD development than did pretrauma characteristics. This is particularly revealing because it leads to focusing preventive efforts on factors that follow the acute event.

In a comprehensive analysis of the effects of major disasters on communities and individuals, Norris and colleagues[10] reviewed nearly 160 studies of 102 different events involving more than 60,000 victims and concluded that mental health consequences are common and pervasive in this setting. Severe impairment, defined as criterion-level psychopathology, occurred in 39% of the overall sample and, among victims of specific traumatic events, was more common after mass violence (67%) than after technological (39%) or natural (34%) disasters. School-aged children were the most likely to experience severe impairment (62%) compared with the general adult population (39%) or rescue workers (7%). The severity of symptoms in the immediate posttrauma period, such as early PTSD symptoms and functional impairment, predicted long-term symptom severity in victims of mass trauma. Symptoms tended to abate after the first year for the majority of persons. However, in those persons whose symptoms persisted beyond the first year, disability was pronounced.

Individual risk factors for severe symptoms of PTSD were identified as female gender, middle age, presence of children in the home, psychiatric history, and impoverished or nonexistent psychological and social support systems (Table 1). In industrialized countries, events that caused large-scale destruction, threat to or loss of life, and lasting social and economic disruption resulted in more severe psychological impairment. As such, episodes of mass violence involving malicious human intent were more disturbing than technological or natural disasters.[10]

Naturally occurring psychological resources, such as support from friends, family members, and community and spiritual leaders, provide important protection against an adverse psychological outcome. It has not been established that naturally occurring resources are powerful enough to overcome the effect of trauma related to mass violence or that such resources effectively protect survivors from PTSD. However, Norris and colleagues[10] concluded that persons at greatest risk for PTSD following mass trauma appear to be those who suffered significant

Table 1. Adult Risk Factors for Debilitating Posttraumatic Stress Following a Disaster[a]

Severe exposure to the disaster (especially injury, threat to life, and extreme loss)
Living in a highly disrupted or traumatized community
Female gender
Age in the middle years of 40 to 60
Little previous experience or training relevant to coping with the disaster
Ethnic minority group membership
Poverty or low socioeconomic status
Presence of children in the home
Presence of a spouse, especially if he is significantly distressed (in women only)
Psychiatric history
Secondary issues
Weak or deteriorating psychosocial resources

[a]Reprinted with permission from Norris et al.[10]

losses or those without adequate psychological and social resources.

In a recently published national probability sample study of adults in the United States (not restricted to New York City), Silver and associates[13] assessed the relationship between PTSD symptoms and the terrorist attacks of September 11, 2001. Participants were surveyed before the attacks and 2 and 6 months afterward. Their findings demonstrated that the prevalence of PTSD symptoms in this national sample, which was less than 2% before the attacks, rose to 17% at 2 months and then fell to 5.8% at 6 months. PTSD symptoms were associated with demographic variables (i.e., female gender, marital separation), medical history (prior psychiatric or medical illness), severity of exposure to attacks, and severity of loss associated with the attacks. Failed coping behaviors such as giving up, denial, or self-distraction soon after the attacks were strongly associated with PTSD symptoms at 6 months. Taken in the aggregate, the findings of Norris et al.[10] and Silver et al.[13] have important implications for understanding risk factors for development of PTSD and other psychological sequelae and design of appropriate early interventions for victims of mass trauma.

A POPULATION STUDY OF MASS TRAUMA IN ISRAEL

Israel is currently the site of long-standing unrest. Between September 2000 and August 2002, there have been 55 suicide bomb attacks in Israel and hundreds of shooting incidents, which represent a more than 3-fold increase over previous years. These attacks resulted in 619 fatalities and 4497 serious injuries.[14] Seventy percent of the victims were civilians, and 30 families have lost at least 2 family members. By extrapolation, the equivalent for the United States population would be 19,990 fatalities and 145,200 serious injuries. Ninety-six percent of armed attacks (but only 45% of the casualties) occurred in the occupied territories.
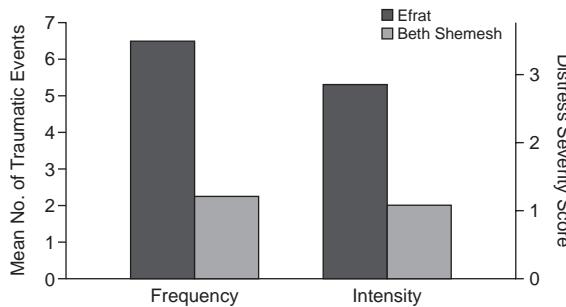
Of the attacks occurring in Jerusalem and vicinity, Hadassah University Hospital in Jerusalem received 2300 casualties, two thirds of which were patients presenting with stress-related symptoms rather than with physical injuries. During the days that followed each event, other direct and indirect stress casualties were seen at the Hadassah University Hospital emergency departments. The occurrence of large numbers of stress casualties during mass trauma is not new in Israel: 43% of the 773 casualties evacuated to hospitals during the Gulf War missile attacks were diagnosed as psychological casualties, and an additional 27% had mistakenly injected themselves with atropine.[15]

To determine the effects of repeated trauma on communities, a population study of 2 Jerusalem suburbs was conducted from March to June 2001 (i.e., in the midst of the hostilities) (A.Y.S., R.T.M., et al., unpublished data). The suburbs of Ramat Beth Shemesh and Efrat were chosen for this study because of demographic similarities and because both are equidistant from Jerusalem. The populations in both suburbs are largely educated, upper-middle class, Orthodox Jewish citizens. Contrasting with these similarities, there are many fatal and life-threatening roadside shooting incidents in Efrat, which is within the occupied territories, but none in Beth Shemesh. Data were collected from 177 adults living in Efrat and 94 adults living in Beth Shemesh. Subjects were randomly selected using every fifth number in the local telephone directory, and 87% of those approached agreed to participate in the study and completed a series of self-report questionnaires. The latter included a diagnostic scale for PTSD (the PTSD Symptom Scale [PSS]),[16] Derogatis's Brief Symptom Inventory (BSI),[17] and measures of exposure and functioning under stress.

The rate and severity of trauma exposure are markedly different in the 2 communities. Efrat residents experienced 3 times as many instances of traumatic exposures during the previous 12 months of hostilities compared with Beth Shemesh residents. The intensity of distress associated with exposure was assessed on a distress severity scale of 0 (no distress) to 3 (extreme distress) and was also higher in Efrat (Figure 1) than in Beth Shemesh. Disruption of 9 daily routines was evaluated on a severity scale of 0 (no disruption) to 4 (extreme disruption). Using this measure, residents of Efrat experienced a 1- to 3-fold greater disruption of regular routines compared with residents of Beth Shemesh. The impaired mobility experienced by members of the Efrat community resulted in interruptions in travel to work, recreational activities, visiting with family and friends, and overall quality of life. With the exception of financial constraints, all daily routines were significantly more disrupted in Efrat compared with Beth Shemesh (Figure 2).
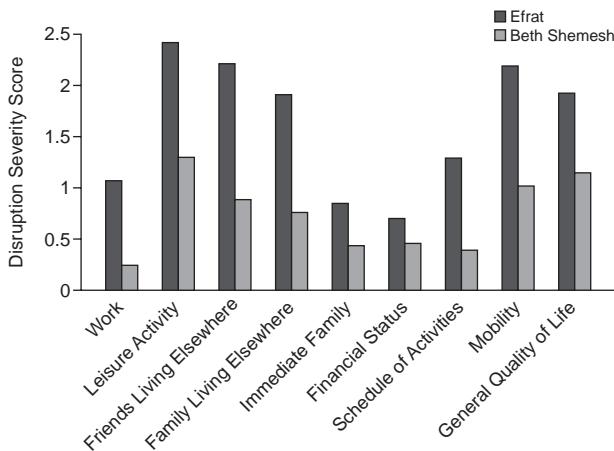
Despite remarkably different levels of stress, rates of PTSD were high and were relatively similar in both sub-

Figure 1. Mean Number of Traumatic Events Experienced by Individuals Living in 2 Jerusalem Suburbs During 12 Months, and Mean Values of Distress in Response to Exposure (0 = none; 4 = extreme)[a]

[a]A.Y.S., R.T.M., et al., unpublished data.

Figure 2. Mean Severity of Disruptions of Daily Routines (0 = none; 4 = extreme) in 2 Jerusalem Suburbs During 12 Months[a]
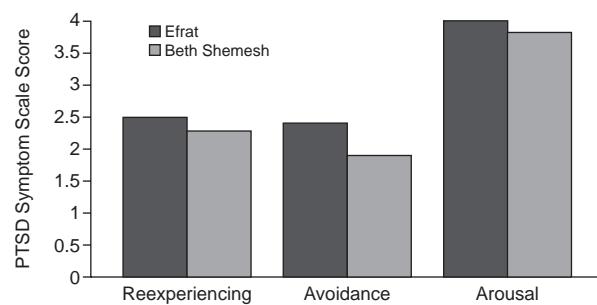

[a]A.Y.S., R.T.M., et al., unpublished data.

Figure 3. Mean Scores of Current Posttraumatic Stress Disorder (PTSD) Symptoms in 2 Jerusalem Suburbs[a]

[a]A.Y.S., R.T.M., et al., unpublished data.

Figure 4. Prevalence of Posttraumatic Stress Disorder (PTSD) and Related Symptoms in 2 Jerusalem Suburbs Using Different Threshold Criteria[a]

[a]A.Y.S., R.T.M., et al., unpublished data.
[b]Percentage of subjects reporting full PTSD Symptom Scale (PSS) criteria for PTSD.
[c]Percentage of subjects meeting both PSS criteria and Brief Symptom Inventory population z scores above 1.
[d]Percentage of subjects meeting both PSS criteria and reporting significant dysfunction.
[e]Percentage of subjects experiencing both distress and dysfunction.

urbs (Figure 3). A preliminary analysis shows that, on the self-reporting version of Foa's symptom rating scale,[17] 25% of respondents from Efrat and 19% from Beth Shemesh showed sufficient symptoms for a diagnosis of PTSD (p = .027; χ^2 = 1.2). Across both communities, the prevalence of PTSD on the patient self-report questionnaire was 23% (Figure 4). High rates of PTSD despite different degrees of direct exposure and disruption of daily routines demonstrate the effect of indirect exposure in situations of ongoing and massive threat.
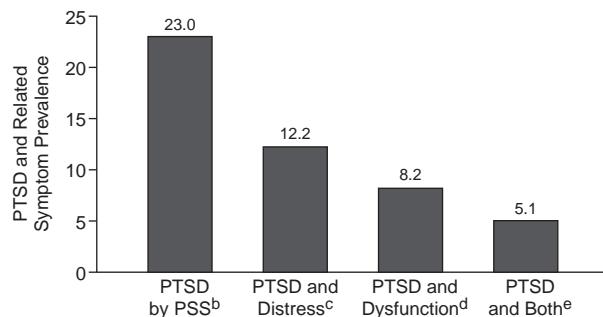
A question remains, however, as to the clinical relevance of these findings. Do individuals identified as having PTSD by self-report questionnaire resemble patients with PTSD who are seen in clinical practice? Do they require treatment? Alternatively, are they expressing transient responses to their life situation (e.g., avoidance of places and situations, constant worry about actual

threat)? The *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV)[18] requires that, in addition to expressing the required PTSD symptoms, individuals diagnosed with this disorder also express clinically significant distress or impairment. We therefore reassessed the prevalence of PTSD in these communities, adding measures to quantify distress and dysfunction in addition to other PTSD symptoms. In other words, we looked at those individuals who express PTSD symptoms *and* significant distress or dysfunction. Distress was defined as BSI global symptom intensity scores above 1 standard deviation from the population mean. Dysfunction was assessed across the 4 domains of interpersonal function, occupational function, self-esteem, and emotional control. Posttraumatic stress disorder *and* measurable levels of distress occurred in 12.2% of the population; PTSD and significant dysfunction occurred in 8.2%. The rate of

PTSD with *both* distress and dysfunction was 5.1%. Thus, only 22% of those experiencing enough PTSD symptoms to qualify for formal diagnosis "by questionnaire" also experienced concurrent dysfunction and impairment. Importantly, however, the majority of subjects reporting impaired functioning had PTSD.

Another important finding is shown in Figure 3. Across both communities, persons with PTSD carried the highest burden of symptoms, whereas those who did not meet the full PSS criteria for PTSD were virtually asymptomatic. This finding suggests that, at a community level, a few subjects may carry most of the symptoms of distress, whereas most others fare much better. In other words, these findings suggest that distress is unequally distributed among affected communities such that some individuals are seriously affected, whereas most others are relatively free of symptoms. This finding has important implications for interventions because it implies that in many situations, interventions may focus on symptomatic individuals within the communities rather than on entire communities.

To summarize, these findings raise several interesting questions related to the study of PTSD in communities exposed to mass trauma or other disasters. Surveys used in research settings often do not include measures of impairment or dysfunction. Our study clearly showed that impairment was infrequent in persons who did not fulfill diagnostic criteria for PTSD. Secondly, the issue of whether the inclusion of threshold levels of symptoms in the diagnosis of PTSD will more accurately assess true prevalence rates is raised. For example, the DSM-IV provides specific threshold levels of symptoms for a diagnosis of major depressive disorder (e.g., depressed mood most of the day nearly every day, markedly diminished interest or pleasure in all or almost all activities most of the day nearly every day). In contrast, the DSM-IV diagnosis criteria for PTSD do not include specification of PTSD symptom severity, pervasiveness, or frequency. This may lead to overdiagnosis of PTSD or to confounding PTSD symptoms with normal responses to stressful situations (e.g., attributing almost any amount of "depressed mood" to a depressive episode).

INTERVENTIONS IN THE
AFTERMATH OF MASS TRAUMA

The above observations have implications for interventions during mass trauma. Given the important role of risk factors that follow or accompany direct exposure (lack of social support and advent of additional stress),[12] these risk factors should become important targets for interventions. The management of acute stress reactions immediately following mass trauma ideally would bolster resilience, prevent development of psychological problems, and minimize later reductions in quality of life.[7] The first level of intervention should come from the community and consist of generic, health-promoting support provided by local government, religious leaders, family members, friends, and other non–health care professionals. Community-based interventions from the mental health community should focus on providing support to nonprofessional helpers, education about the acute stress response, and identification of persons at high risk for development of PTSD (A.Y.S., R.T.M., et al., unpublished data).

The goal of the first level of intervention should be to optimize the recovery environment by mitigating uncontrolled responses, reducing secondary stressors, and facilitating access to community resources. For many survivors, the immediate responses to stress are adaptive (e.g., avoidance protects from additional exposure) and are not necessarily a harbinger of later pathology. Most distressed survivors who are seen immediately following a traumatic event may not be experiencing a disease process, despite expressing symptoms that resemble those seen at later stages among chronic PTSD patients (e.g., intrusive recollections of the traumatic event).

Casting the normative responses to acute stress in a negative light (i.e., as expressing pathology) may increase the risk for PTSD (A.Y.S., R.T.M., et al., unpublished data). In contrast, persons who learn that, despite pain and grief, exposure to calamities also leads to helpful reactions, such as determination, volunteerism, community affiliation, altruism, and physical alertness, may be less vulnerable to later consequences of trauma.

A second level of intervention would include specific efforts by trained experts to prevent the development of PTSD and related disorders. Such interventions should be reserved for survivors with persistent, uncontrollable, and disabling responses. In such survivors, time and supportive efforts do not reduce the intensity of early responses, which are of such magnitude that they interfere with receiving support and effectively interacting with others. Survivors who continue to experience high levels of anxiety, depression, and PTSD symptoms are the prime targets of early psychological interventions.

Experienced mental health clinicians should employ specific intervention techniques, such as pharmacotherapy, cognitive-behavioral therapy (CBT), or other psychotherapeutic techniques. Unfortunately, randomized, controlled trials are generally lacking for acute treatments in victims of mass trauma. Formal psychological debriefing, which consists of discussion of the traumatic experience, education about normative reactions and effective coping mechanisms, and identification of at-risk individuals, may not prevent subsequent psychopathology or may result in poorer outcomes.[19,20] Psychological debriefing is therefore not recommended for victims of mass trauma.[21,22] Cognitive-behavioral therapy and pharmacotherapy have not been assessed in randomized, controlled trials of acute stress following mass trauma,[7] but results from studies of road traffic accident victims and rape

survivors suggest that CBT is an effective treatment for acute stress disorder.[23,24]

CONCLUSIONS

Although there is a large body of information about PTSD following major traumatic events, the effects of mass trauma on communities and individuals are remarkably understudied. There are many unanswered questions: Are the course and outcome of PTSD resulting from mass trauma different than those associated with trauma experienced on an individual basis? What factors bolster resilience or lead to vulnerability to the consequences of mass trauma? How is the acute stress response to mass trauma best managed? Can development of PTSD be predicted from acute stress responses to mass trauma?

Despite the limited data from controlled clinical studies, the available literature can begin to inform rational treatment and public health decisions. School-aged children may be among the most vulnerable victims of mass trauma, as are persons whose support systems are diminished or depleted. The severity of stress symptoms in the acute postexposure period may be predictive of long-term consequences. Functional impairment may also predict later PTSD. Like traumas experienced by individuals (e.g., rape, motor vehicle accidents), the nature of mass trauma may be associated with severe and pervasive psychological sequelae. Disasters that cause extreme and widespread property damage, economic upheaval, widespread death, injury, or threat to life or are premeditated and intentional are likely to result in a greater prevalence of PTSD than natural disasters or traumas that are more limited in scope.

Interventions in the immediate aftermath of a mass trauma should initially be directed toward general support and bolstering of the recovery environment rather than on psychological treatment of individuals. Support systems already in place in a community, such as family, friends, community leaders, and religious advisors, may protect against long-term psychological consequences, but definitive, prospective studies to support these assertions are lacking. Moreover, the effectiveness of such naturally occurring networks of support has not been assessed in man-made disasters. At a second level, severely affected, impaired, and distressed survivors may benefit from specialized interventions. Evidence-based guidelines for interventions are urgently needed. Such guidelines should address the efficacy of interventions, their effectiveness among entire cohorts of survivors, the feasibility of their implementation, and the required resources. The principles of medical interventions in mass casualty events include proper triage and subsequent provision of simple, cost-effective treatment to many survivors. One can hope that such interventions will become available to those with mental injury.

Drug name: atropine (Donnatal and others).

REFERENCES

1. Galea S, Ahern J, Resnick H, et al. Psychological sequelae of the September 11 terrorist attacks in New York City. N Engl J Med 2002;346:982–987
2. Weine SM, Becker DR, McGlashan TH, et al. Psychiatric consequences of "ethnic cleansing": clinical assessment and trauma testimonies of newly resettled Bosnian refugees. Am J Psychiatry 1995;152: 536–542
3. Ballenger JC, Davidson JRT, Lecrubier J, et al. Consensus statement on posttraumatic stress disorder from the International Consensus Group on Depression and Anxiety. J Clin Psychiatry 2000;61(suppl 5): 60–66
4. Brunello N, Davidson JRT, Deahl M, et al. Posttraumatic stress disorder: diagnosis and epidemiology, comorbidity and social consequences, biology and treatment. Neuropsychobiology 2001;43:150–162
5. Shalev AY. What is posttraumatic stress disorder? J Clin Psychiatry 2001;62(suppl 17):4–10
6. Shalev AY, Bonne O, Eth S. Treatment of posttraumatic stress disorder: a review. Psychosom Med 1996;58:165–182
7. Watson PJ, Friedman MJ, Ruzek JI, et al. Managing acute stress response to major trauma. Curr Psychiatry Rep 2002;4:247–253
8. Canetti L, Bachar E, Bonne O, et al. The impact of parental death versus separation from parents on the mental health of Israeli adolescents. Compr Psychiatry 2000;41:360–368
9. Meaney MJ, Mitchell JB, Aitken DH, et al. The effects of neonatal handling on the development of the adrenocortical response to stress: implications for neuropathology and cognitive deficits in later life. Psychoneuroendocrinology 1991;16:85–103
10. Norris FH, Friedman MJ, Watson PJ, et al. 60,000 disaster victims speak, pt 1: an empirical review of the empirical literature, 1981-2001. Psychiatry 2002;65:207–239
11. Shalev AY, Peri T, Canetti L, et al. Predictors of PTSD in injured trauma survivors: a prospective study. Am J Psychiatry 1996;153:219–225
12. Brewin CR, Andrews B, Valentine JD. Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. J Consult Clin Psychol 2000;68:748–766
13. Silver RC, Holman EA, McIntosh DN, et al. Nationwide longitudinal study of psychological responses to September 11. JAMA 2002;288: 1235–1244
14. Israel Defense Force Statistics. Casualties since 29.09.00. Available at: http://www.idf.il/daily_statistics/english/1.doc. Accessed August 2002
15. Bleich A, Dycian A, Koslowsky M, et al. Psychiatric implications of missile attacks on a civilian population: Israeli lessons from the Persian Gulf War. JAMA 1992;268:613–615
16. Foa EB, Tolin DF. Comparison of the PTSD symptom scale-interview version and the clinician-administered PTSD scale. J Trauma Stress 2000;13:181–191
17. Derogatis LR, Mellsaratos N. The Brief Symptom Inventory: an introductory report. Psychol Med 1983;13:595–605
18. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision. Washington, DC: American Psychiatric Association; 2000
19. Deahl MP, Srinivasan M, Jones N, et al. Evaluating psychological debriefing: are we measuring the right outcomes? J Trauma Stress 2001;14:527–529
20. Mayou RA, Ehlers A, Hobbs M. Psychological debriefing for road traffic accident victims: three-year follow-up of a randomised controlled trial. Br J Psychiatry 2000;176:589–593
21. Rose S, Bisson J, Wessely S. A systematic review of single-session psychological interventions ("debriefing") following trauma. Psychother Psychosom 2003;72:176–184
22. Shalev AY. Acute stress reactions in adults. Biol Psychiatry 2002;51: 532–543
23. Bryant RA, Harvey AG, Dang ST, et al. Treatment of acute stress disorder: a comparison of cognitive-behavioral therapy and supportive counseling. J Consult Clin Psychol 1998;66:862–866
24. Foa EB, Hearst-Ikeda D, Perry KJ. Evaluation of a brief cognitive-behavioral program for the prevention of chronic PTSD in recent assault victims. J Consult Clin Psychol 1995;63:948–955

Questions and Answers

Question: Which persons should receive treatment for symptoms of acute stress in the immediate aftermath of mass trauma versus general, supportive help from non–mental health professionals?

Dr. Shalev: Unfortunately, we do not have sufficient data on the natural course of PTSD in persons and communities during continuous trauma. We do not know much about the effect of intervention by a non–mental health care "helper" on persons who may be expressing normal responses rather than a disorder. Could such interventions tip the scale and predispose these individuals to develop later psychopathology? Are these interventions somehow supportive or inconsequential?

Question: When should symptomatic persons who have been exposed to a large-scale disaster be treated?

Dr. Shalev: This is another unresolved problem. If we treated everyone with symptoms after a suicide bombing or other terrorist incident, we would be flooded with persons who may not need treatment. In my experience, those patients who exhibit severe early symptoms following trauma, such as uncontrolled arousal in an emergency department, need early "first-aid" treatment. Yet, the long-term effect of such first aid is unknown. Additionally, we are careful not to make clinical decisions on the basis of a single observation; rather, treatment is generally started in persons with severe and persistent symptoms after we have seen them twice within the course of 1 or 2 weeks without evidence of change or recovery. In the setting of the emergency department, it is common to see a marked reduction in arousal and distress within hours of the event—especially when family members arrive to support the survivors. Even in the emergency department, we closely monitor those patients with disabling and persistent symptoms of arousal and eventually intervene to reduce their distress. The field does not yet have controlled data about the optimal time to intervene, methods of intervention, or predictors of response and recovery. This is a tremendous unmet need. ❏