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TRAUMA & DISASTER RESPONSES & MANAGEMENT Ursano

Chapter 4

Early Intervention for Trauma-Related Problems

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The study of early intervention following exposure to traumatic stress has accelerated greatly in the past decade, with the goal of finding ways to prevent the psychopathology and deterioration in functioning that are so often associated with exposure to severe stress. Unfortunately, the evidence for effective early interventions, particularly after mass trauma, remains very limited. This matter was addressed by experts from around the world at a recent consensus conference on psychological interventions after mass violence. Conference attendees concluded that current evidence from randomized controlled trials (RCTs) does not permit definitive confirmation or refutation of the effectiveness of any early psychological intervention after major incidents. In addition, the empirical literature suggests that psychological debriefing, a common intervention during the acute posttraumatic period, does not ameliorate acute posttraumatic distress, does not prevent subsequent psychopathology (Bisson et al. 2000), and

A number of federal agencies were represented, including U.S. Department of Health and Human Services, U.S. Department of Defense, U.S. Department of Veterans Affairs, U.S. Department of Justice, and American Red Cross.

may even exacerbate subsequent symptoms of posttraumatic stress disorder (PTSD) (Rose et al. 2000).

In this chapter, we review the available evidence and present areas of research concerning effective early intervention following exposure to traumatic stress, especially with respect to mass casualties. We begin by reviewing the literature on the psychological impact of disasters, with special attention to risk and protective factors. This is followed by a detailed review of research on a variety of early interventions after trauma, including psychological debriefing, cognitive-behavioral therapy, treatment for traumatic grief, interventions for children, and pharmacotherapy.

Empirical Literature on the Effects of Disasters

We begin by summarizing the substantial literature published over the past 20 years on the psychological effects of disasters. More details can be found in a recent article (Norris et al. 2002) that reviewed current research findings from 160 samples of people who had experienced 102 different disasters. Three sample-level predictors were examined in this review: disaster type, sample type, and disaster location. With regard to type of disaster, mass violence was by far the most disturbing kind of disaster studied. Whereas 67% of samples exposed to mass violence were severely impaired, 39% of samples exposed to technological disasters and 34% of samples exposed to natural disasters were severely impaired (meaning that at least 25% of the sample met study criteria for psychopathology). For instance, after the Oklahoma City bombing, almost half of survivors directly exposed to the blast reported developing problems with anxiety, depression, and alcohol, and more than one-third reported PTSD. Predictors of PTSD, anxiety, and depression included more severe exposure, female gender, and having a psychiatric disorder before the bombing (North et al. 1999). As for sample type, school-age youths were the most likely—and rescue and recovery workers the least likely—to demonstrate severe impairment: 62% of the school-age samples experienced severe impairment, compared

with 39% of the adult survivor samples and 7% of the rescue/recovery samples. Disaster location had an even stronger effect on outcomes than either disaster type or sample type: 78% of the samples from developing countries met criteria for severe impairment, compared with 25% of the United States samples and 48% of the samples from other developed countries.

The general rule with regard to the course of postdisaster distress was for the sample to improve as time passed. These effects were not always linear; many victims and survivors reported initial improvement, followed by a period of stabilization or worsening, followed by later improvement. Symptoms usually peaked in the first year and were less prevalent thereafter, leaving only a minority of communities and individuals substantially impaired. The first anniversary was generally associated with intensification of distress and increased use of mental health services. Levels of symptoms in the early phases of disaster recovery were good predictors of symptoms in later phases. Delayed onsets of psychological disorders were rare.

Norris and colleagues (2002) concluded that when 1) injuries and deaths are rare, 2) the destruction or loss of property is confined relative to the size and resources of the surrounding community, 3) social support systems remain intact and function well, and 4) the event does not take on more symbolic meanings of human neglect or maliciousness, then disasters seem to have minimal adverse mental health consequences at the population level beyond those associated with transient stress reactions. In contrast, the authors concluded that risk for impairment was greatest when at least two of the following factors were present: 1) extreme and widespread damage to property; 2) serious and ongoing financial problems for the community; 3) human carelessness or, especially, human intent causing the disaster; or 4) high prevalence of trauma in the form of injuries, threat to life, and loss of life. Many of the studies reviewed by Norris and colleagues examined individual-level risk and protective factors within these samples. Of these, the factors that most consistently increased risk for adverse outcomes included 1) severe exposure to the disaster, especially injury, threat to life, and extreme loss; 2) living in a highly disrupted or traumatized community;

3) female gender; 4) age in the middle years of 40–60; 5) little previous experience or training relevant to coping with the disaster; 6) membership in an ethnic minority group; 7) poverty or low socioeconomic status; 8) the presence of children in the home; 9) for women, the presence of a spouse, especially if he is significantly distressed; 10) psychiatric history; 11) secondary stress; and 12) weak or deteriorating psychosocial resources.

The protection afforded by psychological and social resources has important implications for interventions. For instance, self-efficacy, mastery, perceived control, self-esteem, hope, and optimism all are related positively, strongly, and consistently to mental health, whereas avoidance coping and blame seem to be consistently problematic. Beliefs about capabilities for coping prove to be far more important than specific ways of coping. The size, vitality, and closeness of the survivor's social network is also related strongly and consistently to positive mental health outcomes. Disaster survivors who believe that they are cared for by others and that help will be available, if needed, in the near future fare better psychologically than disaster survivors who believe they are unloved and alone.

The greater the amount of global resource loss, the greater the psychological distress. Several studies have found such measures to be the strongest predictors of symptom outcomes. Psychological resources, such as optimistic biases and perceived control, have occasionally been found to decline after disasters. Social resources appear to be especially vulnerable to the effects of disasters. Declines in social support account for a large share of victims' subsequent declines in mental health. Potential social supporters may themselves have become victims. Families and friends are relied on more often, and with greater comfort, than outsiders or professional sources of support. Sustaining helping activities may be more difficult than mobilizing them. With the passage of time, attentive media, helping organizations, and outside resources disappear. Fatigue, irritability, and scarcity of resources increase the potential for interpersonal conflict and social isolation.

Such deterioration is unlikely when postdisaster support provisions are adequate, equitably distributed, and sufficiently

lasting to address survivors' needs. Public education about how much support can reasonably be provided by their social network is an important way to help people calibrate their expectation to what can reasonably be delivered. Professionals and outsiders are important sources of assistance when the level of need is high, but they cannot supplant natural helping networks. It is always best to keep people in their natural social setting if they must be relocated. When networks have been severely disrupted or destroyed, however, it is desirable to foster social activities and help develop new communities. Examples include group meetings, in which survivors collectively plan how to rebuild their community, identify and discuss local problems, work together toward achievable goals, canvass the community to learn of others' needs, and emotionally share their individual and collective losses. Collective grieving, including memorial services, helps people express solidarity and facilitates unity and collective action.

Family-focused interventions are also very important. People are usually most comfortable seeking and receiving help from family members, yet family members can also be a significant source of strain and conflict. Building and sustaining support at the family level is crucial, such as encouraging families to talk together about their experiences, losses, and feelings. Families should also be encouraged to resume normal activities to the extent possible and to handle conflict appropriately so as to minimize negative encounters caused by the strain, fatigue, and irritability that often follow trauma.

Large-scale individual-focused interventions often are not targeted to those in need and therefore can be costly and unnecessary. They should be reserved for those persons who are most distressed, who had weak psychological and social resources to begin with, or who suffered particularly dire resource losses. Because people in greatest need of such services may be least likely to seek them, outreach is essential. Sprang (2000) reported that after a disaster, many of those closest to the event do not believe that they need help and will not seek out services, despite reporting significant emotional distress. Survivors often report feeling that they are better off than those more affected, and they gener-

ally believe that acknowledgment of distress is an indication of weakness of some sort; they have a preference for seeking informal support from family and friends (Sprang 2000). Some people are more likely to accept help for problems in living than to accept help for mental health problems. Outreach and education of family members and friends become crucial under these circumstances.

Key Components of Early Intervention

International experts who attended the aforementioned Mass Violence and Early Intervention conference (National Institute of Mental Health 2002) endorsed nine key components of early intervention. These components, outlined as follows, are multifaceted and overlap in time; are provided by diverse individuals, organizations, and professionals; and create a framework within which recovery from traumatization can be maximized. Operationally defining each component of early intervention in this way should facilitate research on the delivery, phasing, and specific effectiveness of each component for both immediate and long-term recovery.

Provision for Basic Needs

Essential for mental health are the meeting of basic needs for safety, security, and survival, such as food and shelter; orientation to the disaster and recovery efforts; facilitating communication with family, friends and community; and reducing ongoing environmental threat.

Psychological First Aid

Basic strategies to reduce psychological distress include orientation to the disaster and recovery efforts, reduction of physiological arousal, mobilization of support for those who are most distressed, facilitation of reunion with loved ones and keeping families together, providing education about available resources and coping strategies, and using effective risk communication techniques.

Needs Assessment

A systematic assessment of the current status of individuals, groups, and the overall affected community is important. Included in the assessment should be an evaluation of whether survivors' needs are being adequately addressed, assessment of the characteristics of the recovery environment, and consideration of what additional interventions and resources are required.

Monitoring of the Rescue and Recovery Environment

Those most affected by the incident are observed and monitored for potential behavioral and physical health sequelae. The environment is monitored for ongoing stressors or toxins, services that are being provided, and media coverage and rumors.

Outreach and Information Dissemination

After disasters and incidents of mass violence, services are provided in the many environments where survivors can be found (sometimes referred to as *therapy by walking around*). Established community structures are used to provide information and support. Information is disseminated via distribution of fliers and referral to Web sites, which can also provide on-line support. The media are provided with materials (e.g., interviews, releases, and programs) to help increase knowledge about trauma and recovery.

Technical Assistance, Consultation, and Training

Organizations, leaders, responders, and caregivers are supported via the dissemination of knowledge, consultation, and training, so that they can improve their capacity to provide what is needed to reestablish community structure, foster family recovery and resilience, and safeguard the community.

Fostering Resilience and Recovery

Resources are provided to improve social interactions, coping skills, risk assessment, and self-assessment and referral. This also

includes group and family interventions, fostering natural social support, looking after the bereaved, and repairing the community and organizational fabric.

Triage

Mental health personnel assess survivors, identify vulnerable, high-risk individuals and groups, and provide referral and emergency hospitalization when indicated.

Treatment

Mental health personnel seek to reduce symptoms and improve functioning via education; individual, family, and group psychotherapy; pharmacotherapy; spiritual/existential support; and short-term or long-term hospitalization.

General Recommendations

Participants at the mass violence consensus conference unanimously endorsed the following recommendations for early intervention:

- Interventions should be tailored to address individual, community, and cultural needs and characteristics.
- A sensible working principle in the immediate postincident phase is to expect normal recovery.
- The presumption of clinically significant disorder in the early postincident phase is inappropriate, except for those with preexisting conditions.
- Interventions should promote normal recovery, resilience, and personal growth.
- Mental health personnel must be integrated into the major incident or disaster management teams and should help coordinate the provision of service so that mental health is an integrated element of comprehensive disaster management plans.
- Mental health expertise can help guide the implementation of interventions to maximize positive mental health outcome.

Good practice in early intervention takes into account the special needs of those who have previously experienced enduring mental health problems, those who are disabled, and other high-risk groups that are disadvantaged so as to be less able to cope with unfolding situations.

Adverse outcomes to be targeted or prevented by early interventions include acute stress disorder (ASD), PTSD, depression, complicated bereavement reactions, substance use disorders, poor physical health, fear, anxiety, physiological arousal, somatization, anger control problems, functional disability, and arrest or regression of childhood developmental progression (National Institute of Mental Health 2002).

Psychological Debriefing

Debriefing means different things to different people. In its broadest sense, it is the process of describing an event or activity. It has become popularized as a posttraumatic psychological intervention that emphasizes "talking through" as a means of processing psychological distress (B. Raphael, unpublished manuscript, 2001). Although there has been very strong belief in this process, there is little empirical evidence to suggest that debriefing as a form of intervention is helpful for general disaster-affected populations. Indeed, some research shows that it may add to the risk of adverse outcomes (e.g., Kenardy and Carr 2000; Kenardy et al. 1996).

Consensus conference members agreed that use of the single term *debriefing* to describe a broad range of mental health interventions (e.g., psychological debriefing, critical incident stress debriefing) is misleading. Conference members agreed that *debriefing* should be used only to describe operational debriefing (first developed by the military), which is a routine individual or group review of the details of an event from a factual perspective. Clearer descriptions of the interventions under investigation and more of an attempt to standardize interventions would aid in interpretation of research findings.

The studies reviewed in this section used interventions that the authors described as debriefing interventions. Most of these interventions are rooted in critical incident stress debriefing

(CISD) (Mitchell 1983), which was developed to provide education, ventilation, and support for emergency service personnel in group settings. CISD is a formalized, structured method of group review of the stressful experience of a disaster conducted in the first few days (up to 48–72 hours after the event). *Psychological debriefing* refers to less formalized processes of debriefing than does CISD. It includes education and review processes (Dunning 1988; Raphael 1977) and often includes a positive focus on resilience and coping strategies. There is no systematic research for psychological debriefing as an operationalized intervention, nor has psychological debriefing been clearly differentiated from CISD in research studies.

Mitchell and Everly (2000) recently reconceptualized debriefing as a broader crisis intervention technique for use beyond emergency services workers. They acknowledge that there is a need for greater methodological rigor in studies of debriefing, and they suggest that CISD has not been sufficiently evaluated in methodologically rigorous studies.

Debriefing Studies for General Population Samples

Evidence from RCTs to date has shown that CISD is associated with either a lack of significant benefits or more adverse outcomes for those debriefed. Rose et al. (2000), having reviewed the few well-controlled and well-designed trials on CISD, concluded that there is inadequate evidence to support the continuing use of debriefing. In another review of debriefing RCTs, Litz et al. (in press) recommended against the use of single-session debriefing and cited a need for more research on debriefing. Of six well-designed debriefing RCTs chosen for inclusion in our review, three (Conlon et al. 1999; Lee et al. 1996; Rose et al. 1999) found that individuals who were offered one-session debriefing interventions did not have better symptomatic outcomes than did a no-intervention control group. In the other three studies (Bisson et al. 1997; Hobbs et al. 1996; Mayou et al. 2000), participants in the one-session debriefing group actually fared worse than did participants in a no-intervention group. None of these six studies

was conducted with disaster-affected populations. Given the weight of the evidence, one might conclude that debriefing should not be implemented within the first month after trauma. There are serious methodological problems, however, in all three RCTs that found debriefing to be associated with more severe symptoms. Most importantly, in all three studies, individuals in the debriefed groups had more severe injuries initially or longer hospital stays than did individuals in the nondebriefed groups (Bisson et al. 1997; Hobbs et al. 1996; Mayou et al. 2000).

Debriefing for Emergency Personnel and the Military

CISD has had its strongest proponents within the emergency responder and military communities. All studies discussed as follows have methodological limitations that are serious enough to warrant extreme caution in generalizing from the findings. Described are the most relevant debriefing studies with emergency and military personnel, with significant limitations noted.

Eight studies were identified that included a comparison of debriefed versus nondebriefed disaster- or war-exposed emergency or military personnel on posttraumatic sequelae (Carlier et al. 1998, 2000; Deahl et al. 1994, 2000; Eid et al. 2001; Hytten and Hasle 1989; Jenkins 1996; Kenardy et al. 1996). Most of these studies, being naturalistic, consequently have inevitable methodological limitations such as lack of treatment adherence measures or randomization. Self-selection for debriefing, which poses a significant threat to internal validity, was present in four of these studies (Carlier et al. 2000; Hytten and Hasle 1989; Jenkins 1996; Kenardy et al. 1996). Only one of the eight studies included an attempt at randomization, and the strategy used was somewhat problematic (Deahl et al. 2000). Four of the eight studies yielded no differences in symptoms between the debriefed and nondebriefed groups (Carlier et al. 2000; Deahl et al. 1994, 2000; Hytten and Hasle 1989), two showed worse symptoms in the debriefed group (Carlier et al. 1998; Kenardy et al. 1996), and two showed more favorable outcomes in the debriefed group (Eid et al. 2001; Jenkins 1996).

Conclusions About Debriefing as a Potential Early Intervention After Mass Violence

Despite widespread application of stress debriefing, there is little empirical evidence of its effectiveness for civilian populations affected by disasters (Raphael and Wilson 2000).

A consistent trend in all of the studies we reviewed is that debriefing has not been associated with better clinical outcomes. Available evidence shows that in some instances it may actually complicate recovery. If these negative findings are accepted, it is instructive to consider why debriefing may be ineffective or problematic. The following hypotheses have been put forth (Raphael 2001):

- Multiple and complex stressors with different time lines are not appropriately addressed by one-session debriefings.
- Heightened arousal generated by recitation of traumatic experiences during the debriefing process may cause physiological hyperreactivity and the encoding of traumatic memories, both hallmarks of ASD and PTSD.
- Debriefing may be inappropriate for acute bereavement (Raphael et al. 2001).
- Debriefing may also increase the potential for retraumatization by hearing the stories of others and may possibly interfere with habituation (Foa et al. 2000).
- There is a risk of stimulating excessive negative ruminations that may lead to depression (Solomon et al. 2000).
- There is a preference for individual, one-on-one (rather than group) interventions.
- The recommended 24- to 72-hour posttraumatic window for early debriefing intervention may be too short.
- Debriefing may be culturally inappropriate (Silove 2000; Weisaeth 2000).
- Debriefing may interfere with adaptation (e.g., avoidance) and natural recovery.
- The inadequate assessment of distress in the group setting may lead to the erroneous conclusion that such a one-time intervention has been sufficient to prevent further symptoms.

This may result in less monitoring and follow-up care than might have been the case if no debriefing had been implemented.

Practice guidelines on debriefing formulated by the International Society for Traumatic Stress Studies (Bisson et al. 2000) stipulate that there is little evidence that debriefing prevents psychopathology. The guidelines emphasize that debriefing is well received by participants and may be useful in terms of facilitating the screening of those at risk, disseminating education and referral information, and improving organizational morale. However, the guidelines also state that if it is employed, debriefing 1) should be conducted by experienced, well-trained practitioners, 2) should not be mandatory, 3) should use some clinical assessment of potential participants, and 4) should be accompanied by clear and objective evaluation procedures. The guidelines state that it is premature to conclude that debriefing should be discontinued, but "more complex interventions for those individuals at highest risk may be the best way to prevent the development of PTSD following trauma" (Bisson et al. 2000, p. 319).

There is clearly a need for much further systematic research in this field. Consensus conference participants concluded that "there is some Level 1 evidence suggesting that early interventions in the form of a single 1-to-1 recital of events and expression of emotions evoked by a traumatic event (as advocated in some forms of psychological debriefing) does not consistently reduce risks of later developing PTSD or related adjustment difficulties. Some survivors (e.g., those with high arousal) may be put at heightened risk for adverse outcomes" (National Institute of Mental Health 2002, p. 8).

Cognitive-Behavioral Interventions

At present, cognitive-behavioral interventions during the acute aftermath of trauma exposure appear to have the most promising results in preventing subsequent psychopathology. Four of five RCTs related to early cognitive-behavioral interventions (Bryant

et al. 1998, 1999; Echeburua et al. 1996; Gidron et al. 2001) found clear superiority of the cognitive-behavioral therapy (CBT) group in reducing PTSD symptomatology compared with the experience of a control group, whereas one (Brom et al. 1993) did not. In addition, a controlled (but not randomized) comparison of CBT versus an assessment-only condition in the acute phase after trauma found fewer PTSD symptoms in the CBT group at a 5.5-month follow-up (Foa et al. 1995).

A study using a manualized, individual preventive intervention administered 1 month after a motor vehicle accident (MVA) (Brom et al. 1993) found no differences between those in the assessment-only control group and those in the intervention group on the Inventory of Events Scale. However, limitations of the study (e.g., variation in treatment length, more preintervention symptoms in the treatment group) make it difficult to draw firm conclusions about the efficacy of the intervention.

Foa and colleagues (1995) conducted a controlled (but not randomized) study testing brief CBT that was introduced in the acute aftermath of sexual and nonsexual assault. The matched control group received only assessment. Two months after assault, the CBT group endorsed fewer PTSD symptoms and only 10% of its members still met diagnostic criteria for PTSD, whereas 70% of the control group still had the disorder. At 5.5 months, there were few differences in PTSD symptom severity between groups, but the CBT group had significantly fewer reexperiencing of symptoms and depressive symptoms. The lack of significant differences in favor of the CBT group at 5.5 months appeared to be due to the small sample size and resultant lack of statistical power.

Echeburua et al. (1996) compared five 1-hour sessions of either combined (cognitive restructuring and specific coping skills) training or progressive relaxation training. Participants improved in both groups, with gains maintained at 12-month follow-up, although the combined treatment group showed less PTSD symptom severity than did control subjects at 12-month follow-up.

Bryant and colleagues (1998, 1999) conducted some of the best-controlled and most relevant studies of early intervention

following potentially traumatizing events. They have shown that brief cognitive behavioral interventions introduced within the first month after a catastrophic event may not only ameliorate ASD but may also prevent the subsequent development of PTSD. Approximately 10 days after exposure to an MVA, an industrial accident, or a nonsexual assault, these researchers randomly assigned subjects with ASD to five individual 1.5-hour sessions of either a CBT or a supportive counseling control condition. In the earlier study (Bryant et al. 1998), the researchers found that fewer CBT subjects met criteria for PTSD after treatment and 6 months later. In the second study (Bryant et al. 1999), they compared two different individual CBT approaches (prolonged exposure plus anxiety management and prolonged exposure alone) to a supportive counseling intervention. They found that both CBT groups showed significantly greater reductions in PTSD symptom severity compared with those of the supportive counseling group.

Gidron et al. (2001) randomly assigned college students to either two sessions of an intervention rooted in CBT (memory structure intervention) via telephone or two sessions of a supportive listening (telephone) control condition within the first month after an MVA. Greater reductions in PTSD were observed in the CBT (memory structure intervention) group compared with those of the supportive listening group. Positive effects were still evident at a 3- to 4-month follow-up. Although the sample size was small and there was no long-term follow-up, this intervention certainly merits further study as a simple, cost-effective treatment for acutely traumatized individuals.

Possible Contraindications for Exposure Therapy

One powerful therapeutic component of the cognitive-behavioral techniques described is exposure therapy, in which the client is asked to retell the most stressful aspects of the traumatic event as if they are occurring at the present time. Bryant and Harvey (2000) suggest that exposure techniques may be contraindicated when the acutely traumatized client exhibits extreme anxiety, panic attacks, marked dissociation, borderline personality disorder, psychotic illness, anger as a primary trauma response, unre-

solved prior traumas, severe depression or suicide risk, complex comorbidity, substance abuse, marked ongoing stressors, or acute bereavement. When exposure therapy is contraindicated, other techniques such as anxiety management, cognitive restructuring therapy, or pharmacological intervention may be effective (Bryant and Harvey 2000). It should be noted that these contraindications are primarily theoretical and may change as the empirical literature on exposure therapies matures.

Eye Movement Desensitization and Reprocessing

No RCTs have been conducted to assess the effectiveness of eye movement desensitization and reprocessing (EMDR) within the first 4 weeks of traumatic exposure. Among adult survivors of Hurricane Andrew, EMDR that was introduced between 2.5 and 3.5 months after the disaster resulted in significant reductions in PTSD symptoms compared with the experience of a waiting-list control group (Grainger et al. 1997). Although the study has several methodological limitations, the use of an objective and reliable assessment battery as well as comparison with an untreated waiting-list control group makes these findings noteworthy.

Traumatic Grief

To date, there are no published studies on the treatment of traumatic grief or complicated bereavement specifically related to disaster situations. Until very recently, little distinction was drawn among complicated bereavement, traumatic grief, and normal grief reactions. As a result, research in the field lacks a unified definition of these terms, and inclusion criteria vary considerably from one study to another. The studies included in this review are RCTs that were conducted in the early phases after traumatic loss or that were based on inclusion criteria that addressed traumatic grief (Prigerson et al. 1999). The reader is referred to Jacobs and Prigerson (2000) for a more comprehensive review of the literature on traumatic grief.

In a pilot study of a CBT intervention tailored specifically for traumatic grief, Shear and colleagues (2001) found a large beneficial effect on grief, anxiety, and depressive symptoms. Although this was a pilot study with major limitations (e.g., no control group, high dropout rate), the large reduction in symptoms suggests that this approach warrants further study.

Raphael (1977) conducted an RCT within 2 months of onset of bereavement among widows who met high-risk criteria for postbereavement morbidity based primarily on poor social support networks, concurrent crises, and traumatic circumstances of death. The intervention group received a "nondirective, supportive" individual intervention with an average of four sessions. Significant differences were found between the groups, with more health impairment, doctor visits, weight loss, smoking, and alcohol intake in the control group.

Early Interventions for Children Exposed to Mass Violence or Disasters

As with adults, most of the empirically sound research that has been conducted with traumatized children has tested the efficacy of cognitive-behavioral interventions. It should be noted that most of the research in this area has been conducted with abused children with long-term symptoms (e.g., Berliner and Saunders 1996; Cohen and Mannarino 1996). Although the results of clinical trials of CBT with traumatized children are encouraging, the effect sizes are medium in size (Cohen et al. 2000). In the discussion that follows, we have included only the most relevant acute-phase treatments for children who have experienced disaster or other forms of single-incident traumas. In a few instances, we have included studies of later-stage interventions, due to their direct relevance to disaster situations. Much more research is needed in this area.

Yule and Udwin (1991) and Yule (1992) conducted a three-session (debriefing plus problem solving) intervention for 14- to 16-year-old children who had been involved in the sinking of a cruise ship. Ten days after the disaster, a debriefing session was conducted, followed by two problem-solving sessions targeting

anxiety, avoidance, and intrusive thoughts. Data collected 5–9 months after the disaster indicated that students who received the intervention showed significantly lower fear and anxiety scores than did children from a comparison school who did not undergo debriefing. The major methodological limitation of this study was the lack of random assignment and the unclear nature of the treatment itself.

Field and colleagues (1996) evaluated the effectiveness of massage therapy for children exposed to Hurricane Andrew within 1 month of the disaster. Children were randomly assigned to either viewing a neutral videotape with a graduate student or receiving back massage therapy, each for 30 minutes twice a week for a month. Children in the massage therapy condition showed greater reductions in anxiety and depression and greater increases in relaxation. Although methodological limitations make interpretation of results difficult, it is intriguing that an intervention for children that promoted general relaxation and did not include any cognitive-behavioral components was helpful in reducing symptoms of general distress. Unfortunately, this study did not include a specific measure of PTSD and did not have adequate treatment adherence measures.

Although they were not conducted in the immediate aftermath of trauma, school-based CBT interventions such as those studied by Goenjian and colleagues (1997) after the Armenian earthquake and by March and colleagues (1998) after single-incident traumas (e.g., MVAs) warrant replication in acute trauma situations. Both of these studies yielded reductions in PTSD, depression, anxiety, and anger scores after treatment.

Pharmacotherapy

Although psychopharmacological research in the area of PTSD is growing, there are only a few well-designed studies that have examined the effects of medications in the very early phases after trauma. The most important and best-designed study on pharmacotherapy for acutely traumatized individuals was carried out by Robert and colleagues (1999), who used a prospective, randomized, double-blind design to test whether children with

burn injuries and ASD symptoms might benefit from imipramine treatment administered for 7 days or more after they were injured. Imipramine was significantly more effective than chloral hydrate, with 83% of children who received low-dose imipramine treatment showing a reduction in ASD symptoms, in contrast to 38% of the chloral hydrate group.

Pitman and colleagues (2002) tested whether PTSD symptoms could be prevented among adult survivors of acute trauma who were given a 10-day, double-blind course of the β-adrenergic antagonist propranolol (40 mg 4 times/day) versus a 10-day course of placebo. Forty-one emergency room patients who had just experienced a traumatic event as defined in DSM-IV were recruited for the randomized, double-blind study. The treatment and control groups did not differ in terms of PTSD symptoms at either a 1-month or a 3-month assessment. Despite the fact that the groups did not differ in concentration of PTSD cases, 0% of the propranolol patients versus 43% of the placebo patients were classified as physiological responders 3 months after the event when tested in the laboratory with a script-driven imagery protocol based on the traumatic event to which they had been exposed. This pilot study has important theoretical implications and suggests that larger studies with a longer-term follow-up are warranted.

Gelpin and colleagues (1996) conducted a small pilot study in which the benzodiazepines clonazepam and alprazolam were prescribed approximately 7 days after patients visited an emergency room for treatment related to potentially traumatic life events. At the 6-month assessment, nine participants in the benzodiazepine group (69%), versus two in the control group (15%), met the diagnostic criteria for PTSD according to the Clinician-Administered PTSD Scale, suggesting that benzodiazepine treatment may have actually worsened outcomes. This result is consistent with other negative results involving benzodiazepine treatment for chronic PTSD (Friedman et al. 2000). To date, there is no evidence that benzodiazepines are an effective pharmacological intervention for people with either acute or chronic posttraumatic reactions.

Stanovic and colleagues (2001) reported that burn victims treated with a low dose of risperidone experienced diminished

nightmares and flashbacks and decreased hyperarousal and sleep disturbances 1–2 days after starting treatment. Although this was a small retrospective pilot study, the results warrant the performance of a prospective study to better understand the efficacy of the use of risperidone in treating early traumatic stress symptoms.

Longer-term studies of pharmacotherapy for PTSD may have relevance for acute interventions. Almost every class of psychotropic agent has been prescribed for PTSD patients. The best evidence supports the use of selective serotonin reuptake inhibitors (SSRIs) as first-line medications for PTSD. Recent studies with sertraline (Davidson et al. 2001a, 2001b; Londborg et al. 2001; Rapaport et al. 2002) and paroxetine (Marshall et al. 2001; Tucker et al. 2001) indicate not only that these medications may reduce PTSD symptoms and produce global improvement in functioning but also that they are effective against comorbid disorders and associated symptoms and have few side effects. Other agents that have been used in chronic PTSD that might be effective for acutely traumatized individuals include non-SSRI antidepressants, antiadrenergic agents, anticonvulsants, and other atypical antipsychotic agents (Friedman et al. 2000).

In a recent review of pharmacological treatment of PTSD in children, Cohen (2001) notes that the use of psychopharmacological approaches is becoming more widespread despite a lack of double-blind, randomized, controlled trials. To date, there are no published reports of placebo-controlled medication trials that have been conducted in children diagnosed with PTSD. The best study regarding medications for traumatized children was the aforementioned RCT of imipramine for children with ASD symptoms. For a recent review of the open-label medication trials that have been conducted with children, the reader is referred to Cohen 2001 and Donnelly et al. 1999.

Conclusions

As can be seen in this review of the empirical literature, there are not enough well-controlled studies to strongly endorse any particular type of early intervention after mass casualties. Rather,

consensus based on both empirical literature and experiential practice suggests the need for a multifaceted approach to the management of traumatic stress after disasters and mass violence. Such a strategy requires the coordination of interventions depending on a multitude of factors, including time elapsed since the incident and the level of impact of the event. At this time, for instance, there is strong initial evidence that for those most severely affected by a traumatic event, a brief 4- to 5-session cognitive-behavioral treatment introduced in the immediate aftermath may ameliorate ASD and prevent subsequent chronic psychopathology. However, use of this treatment in the early phases following disaster has not been systematically evaluated, and it may need to be modified for this context (R. Bryant, personal communication, 2002). On the other hand, RCTs on psychological debriefing currently suggest that this approach either is ineffective or may even exacerbate PTSD symptoms, but it has not been effectively evaluated for different audiences following disaster. Because there is essentially no research on either EMDR or pharmacotherapy as early interventions in the face of disasters, neither can be recommended at this time. There is certainly reason to hope that effective pharmacotherapeutic interventions for acute traumatic stress will be developed with time, given emerging findings on how traumatic stress affects brain function in both the short and the long term. The field of traumatic bereavement is in its infancy, and more research is needed before any conclusions can be drawn regarding specific interventions for traumatic grief.

Acute interventions with children have not been sufficiently tested empirically. However, research in this arena is developing rapidly, and it is to be expected that a stronger body of evidence related to early intervention with children will emerge within the foreseeable future. Based on the evidence showing the effectiveness of cognitive-behavioral interventions for children with chronic PTSD (Cohen et al. 2000), it is reasonable to expect that this approach will prove beneficial for acutely traumatized children as well.

As we consider the many specific components of early intervention, it is apparent that it is necessary to conduct dismantling

studies that will rigorously evaluate the effectiveness of each separate component, especially with respect to the optimal timing of such interventions. The range of component practices requiring systematic evaluation includes practices such as debriefing, education, outreach, needs assessment, triage, and formal clinical interventions. It is necessary to determine whether current practices are effective in ameliorating specific outcomes, or whether new interventions should be designed to accomplish such objectives. Other challenges include the development and implementation of efficient and accurate procedures for identifying individuals who are at high risk for progressing to chronic posttraumatic problems (Brewin et al. in press).

There is also a need for research that addresses the potential breadth and complexity of early intervention by including individuals with comorbid conditions, by examining different survivor groups, and by sampling varied service delivery settings (e.g., shelters, first aid stations, clinics, and hospitals). There is a related need to examine a range of outcomes, including not only PTSD, but also problems such as substance abuse, depression, anger, violence, interpersonal functioning, and physical health. In addition to work that examines such individual outcomes, research is needed that focuses on group, organizational, and community outcomes. Examples of such outcomes include staff turnover, medical problems, organizational cohesion, morale, absenteeism, and performance deficits.

Future researchers will need to address the ethical issues involved in using traditional comparison groups such as no-treatment or waiting-list control groups after mass casualties. Providers have expressed concern that research assessment soon after mass traumatic events might exacerbate symptoms or be unacceptable to survivors (Ruzek and Zatzick 2000). Also, there is an understandable reluctance to assign survivors to comparison interventions that are believed to be less effective. Such reluctance clearly limits the conclusions that can be drawn from real-world disaster intervention studies. Within the field of traumatic stress, there has recently been a call to develop new research strategies that may be ethically acceptable without sacrificing scientific rigor. This appears to be an achievable goal (Ruzek and Zatzick 2000).

Although postdisaster mental health services have traditionally been delivered without systematic evaluation, it is hoped that an increased emphasis on early intervention research will result in the routine application of rigorous program evaluation to inform ongoing service improvement.

It is also important that the experiential knowledge of professional responders "in the trenches" continues to be synthesized and disseminated. Furthermore, the early intervention field needs to develop proactive, practical strategies for disseminating evidence-based information on intervention strategies to policy makers and practitioners in the field. Development and rigorous testing of effective early interventions and subsequent dissemination of such findings to frontline practitioners are critical goals at this time.

References

Berliner L, Saunders BE: Treating fear and anxiety in sexually abused children: results of a controlled 2-year follow-up study. Child Maltreat 1:294–309, 1996

Bisson JI, Jenkins PL, Alexander J, et al: Randomized controlled trial of psychological debriefing for victims of acute burn trauma. Br J Psychiatry 171:78–81, 1997

Bisson JI, McFarlane AC, Rose S: Psychological debriefing, in Effective Treatments for PTSD: Practice Guidelines From the International Society for Traumatic Stress Studies. Edited by Foa EB, Keane TM, Friedman MJ. New York, Guilford, 2000, pp 317–319

Brewin CR, Rose S, Andrews B: Screening to identify individuals at risk after exposure to trauma, in Early Intervention for Psychological Trauma. Edited by Schneider U. Oxford, Oxford University Press (in press)

Brom D, Kleber RJ, Hoffman MC: Victims of traffic accidents: incidence and prevention of post-traumatic stress disorder. J Clin Psychol 49: 131–140, 1993

Bryant RA, Harvey AG: Acute Stress Disorder: A Handbook of Theory, Assessment, and Treatment. Washington, DC, American Psychological Association, 2000

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 66:862–866, 1998

Bryant RA, Sackville T, Dang ST, et al: Treating acute stress disorder: an evaluation of cognitive behavioral therapy and supportive counseling techniques. Am J Psychiatry 156:1780–1786, 1999

Carlier IVE, Lamberts RD, Van Uchelen AJ, et al: Disaster-related posttraumatic stress in police officers: a field study of the impact of debriefing. Stress Med 14:143–148, 1998

Carlier IVE, Voerman AE, Gerson BPR: The influence of occupational debriefing on post-traumatic stress symptomatology in traumatized police officers. Br J Med Psychol 73:87–98, 2000

Cohen JA: Pharmacologic treatment of traumatized children. Trauma, Violence, and Abuse 2:155–171, 2001

Cohen JA, Mannarino A: A treatment outcome study for sexually abused preschool children: initial findings. J Am Acad Child Adolesc Psychiatry 3:42–50, 1996

Cohen JA, Berliner L, March JS: Guidelines for treatment of PTSD: treatment of children and adolescents. J Trauma Stress 13:566–568, 2000

Conlon L, Fahy TJ, Conroy R: PTSD in ambulant RTA victims: a randomized controlled trial of debriefing. J Psychosom Res 46:37–44, 1999

Davidson J, Pearlstein T, Londborg P, et al: Efficacy of sertraline in preventing relapse of posttraumatic stress disorder: results of a 28-week double-blind, placebo-controlled study. Am J Psychiatry 158:1974–1981, 2001a

Davidson JR, Rothbaum BO, van der Kolk BA, et al: Multicenter, double-blind comparison of sertraline and placebo in the treatment of posttraumatic stress disorder. Arch Gen Psychiatry 58:485–492, 2001b

Deahl MP, Gillham AB, Thomas J, et al: Psychological sequelae following the Gulf War: factors associated with subsequent morbidity and the effectiveness of psychological debriefing. Br J Psychiatry 165:60–65, 1994

Deahl M, Srinivasan M, Jones N, et al: Preventing psychological trauma in soldiers: the role of operational stress training and psychological debriefing. Br J Med Psychol 73:77–85, 2000

Donnelly CL, Amaya-Jackson L, March JS: Psychopharmacology of pediatric posttraumatic stress disorder. J Child Adolesc Psychopharmacol 9:203–220, 1999

Dunning CM: Intervention strategies for emergency workers, in Mental Health Response to Mass Emergencies: Theory and Practice. Edited by Lystad M. New York, Brunner/Mazel, 1988, pp 284–307

Echeburua E, de Corral P, Sarasua B, et al: Treatment of acute posttraumatic stress disorder in rape victims: an experimental study. J Anxiety Disord 10:185–199, 1996

Eid J, Johnsen BH, Weisaeth L: The effects of group psychological debriefing on acute stress reactions following a traffic accident: a quasi-experimental approach. Int J Emerg Ment Health 3:145–154, 2001

Field T, Seligman S, Scafidi F, et al: Alleviating posttraumatic stress in children following Hurricane Andrew. J Appl Dev Psychol 17:37–50, 1996

Foa EB, Hearst-Ikeda DE, Perry KJ: Evaluation of a brief cognitive-behavioral program for the prevention of chronic PTSD in recent assault victims. J Consult Clin Psychol 63:948–955, 1995

Foa EB, Keane TM, Friedman MJ (eds): Effective Treatments for PTSD: Practice Guidelines From the International Society for Traumatic Stress Studies. New York, Guilford, 2000

Friedman MJ, Davidson JRT, Mellman TA, et al: Pharmacotherapy, in Effective Treatments for PTSD: Practice Guidelines From the International Society for Traumatic Stress Studies. Edited by Foa EB, Keane TM, Friedman MJ. New York, Guilford, 2000, pp 326–329

Gelpin E, Bonne OB, Peri T, et al: Treatment of recent trauma survivors with benzodiazepines. J Clin Psychiatry 57:390–394, 1996

Gidron Y, Gal R, Freedman SA, et al: Translating research findings to PTSD prevention: results of a randomized-controlled pilot study. J Trauma Stress 14:773–780, 2001

Goenjian AK, Karayan I, Pynoos RS, et al: Outcome of psychotherapy among early adolescents after trauma. Am J Psychiatry 154:536–542, 1997

Grainger RD, Levin C, Allen-Byrd L, et al: An empirical evaluation of eye movement desensitization and reprocessing (EMDR) with survivors of a natural disaster. J Trauma Stress 10:665–671, 1997

Hobbs M, Mayou R, Harrison B, et al: A randomized trial of psychological debriefing for victims of road traffic accidents. BMJ 313:1438–1439, 1996

Hytten K, Hasle A: Fire fighters: a study of stress and coping. Acta Psychiatr Scand Suppl 355:50–55, 1989

Jacobs SC, Prigerson H: Psychotherapy of traumatic grief: a review of evidence for psychotherapeutic treatments. Death Stud 24:479–495, 2000

Jenkins SR: Social support and debriefing efficacy among emergency medical workers after a mass shooting incident. J Soc Behav Pers 11:477–492, 1996

Kenardy JA, Carr VJ: Debriefing post disaster: follow-up after a major earthquake, in Psychological Debriefing: Theory, Practice and Evidence. Edited by Raphael B, Wilson JP. Cambridge, Cambridge University Press, 2000, pp 174–181

Kenardy JA, Webster RA, Lewin TJ, et al: Stress debriefing and patterns of recovery following a natural disaster. J Trauma Stress 9:37–49, 1996

Lee CW, Gavriel H, Richard J: Eye movement desensitization: past research, complexities, and future directions. Aust Psychol 31:168–173, 1996

Litz BT, Gray MJ, Bryant RA, et al: Early intervention for trauma: current status and future directions. Clinical Psychology: Science and Practice 9:112–134, 2002

Londborg PD, Hegel MT, Goldstein S, et al: Sertraline treatment of posttraumatic stress disorder: results of 24 weeks of open-label continuation treatment. J Clin Psychiatry 62:325–331, 2001

March JS, Amaya-Jackson L, Murray MC, et al: Cognitive-behavioral psychotherapy for children and adolescents with posttraumatic stress disorder after a single-incident stressor. J Am Acad Child Adolesc Psychiatry 37:585–593, 1998

Marshall RD, Beebe KL, Oldham M, et al: Efficacy and safety of paroxetine treatment for chronic PTSD: a fixed-dose, placebo-controlled study. Am J Psychiatry 158:1982–1988, 2001

Mayou R, Ehlers A, Hobbs M: Psychological debriefing for road traffic accident victims: three-year follow-up of a randomized controlled trial. Br J Psychiatry 176:589- 593, 2000

Mitchell JT: When disaster strikes: the critical incident stress debriefing process. J Emerg Med Serv 8:36–39, 1983

Mitchell JT, Everly GS: Critical incident stress management and critical incident stress debriefings: evolutions, effects and outcomes, in Psychological Debriefing: Theory, Practice and Evidence. Edited by Raphael B, Wilson J. Cambridge, Cambridge University Press, 2000, pp 71–90

National Institute of Mental Health: Mental Health and Mass Violence: Evidence-Based Early Psychological Intervention for Victims/Survivors of Mass Violence. A Workshop to Reach Consensus on Best Practices (NIH Publ No 02-5138). Washington, DC, U.S. Government Printing Office, 2002

Norris FH, Friedman MJ, Watson PJ, et al: 60,000 disaster victims speak, Part I. An empirical review of the empirical literature: 1981–2001. Psychiatry 65:207–239, 2002

North CS, Nixon SJ, Shariat S, et al: Psychiatric disorders among survivors of the Oklahoma City bombing. JAMA 282:755–762, 1999

Pitman RK, Sanders KM, Zusman RM, et al: Pilot study of secondary prevention of posttraumatic stress disorder with propranolol. Biol Psychiatry 51:189–192, 2002

Prigerson HG, Shear MK, Jacobs SC, et al: Consensus criteria for traumatic grief: a preliminary empirical test. Br J Psychiatry 174:67–73, 1999

Raphael B: Preventative intervention with the recently bereaved. Arch Gen Psychiatry 34:1450–1454, 1977

Raphael B, Wilson J: Psychological Debriefing: Theory, Practice and Evidence. Cambridge, Cambridge University Press, 2000

Raphael B, Minkov C, Dobson M: Psychotherapeutic and pharmacological intervention for bereaved persons, in Handbook of Bereavement Research: Consequences, Coping, and Care. Edited by Stroebe MS, Hansson RO, Stroebe W, et al. Washington, DC, American Psychological Association, 2001, pp 587–612

Rapaport MH, Endicott J, Clary CM: Posttraumatic stress disorder and quality of life: results across 64 weeks of sertraline treatment. J Clin Psychiatry 63:59–65, 2002

Robert R, Blakeney PE, Villarreal C, et al: Imipramine treatment in pediatric burn patients with symptoms of acute stress disorder: a pilot study. J Am Acad Child Adolesc Psychiatry 38:873–878, 1999

Rose S, Brewin CR, Andrews B, et al: A randomized controlled trial of individual psychological debriefing for victims of violent crime. Psychol Med 29:793–799, 1999

Rose S, Bisson JI, Wessely SC: Psychological debriefing for preventing post traumatic stress disorder (PTSD). Cochrane Database Syst Rev 4:CD000560, 2001

Ruzek JI, Zatzick DF: Ethical considerations in research participation among acutely injured trauma survivors: an empirical investigation. Gen Hosp Psychiatry 22:27–36, 2000

Shear MK, Frank E, Foa E, et al: Traumatic grief treatment: a pilot study. Am J Psychiatry 158:1506–1508, 2001

Silove D: A conceptual framework for mass trauma: implications for adaptation, intervention and debriefing, in Psychological Debriefing: Theory, Practice and Evidence. Edited by Raphael B, Wilson JP. Cambridge, Cambridge University Press, 2000, pp 337–350

Solomon Z, Neria Y, Witztum E: Debriefing with service personnel in war and peace roles: experience and outcomes, in Psychological Debriefing: Theory, Practice and Evidence. Edited by Raphael B, Wilson JP. Cambridge, Cambridge University Press, 2000, pp 161–173

Sprang G: Coping strategies and traumatic stress symptomatology following the Oklahoma City bombing. Social Work and Social Sciences Review 8:207–218, 2000

Stanovic JK, James KA, VanDevere CA: The effectiveness of risperidone on acute stress symptoms in adult burn patients: a preliminary retrospective pilot study. J Burn Care Rehabil 22:210–213, 2001

Tucker P, Zaninelli R, Yehuda R, et al: Paroxetine in the treatment of chronic posttraumatic stress disorder: results of a placebo-controlled, flexible-dosage trial. J Clin Psychiatry 62:860–868, 2001

Weisaeth L: Briefing and debriefing: group psychological interventions in acute stressor situations, in Psychological Debriefing: Theory, Practice and Evidence. Edited by Raphael B, Wilson, JP. Cambridge: Cambridge University Press, 2000, pp 43–57

Yule W: Post-traumatic stress disorder in child survivors of shipping disasters: the sinking of the 'Jupiter.' Psychother Psychosom 57:200–205, 1992

Yule W, Udwin O: Screening child survivors for post-traumatic stress disorders: experiences from the 'Jupiter' sinking. Br J Clin Psychol 30:131–138, 1991