Textbook of Disaster Psychiatry

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Early intervention for trauma-related problems following mass trauma

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Over the last decade, the field of post-traumatic early intervention has made a concerted effort to evaluate and recommend interventions that have the potential to attenuate suffering and/or facilitate recovery trajectories following mass traumatic events. Progress in this field has been beset by difficulties in obtaining empirical support, as well as lack of a conceptual framework in which to organize clinical, consensus, and research recommendations. Interventions in the immediate aftermath of mass traumatic events have received very little solid research support, and, in the absence of a theoretically derived organizing framework, interventionists often perceive two contradictory recommendations from "experts": an "intervention for all" (e.g., group debriefing) strategy, and a "wait and see" strategy (i.e., do nothing before the passage of time reveals those in need of formal treatment from those who recover on their own). There are no comparative studies of the two different intervention strategies at this time, and limited data to support either strategy.

While other chapters in the volume have focused on long-term intervention strategies following disaster, this chapter addresses public mental health interventions in the immediate phase following disasters and mass violence. In most literature related to mass violence interventions (Shalev & Ursano, 2004), the immediate phase has been identified as 0–14 days postincident; intermediate phase, 14 days to 3 months; and the later phase, 3 months onward.

While interventions may be similar across phases, this differentiation takes into account the expected trajectory of recovery from trauma, as well as the changing needs of survivors across time. Disasters, terrorism, and mass violence situations do not always have clearly defined time boundaries, such as in situations of ongoing threat. The empirical literature is therefore examined in light of these phases, while taking into account the somewhat arbitrary nature of their boundaries.

Due to the dearth of empirical studies examining immediate postdisaster interventions, discussion and recommendations that follow draw heavily from theoretical conceptualizations, extrapolations from individual trauma interventions, and consensus recommendations evolving from expert panel discussions and consensus conferences. Necessary next steps regarding the further development and refinement of acute public mental health interventions for mass violence and disaster will be addressed at the end of the chapter.

Empirical literature base

Studies of the impact of disasters

Researchers wishing to conduct methodologically sound studies on acute interventions following disaster face many methodological challenges. Early interventions typically take place in chaotic and uncontrolled settings, with little preplanning,

funding or coordination between researchers and interventionists, a focus on action and assistance rather than research, and cross-community barriers between local responders and external researchers. Additionally, there has been a lack of empirical support or clear theoretical guidance on which to build potential interventions. These dilemmas are troubling given that randomized, controlled trials are particularly needed in the acute time frame where symptoms are labile and varied, the majority of responses cannot be clearly defined into prescriptive diagnostic categories, and most individuals naturally experience a rapid decline in symptoms (Brewin & Saunders, 2001; Valentiner et al., 1996). Random assignment to experimental or control groups maximizes the chances that improved functioning and symptom reduction are due to the research intervention rather than to a natural, expected change over time or to self-referral for the intervention.

Therefore, in the absence of well-controlled intervention studies, an initial examination of the effects of disasters, as well as risk and protective factors, has often been the basis for developing interventions that foster identified protective factors and ameliorate vulnerability factors. While a full review of this literature is covered elsewhere in this volume, a recent review of the effects of disasters by Norris and Elrod (2006) indicated that seeking to reduce the long-term impact of disasters is a valid pursuit based purely on the findings on magnitude of events. While the majority (50%) of disaster studies reviewed showed moderate effects, indicative of increased or prolonged stress but little enduring psychopathology, a significant proportion of studies showed severe (24%) or very severe (17%) effects, indicative of a high (25%–49%) or very high (50% +) prevalence of clinically significant distress or psychological disorder. However, in general, symptoms and effects were most likely exhibited in the first year postdisaster, with 70% of the samples showing improvement as time passed. In many studies, levels of symptoms in the early phases of disaster recovery were good predictors of symptom levels in later phases of

recovery, consistent with literature on trauma in general (Brewin et al., 2002).

Rates of traumatic stress disorders and functional impairment in the general population may be somewhat low over time, as evidenced by recent epidemiological studies following the September 11 terrorism attack in New York (Galea et al., 2002). Galea found a sharp decline in post-traumatic stress disorder (PTSD) symptoms in New York over the course of 6 months, from 7.5% to 0.6%. However, of those with strong exposure to the incident, such as those in the buildings or injured, rates were 37% and 30%, respectively. Therefore, not everyone will require early interventions, particularly in the immediate aftermath of disaster, and some level of screening for predictors of continued distress is recommended, although other than symptom severity at 1–2 weeks post-trauma, no algorithm for predictive factors has been created as yet (McNally et al., 2003).

The question of normal reactivity versus pathognomonic status is noteworthy. Many researchers are attempting to address the question of when distress ceases to be a "sign" of exposure and becomes instead a "symptom" of dysfunction. Galea's work gives the basis for understanding normal refractory curves in this circumstance, and Bonanno's work related to grief and resilience indicates that there are many possible "trajectories of reactivity" following traumatic insult, including increased adaptive functioning (Bonanno, 2004). It remains to be seen whether introducing early interventions in the immediate phase postevent is a necessary or even desired strategy for significantly facilitating an accelerated or enhanced recovery for the majority of affected individuals.

Of those individuals exhibiting a negative recovery trajectory following disasters, the effects most commonly observed in research samples were: PTSD (with intrusion and arousal more often prevalent and avoidance less so), dissociative responses, acute stress disorder, depression, anxiety, demoralization, perceived stress, negative affect, physical health problems and/or somatic concerns, high physiological indicators of stress, poor sleep quality, and

increases in the use of alcohol, and drugs (which generally are more persistent in nature than mental health effects; Schlenger et al., 2002). Declines in psychosocial resources (particularly declines in social embeddedness and perceived social support) as well as chronic problems in living (interpersonal, familial, financial, and ecological changes and stress) have sometimes been defined as mediating factors that intervene between acute exposure and chronic psychological effects (Norris & Elrod, 2006). The breadth of the outcomes observed indicated that researchers should not focus too narrowly on any one aspect of mental health, and that interventions aimed at those suffering from lasting negative impacts should seek to address the multitude of possible effects of disasters, and to foster the protective mediating factors and reduce vulnerability factors.

Of the factors commonly influencing the likelihood of serious or lasting psychological problems following disasters (Norris & Elrod, 2006), severity of exposure has been one of the strongest, defined differentially as number of stressors, bereavement, injury to self or family member, life threat, panic during the disaster, property damage or financial loss and relocation. Other factors include: female gender, middle-age range, specific minority ethnic group membership, lower socioeconomic status, spouse's symptom severity, parenthood, parental distress (predicts child distress), predisaster psychological symptoms (one of the best predictors of postdisaster symptoms), avoidance coping, and assignment of blame.

Protective factors following disasters include active outreach, informed pragmatism, reconciliation, coping self-efficacy (the perception that one is capable of managing the specific demands related to the disaster), higher perceived control, self-esteem, trait hopefulness, future temporal orientation, optimism, and hardiness, social embeddedness (the size, activeness, and closeness of the network), received support, and perceived support (the general sense of belongingness and belief in the availability of support). The effects of certain variables are mediated by other variables; e.g., acute stressors increase the likelihood of chronic stressors, which in turn increase the likelihood of psychological distress. Reviews of the literature call for research to aim for a more fully integrated understanding of how factors interact and increase or decrease post-disaster vulnerability (Norris & Elrod, 2006; Layne et al., in press).

Theoretical models of stress, trauma, and disasters

The dearth of empirical literature to support interventions in the immediate phase postincident is compounded by a lack of a systematic conceptual framework for defining, investigating, and utilizing information relating to mediating variables such as risk, protective, and vulnerability factors, and the mechanisms, processes, and pathways of influence through which they exert their influence (Layne et al., in press). The theories reviewed here are offered as an introduction to conceptual approaches.

Research on postdisaster mental health belongs to the broader field of stress research. Specific theories of the stress process differ in their relative attention to the different components of the model, be they stressor characteristics, appraisals, or vulnerabilities/resources. Stress theory generally assumes that external *demands* (e.g., the traumatic event as primary stressor) evoke *responses* that draw on inner and external *resources*. Loss of resources, either concrete (social, financial) or symbolic (beliefs, expectations) may, as secondary stressors, significantly impact the recovery trajectory (Raphael & Wilson, 2000). Survivors' own responses (e.g., anxiety, insomnia, depression) may additionally tax overall resources, becoming tertiary stressors (Bryant et al., 1998). With sufficient infusion of resources and the passage of time, recovery is the expected outcome of time-limited exposure to a stressor (with great variation depending on the intensity and duration of the stressor) (Hobfall, 1989; Shalev, in preparation). Stress management therefore typically involves identifying and ameliorating those factors that interfere with recovery (e.g., lack of supportive

others, ongoing stressors, maladaptive beliefs), and providing the resources that help to support, organize, and help make a plan for survivors (Norris *et al.*, 2002a, b, c).

Studies on the relative contribution of early arousal to subsequent PTSD, and the possible pharmacological strategies to reduce expressed adrenergic activity, suggest that the initial "stress response" is a necessary but insufficient cause of traumatic stress disorders (Ozer *et al.*, 2003; Shalev, unpublished manuscript). Within stress theory, four observable indicators of successful coping are: (1) sustained task performance, (2) controllability of emotion, (3) sustained capacity to enjoy rewarding human contacts, and (4) a sustained sense of personal worth (Shalev, 2002). Accordingly a failure to cope will be expressed in reduced task performance, overwhelming emotions, inability to relate to others and self-blame (or self-denigrating rumination). The expected outcome of stress management is better coping, as expressed by improved task performance, better interpersonal interactions, controllable emotion, and sustained self-esteem. Early interventions for those who have suffered severe stress may facilitate this outcome by providing interventions designed to reduce excessive, uncontrollable distress, correct negative appraisal, facilitate social connectedness, and provide pragmatic resources. For instance, solution-focused methods assist survivors to identify and utilize their strengths in the recovery process by helping them to define concerns, imagine and set goals, identify strategies to achieve the goals, and develop an action plan.

Studies on the relative contribution of early arousal to subsequent PTSD, and the possible pharmacological strategies to reduce expressed adrenergic activity, suggest that the initial "stress response" is a necessary but not sufficient cause of traumatic stress disorders (Ozer *et al.*, 2003; Shalev, unpublished manuscript). Traumatic stress theories often draw on psychobiological research that has identified and mapped biological processes distinctly reactive to traumatic stress (Greene *et al.*, 2000; Pearlin & Schooler, 1978). These findings support the proposition that when traumatic responses are overwhelming, uncontrollable, and involve extreme physiological arousal they may consolidate the link between fear and traumatic recall, leading to avoidance, repeated recall, and ultimately to PTSD. Additional adversity, such as often seen in the aftermath of major disaster, can create a chain of mutually reinforcing reactions, the memory of which may be etched forever in a person's brain.

Ehlers and Clark's (2000) cognitive model of trauma provides the most detailed account of the maintenance and treatment of PTSD, with support from research findings. This model suggests that individuals are at higher risk for persistent PTSD when they make excessively negative appraisals of the trauma and exhibit disturbed memory processes such as poor elaboration and contextualization, strong associative memory, and strong perceptual priming. In the acute period, certain styles of peritraumatic cognitive processing contribute to the development of disorganized or problematic memories that, in turn, increased risk for subsequent PTSD (Halligan *et al.*, 2003). Because a central process in PTSD response is an inability to distinguish past trauma associations of threat with current conditions, these researchers advocate interventions that assist with contextual discrimination of past and present circumstances.

Therefore, in those at significant risk for developing PTSD, efforts to reduce stress alone are not sufficient to prevent PTSD. Intrusive recollections do not abate when the stressor ends, and are not amenable to "stress management." They challenge rules, expectations and assumptions, as well as the worldview and the ability to discriminate between past and present cues, and therefore pose a different challenge. Shalev therefore proposes the necessity of processing incongruous, intrusive, distressing, and unremitting recollections, as well as the cognitive and behavioral response to them, that are the unique factors that should be addressed by trauma interventions above and beyond stress management (Watson & Shalev, 2005).

Dual representation theories of trauma such as the Brewin's cognitive model (Brewin *et al.*, 1996; Brewin & Holmes, 2003) and the Schematic,

Propositional, Analogue, and Associative Representational Systems (SPAARS) model of emotional experiences, suggest that traumatic information and memories are encoded at multiple levels: (1) *propositionally*, in readily accessible verbal form, and (2) *analogically* as visual, olfactory, auditory, gustatory, body state, and proprioceptive "images," which are not amenable to voluntary control, do not decay with time, and must be further "processed" in order to become normal autobiographic recollections (that is, amenable to voluntary recall and forgetfulness) (Dalgleish, 2004). Finally, memory and information is encoded *schematically*, as abstract, generic knowledge that integrates information from the prepositional and analog representations. Information is proposed to be organized via dominant (supraordinate) schematic representations of the world, self, and others, such as "self as competent." New information streams are filtered in favor of those congruent to the supraordinate schema, and individuals differ as to how inhibitory versus integrative they are of information that does not conform with existing schemas. These proposed responses show that pre-existing life events, defensive styles, and schematic representations of the world and self may affect how an individual reacts to and recovers from trauma.

There are many implications for acute interventions derived from this model. First, the model hypothesizes that the body's response to threat remains active until physical safety is restored. Survivors cannot begin to integrate a threatening experience in the context of ongoing fear activation in the body. Greater exposure, pain, injury, and life threat will clearly increase the need for establishing safety as the first step in recovery. When physical safety is restored, the environment can then begin to act as a proxy for restoring world schemas of safety, predictability, and controllability. Providers can additionally help early on by encouraging self-schemas of competence and control regarding survival, recovery, self-care, and care of others.

Second, the model accounts for differential reactions to post-trauma interventions. For instance, in individuals whose pretrauma schemata are characterized by viewing the world or self in a negative way, exposure to the trauma memory may become potentially overwhelming, as any buffering effects of pretrauma world schemata are absent. While individuals with balanced prior-life schemata may recover with social support and resources, vulnerabilities in some individuals may require additional assistance from mental health providers.

Third, the model posits that different predominant emotions may require different intervention foci. Because fear is a prospective emotion, in individuals with sufficiently positive pretrauma schemas, exposure to the traumatic memory via self-paced retelling of the incident is apt to reduce fear as the memory becomes integrated with a positive recovery environment. However, emotions such as anger, shame, and guilt are retrospective. If these emotions are the predominant response to the trauma, recounting of the trauma memory is likely to accentuate them, and therefore reframing and redirection (from past to future perspective) techniques may be more appropriate interventions.

Finally, the information and memories about the trauma may be represented differently in the prepositional (verbal) and analog (visual, bodily, sensory) systems, so that access via one system may not sufficiently allow for full integration of the trauma information in another system. Evidence suggests that information can move interchangeably between analog, prepositional, and schematic representations in most individuals, but it may be that pretrauma factors impede the interchangeability of information across systems for some individuals. For those individuals resistant or unresponsive to cognitive interventions, there may be a need to work directly with imagery/bodily/sensory processes to access the analog system. Additionally, there is evidence that a tapping task in the immediate aftermath of a traumatic event may prevent encoding of trauma information in the analog system, resulting in a reduction in intrusions, while not precluding the encoding of trauma information in the prepositional system (Brewin & Saunders, 2001). More research stimulated by this multi-representational cognitive model may provide impetus for the development of

new treatment methods in the immediate phase post-trauma.

Social cognitive theory places the individual as an active contributor to the adaptive process, suggesting that communities have a proactive role in the recovery process including planning and constructing environmental conditions to promote successful resolution (Bandura, 1997, 2001). Within this framework, a variety of environmental factors have been identified that protect or buffer individuals from the effects of stressors (Cassel, 1976). In the Conservation of Resources theory (Hobfoll, 1989), stress occurs when critical resources (e.g., food, housing, shelter) as well as psychological resources (e.g., self-esteem and mastery) are threatened or lost, and loss spirals result when those with depleted resources lose ever more critical resources as they attempt to cope. A number of disaster studies have provided strong support that resource loss is highly predictive of psychological outcomes (Benight et al., 2004). Intervention implications from this theory suggest an important intervention component is physical and psychological/social resource investment over the recovery period, and with those who are more at risk for loss spirals.

Social resources, such as social support, socioeconomic status, and access to services, have shown strong effects on mental health and played a variety of roles in the stress process (Norris & Murrell, 1984). Social cognitive theorists have speculated that this can come about for a number of reasons (Benight et al., 2004). For example, supportive actions of fellow disaster survivors model effective coping responses, and provide encouragement and reinforcement for healthy adaptation. These positive effects of social support serve then to elevate perceptions of one's own coping self-efficacy, an important individual factor in predicting disaster outcomes (Benight & Bandura, 2004). Mediational analyses support this hypothesis and show that social support provides its benefits to the extent that it raises perceived self-efficacy to manage environmental demands (Benight et al., 1999).

However, beyond receiving positive social support, a number of research studies on social support indicate that it is not positive, but negative social support that impacts recovery. For example, in a study of 41 adult Outward Bound participants, it was found that the amount of social support strongly predicted changes in participants' "psychological resilience" (Neill & Dias, 2001). In this study, there were four measures of social support – overall group support, instructor support, support from the most supportive group member, and support from the least supportive group member. Interestingly, it was the support received from the least supportive person that best predicted gains in resilience. Dunmore et al. (2001) report that it is the perception of negative social interactions rather than perceived positive support that predicts chronic PTSD. These research findings point to the need for introducing programs that reinforce social support and modeling, reinforce a sense of coping self-efficacy, and provide feedback and education to family and friends about the effects of providing low or negative support, as well as providing support to those individuals who are perceiving that they are receiving low support.

The "Social Support Deterioration Model" posits that declines in perceived support and social embeddedness are critical mediators of the adverse effects of disaster exposure on mental health (Kaniasty & Norris, 1993). The model cautions that deterioration of social support may be deterred when sufficient resources are received after the event, but that various social, political, and cultural dynamics interfere with the adequacy and equity of resource distribution. Implications for intervention include cross-community collaboration regarding attention to social, political, and cultural dynamics that may interfere with the perception of resource adequacy and equity.

Intervention studies

To date, there are few published randomized controlled trials (RCTs) of interventions initiated in the first 14 days following mass violence. As a number of reviews of the literature have concluded, Critical Incident Stress Debriefing (CISD), a structured

group model designed to explore facts, thoughts, reactions, and coping strategies following trauma, has not yielded any evidence that it prevents long-term negative outcomes. Additionally, there have been two RCTs of CISD that reported a higher incidence of negative outcomes in those who received CISD compared with those who did not receive an intervention (Bisson, 2003; Litz et al., 2002; McNally et al., 2003; Watson et al., 2002). In a recent large-scale RCT of a group debriefing intervention with active duty personnel, Litz and colleagues (2004) found no differences among the CISD, stress education, and survey-only conditions on any behavioral health outcome, including PTSD, depression, general well-being, aggressive behavior, marital satisfaction, perceived organizational support, or morale. Heart rate and blood pressure readings before and after the sessions did not indicate a change in physiological stress; subjective ratings of distress did not change pre to post-session; soldiers rated their satisfaction with CISD as high; and mental health outcomes at follow-up did not worsen as a result of CISD. Similar studies with civilian populations will clarify whether these findings can generalize to disaster settings.

While many of the CISD studies, particularly those showing negative outcomes, have methodological flaws, theoretically there are many possible explanations for both neutral and negative findings. For example, it is possible that CISD interventions with primary civilian survivors of disaster are too brief to allow for adequate emotional processing, that they increase arousal and anxiety levels, or that they inadvertently decrease the likelihood that individuals will pursue more intensive interventions. It is possible that future research will demonstrate that CISD may be useful for some populations, or has more subtle positive effects, such as perceived social support. In the meantime, numerous reviews of the best-controlled studies conclude that it cannot be endorsed as an intervention which prevents long-term distress or psychopathology, given the current state of the research (Gray et al., 2004; McNally et al., 2003; Rose & Bisson, 2004). Given the negative findings associated with CISD, as

well as preliminary evidence that increased arousal in the immediate phases post-trauma is linked to long-term pathology, there is concern that any intervention that focuses on emotional processing during this period may be contraindicated. It has therefore been recommended that any interventions involving one-session interventions that require emotional processing be more fully researched prior to recommending their routine practice postdisaster (Watson, 2004).

There has been only one RCT published to date on the use of psychopharmacological interventions for acute stress responses. Pitman and colleagues (2002) conducted a randomized, double-blind pilot study in which they administered propranolol within 6 h of a traumatic event (hypothesizing that the medication might interfere with fear conditioning). While the propranolol group did not appear to exhibit decreased PTSD symptoms 3 months later, it did exhibit reduced physiological reactivity. More work is needed with a larger sample size to better understand these findings, particularly with at least three corroborative studies on the correlation between increased heart rate in the acute phase post-trauma and the development of PTSD (Bryant et al., 2000; Shalev et al., 1998; Zatzick et al., 2005).

Other studies of psychopharmacological interventions in the acute stages after trauma suffer from serious methodological weaknesses that limit their interpretability and generalizability. Given the lack of evidence with pharmacological agents in the acute phases post-trauma, experts recommend use of pharmacology for symptomatic relief only, particularly when individuals are exhibiting intense psychiatric symptoms that are impairing functioning (i.e., prolonged insomnia, suicidality, psychosis, intense anxiety, mania, etc.) (Simon & Gorman, 2004).

As indicated elsewhere in this volume (Chapter 7), at this time short-term (four to five sessions) cognitive-behavioral interventions (i.e., education, anxiety management training, imaginal exposure therapy, in vivo exposure, and cognitive restructuring) delivered within a month of trauma currently have the most empirical support for prevention of

psychopathology and distress, having been tested in RCTs with individual survivors of motor vehicle accidents (including those with acute injuries), industrial accidents, and nonsexual assault who have been diagnosed with acute stress disorder (Bisson *et al.*, 2004; Bryant *et al.*, 1998, 1999; Ehlers *et al.*, 2003; Zatzik *et al.*, 2004). This model results in prevention of PTSD and in decreased depressive symptoms when compared to repeated assessment, self-help, education and support, and benefits in psychological functioning are maintained 9 months to 4 years later (Bryant *et al.*, 2003; Ehlers *et al.*, 2003). In trials with individual traumas, neither cognitive-behavioral therapy (CBT) nor eye movement desensitization and reprocessing (EMDR) has been empirically examined in the immediate aftermath (0–14 days) of trauma.

Recent work with injury and accident victims, as discussed in Chapter 9, has sought to evaluate services in the acute phases postincident, but generally occurs greater than 14 days post-trauma (Bisson *et al.*, 2004; Bryant *et al.*, 2003; Zatzick, 2003; Zatzick *et al.*, 2004). Bisson's randomized early intervention study with injured individuals included a four-session CBT treatment at 5–10 weeks post-trauma, with findings not as robust as in previous studies with acute stress disorder (ASD) patients. Possible next steps to Bisson's intervention would be implementation in mass violence settings, traumatically bereaved populations, and different timeframes following trauma. Zatzick and colleagues (2004) conducted an RCT to test the effectiveness of a multifaceted collaborative care (CC) intervention, which included continuous postinjury case management, motivational interviews targeting alcohol abuse/dependence, and evidence-based pharmacotherapy and/or CBT for patients with persistent PTSD at 3 months after injury. CC patients were significantly less symptomatic with regard to PTSD and alcohol abuse/dependence than the control group, with no difference in PTSD symptoms from baseline to 12 months, whereas the control group had a 6% increase during the year.

Victims of accidents do not experience the disruption in the physical and social environment that is typical of mass trauma. The nature, frequency, and controllability of the initiating event are critical factors that require more investigation as determinants of differential patterns of long-term adjustment. Therefore, further research is needed to determine whether the early provision of CBT-influenced interventions following mass violence or disaster is indicated earlier than 2 weeks post-trauma. Members of recent consensus efforts (Watson, 2004; Watson *et al.*, manuscript in preparation) agreed that the chaotic and stressful postevent environment precludes the energy and effort needed to show progress in CBT-informed treatments (i.e., homework, emotional, and time investment), and for reasons indicated above, emotional processing in this immediate phase is often contraindicated. They suggest that structured cognitive-behavioral interventions are not to be implemented until secondary stressors in the environment are under sufficient control to allow the individual to focus on the intervention (usually not sooner than 3 weeks postincident) (Watson, 2004).

Recent efforts in acute intervention following disasters are based on utilizing cognitive-behavioral principles in community-based interventions, such as the program of post-traumatic stress management (PTSM) implemented following community stressors (i.e., suicide cluster, bus accident). The model is put into place within 24 h, and involves a series of individual and group interventions designed to help people orient, stabilize, and improve coping skills (i.e, identification of access to support and resources, nonverbal and verbal processing of the trauma narrative, psychoeducation regarding the neurophysiology of traumatic stress and its impact on psychosocial functioning, and planning, problem-solving, and self-care). While this model has not been studied in an RCT, survey information indicates that the most useful parts of the program were providing direction to help communities heal and helping the communities come together to handle the crisis. Program creators recommend that this program can be overlaid on existing human services programs until a trained resource network is in place and stable (Macy *et al.*, 2004).

In one of the few RCTs conducted following mass violence, the community-based implementation (CBI) program was offered in the West Bank and Gaza in 2003 in the largest scale psychosocial support program known to date (over 100 000 children completed the full 15-session program). The CBI program, designed by creators of PTSM, is a psychosocial integration and recovery program for children, adolescents and their adult caregivers who are exposed to psychological trauma. The CBI is a 5-week, 15-session classroom- or camp-based group intervention, involving a series of structured activities, which aims to identify existing coping resources among children and youth facing difficult circumstances, and to sustain the utilization of those resources in the service of psychological and psychosocial recovery over time. Outcome measures of a randomized and controlled impact study (involving 664 children) revealed that CBI helped children feel better, happier, and more confident. Families reported that they found their children more optimistic and more cooperative at home. Teachers reported that students were more focused after CBI, more ready to learn, and less aggressive overall. The CBI program produced a number of distinctive positive psychological changes in young Palestinian boys and girls (aged 6–11 years) as well as in adolescent girls (aged 12–16 years) participating in the study, including enhanced communication, decreased self-blame, decreased emotional and behavioral difficulties such as hyperactivity, emotional arousal symptoms, and disruptive behaviors, increased pro-social behavior, increased hope and self-efficacy, negotiation skills, self-reliance, and positive self-esteem and satisfaction with self. These positive psychological changes contributed to an increase in the children's sense of psychosocial re-integration, allowing them to function "normally" with respect to family, school, and play. In other words, CBI succeeded in maintaining coping strengths and resiliency.

Creative implementation strategies for CBT-based interventions include brief telephone (Greist et al., 2000; Mohr et al., 2000; Somer et al., 2005) and internet interventions (Gega et al., 2004), which have proven helpful with a variety of mental health problems. One study employing a cognitive-behavioral telephone hotline intervention (e.g., relaxation breathing and challenging maladaptive thoughts) in Israel before the most recent American invasion of Iraq (Somer et al., in press) indicated decreased anxiety on several measures post-intervention. A study by Gidron et al. (2001) reported reductions in PTSD symptoms at 3- to 4-month follow-up utilizing a CBT-based telephone intervention within the first 48 h postincident. Litz et al. (2004) have conducted an RCT on a cognitive-behavioral therapist-assisted, internet-based, self-help intervention that uses an 8-week structured form of stress inoculation training for both secondary prevention of PTSD and treatment of the chronic disorder with survivors of the attack on the Pentagon on September 11. While outcomes are pending, preliminary results indicate that no symptom exacerbation or treatment drop-outs occurred.

Expert consensus recommendations

Experts from several consensus conferences (National Institutes of Mental Health, 2002; Watson, 2004; Watson et al., in preparation) have attempted to incorporate empirical findings into more coordinated guidance regarding overall systems of post-disaster care. Consensus findings indicate that the foundation for an effective public mental health disaster response is an integrated local, state, and federal emergency preparedness response community (emergency management associations, public health offices, hospitals, faith-based community, law enforcement, etc.), with recognition among community leaders and planners that each aspect of the disaster response can impact on community mental health. Central tenets include prior training of relevant responders (i.e., mental health professionals, media, government, public agencies, and educational institutions), limitation of inappropriate interventions, initiation of Psychological First Aid (PFA) to those who need it, identification of the needs of at-risk individuals who may require

Table 6.1 Key components of disaster behavioral interventions

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I. Systems issues/program management process
- Prepare/foster capacity and resilience
- Conduct needs assessments
- Monitor the rescue and recovery environment
- Foster recovery
- Evaluate outcomes

II. Interventions/direct survivor care
- Provide for basic needs
- Triage
- Psychological First Aid
- Outreach and information dissemination
- Technical assistance, consultation, and training
- Treatment

Table 6.2 Factors assessed in the acute phase

- Basic needs (food, housing, medical, information)
- Immediate risk to life/suicidality
- Functional capacity/impairment
  - Factors which prevent recovery
  - Continuation of adversity
  - Secondary stressors (loss of resources)
  - Uncontrolled reactions
  - Major risk factors (i.e., past trauma, bereavement, exposure level)
- Strengths/resources (social support, coping skills, finances, etc.)
- Information availability (TV, newspapers, Internet access, transportation)
- Patient – focused self-report of what they think they need to further recovery
- Current need

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additional surveillance and evidence-based intervention over time, provision of pragmatic and culturally competent programs that enhance natural resilience in as many individuals and communities as possible, periodic monitoring of at-risk individuals, and evaluation of services. Primary goals are to increase the evidence-informed principles of safety, efficacy, hope, connectedness, and calming (see Table 6.1).

The key components overlap in time, are provided by a range of individuals, organizations, and professionals, and create an overall framework within which recovery from mass violence can be maximized. Experts have recommended a stepped care approach with these components, such that some early deliveries may help most people in early adaptation but, as time progresses, more individualized and time-consuming interventions are reserved for a minority of people who require it (Zatzick et al., 2004). In the immediate phase, the components of meeting basic needs, triage, PFA, and outreach/information dissemination are most salient, and therefore the following discussion will be limited to these components, acknowledging that they should always be placed within an overall system of care (see Table 6.2).

Provide for basic needs

Consensus recommendations suggest that during the immediate response period, all responders (including mental health providers) should focus primarily on helping survivors to meet their basic needs (e.g., safety, shelter, food, rest), as well as on providing soothing human contact and information necessary to meet basic needs. This is supported by theory and evidence that the process of post-traumatic recovery can best proceed in a safe, comforting environment (Shalev, 2002). Traditional "treatment" is neither the appropriate intervention nor the goal at this point.

Triage

The primary goals of triage in the immediate aftermath of mass violence are to screen for those who may need emergency hospitalization or immediate mental health referral. Another goal of assessment should be to identify individuals and groups at elevated risk for development of problems over time. The "Screen and Treat" model proposes that immediate intervention be restricted to providing information, support, and education, but that

survivors be followed up to detect individuals with persistent symptoms, who can then be treated with empirically supported interventions (Brewin, unpublished manuscript). As stated above (McNally et al., 2003), research indicates that levels of symptoms assessed very soon after an event do not predict the future course of disorder well. Therefore, it is not appropriate to screen for symptoms in the immediate aftermath (days) of mass violence. In the immediate aftermath, assessing functioning and pragmatic needs is most important for knowing how and when to provide assistance.

Panelists also recommended being responsive to the experience of the person who is traumatized to maximize acceptability of screening and engage for further follow-up. Additionally, developmental and cultural issues must be addressed in setting up screening protocols. All assessment should be practical, achievable, and implementable at the local level, and informed by an entire system of care. It is therefore best to put systems in place prior to an incident, with planning coordinated at federal, regional, state, and local levels.

Psychological First Aid (PFA)

Early response, beginning immediately at the scene of an incident and continuing for several days or weeks, is increasingly being organized around a set of actions collectively labeled as "Psychological First Aid" (PFA). Many of these actions are not specifically psychological in nature but are essentially for improving function and mental health response, related to the meeting of basic needs for physical safety, connectedness, security, and survival. PFA also involves orienting survivors to the disaster response site, helping them navigate services, or allowing them the opportunity to share their thoughts and feelings or experiences (if desired). PFA allows room for those who do not wish to discuss the trauma to avoid doing so. In this way, PFA is noninterventionist.

A recent national expert group developing PFA modules has designed PFA to be consistent with research evidence, applicable in field settings, tailored to the full developmental spectrum, and culturally informed (Steinberg et al., in preparation). Different components of PFA can be delivered by either mental health or nonmental health responders, who provide acute assistance following trauma in a variety of settings (shelters, schools, workplace, etc.). Later phase interventions (from 1 to 8 weeks postevent) are also included which will overlap with the longer term recovery interventions. The following goals of PFA drive the interventions listed below.

Immediate goals of PFA

1. *Engagement.* Initiating contact in a nonintrusive and helpful manner. Listening and responding to immediate needs and concerns. Enhancing adaptive coping.
2. *Safety and orientation.* Ensuring immediate safety, comfort, orientation, and access to resources. Protecting affected persons from unnecessary exposure to stressors.
3. *Stabilization and Self-Regulation.* Helping affected persons to recognize, understand, and modulate changes in emotional reactivity.
4. *Connectedness.* Promoting a feeling that other people care and can help, and that one can care about and help others.

These goals are achieved through the following components of PFA:

- Engagement (i.e., acknowledging and being respectful, listening empathically, refraining from making assumptions.)
- Identifiying needs [i.e., determining what basic needs have not been met and who needs to go where, the nature of information received, whether there are injuries, if there are children involved, if there has been contact with emergency services, if there are referral needs, identifying support systems (family, etc.), mental status when indicated, resource status.]
- Relaying accurate information (i.e., to parents on the psychological effects on children, information

transfer to incident command system and Red Cross.)

- Providing instrumental aid (knowing the situation, having accurate information, creating predictability.)
- Offering practical assistance (insulating and removing from unnecessary exposure to reminders/triggers, providing a safer location, locating and reconnecting to families/community services, helping to implement surrogate caregiver procedures, helping survivors access the resource network.)
- Promoting connectedness (empowering/mobilizing natural support systems, for instance by bringing people together who can support each other.)
- Giving comfort (attenuating distress, fostering perseverance, containing emotional responses, rather than encouraging catharting, refraining from disabling coping styles or telling people "it will be okay".)
- Making available collaborative services (facilitating stepped care, creating an atmosphere of predictability, being clear about handoff procedures/ information transfer, knowing available resources, fostering an implied sense of hope, i.e., for assistance/resources, advocating for needs.)

Longer term goals of PFA, which has been tentatively labeled Psychological Secondary Aid (PSA), are more apt to include CBT-based strategies for reducing factors related to development of PTSD and increasing positive coping strategies. These include:

1. *Triage and screening.* Gathering and using information to identify individuals at risk for post-trauma problems. Collaboratively establishing goals to assist individuals in seeking services tailored to their needs.
2. *Restoration of functioning.* Helping to maintain or restore adaptive functioning and routines.
3. *Coping and self-regulation.* Providing the knowledge and skills needed to understand and effectively manage distress reactions.
4. *Problem-solving.* Promoting effective problem-solving in relation to immediate needs, concerns, and goals.

5. *Risk reduction.* Promoting understanding and the effective use of postdisaster/terrorism risk-related information.
6. *Resilence and recovery.* Promoting adaptive youth, family, and adult developmental progression. Mitigating disruptions to development (Steinberg *et al.*, in preparation).

These longer term goals are accomplished with many of the same actions listed above, with a different time-appropriate focus:

- Engagement (circulation and outreach, acknowledge, respect, listen empathically, don't make assumptions.)
- Triage/identification (engage in longer conversations than in the immediate phase, gather information about coping since event and risk factors, ask to contact at later date, get a resource status exam.)
- Giving and receiving accurate information (i.e., to parents on the psychological affects on children, transfer information across "care teams," offer information at regular times, provide information on managing post-trauma reactions and reminders.) Move to or expand to group and public education meetings to provide information on disaster responses, stress management, talking to children, etc.
- Providing instrumental aid (know the situation, avoid giving misinformation, have accurate information, create predictability.)
- Offering practical assistance (assist in getting basic needs met, remove from unnecessary exposure to reminders/triggers, provide safe location, locate and reconnect to social support and community resources, help to implement surrogate caregiver procedures, help survivor access the resource network, provide assistance in problem-solving, establishing proxies for familiar routines, health factors, managing reminders and reactions, and sleep hygiene, i.e., connect to physician/medication/alternative medicine, information on nightmares, problems based on realities of shelter, etc.)
- Promoting connectedness [empower/mobilize natural support systems, facilitate simple task

groups, as much as possible design the milieu for natural support, make phone lines available (casework line, mental health line, information line of services available)]
- Giving comforting care (help people tolerate the unknown and ever-changing, comfort, don't disable coping styles, "contain don't cathart," attenuate distress, never tell people it will be OK, foster perseverence, give information about reactions, help with information on reactions, reduce distress, provide resilience-based group techniques, get "care team" pyramid structures assembled for stepped care, provide scheduled day of activities.) The focus is still on normalizing, but includes the introduction of recovery tools, including cognitive restructuring principles such as thought insertion, thought stopping, stress management, positive coping, reframing of negative cognitions, dealing with reminders and triggers, coping with varied recovery trajectories in families, and anxiety management to deal with avoidance and replaying and intrusive thoughts.
- Making available collaborative services [make every effort to ensure continuum of care, create coordinated services, give context of role and limits of the contact, advocate (through pre-existing relationship to incident command structure), make spiritual support available, begin to think about making connections with providers in community, system advocacy, system assessment, start to structure and organize stepped care in more detail, consultation to people who will be delivering messages, be clear on what local resources can provide.]

Psychological First Aid components are increasingly endorsed for universal application after mass violence or disaster, in part because they are considered to hold little potential for harm, and they do not contain elements (such as systematic emotional processing) hypothesized to be potentially harmful for some in the immediate aftermath of trauma. While a small proportion of survivors may need immediate triage to more formal psychiatric or psychological interventions, epidemiological studies and anecdotal evidence suggest that most individuals are capable of recovering from traumatic stress with appropriate education, information, and social and practical support in the very early phase following exposure to disaster or mass violence. Observations from the field suggest that most individuals are not interested in receiving formalized mental health interventions in this very early stage after mass violence or disaster, and because resilience is considered to be the norm following trauma exposure, compulsory procedures that impose a particular model or timeline of recovery on all survivors of mass violence have been discouraged.

While PFA has not yet been systematically studied, experience in the field suggests that it is generally acceptable to and well received by consumers. Experts generally concur that PFA practices are evidence-consistent, if not evidence-based, in that they are extrapolated from the research on the protective and risk factors associated with post-traumatic recovery, as well as theoretical formulations and interventions for individual traumatic stress (Steinberg et al., manuscript in preparation).

Outreach and information dissemination

Many of those affected by terrorist attacks or other disasters do not seek mental health care or use available services (DeLisi et al., 2003; North et al., 2002; Luce & Firth-Cozens, 2002). For instance, after the World Trade Center attacks in New York City, there was only a 3% increase (from 16.9% to 19.4%) in general health service utilization, from the month prior to the month following the attacks, only a 10% reported increased mental health service visits after the attacks compared to prior use, and a 5% reported decreased use (Boscarino et al., 2002). Three to six months later, only 27% of those reporting severe psychiatric symptoms had obtained mental health treatment (DeLisi et al., 2003). Generally, relatively little is known about how survivors make decisions about self-referral, how to encourage use of services, or how to increase acceptance of referral for more intensive counseling.

Because many trauma survivors are reluctant to use mental health services, accessibility of services may maximize engagement in the helping process and utilization of services for those individuals who may benefit from intervention. The FEMA-funded Crisis Counseling Program (CCP) is a frequently initiated American model of crisis intervention delivered within the first month (usually initiated from 14 to 30 days postevent) postdisaster. The program is oriented toward resilience, respect for individual recovery trajectories, community-based intervention, education, counseling, and outreach, and is offered free of charge to any community member impacted by a federally declared disaster. The program has not to date been subject to rigorous program evaluation or research, but is in the initial phases of program evaluation toolkit development. As part of that process, Norris and colleagues conducted a 5-year retrospective survey of crisis counseling programs. Results indicated that program directors and providers strongly endorsed the CCP model as superior to traditional mental health care in that it is acceptable (de-stigmatizing), accessible, and proactive. The use of indigenous workers in outreach activities is an important aspect of this approach.

Active outreach includes media activities and mobilization of face-to-face outreach. Specific outreach strategies may differ, depending on the pre-existing mental health infrastructure and the areas and individuals affected. A key tenet of outreach is respect for individual variation in recovery from trauma. In the acute phases postevent, this is particulary sailient, in that the fluctuating course of trauma response (from avoidance to processing) may render an individual incapable or unwilling to discuss their experiences or responses, and may indeed be an adaptive response (Raphael et al., 1996; Watson & Shalev, 2005). Brewin (2001) cautions against interfering with natural recovery processes within the acute phases post-trauma.

Education is an important component of many individual, group, and community interventions offered in the aftermath of disasters. As a relatively brief, nonstigmatizing, low-cost form of care, post-disaster education is generally designed to be tailored to cover any number of the following points: (1) help survivors better understand a range of post-trauma responses; (2) view their post-trauma reactions as expectable and understandable (not as reactions to be feared, signs of personal failure or weakness, or signs of mental illness); (3) recognize the circumstances under which they should consider seeking further counseling; (4) know how and where to access additional help, including mental health counseling; (5) increase use of social supports and other adaptive ways of coping with the trauma and its effects; (6) decrease use of problematic forms of coping (e.g., excessive alcohol consumption, extreme social isolation); and (7) increase ability to help family members cope (e.g., information about how to talk to children about what happened). Accurate and timely information regarding the nature of the unfolding disaster situation is also an important part of education. Care should be taken when providing education, as its use is still being tested, and one study (Ehlers et al., 2003) indicated that those who received a self-help manual as compared to repeated assessments or a more formal cognitive-behavioral intervention following traumatic stress did not fare as well at follow-up as either of the other groups. The researchers recommend that self-help advice be modified to take into account the conditions under which self-exposure to traumatic material is helpful, and to give more concrete advice regarding how to go through traumatic memories, how to address problematic appraisals, and how to change them (Ehlers et al., 2003). Clearly this application following disasters is in need of study, as other cognitive-behavioral self-help interventions have been found to be effective for treatment of nontrauma-related anxiety problems in a number of controlled treatment outcome studies (Gould & Clum, 1995; Lidren et al., 1994).

Conclusions

As can be seen in this review of the empirical literature on immediate interventions following mass violence, there are few well-controlled studies

related to any particular intervention in this context. Rather, consensus based on both empirical literature and experiential practice endorses a multi-faceted approach to the management of traumatic stress following disasters and mass violence. Experts in this field are currently attempting to bring their expertise to bear in a number of mass violence situations and contexts, including situations of ongoing threat, ethnocultural contexts, and situations of infectious disease. Consensus guidelines offer the following basic recommendations for acute behavioral interventions following mass trauma:

1. Provide early interventions designed to reduce excessive, uncontrollable distress, correct negative appraisal, facilitate social connectedness, and provide pragmatic resources with the goal of improved task performance, better interpersonal interactions, controllable emotion, and sustained self-esteem.

2. Understand that, for most, the natural recovery process is an opportunity to integrate self-strength and social network strength in rallying towards recovery. Interventions should seek to assess, support, and facilitate natural strengths, and promote those factors that are contributive to recovery, such as social support and self-efficacy.

3. Assess for protective and vulnerability factors that may affect how an individual reacts to and recovers from trauma.

4. For those with higher exposure levels, assist in processing traumatic recollections at the survivor's preferred pace, which requires time, reiteration, good companions, and possibly evidence-based treatment.

5. Strive to make interventions culturally sensitive, developmentally appropriate, and related to the local formulation of problems and ways of coping.

6. Lack of distress and/or complete recovery may not be a desired outcome. Ethnic, political, and economic factors may contribute to differing goals for functioning and identity, and providers should be sensitive to the particular motivations of each survivor.

7. Strive to empirically determine whether these practices are effective in ameliorating specific outcomes, or whether new interventions should be designed to accomplish such objectives.

As we consider the many specific components of intervention, identification of key mechanisms of change and adaptational variables that predict functional changes or maladaptive trajectories across time. It is apparent that there is a great need for both program evaluation and RCTs that will evaluate the effectiveness of PFA principles in a number of contexts, and eventually rigorously evaluate the effectiveness of each separate component, especially with respect to the optimal post-traumatic timing of such interventions. This research should include a range of outcomes, including not only PTSD, but also substance abuse, depression, anger and violence, interpersonal and role functioning, and physical health. In addition to such individual outcomes, research is needed that focuses on group, organizational, and community outcomes, such as the behavioral, emotional, and functional consequences most likely to be expressed in the school or workplace (staff turnover, organizational cohesion, morale, absenteeism, performance deficits, or medical symptoms).

Questions remain regarding which survivors should be targeted for early treatment, and when such treatment should be offered. While offering CBT-based trauma-focused interventions may be helpful for some disaster survivors in the first month after the trauma, it may be lower on the hierarchy of needs for survivors faced with complex and chronic stressors. Further research into the needs of disaster-affected populations will help guide the timing of interventions, of both early and later-stage interventions after disasters. Research is also needed regarding the most appropriate interventions across a diversity of populations, such as individuals who suffer traumatic bereavement, children, and adolescents.

In addition to continued efforts to conduct intervention research, it is important to remain cautious in our overstatement of what early interventions can accomplish towards prevention of long-term

functional and symptomatic impact. For instance, the provision of PFA principles may be more feasible than structured clinical interventions, but it is unknown whether such interventions are associated with significant improvements in functioning. As can be seen with the debriefing literature, overstating the proposed effects of an intervention prior to evidence of its impact can result in programs being implemented at the expense of careful consideration of more viable alternatives. Additionally, care should be taken to include the preferences of recipients as a disaster response is planned. The NIMH/SAMSHA expert panel on interventions following mass violence agreed that universal interventions should have a higher standard of care. That is, they warrant a low level of interference, and a high level of choice to prevent any possible negative effects. Research on service utilization indicates that the majority of individuals exposed to a traumatic event will not choose to seek mental health services, and, therefore, a careful study of what interventions are acceptable and supportive of natural recovery trajectories may be called for prior to strong recommendations for any mental health intervention. For instance, in keeping with social support research (Kaniasty & Norris, 1999), a more acceptable intervention than an individual crisis response might be to provide family and friends with the tools necessary for helping loved ones more effectively process traumatic stress, as distinct from severe stress.

Additionally, economic modeling and cost–benefit analyses may be helpful in determining which outlay of resources produces the most significant impact, whether it be interventions for the majority affected, or more intensive support for the most significantly impacted. For instance, Basoglu and colleagues (2005), in an RCT attempting to develop a brief treatment for disaster survivors, found that a single session of modified behavioral treatment in earthquake-related PTSD produced significant treatment effects on all measures at posttreatment. They concluded that brief behavioral treatment has promise as a cost-effective intervention for disaster.

Finally, international planning and coordination are needed when planning for the implementation of psychological interventions in different countries. Recent ethnocultural guidelines caution against applying Western standards to the different ethnocultural formulations of healing and recovery (Watson et al., in preparation). As McNally and colleagues point out after an excellent review of the early intervention literature (2003), "the bottom line is that in the immediate aftermath of trauma, professionals should take their lead from the survivors and provide the help they want, rather than tell survivors how they will get better (p. 68)."

While the field of disaster behavioral health intervention is still in its infancy, it is hoped that continued examination of many of these factors and creative collaboration across disciplines will contribute to a realistic and informed approach to assisting in recovery from incidents of mass violence.

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