

Military Roles in Post-Disaster Mental Health

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On Tuesday, January 12, 2010, a devastating, magnitude 7.0 earthquake struck Haiti, leveling houses and buildings, burying people under heaps of rubble, and engulfing the country in chaos. As one of the deadliest natural disasters in the past century, the earthquake killed over 230,000 people, injured approximately 300,000 people, and left more than 1 million people homeless. Within 24 hours, the U.S. military initiated *Operation Unified Response* to provide relief supplies and humanitarian aid to Haiti (Keen, Vieira Neto, Nolan, Kimmey, & Althouse, 2010). The U.S. Southern Command coordinated this response, immediately deploying Coast Guard and Air Force units, followed by the Navy, Marine Corps, and Army (U.S. Southern Command, 2010). At the peak of the U.S. military relief response, more than 22,000 U.S. troops had deployed to Haiti (U.S. Southern Command, 2010). Military personnel engaged in extremely varied relief activities, distributing food, water, and emergency supplies, saving lives through search and rescue, clearing the streets, preparing mass graves, and providing medical care (Keen et al., 2010). Military care providers offered support services to service members assisting with the relief effort and to civilians affected by the disaster (e.g., Warner, 2010).

As seen in Haiti, the U.S. military is often called to the frontlines of both international and domestic crises due to its logistical expertise, transportation capabilities, manpower, resources, and ability to mobilize swiftly (Keen, 2010; Mancuso, Price, & West, 2008). Other notable mass trauma events that utilized military relief operations include Hurricane Katrina in 2005 and the September 11, 2001 attack on the World Trade Center and Pentagon. The nature of each crisis and its setting varies dramatically, from natural cataclysms (e.g., earthquakes, floods, tsunamis, hurricanes) to man-made disasters (e.g., terrorist attacks, transportation accidents). In humanitarian assistance and disaster relief (HA/DR) operations, all branches of the U.S. military may be involved in providing the following services: evacuation, search and rescue, medical services, translation services, transportation assistance, aid distribution, recovery of human remains, logistical coordination, water and sanitation assessments, disease control, movement of supplies, construction of field hospitals, and planning (Defense Security Cooperation Agency, 2009; Grieger & Lyszczarz, 2002; Hoge, Orman, & Robichaux, 2002; Mancuso et al., 2008). While engaging in this work, service members may be exposed to a variety of aversive sensory stimuli, large-scale devastation, and gruesome scenes of death and suffering (e.g., Keller & Bobo, 2004).

In the aftermath of disaster, military mental health practitioners, psychiatrists, social workers, nurses, corpsman and medics, and chaplains provide services to U.S. military personnel, families of service members, and occasionally civilians. Most commonly, these care providers work with service personnel who are indirectly exposed to traumatic devastation, loss, and suffering while engaging in relief operations (e.g., Amundson, Lane, & Ferrara, 2008; Joyce, 2006; McGuinness, 2006). Military care providers also assist service personnel who have been directly affected by a disaster, including acts of terrorism (e.g., the September 11 attack on the Pentagon in 2001) and non-combat military accidents (e.g., helicopter and submarine accidents; Cozza, Huleatt, & James, 2002; Grieger & Lyszczarz, 2002; Jankosky, 2008). Supportive services may be offered to families of service members as well (Hoge et al., 2002). Military care providers also provide services to civilians affected by disaster-related trauma, from the humanitarian efforts of Navy hospital ships to deployed providers working with families in the combat zone after war-related trauma (e.g., Grieger & Lyszczarz, 2002). Such scenarios require special consideration, since therapeutic techniques that draw on military culture and support systems may not generalize to civilians. Furthermore, interventions with civilians may be limited to single interactions, and clinical competence may require a working understanding of local norms and customs (for a review, see Wessells, 2009).

The training, preparation, and intervention strategies used by military care providers from disparate disciplines vary greatly. Some mental health teams within the military specialize in rapid response and receive specific training in disaster interventions (e.g., the Navy's Special Psychiatric Rapid Intervention Teams [SPRINT]; Grieger & Lyszczarz, 2002). However, oftentimes military care providers with less experience and training are also mobilized to respond to disasters, particularly in circumstances where the need for services overwhelms existing capacities. Even among those with specialized disaster response training, there is no clear consensus on which psychological interventions should be delivered. This ambiguity may be due in part to the relative dearth of empirical studies testing the effectiveness of disaster interventions. There is, however, growing awareness that these interventions must be guided by solid, evidence-based practices and systematically evaluated.

This chapter addresses topics relevant to military care providers who provide services to military personnel and civilians in the days and weeks following a disaster. We first examine the historical and present-day context of military-led humanitarian missions. We then provide an overview of the nature of trauma, typical reactions to disaster-related trauma and stressors, and critical issues involved in identifying individuals who would benefit from intervention. Next, we address training recommendations and specific interventions employed in the immediate wake of disasters to alleviate acute distress, prevent the development of psychological disorders, and promote long-term adaptive functioning. Finally, we end with a discussion of current best practices in the field.

Historical Context of Military-Led Humanitarian Missions

The Department of Defense's (DoD) role in providing HA/DR has evolved dramatically over the years. Historically, international relief organizations and non-governmental organizations (NGOs) have served as the primary providers of humanitarian aid. When the DoD began overseeing humanitarian assistance missions in 1986, military relief efforts primarily focused on transporting privately donated materials to countries in need (USAID Office of Military Affairs, 2010). However, spurred by the events of September 11, 2001, the U.S. military has begun to devote more resources and attention towards world-wide humanitarian assistance and disaster relief operations. Consequently, the DoD humanitarian assistance program has undergone significant changes, including a surge in the number of humanitarian initiatives implemented, as well as changes to the goals and overall purpose of these initiatives. Recognizing that humanitarian assistance can play a crucial role in promoting foreign diplomacy, the DoD expanded the military's involvement in HA/DR in 2005 with the directive

"Military Support for Stability, Security, Transition, and Reconstruction Operations." This directive focuses on bolstering U.S. security objectives, including countering ideological support for terrorism (Amundson et al., 2008; DoD, 2005). There is evidence that such initiatives have been effective at improving perceptions of the U.S., as seen following the 2004 Indian Ocean tsunami and 2005 Pakistani earthquake, when positive opinions of the U.S. doubled among local populations after the U.S. military participated in relief efforts (Amundson et al., 2008).

As mutual civilian and military aid operations have become increasingly common, many NGOs have voiced concerns about the U.S. military's general involvement in relief missions. Opponents of military involvement claim that civilian relief agencies are generally more effective than military personnel in delivering aid, in part because civilian organizations are not affiliated with the U.S. government and thus do not pose a threat to the authority of local governments. In addition, it is argued that local populations may have difficulty distinguishing NGOs from military personnel who are involved in relief efforts. In areas where hostile groups are present, this ambiguity may endanger the lives of civilian aid workers. In light of these concerns, some NGOs suggest that the U.S. military limit its role to providing ambient security to civilian relief agencies (see Patrick, 2009). Regardless of whether this recommendation is ultimately heeded, it is fair to say that tensions exist between the DoD and various NGOs, and that the provision of military disaster relief is an ongoing topic of debate. Having provided some context for the DoD's humanitarian assistance program, we now turn our attention to the nature of disasters and the populations they affect.

Defining Disaster and the Affected Populations

Disaster is a term used to encompass a variety of incidents associated with sudden, widespread destruction, human loss, and devastation to community infrastructure (Halpern & Tramontin, 2007). Disasters are inherently unpredictable and entail a series of unfolding emergencies and traumas. Although certain commonalities exist, each disaster event differs with regard to setting, scope, duration, and populations affected. Domestically, the Federal Emergency Management Agency (FEMA) estimates that on average, 4000 national disasters - 56 of which are presidentially-declared national disasters - have occurred each year over the past decade (FEMA, 2010a; Reyes & Elhai, 2004). These disasters have ranged from transportation disasters to acts of terrorism.

Military care providers must be prepared to provide supportive services to military personnel and civilians directly or indirectly exposed to a variety of disaster-related stressors. It is worth noting that, in some cases, the

distinction between direct and indirect exposure may be unclear, such as incidents in which service members are assigned to recover human remains or asked to perform duties that evoke significant distress or discomfort (e.g., Keller & Bobo, 2004). Moreover, this distinction may not be useful when predicting psychological outcomes among emergency responders. For instance, in one study examining members of the Norwegian military, rescuers responding to an avalanche were as symptomatic as directly exposed victims, two and four months after the event (Johnsen, Eid, Lovstad, & Michelsen, 1997).

Given the large number of individuals impacted by disasters, military care providers cannot be expected to provide treatment to all of those exposed to disaster-related traumas. It is therefore necessary for military care providers to systematically identify those individuals most in need of services. However, assessment of risk is often difficult in the immediate aftermath of trauma, as acute trauma reactions are normative, often transient, and not necessarily predictive of subsequent psychiatric morbidity and role impairment (e.g., Bryant, 2004). Next, we take a closer look at the ways in which individuals often respond to potentially traumatic events, and subsequently discuss strategies for identifying those most in need of treatment.

Responses and Reactions to Disaster and Trauma

In the early aftermath of disasters and other potentially traumatic events, individuals often experience a variety of marked physiological, behavioral, cognitive, and emotional reactions. Research studies investigating acute reactions to trauma have consistently identified a constellation of symptoms consisting of heightened sympathetic arousal (e.g., increased heart rate and skin conductance), avoidance of trauma cues, maladaptive cognitions about the self and the world, dissociative symptomatology, emotional numbing, and depressed and anxious mood (e.g., Bryant, Sackville, Dang, Moulds, & Guthrie, 1999; Elsesser, Freyth, Lohrmann, & Sartory, 2009; Yahav & Cohen, 2007). In addition, a number of other trauma-related symptoms specific to bereavement and traumatic loss have been well recognized, and these may be particularly prevalent in post-disaster populations. These symptoms include grief reactions (e.g., preoccupation with the deceased and profound feelings of loneliness and longing) and survivor guilt (e.g., Gray, Prigerson, & Litz, 2004).

It appears, however, that in the wake of even highly traumatic events, including disasters, a significant percentage of those exposed do not exhibit acute stress reactions, or do so only transiently (e.g., Bonanno et al., 2008; Bonanno, Galea, Bucciarelli, & Vlahov, 2006). Trauma researchers have long been aware of this phenomenon and have been in active pursuit of risk and resilience prediction models for nearly two decades. Beginning with *DSM-*

IV, acute stress disorder (ASD) was added to the psychiatric nosology as a way of calling attention to this subject and identifying those at high risk for chronic posttraumatic stress disorder (PTSD) (e.g., Bryant, 2004). Although ASD has been found to have moderate sensitivity and specificity in predicting PTSD (Bryant, Harvey, Guthrie, & Moulds, 2003), researchers have acknowledged the disorder's overemphasis on dissociative features and its overall predictive inefficiency (Harvey & Bryant, 2002).

To aid in the development of more sophisticated prediction models, a new line of research is underway that presupposes qualitatively distinct, prototypical patterns of response to trauma (i.e., trajectories of adaptation), and that seeks to identify risk and resilience factors associated with prototypical symptom trajectories rather than simple, cross-sectional symptom measurements. This area of research is built upon Bonanno's (2004) theoretical model, which hypothesizes four prototypical patterns, or classes, of response to trauma: resilience, recovery, delayed, and chronic. Whereas resilient individuals are described as never developing clinically significant symptoms at any point following trauma exposure, those in the recovery class are said to exhibit a marked acute reaction followed by a steady decrease in symptoms. The delayed response is posited to consist of an initial asymptomatic presentation, followed by an abrupt increase in symptoms, and the chronic class is described as having the strongest initial response, followed by sustained chronicity.

Although a handful of studies utilizing variants of a sophisticated analytic approach (latent class growth modeling) have succeeded in validating Bonanno's model either in part or in full (e.g., Bonanno et al., 2008; deRoon-Cassini, Mancini, Rusch, & Bonanno, 2010; Dickstein, Suvak, Litz, & Adler, 2010; Orcutt, Erickson, & Wolfe, 2004), this line of research remains in its infancy. Few robust predictors of trajectory (i.e., class) assignment have been identified, and a number of trauma populations have yet to be examined. In addition to these limitations, relatively little attention has been paid to psychological sequelae other than PTSD. In particular, it appears that few studies have assessed for symptoms of depression or generalized anxiety prior to labeling trauma survivors as resilient. Given recent epidemiological research suggesting that these forms of psychopathology may be equally if not more prevalent than PTSD in the wake of trauma (Bryant et al., 2010), this omission is problematic.

Predictors of PTSD

Although researchers have yet to produce reliable prediction models of PTSD, they have succeeded in identifying a number of pre-, peri-, and post-trauma risk and resilience variables that may be used to inform early intervention efforts. Unfortunately, taken together, it appears that these

variables are able to account for only about 20% of the overall variance in PTSD symptom severity (Ozer, Best, Lipsey, & Weiss, 2003).

To date, two meta-analyses have been published examining predictors of PTSD (Brewin, Andrews, & Valentine, 2000; Ozer et al., 2003). Both studies concluded that, overall, predictors occurring more proximally to traumatic events (e.g., trauma severity and peri-traumatic reactions) were better predictors of subsequent PTSD than variables occurring more distally (e.g., pre-trauma history), and that the predictive power associated with given predictors varied significantly as a function of moderating variables, such as gender and military status. Brewin et al. found lack of social support, life stress, and trauma severity to best predict PTSD, whereas Ozer et al. found peritraumatic dissociation and perceived support to be the best predictors. Brewin et al. compared effect sizes between military and civilian samples, and found that among military samples, the best predictors of PTSD were lack of social support, life stress, trauma severity, and adverse childhood experiences. Among civilians, the best predictors were life stress, lack of social support, trauma severity, and low socioeconomic status. Although teasing apart these differences is helpful, other moderators (e.g., gender) bear meaningfully on effect size and researchers caution against the creation of general vulnerability models (Brewin et al., 2000). Thus, although the extant risk and resilience literature may be used to inform best practices for identifying high-risk individuals, further research is needed to maximize the utility of screening tools. Still, these results offer some guidance to early interventionists seeking to prevent the development of psychopathology among high-risk individuals.

Prevention Strategies and Critical Issues

Traditionally, three types of prevention strategies have been described in the early intervention literature: universal, selective, and indicated (e.g., Gordon, 1987). *Universal prevention* entails providing services to an entire population and does not involve assessing differences in risk across individuals. *Selective prevention*, in contrast, refers to the provision of services to high-risk subgroups (e.g., all individuals exposed to a given traumatic event), but does not involve assessing differences among individuals in the subgroup. Lastly, *indicated prevention* entails the provision of services to individuals exhibiting early, subsyndromal or pre-clinical symptoms that indicate risk of illness. The best available evidence shows that selective interventions are ineffective and waste resources, while indicated preventions are the optimal methodology in acute trauma contexts (Roberts, Kitchiner, Kenardy, & Bisson, 2009).

However, currently there is no consensus in the military on how to define, let alone screen for the presence of, pre-clinical distress which would

warrant indicated prevention strategies. Only the Navy-Marine Corps Stress Continuum Model (Department of the Navy, 2000), describes a pre-clinical state of combat or operational stress injury, which indicates that early prevention is needed. In the Stress Continuum Model, there are four zones of psychiatric functioning that are used to determine the type of intervention, if any, that is appropriate for a given individual: Green (ready), Yellow (reacting), Orange (injured), and Red (ill). Individuals operating within the Green Zone are described as being at optimal levels of functioning and wellness. This is typified by high mission focus, physical fitness, and self-control. Those in the Yellow Zone are described as experiencing mild and transient forms of distress and impairment, such as feelings of irritability, loss of focus, and sleep dysregulation. In the Orange Zone, individuals are said to experience more severe and persistent stress reactions, such as loss of control, panic, disorganization, withdrawal, emotion dysregulation, depressive symptoms, and excessive guilt or shame. Lastly, individuals are considered to be in the Red Zone after the onset of a clinical mental disorder (e.g., PTSD, depression, anxiety, and substance abuse).

According to the model, Yellow Zone stress reactions are normal, and a natural course of recovery is expected. In the Yellow Zone, natural supports and respite are sufficient to return an individual back to Green or ready. In contrast, Orange Zone pre-clinical states entail a sufficient degree of distress, symptoms, and impairment that make a service member non-mission ready. In the Navy and Marine Corps, Orange Zone reactions signal the need for combat and operational stress first aid, which can be administered by military care providers, leaders, peers, and other social supports (Nash, Westphal, Watson, & Litz, 2010; Watson, Nash, Westphal, & Litz, 2010). The Navy and Marine Corps have developed an observational screening tool, the Peritraumatic Behavior Questionnaire (Nash, 2010), which Navy Corpsman and leaders can use in situ to identify Orange Zone stress injuries. At the more severe end of the Stress Continuum, service members experiencing Red Zone stress reactions require assessment and treatment by a mental health professional.

In addition to the challenge of identifying individuals who require indicated prevention, there are several other important considerations surrounding prevention strategies. It remains unclear how the scope, intensity, and duration of disasters affect survivors' reactions and how this should inform the provision of aid. Furthermore, there is some concern that intervening too soon after trauma could disrupt individuals' natural recovery processes or produce other negative effects (van Emmerik, Kamphuis, Hulsbosch, & Emmelkamp, 2002). Further research is needed to determine an optimal time frame for administering early interventions (Litz & Gray, 2004). Despite these limitations, however, various early intervention strategies have been developed that are believed to mitigate the

pernicious effects of disaster-related trauma, and that have been tailored to meet the needs of military populations. The remainder of this chapter is spent discussing the competencies needed for administering these strategies, their respective treatment components, and the status of their empirical support.

Training for Military Care Providers

Within the military, there are few formal models for training care providers in disaster preparedness. Military training in disaster response is often idiosyncratic to each team and occurs primarily through informal consultation with practitioners who have worked in disaster settings (e.g., Reeves, 2002, Schwerin, Kennedy, & Wardlaw, 2002). This lack of formalized training means that levels of experience and expertise vary greatly within mental health teams (Cozza et al., 2002). Accordingly, there have been calls for the DoD to develop more extensive, evidence-based training programs for military care providers responding to disaster (Amundson et al., 2008; Mancuso et al., 2008). Outside of the military, the field of disaster mental health (DMH) suffers from a similar lack of coordination and consensus regarding training requirements and best practices (Reyes & Elhai, 2004; Wickramage, 2006; Young, Ruzek, Wong, Salzer, & Naturale, 2006).

Generally, military care providers receive most of their training through civilian institutions and organizations (Johnson et al., 2007). Specialized DMH training can be obtained through various governmental and non-governmental relief agencies. The American Red Cross provides the most well-established DMH training (e.g., American Red Cross of the Greater Lehigh Valley, 2010). The following organizations also offer disaster training: The National Child Traumatic Stress Network (2010), the National Organization for Victim Assistance (n.d.), FEMA (2010b), and the North Carolina Disaster Response Network (n.d.). Recognizing the need for more extensive training, several universities now offer short trainings as well as specialized DMH doctoral training and certification courses (e.g., University of Rochester Disaster Mental Health Program, n.d.; University of South Dakota Disaster Mental Health Institute, 2010).

Training programs emphasize that working in disaster settings requires not only skill in assessing risk and administering interventions but also several other important proficiencies. Key competencies include the ability to coordinate care, work effectively with people of different backgrounds and cultures, and manage personal reactions. Given the heterogeneous nature of disasters, care providers must be proficient in quickly assessing situations and evaluating current needs and resources, even in disorganized

settings with limited infrastructure (Reyes & Elhai, 2004, Young et al., 2006). Knowledge of trauma and posttraumatic stress can be helpful for conceptualizing reactions to disaster and informing interventions. However, a background in trauma work is not always necessary, nor sufficient, for responding effectively in disaster settings. Indeed, applying a posttraumatic stress framework to disaster interventions may constrain the view of care providers and lead them to overlook significant individual or community-wide disaster-related problems (Reyes & Elhai, 2004). Moreover, the posttraumatic stress framework does not address the practical constraints and ongoing sources of stress that survivors face in a disaster setting. Before engaging in disaster work, care providers should accurately assess their skills and capacities, as self-awareness of one's strengths and limitations is crucial for this work (Haskett, Scott, Nears, & Grimmett, 2008; Merchant, Leigh, & Lurie, 2010).

On top of these general competencies for disaster work, uniformed care providers must have a thorough understanding of the military context in which they perform their duties. The military culture and organizational structure may contribute to certain problems, such as stigma, while also serving as useful tools for promoting recovery (Nash et al., 2010). In delivering post-disaster interventions to service members, coordinating efforts and conferring with command structure is essential for providing a unified response (Amundson et al., 2008; Cozza et al., 2002). Compared to NGOs that provide disaster relief and humanitarian assistance, military care providers often encounter additional challenges, such as greater organizational fluctuations as commanders are frequently transferred to different posts (Amundson et al., 2008).

When providing care to civilians, it is important to establish effective communication systems and coordinate care not only within the military, but also between the military and other relief organizations. Considering that delivery of disaster relief and humanitarian aid has historically been the domain of other governmental and non-governmental organizations such as USAID and Red Cross, military care providers must recognize when such organizations may be faster or more effective at providing services (Amundson et al., 2008; Mancuso et al., 2008). Coordinating efforts with these organizations can pose a substantial challenge, with the potential to either impede or facilitate delivery of services. If relief efforts are not well-coordinated, the military risks contributing to a "carnival of interventions" (Wickramage, 2006) that squanders resources, duplicates services, and may overwhelm, confuse, or over-pathologize the civilians they intend to help (Cozza et al., 2002; Dodgen, LaDue, & Kaul, 2002). Military care providers must also be skilled in coordinating care with local authorities and attend closely to requests from the affected community (Merchant et al., 2010).

Providing services to civilian populations also requires that care providers adapt their interventions to the specific context and culture. Within both domestic and foreign populations, diverse cultural beliefs and practices often influence how psychological disorders and interventions are viewed and received (Haskett et al., 2008). Providers must therefore understand that psychosocial interventions cannot be universally delivered in the same manner as hygiene kits or relief supplies (Wickramage, 2006). Rather, respect and awareness of the context and culture is critical. For instance, Haitians who subscribe to Voodoo beliefs and practices may attribute mental disorders to spells or displeased spirits (Pierre et al., 2010). As a result, psychological problems may be seen as a family or religious affair, requiring treatment from traditional healers and priests. More generally, perceptions of disclosure and Western-style individual counseling often vary greatly between cultures (Wessells, 2009). Ethical challenges may also arise regarding informed consent, which may be difficult to obtain in a disaster setting with language and literacy barriers, autonomy issues, disparities in access to information and resources, and different cultural norms about rejecting help (Wessells, 2009).

Disaster response teams must avoid creating dependency among civilians and undermining existing supports. Inadvertently, providers may compete with and weaken existing, informal support systems or local governmental structures. While it may appear more expedient to create a parallel system of care that does not require the input of local government, free-standing programs are unlikely to confer sustainable benefits to the community and may leave civilians dependent on these programs (Wessells, 2009). Rather than introducing competing systems, the emphasis should be on bolstering and improving existing supports which can be sustained after military care providers depart (Merchant et al., 2010).

In addition to developing competencies for working with individuals and institutions, it is necessary for care providers to monitor and manage their own personal reactions to the emotionally and physically taxing work. Care providers working in disaster settings are vulnerable to a host of negative effects, including compassion fatigue, burnout, and vicarious trauma, which may result in decreased patient care quality and high worker turnaround (for an in-depth discussion of these phenomena, see Halpern & Tramontin, 2007). As such, care providers should be aware of these hazards and actively engage in protective measures. Preventive plans that allow care providers to take breaks to recharge physically and mentally, connect with social supports, and obtain professional support from colleagues are vital for maintaining morale and promoting high quality delivery of services (Cozza et al., 2002; Schwerin et al., 2002).

While adequate training and preparation for disaster work is essential, it is also impossible to fully prepare for and predict all of the contingencies

surrounding a disaster (Amundson et al., 2008; Cozza et al., 2002). Considering this reality, it is critical for mental health providers to receive rigorous training in specific interventions while also learning how to adapt and flexibly apply these strategies. We now turn our attention to specific psychological interventions employed in the immediate aftermath of a disaster.

Early Interventions

The interventions employed by military care providers in disaster settings vary tremendously (Reyes & Elhai, 2004). While trauma research has identified effective interventions for preventing and treating PTSD and other long-term trauma-related sequelae (Ponniah & Hollon, 2009; Roberts et al., 2009), there has been very little systematic research on acute interventions administered in the immediate aftermath of disaster (Orner, Kent, Pfefferbaum, Raphael, & Watson, 2006). This lack of rigorous postdisaster research is due in part to the logistical difficulties of conducting research where entire communities and existing organizational structures have been thrown into disarray. In addition, postdisaster research has lacked adequate theoretical models for understanding acute responses to mass trauma (Shalev, 2006). The following section will examine the utility of five different forms of early interventions: psychoeducation, psychological debriefing (PD), psychological first aid (PFA), combat and operational stress first aid (COSFA), and cognitive behavioral therapy (CBT).

Psychoeducation

Historically, the term "psychoeducation" has been loosely defined and somewhat generic. Wessley et al. (2008) proposed defining psychoeducation as "the provision of information, in a variety of media, about the nature of stress, posttraumatic and other symptoms, and what to do about them" (p. 287). Such information typically includes a description of normative reactions to a stressful event, a review of the nature and symptoms of stress disorders (i.e., ASD and PTSD), suggestions for adaptive coping strategies, and information on when and how to seek professional help.

Although psychoeducation is a component of most post-disaster interventions for both military service members and civilians, it is also commonly used as a discrete method (Creamer & O'Donnell, 2008). Psychoeducation as an acute, stand-alone intervention can be delivered in a variety of ways, including via educational pamphlets, informational and self-help websites, bibliotherapy, group sessions with a provider, or

individual, face-to-face meetings. Given the ubiquity with which such information is disseminated following disasters, there appears to exist a general belief that psychoeducation is beneficial for trauma survivors. Wessely et al. (2008) identified five theoretically-based assumptions that appear to serve as the basis for this conjecture: (1) symptoms will be less disturbing if they are expected; (2) normalization of psychological sequelae is reassuring; (3) awareness of traumatic stress symptoms facilitates help-seeking behaviors; (4) psychoeducation helps to correct inaccurate beliefs; and (5) the self-help aspect of psychoeducation promotes a sense of empowerment.

Despite these plausible theoretical underpinnings, there is insufficient evidence suggesting that psychoeducation prevents the development of PTSD. In fact, some research suggests that individuals who receive post-trauma psychoeducation are equally or more likely to experience PTSD symptoms than those receiving no intervention (Scholes, Turpin, & Mason, 2007; Turpin, Downs, & Mason, 2005). In a review article that sparked considerable debate, Wessely et al. (2008) concluded that no evidence exists that psychoeducation is an effective stand-alone post-trauma intervention, and challenged the aforementioned assumptions supporting its use. The authors further suggest that the paradoxical effects of psychoeducation may be accounted for by the “nocebo effect”; that is, individuals’ expectations of possible future symptoms may trigger the development of these phenomena. Additionally, they argue that psychoeducation may inadvertently increase sensitivity to and pathologize normal responding. However, proponents of psychoeducation dispute these assertions (e.g., Kilpatrick, Cogle, & Resnick, 2008; Krupnick & Green, 2008; Southwick, Friedman, & Krystal, 2008), arguing that the question of whether psychoeducation prevents psychological distress is too broad and that more circumscribed research is needed to evaluate potential moderators of treatment outcome (e.g., modes of intervention delivery, target populations).

Psychological Debriefing (PD)

Compared with psychoeducation, psychological debriefing (PD) is a more specific framework for delivering post-trauma intervention. PD refers to any intervention, delivered shortly following a crisis, which encourages survivors to recount and emotionally process their experiences with the ultimate goal of minimizing maladaptive psychological sequelae (Bisson, McFarlane, Rose, Ruzek, & Watson, 2009). Although alternate variations have emerged, PD is generally delivered in a single session, using a semi-structured group format, within 24 hours to a few days following traumatic

exposure. Although several frameworks exist (e.g., Dunning, 1988; National Organization of Victim Assistance, 1987) the most common form of PD is Critical Incident Stress Debriefing (CISD; e.g., Mitchell, 1983; Mitchell & Everly, 1995). CISD guides survivors to “emotionally ventilate” by disclosing the thoughts and feelings that they experienced during the traumatic event. It also provides information on posttraumatic stress symptoms and prompts survivors to identify current symptoms. Although it was originally intended for use with crisis-responders (e.g., emergency workers, disaster response teams, etc.), CISD is now often used with primary victims as well (Mitchell, 2004). Despite the recommendation that CISD be used within the context of Critical Incident Stress Management (CISM; Mitchell, 2004), it is most frequently administered as an independent intervention (McNally, Bryant, & Ehlers, 2003).

CISD has been highly debated in the literature, as a preponderance of research has emerged suggesting that it is at best ineffective, and at worst detrimental (Bisson et al., 2009; Bisson, Jenkins, Alexander, & Bannister, 1997; Hobbs, Mayou, Harrison, & Worlock, 1996). Moreover, meta-analyses indicate that CISD does not improve distress, PTSD, depression, or anxiety symptoms above and beyond what can be accounted for by natural recovery (Rose, Bisson, Churchill, & Wessely, 2002; van Emmerik et al., 2002). Some researchers speculate that CISD may produce iatrogenic effects because it approximates an exposure paradigm without allowing time for subsequent habituation and may impede individuals from utilizing their own established social networks (Bisson et al., 1997; Devilly, Gist, & Cotton, 2006; van Emmerik et al., 2002).

Proponents of CISD argue that conclusions of its ineffectiveness are unfounded, citing issues of inappropriate participant inclusion, protocol deviations, inappropriate generalization of findings, and other methodological issues with the studies showing null or negative results (Everly, Flannery, & Mitchell, 2000; Robinson, 2004). However, a recent randomized controlled trial of U.S. peacekeeping soldiers addressed these concerns, yet did not find that CISD reduced symptoms and impairment compared to no-treatment or a psychoeducational stress management class (Adler et al., 2008). In light of these studies, strong recommendations have been made against the use of CISD (e.g., Bisson et al., 2009), and most current guidelines now advocate using psychological first aid instead (Litz, 2008; McNally, Bryant, & Ehlers, 2003). At the same time, some U.S. military care providers have continued to administer group debriefings modeled after CISD that retain the basic format but omit the requirement to discuss thoughts and reactions in great detail (Cozza et al., 2002; Peterson, Nicolas, McGraw, Englert, & Blackman, 2002). Further research is needed to fully define non-CISD debriefing strategies and examine their effectiveness.

Psychological First Aid (PFA)

Broadly defined, PFA is an approach that is initiated as soon after a traumatic event as possible, with the goal of allaying distress and buffering against the development of PTSD or other psychological disorders in civilian populations (Brymer et al., 2006; Ruzek et al., 2007). Whereas PD is a more structured intervention that typically does not occur until at least one day post-trauma, PFA is a system for providing immediate and often on-scene support that varies in response to the nature of the situation and the idiosyncratic needs of each individual. In response to the need for empirically-refined relief efforts to fill the gap left by CISD, Hobfoll et al. (2007) delineated five evidence-based principles that are essential to effective immediate interventions. These elements include promoting a sense of safety, calmness, self- and collective efficacy, connectedness, and hope. Although several frameworks have been proposed for structuring PFA, here we review in detail the Psychological First Aid Field Operations Guide (Brymer et al., 2006).

The Psychological First Aid Field Operations Guide, developed through a joint effort by the National Child Traumatic Stress Network and the National Center for PTSD, was created and refereed by an international cohort of experts in the field (Vernberg et al., 2008). Designed to formalize PFA and more explicitly inform its delivery, the Guide identifies eight empirically-informed components, or “core actions,” of PFA that are appropriate for the heterogeneity of disaster settings. The first component of PFA, Contact and Engagement, guides providers to introduce themselves in a calm manner, communicate compassion, and consider cultural factors. In triaging their services, providers should first respond to individuals who are seeking out care, and then offer services to other survivors. Confidentiality considerations also fall under this first component. Although disaster settings are typically not conducive to protecting confidentiality, rescue workers should strive to maximize privacy to the greatest extent possible.

In delivering the second component, Safety and Comfort, the focus is on ensuring physical safety, optimizing physical comfort, and providing emotional support. Specific ways for mental health responders to address immediate safety needs may involve creating an inventory of those with special requirements (e.g., medications), continuously scanning the environment for threats to safety, and communicating with medical or law enforcement officials as appropriate. After maximizing the survivors’ physical safety, rescue workers should then begin to relay information on the disaster itself, services that are available to survivors, possible stress reactions that may be expected, and the importance of self-care. However,

in consideration of the survivors' current psychological states, it is crucial that providers use clinical judgment in determining when and how much information to reveal. Emotional support and comfort can be facilitated by promoting social engagement among trauma survivors and shielding them from further traumatization (e.g., exposure to media reports, severely injured individuals and bodies, or attorney solicitations). Responders must also be prepared to assist with acute grief responses of individuals who have been informed that a loved one is missing or has died.

The third component, *Stabilization*, may be required if a survivor is in a disoriented state. Although atypical, some trauma reactions may involve severe emotional numbing or arousal that will interfere with basic functioning and safety. In such situations, grounding techniques and/or medication referrals may be warranted. The fourth component, *Information Gathering*, is integral in tailoring PFA to the unique needs and circumstances of each individual. Important information to ascertain includes the survivor's objective and subjective experience of the event, unresolved questions and concerns, physical and mental health status, and available social supports. During the fifth component, *Practical Assistance*, relief workers help survivors clarify pressing issues and carry out immediate pragmatic needs. Some needs (e.g., placing a phone call) can be quickly resolved; for those that cannot (e.g., submitting an insurance claim), providers can assist by helping to develop an action plan. The sixth component of PFA, *Connection with Social Supports*, involves helping survivors to reach out to their primary supports (e.g., family, close friends, clergy), and facilitating connectedness with those individuals who are more immediately available (e.g., other survivors and relief workers). Survivors may not want to socialize or discuss their experiences, and any resistance towards doing so should be validated and normalized. However, physical isolation should be discouraged, as merely being in the presence of others, even in the absence of any conversation, can be helpful.

Information on Coping, the seventh component of PFA, involves educating individuals about normative reactions to traumatic events, and identifying adaptive coping strategies. Information on symptoms of stress disorders can be useful in helping survivors to identify future symptoms that may arise. Additionally, discussions about grief responses, depression, and bodily reactions can be beneficial in alerting individuals to these potential sequelae. Survivors may particularly benefit from learning healthy, adaptive methods of coping with reactions to the trauma, which can reduce distress and prevent them from engaging in maladaptive coping behaviors. Finally, linkage with collaborative services is needed to establish on-going care. Facilitating contact or placing referrals to community centers, support groups, and other such resources establishes the care network beyond PFA.

A wide range of healthcare providers, paraprofessionals, and even individuals without a background in mental health can be trained to deliver PFA (Allen et al., 2010; Brymer et al., 2006; Ruzek et al., 2007). Supervision and consultation commensurate with the provider's background and competencies should be implemented to optimize care (Ruzek et al., 2007). Despite the high frequency with which PFA is implemented after traumatic events, little is known about its long-term efficacy in preventing post-traumatic mental disorders and role impairment (Vernberg et al., 2008).

Combat and Operational Stress First Aid (COSFA)

While PFA shows promise as an early intervention strategy, it is intended primarily for civilians. In contrast to civilian victims, military personnel assume active roles in responding to disaster, expect to encounter severe stressors that are constant and cumulative, and function within a unique military context and culture. Thus, to meet the particular needs of service members, The Navy, Marine Corps, and National Center for PTSD (NCPTSD) have collaboratively adapted PFA to create Combat and Operational Stress First Aid (COSFA). Below we review the COSFA training manual for caregivers (Nash et al., 2010).

COSFA is an indicated prevention strategy comprised of tools for restoring wellness and functioning in service members with subclinical stress symptoms, distress, and impairment after a disaster. It also seeks to prevent the further development of psychiatric symptoms. COSFA tools are multi-dimensional, targeting not only psychological components of recovery but also biological, social, and spiritual factors. Its assessment and intervention strategies are applied flexibly with respect to the needs of the individual service member and situational constraints. COSFA was developed to be used by anyone, including military leaders, individual service members, and family members. However, military care providers are considered the "champions" of COSFA, as they are best situated to provide expert care and delivery of services.

COSFA differs from PFA in several noteworthy ways. Whereas PFA is typically utilized after isolated traumatic events, COSFA addresses not only traumatic stress but also ongoing and cumulative stress (i.e. "wear and tear"), grief and loss, and internal, moral conflicts (Litz et al., 2009). It targets a number of disabling states, including guilt, shame, demoralization, hopelessness, withdrawal, exhaustion, disillusionment, moral injury, and betrayal. COSFA acknowledges that operational stress can impact all of these domains and that addressing multiple areas is essential for lasting recovery.

To identify service members in need of care, COSFA uses the aforementioned Navy-Marine Corps Stress Continuum. It emphasizes continuous monitoring of each service member's status along the Stress Continuum, so that those who require intervention are identified and treated expediently. COSFA interventions focus primarily on Orange Zone stress, while providing guidance and recommendations for how military leadership can take charge of mitigating Yellow Zone stress. The overarching goal of COSFA is to return service members to the Green Zone, where they are functioning optimally: physically, mentally, and spiritually.

Another distinguishing feature of COSFA is that it capitalizes on existing military philosophies, practices, organizing frameworks, and social structures. In particular, it emphasizes the role of leaders in mentoring service members back to Green. It views service members not as passive victims but as effective, highly-trained individuals who can draw on both personal and organizational resources to regain optimal functioning. As part of this approach, COSFA recommends that caregivers employ motivational interviewing, an empathic, non-judgmental, collaborative counseling style (Miller & Rollnick, 2002). Motivational interviewing empowers clients to take responsibility for making changes in their lives, to explore and resolve ambivalence, to systematically evaluate the options for enacting change, and to employ problem-solving strategies.

In addition, COSFA recognizes how military social structures, such as unit cohesion, can play a large role in either hindering or promoting healing and recovery (Wright et al., 2009). COSFA also addresses interactions between service members and other social supports in their lives, such as their families. It recognizes how one can impact the other, and therefore seeks to promote recovery by repairing and strengthening relationships. Rather than competing with military medical care, religious ministry, peer support, or leadership, COSFA seeks to fortify and bolster these important, pre-existing support structures. Interventions are seen as a joint effort to return a service member to optimal functioning, a goal that is shared among all parties. To this end, COSFA urges providers to consult frequently with colleagues and with the chain of command. It also emphasizes that military leaders should act deliberately and decisively to mitigate the effects of potential stressors, identify those who require additional help, and reintegrate stress-injured service members into their unit.

COSFA comprises seven core actions: Check, Coordinate, Cover, Calm, Connect, Competence, and Confidence. These components are organized into 3 levels: Continuous, Primary, and Secondary Aid. Continuous Aid, consisting of the Check and Coordinate components, describes ongoing, individualized aid that is administered throughout the deployment cycle. Check involves determining service members' current position in the stress continuum by assessing their current distress, functioning, and risk. It

directs caregivers to assess psychological well-being as well as social and physical functioning, paying close attention to any changes in behavior or functioning. Self-report, information from collateral sources (e.g., family, peers, leadership), and questionnaires may be employed to assess these factors in a thorough manner. This assessment is then used to determine whether Primary Aid, Secondary Aid, or referral to a higher level of care is needed. The second component of Continuous Aid, Coordinate, describes a two-step process of identifying who can help the individual and determining who needs to know about the service member's current state. Caregivers must carefully navigate the arduous territory of deciding what information should be given to which parties, taking into account possible repercussions such as stigmatization.

Primary Aid, consisting of the Cover and Calm components, targets service members who are experiencing intense distress or an abrupt loss of functioning. The Cover component describes actions that ensure the physical safety of service members and allow them to emotionally and physically "reset." It encourages service members to stay active by performing tasks that are practical and familiar, provides information that promotes feelings of safety and comfort, and defuses any potential threat to self or others. The other component of Primary Aid, Calm, seeks to reduce damaging physiological and psychological reactions that are associated with long-term impairment (e.g., dissociation, elevated heart rate, intense negative emotions, social withdrawal). Techniques used to physically and emotionally stabilize service members include modeling a calming presence, engaging in empathic conversation, and teaching diaphragmatic breathing and grounding skills to orient individuals to sensations in the present.

Secondary Aid, comprised of the Connect, Competence, and Confidence components, seeks to foster long-term recovery once the individual is no longer in acute crisis. The Connect component helps service members identify and connect with trusted, helpful military and social supports. The aim is to create, maintain, strengthen, or repair lasting military and family supports that can provide service members with practical, informational, and emotional support as they work towards recovery. Service members are also empowered to support peers who are suffering. Competence, another part of Secondary Aid, entails helping service members regain confidence in their physical and mental capabilities. The focus here is on restoring stress-injured service members' sense of personal competence and gradually returning them to full functioning. Potential interventions include teaching skills for managing stress reactions, working with leaders to adjust work roles and adopt a supportive mentorship role, and retraining as needed. The final component of Secondary Aid, Confidence, involves using mentorship relationships to promote a sense of mastery, create realistic expectations,

and strengthen service members' belief in themselves and the leadership. Caregivers should work with leaders to restore trust within units, confront stigma, and create environments that nurture self-confidence.

COSFA principles and practices are informed by a strong evidence base, including the latest empirical findings on risk and resilience (e.g., Hobfoll et al., 2007; Nash & Baker, 2007). However, to date, COSFA lacks direct empirical support from treatment outcome studies. Recognizing this limitation, the COSFA manual explicitly leaves room for continually updating and improving its strategies. Systematic investigation is needed to assess COSFA's effectiveness, acceptance by service members, and ease of implementation.

Cognitive Behavioral Therapy (CBT)

Over the past two decades, CBT has steadily gained empirical support for preventing and treating PTSD (Ponniah & Hollon, 2009; Roberts et al., 2009). When used as an indicated preventive intervention, CBT is normally administered several weeks to several months after the traumatic event. Preventive CBT typically involves psychoeducation, anxiety management techniques such as diaphragmatic breathing, imaginal and situational exposures to habituate patients to feared memories and stimuli, and cognitive restructuring to challenge distorted thought patterns associated with the traumatic event.

Meta-analyses suggest that exposure-based CBT is an effective indicated preventive intervention and treatment for PTSD (Ponniah & Hollon, 2009; Roberts et al., 2009). Randomized controlled trials have found that when CBT is employed as a preventive intervention within 3 months of traumatic exposure, it is more effective at reducing traumatic stress symptoms and preventing chronic PTSD than supportive counseling (Bryant, Harvey, Dang, Sackville, & Basten, 1998; Bryant, Moulds, & Nixon, 2003), relaxation training (Echeburua, de Corral, Sarasua, & Zubizarreta, 1996), and no-intervention control groups (Bisson, Shepherd, Joy, Probert, & Newcombe, 2004; Ehlers et al., 2003).

Given that preventive CBT interventions usually entail 4- to 5-sessions of structured, individual therapy conducted by a specialty care provider in a safe place, it is inappropriate as an acute intervention for individuals in the immediate aftermath of a disaster. In the chaos of disaster, military care providers may lack the time, resources, and infrastructure needed to administer multiple sessions of CBT. Moreover, civilian survivors may require assistance attending to more urgent, basic needs (e.g., food, shelter, safety). Military personnel engaging in post-disaster relief operations are

unlikely to have the time to deliver a more intensive preventive intervention like CBT.

Nevertheless, military care providers administering PFA to civilians or COSFA to service members may find it helpful to be familiar with CBT, so that they can educate individuals about this resource, screen for those who may later benefit from an early CBT intervention, and direct those individuals to the appropriate resources if their symptoms persist.

SUMMARY AND CONCLUSIONS

As the DoD continues to enlarge its HA/DR program, an increasing number of military care providers will be called upon to support military personnel and civilians who are affected by disaster. Exposure to disaster-related trauma and stressors can cause great distress and long-term suffering among both survivors and responders. Military care providers are well-situated to prevent and mitigate these negative sequelae and promote long-term adaptive functioning. In disaster settings, military care providers must quickly identify which individuals require services and decide when to intervene and which interventions to use. They must be skilled not only in screening individuals and delivering interventions, but also in adapting intervention strategies to each unique disaster context, incorporating cultural considerations (both military and local civilian culture), and coordinating care. To operate effectively in this capacity, a high degree of self-knowledge and humility are crucial. Training in disaster response – both formal and informal – can assist care providers in developing these competencies. It is encouraging that an increasing number of institutions offering DMH courses appear to recognize the need for more formalized and comprehensive training, but further development, dissemination, and evaluation of this training is needed.

The lack of empirical research prohibits any clear conclusions regarding the most effective disaster interventions, but several evidence-based early interventions seem promising. For military care providers providing early interventions to service personnel, COSFA offers the most comprehensive, evidence-based form of intervention. Importantly, COSFA leverages military culture and social structures, thereby capitalizing on existing support systems. In situations where military care providers are called upon to deliver acute services to civilians, PFA emerges as the preferred intervention. PFA's flexibility and empirically-supported underpinnings represent an improvement over psychological debriefing. COSFA, PFA, and psychoeducation as a stand-alone intervention await evaluation. For individuals who need services beyond those provided immediately after a disaster, CBT may be a helpful resource, given its demonstrated efficacy at

preventing and treating PTSD.

It should be emphasized that these recommendations emerge from our current knowledge base on disaster interventions, a still nascent field. As such, there is a clear need for further empirical investigation to expand upon the existing literature, broaden our understanding of the type of clinical work that is most essential following a disaster, systematically evaluate and refine current best practices, and develop a larger repertoire of interventions. Unfortunately, myriad issues inherent to disaster research limit its feasibility and pose unique logistical and ethical challenges. By definition, disasters occur without warning; thus, practical barriers preclude our ability to minimize the time between the initial event and the beginning of data collection. Furthermore, special attention needs to be given to the informed consent process, considering that individuals exposed to trauma are in a vulnerable state and may have impaired decision-making capacities. The extent to which participating in research offers any direct benefit to disaster survivors needs to be carefully considered (e.g., Collogan, Tuma, Dolan-Sewell, Borja, & Fleischman, 2004; Rosenstein, 2004). Fortunately, emerging research in disaster mental health has demonstrated that it is possible to conduct such research in an ethical and methodologically rigorous manner (e.g., Adams & Boscarino, 2006). These developments have fueled enthusiasm among researchers and care providers alike for evaluating, disseminating, and adopting evidence-based disaster interventions.

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