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The challenge of Posttraumatic Stress Disorder Prevention: How to Survive a Disaster?

El Desafío de la Prevención en Estrés Postraumático: ¿Cómo Sobrevivir a un Desastre?

Enrique Echeburúa*
Facultad de Psicología
Universidad del País Vasco

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Abstract

Victims of natural disasters are subject to severe stress and disruption and may manifest a pattern of dissociative and anxiety/depression symptoms. The trauma may impair the person's quality of life and disrupt social and other functioning. If symptoms last beyond a month following the traumatic event, PTSD may ensue. These adverse effects do not always disappear with time. Acute stress management is focused on ensuring safety and providing support, including assessment of coping resources and support networks. An additional role of early intervention is to detect individuals who require more complex intervention. The issues addressed in therapy include the need to correct unrealistic expectations, to deal with guilt and phobic reactions as well as family and network reorganization. Cognitive-behavioral treatments, such as exposure techniques or cognitive restructuring approaches, have been shown to work. At times, work with the family members may be necessary too. Challenges for the future are discussed.

Key words: Natural disaster, posttraumatic stress disorder, predictive factors, psychological treatment.

Resumen

Las víctimas de una catástrofe pueden sufrir estrés y alteraciones en la vida cotidiana, así como mostrar síntomas ansioso-depresivos y disociativos. El suceso traumático puede dañar la calidad de vida de las víctimas e interferir negativamente en su funcionamiento cotidiano. Si los síntomas se mantienen, puede aparecer un TEPT. El manejo del estrés agudo se centra en proporcionar seguridad y apoyo, así como en evaluar las estrategias de afrontamiento y las redes de apoyo social y en detectar a las personas necesitadas de un tratamiento más complejo. Los puntos abordados en la terapia están referidos a corregir las expectativas no realistas, a hacer frente al miedo y a la culpa y a reorganizar la vida familiar y social. Los tratamientos cognitivo-conductuales, tales como la exposición y la reestructuración cognitiva, han mostrado ser eficaces. A veces hay que trabajar también con la familia. Se analizan los retos de futuro.

Palabras clave: Catástrofe, trastorno de estrés postraumático, factores predictivos, tratamiento psicológico.

* Correspondencia a: Avda. de Tolosa, 70 20018 San Sebastián (Spain) enrique.echeburua@ehu.es

Introduction

Posttraumatic stress disorder (PTSD) is a psychiatric disorder that can occur following the experience or witnessing of life-threatening events such as terrorist attacks, serious accidents, natural disasters, violent personal physical assaults, rape, etc. By definition, PTSD is an anxiety disorder, which differs from the other anxiety disorders since its onset depends on the exposure to a traumatic event.

Persons who suffer from PTSD often have different psychiatric and emotional problems and experience nightmares and flashbacks, feel detached or estranged, and have sleep disturbances. These symptoms can be severe enough and last long enough to significantly impair the person's daily life, working ability, and social functioning. The impairment is connected with the ability to function in social and marital and family life. PTSD is very often complicated with other psychiatric disorders, such as depression, substance abuse or anxiety disorders, as well as with different physical illness. Human-made disasters, such as rape or terrorist attacks, have a more significant impact than natural disasters. Psychological sequelae of trauma are often severe and debilitating (Kozaric-Kovacic y Pivac, 2007).

The clinical picture of PTSD differs in intensity and symptom structure depending on the type and duration of traumatic experience, personality characteristics, and social and other factors. Anyway, victims' reactions can be very variable. According to the Lazarus and Folkman (1984) paradigm, in a traumatic event it is necessary to take into account objective parameters of external stressors (e.g., intensity, duration, and recurrence of stressful life events), as well as cognitive appraisals of the intrapersonal and interpersonal resources available to cope with these stressors.

However, PTSD is not the only manifestation of psychopathology following a traumatic event. It is better to include victims' psychopathological reactions in trauma spectrum disorders (PTSD, depression, attempted suicide, excessive alcohol intake, etc.). It is necessary to be alert to a broad spectrum of psychiatric problems after major trauma (Davidson, 2002).

Factors that may be positively related to development of post-trauma negative reactions include past history of mental disorders, past history of trauma, familial psychopathology and presence and intensity of dissociation during trauma. By contrast, stable sources of social support appear to buffer against development of post-traumatic problems in psychological functioning (Echeburúa, 2007).

Reactions of victims

Short term reactions

At a short term there are several reactions that victims of natural disasters may experience. These include intense rage or anger; fear of injury, death, and future victimization; sadness; and depression. Common reactions to victimization include sleep disturbances and nightmares, headaches, diarrhea, uncontrollable crying, agitation and restlessness, increased use of drugs, and deterioration in personal relationships. The victim believes that the world is unpredictable and unsafe and so develops a significant reduction in basic trust.

Acute stress disorder (Koopman, Classen, Cardena & Speigel, 1995) can be diagnosed within 1 month of exposure to a traumatic event. This disorder, in spite of having several criteria in common with posttraumatic stress disorder, is associated with less traumatic experiences, less severe symptoms (dissociation, among them), and greater probability of spontaneous and more rapid recovery (Milgram, 1998).

Trauma sequelae

There are three stages of reaction to victimization (Sales, Baum & Shore, 1984). The first stage is *impact*, in which the victim feels vulnerable, helpless, and dependent on others. The second stage is *recoil*, in which the victim may experience mood swings, the waxing and waning of feelings of fear and rage, as well as displacement of anger. In the third stage, *reorganization*, the experience of victimization is assimilated and put into perspective; the person is able to move on from the experience.

a) Posttraumatic stress disorder

The diagnosis of PTSD is assigned only when an individual is exposed to a traumatic event that both presents actual or threatened death or serious injury and elicits intense fear, helplessness or horror. Additional parameters of the PTSD diagnosis include symptoms of re-experiencing, avoidance and hyperarousal that persist for more than one month and cause functional impairment in interpersonal or vocational spheres.

Re-experiencing may take the form of recurrent recollections of the event, nightmares, flashbacks or reactivity upon exposure to traumatic cues. Avoidance is typically manifest as behavioral or cognitive escape from thoughts, feelings, individuals or places associated with the trauma, as well as the experience of feelings of detachment, foreshortened future, and restricted affect. Finally, hyperarousal is indicated by elevated startle response, sleep disturbances, hypervigilance, and concentration difficulties.

Overall, population prevalence estimates of lifetime PTSD range from 7.8% to 12.3%. About 50% of those who do meet criteria for PTSD recover within two years, while almost 33% do not experience full remission of symptoms, even after several years, especially in the case of human-made disasters.

b) Depression

The co-occurrence of depression and anxiety following trauma is well documented (Kessler, Sonnega, Bromet, Hughes & Nelson, 1995).

For some victims guilt will be the emotion most strongly connected to their trauma, especially if there has been a death involved.

c) Substance abuse

Victimization facilitates substance abuse as a way to cope with resultant symptoms of PTSD and depression. According to Kessler et al. (1995) study, over 50% of men and 28% of women with PTSD report concurrent alcohol abuse or dependence. Victims may abuse alcohol in order to reduce intrusive ideation.

d) Panic and somatic complaints

In addition to PTSD, depression and substance abuse, natural disasters appear to facilitate panic in some victims. Initial panic attacks (including palpitations, chest pain, dizziness, shortness of breath, nausea, desrealization, sweating, trembling and numbness) are conceptualized as logical responses to a life-threatening situation. But these responses can become associated with salient stimuli that serve to trigger additional panic in the future.

Stress-related panic is particularly prevalent in instances where trauma is life-threatening, extremely uncontrollable, and results in significant reductions of self-esteem. According to Falsetti and Resnick (1997) study, 67.6% of those diagnosed with PTSD report suffering from panic.

Other psychiatric disorders can co-occur with stress-related disorders, such as somatic complaints (including cardiopulmonary symptoms, digestive difficulties, chronic pain or sexual dysfunction), generalized anxiety or explosive outbursts (Milgram, 1998).

Positive outcomes

Amazingly enough, in some cases emotional impact of natural disasters can be buffered by the positive attributes of survivors. These include resiliency factors -coping styles that seem to contribute to healthy adult functioning-, as well as positive consequences of the traumatic event itself. These well-functioning survivors employ an optimistic explanatory style characterized by external, unstable, and specific causal beliefs about negative events. In addition, to be involved in supportive relationships and to take part of spiritual settings, with enhanced empathy for other survivors, appears to foster a sense of purpose in the victims' lives and to develop self-regard, allowing them to embark on careers and other positive life paths (Katz & Watkins, 1998).

For some survivors the traumatic event is reframed as a learning experience and makes them appreciate life more, enhances their ability to cope with subsequent adversity, and increases their desire to help other people.

Predictors of adjustment to trauma are to develop positive feelings about oneself early in life, continue to enhance these views over the life course, and develop skills that help people meet the demands of daily living.

Predictive factors of PTSD

There has been a growing interest in identifying clinical risk factors that increase the likelihood that PTSD will develop following traumatic event exposure. These have including both pre-existing traits, characteristics of the traumatic event, and aspects of the victim's peri- and post-traumatic response (Zohar, Sonnino, Juven-Wetzler & Cohen, 2009).

Exposure to a single, discrete and clearly identifiable traumatic event affords the opportunity for early detection. Serious physical injury, persistent anger and witnessing the death or injury of others are associated with more severe PTSD symptoms at follow-up (Hull, Alexander & Klein, 2002). Additional warning signals include a panic-like response (heartbeats above 92/mn might be predictive of the occurrence of a PTSD), pronounced distress, severe depression and dissociation (Davidson, 2002; Jehel & Morali, 2007). Those symptoms may reflect the intensity or severity of the current experience, a pre-existing individual trait, or sensitization from prior trauma exposure (Zohar et al., 2009).

Multiple exposures to traumatic events, as well as exposure to different kind of traumas, are associated with higher risk of developing PTSD. Anyway the most important indicator for risk of chronic PTSD is the severity of acute PTSD symptoms from about one to two weeks posttrauma and onwards (Shalev, Freedman, Peri, Brandes & Sahar, 1997).

Besides the risk factors for developing PTSD, it is also relevant to know which factors or conditions protect against the development of PTSD. Data for prevention of PTSD by treating acute stress disorder are limited but encouraging for cognitive-behavioral therapy in adults (Bryant et al., 1999). Early intervention at this point could prevent the subsequent development of PTSD. After a trauma, certain psychological sequelae can be ameliorated or even prevented if intervention occurs within a particular window of opportunity (Zohar et al., 2009).

Prognosis for victims recovery is more favorable if one has been exposed to fewer stressors and if he is treated and provided with the needed support. Prior positive adjustment, low levels of prior trauma exposure and support networks facilitate eventual recovery. Anyway it is not possible to assume that those without the diagnosis of PTSD are necessarily well and so it is necessary to be attentive to intermediate levels of pathology (Davidson, 2007).

Treatment

When to seek professional help?

Not everybody needs professional help to recover from a traumatic experience. Recovery means that victims are able to integrate their traumatic experience into their everyday life, without feeling overwhelmed and out of control. Conversely, if victims feel they are "stuck" and they just cannot seem to move beyond the trauma on their own, they should benefit from professional help.

Motivation for treatment

Motivation for treatment among natural disasters victims varies widely. Many do not seek professional help because they assume symptoms will dissipate with time or because they do not believe they can be helped. Other victims view their PTSD symptoms as a personal failure. Some victims may ask for symptomatic relief of their distress, without mentioning their trauma. Still others adjust by shutting down emotional expression altogether (psychic numbing), putting memories of these experiences out of mind, and assiduously avoiding the many situational cues that might activate the primal emotions associated with the trauma (Milgram, 1998).

Indeed, engaging victims with PTSD in the therapeutic process (or in complying with prescribed medication) is the first critical stage of the treatment.

Psychological treatment

If traumatic events are associated with extremely aversive cognitions and affective states, it is important to create a friendly environment in which self-disclosure is met with empathy and encouragement.

Specific interventions can be targeted for specific phases of a victim's reaction to traumatic event (Al-Mateen, Lewis & Singh, 1998; Dattilio & Freeman, 1994).

a) Early intervention: acute distress management

During the *impact phase*, the mental health professional engages in early identification and prompt referral, as well as in stress management and assessment of the victim's coping resources. Stress management is focused on ensuring safety, including referral for any required acute medical treatment. The coping resources which should be assessed include learned methods of coping and support networks (i.e., family, friends, significant others). Psychiatric *labeling* is avoided and emphasis is placed on normalization. Participants are assured that they are normal people who have experienced an abnormal event. Victims can be connected with community networks, such as victims assistance programs or self-help groups.

The essence of acute distress management should be to help contain and attenuate emotional reaction, and to encourage a return to full function and activity (Table 1). In order to achieve these goals, it is necessary to address basic needs, such as reducing the exposure to the stress (e.g., finding a secure place), taking care of physiological needs (e.g., food, drink, hygiene), providing information/orientation, recruiting resources such as friends or family members to provide support, and emphasizing the expectation of returning to normal routine (Table 2). Prevention efforts are promoting (Hobfoll et al., 2007): a) a sense of safety; b) calming; c) a sense of self- and community efficacy; d) connectedness; and e) hope. Only in severe cases (e.g., prolonged dissociative state, prolonged panic-like response) might it be recommended to continue the treatment (Zohar et al., 2009).

Table 1. Goals of Acute Stress Management (Zohar et al., 2009)

Return to full activity/functioning
Regain behavioral/emocional control
Restore interpersonal Communications

Table 2. Addressing Basic Needs (Zohar et al., 2009)

Reduce exposure to stress (e.g., finding secure place)
Restore physiological needs (food, drink, hygiene)
Provide access to information/orientation
Locate source of support (e.g., family, friends)
Emphase the expectation of returning back to normal

Early intervention aims to shorten the course of an acute disorder and can help victims reestablish a sense of control which is instrumental in preventing future problems (e.g., PTSD, major depression) (Litz & Gray, 2002). For example, school-based and community-based interventions can provide rapid dissemination of information, coping skills education, a chance for the normalizing of reactions to traumatic event, and a forum for the activation of social support networks. There is a clinical consensus that the earlier treatment is provided, the better the long-term prognosis (Bisson, McFarlane & Rose, 2000).

Psychological debriefing (PD), a controversial approach, is an example of an intervention provided shortly after a traumatic event to prevent later psychological sequelae (Mitchell & Everly, 1995). PD is a single-session semistructured crisis intervention designed to reduce initial distress and to prevent the development of later psychological sequelae such as PTSD following traumatic events by promoting emotional processing through the ventilation and normalization of reactions. PD was initially described as a group intervention, but it has also been used with individuals. Further aims are to provide early support and to identify victims who may benefit from more formalized treatment and to offer such treatment to them. Emotional

support is needed as the victim regains his self-confidence and processes feelings of guilt, shame and helplessness. Building additional support networks is beneficial at this stage.

The results of randomized clinical trials indicate that one-time PD for victims following traumatic events does not prevent the development of later psychological sequelae (McNally, 2007), but it is a well-received intervention for most victims and may be useful for screening, education and support, especially if group PD is a part of a comprehensive traumatic-stress management program (Bisson et al., 2000).

b) Exposure and cognitive interventions

Exposure to fear-producing cues in a relatively safe environment is a central component of all effective treatments for PTSD. Exposure interventions are extended to include not only external stimuli but the individual's memory of the event. The cognitive-behavioral program often includes other components: applied relaxation training, breathing retraining, thought stopping (in order to break cognitive chains of aversive thought), stress inoculation training through imaginal exposure and guided self-dialogue, *in vivo* exposure assignments, and cognitive restructuring. All these components are generally designed to provide the victim with coping skills which add to effects of the exposure or to counteract excess arousal. Homework exercises are aimed at helping the victim focus on practicing skills learned, continuing to manage activities of daily living, and engaging in pleasurable activities. These strategies are preceded by an educational module, in which victims are familiarized with the conditioning model of fear acquisition and its appropriate treatment (Foa, Keane & Friedman, 2000).

The existing associations between sensations of anxiety and fear and the situations or thoughts which produce it need to be disconnected. Exposure trials emphasize directly breaking through avoidance by more direct confrontations with trauma-related images, feelings and stimuli, and may include audiotaped descriptions of the traumatic event. Prolonged imaginal exposure to the memory of natural disaster is expected to decrease victims fear and increase their ability to think and talk about the disaster which will aid their emotional processing of the trauma. The essential features of this approach include imaginal exposure, low levels of arousal, and relatively brief exposure intervals. Exposure aims an increase in well-being by looking back at the traumatic event and dealing with the distressing thoughts and feelings associated with it (Foa & Rothbaum, 1998).

Prolonged exposure also promotes cognitive changes. High estimates of the probability of threat are proven erroneous when the feared consequence does not occur. In addition, the idea that the experience of anxiety will continue unabated unless the victim escapes is also proven wrong in the face of repeated experiences of habituation.

Cognitive interventions, which include cognitive coping techniques, are employed to eliminate or alter cognitions that impede treatment progress. Cognitive techniques equip the victims with a means by which they can gain an increased sense of control when faced with distressful thoughts and feelings and these include techniques which are aimed at both *cognitive distortions* (i.e., unrealistic beliefs and negative automatic thoughts related to ongoing threat, loss and grief, guilt and anger, addressed through cognitive restructuring) and *cognitive deficiencies* (i.e., deficiencies in thinking which are addressed through problem-solving approaches).

In the final phase, the mental health therapist's goal is to help the victims integrate the traumatic experience into their world view, and to move on with their life and make it livable again. At times, work with the victim's significant others, as well as family members, may be necessary in order to help support the victim's psychological and social well-being.

Compelling evidence from many well-controlled trials with a mixed variety of trauma survivors indicates that behavioral-cognitive intervention, with 10-20 weekly sessions, is quite effective for the treatment of PTSD. In fact, no other treatment modality has such strong evidence for its efficacy (Rothbaum, Meadows, Resick & Foy, 2000).

Anyway exposure treatment has some limitations. Victims whose primary emotional response is anger may not profit as much from exposure as victims whose primary emotional response is anxiety. In addition some trauma survivors are reluctant to confront trauma reminders. In these cases cognitive restructuring can help them cope with these difficulties.

c) Eye movement desensitization and reprocessing (EMDR)

Finally, there are other controversial approachs, such as eye movement desensitization and reprocessing (EMDR), which includes at least two potent interventions: imaginal exposure and cognitive restructuring.

Trauma survivors are asked to think of a troublesome thought or memory and, while doing so, to move their eyes quickly and laterally back and forth about 15 to 20 seconds, following the therapist's fingers. After approximately 20 back-and-forth eye movements, the clinician stops and asks the victim to let go of the memory, take a deep breath, and provide feedback about any changes in the image, bodily sensations, emotions, or thoughts about the self. Often victims will report the emergence of new memories, emotions, sensations, or cognitions (Shapiro, 1995).

While the underlying mechanisms of EMDR are unknown, the procedure appears to show some promise in treating traumatic memories. Anyway there are thoughtful critiques about its methodological rigor to test adequately the treatment's efficacy by DeBell & Jones (1997) and by Herbert

& Mueser (1992). The saccadic eye movement element of EMDR, which is clearly its hallmark, may not be necessary. Dismantling studies need to be conducted in order to identify what components of EMDR are beneficial (Chemtob, Tolin, Van der Kolk & Pitman, 2000). In other studies with a long-term follow-up the modest gains obtained at posttreatment had disappeared five years after treatment (Macklin, Metzger, Lasko, Berry, Orr & Pitman, 2000).

Discussion

The occurrence of natural disasters, and the need for allocating resources as efficiently as possible, dictate that prevention is a key area of clinical and research interest. Instead of pathologizing the reactions, it is important to create an expectation of recovery.

Progress has been made to develop and refine procedures used to identify and delineate trauma and its sequelae. Similarly, effective treatments have been generated to reduce the wide variety of symptomatology produced by victimization. While the number and intensity of symptoms may vary over time, some victims remain more vulnerable to future stressors and may be prone to reactivation of psychological disorders (Long, Ronan & Pereira-Laird, 1998).

There is a need to go beyond the PTSD paradigm to get a deeper understanding of the posttraumatic process. Traumatic experiences can lead to the development of several different disorders, including major depression, specific phobias, disorders of extreme stress not otherwise specified, personality disorders such as borderline, or anxiety disorders (Foa, et al., 2000).

Although there have been identified risk factors for psychopathology and variables that appear to buffer against it, it is not possible to predict, with any significant degree of accuracy, who will or will not experience significant post-traumatic emotional difficulties (Acierno, Byrne, Resnick & Kilpatrick, 1998). Even though traumatic events are extremely stressful, it is somewhat surprising to know that many victims are very resilient and able to restructure their lives in ways that allow them to find enjoyment again. Anyway physical injuries, employment status and psychotropic drug use before the traumatic event have predicted severity of PTSD in the long term (Jehel, Paterniti, Brunet, Duchet & Guelfi, 2003).

In addition, there are few well-tested treatment methods that have been empirically validated as effective in reducing the psychological stress. Debriefing strategies have not proven greatly effective (McNally, 2007). The essence of acute distress management should be to help contain and attenuate emotional reaction, and to encourage a return to full function and activity (Zohar et al., 2009). Some controlled research has begun to examine the effectiveness of treatments for PTSD following a range of trauma (Cahill, Rothbaum, Resick & Follette, 2009; Cloitre, 2009; Institute of Medicine, 2007). Trauma focused cognitive-behavior therapy and EMDR are the leading evidence based treatments for PTSD. Future studies should tackle problems that have been difficult to change, such as emotional numbing.

Most of the published research is also restricted to treatment delivered on an *individual* basis. But the psychological treatments are viable (and can be delivered efficiently) using a *group* format. Likewise, it is important to establish whether a *combined* individual-group treatment effort produces an even greater therapeutic impact than either alone (Echeburúa, 2007).

There are some recent innovative treatments. Thus use of virtual reality has been found effective, as has a naturalistic version of virtual reality (a one-session earthquake simulator using a shake table) (Basoglu, Salcioglu & Livanou, 2007). This method needs to be tested. Anyway further advances are needed in the treatment of populations with complex and chronic forms of PTSD, such as those found in childhood abuse populations, refugee populations, and those experiencing chronic mental illness (Cloitre, 2009).

Final recommendations

In the aftermath a disaster only a minority will develop PTSD. Rather than using clinical resources at this early stage, we should reserve them for those who do in fact develop PTSD. At this stage, the focus of acute stress management should clearly be on the expectation of recovery and on community resilience. Once PTSD is diagnosed, then robust intervention may be useful in preventing chronic PTSD (Norris et al., 2008; Stein et al., 2009).

For some individuals long-term treatment will be needed, although others will manage adequately without. Yet others will recover, but relapse later. Non-professional support can pick up an important part of the recovery burden.

Regarding assessment, further work is needed to investigate optimal screening, particularly after mass exposure to trauma (Norris, 2006). Once PTSD is diagnosed, the combined use of diagnostic interviews, such as the Clinician Administered PTSD Scale-1 (CAPS-1, Blake et al., 1990), and of self-report questionnaires, such as the *Impact of Event Scale-Revised* (IES-R, Weiss & Marmar, 1997), in clinical settings may well improve diagnostic accuracy and improve treatment planning.

The available empirical data suggest that psychological debriefing does not reduce the incidence of PTSD or the severity of PTSD symptoms. It would seem most appropriate to focus on detecting victims who will develop PTSD (perhaps through detecting acute stress disorder).

In general, cognitive-behavioral therapy has been shown to be an effective treatment for PTSD. Exposure, sometimes with the support of a cognitive intervention (especially

to cope with guilt cognitions), should be considered the first line of treatment unless reasons exist for ruling it out. EMDR's additional efficacy is unclear and needs to be further explored (Echeburúa, 2007).

Since psychological therapy is the first-line treatment for PTSD, medication need not always be considered as a necessary intervention. Anyway many patients with PTSD also suffer from severe depression or comorbid disorders and so can benefit from a combination of psychotherapy and medication (specifically selective serotonine reuptake inhibitors) (Stein, Ipser & McAnda, 2009).

Most treatments for PTSD can take place in on outpatient setting. However, an inpatient setting may be required when the patient manifests a significant tendency for suicidality or severe comorbid disorders (e.g., psychotic episode, severe borderline personality).

Comorbid conditions should be identified and addressed because response to treatment can vary depending upon the presence of additional psychological conditions. When necessary, it is important to work with other health professionals and with the patient's family members and significant others.

Further research should pay attention to a crucial task of treatment, that is, how to help strengthen the resilience of trauma survivors, enabling them to cope more effectively with stressful events and with the general demands of life (Davidson, 2007). In addition prospective studies could implement and test the efficacy of cognitive-behavioral interventions before trauma (i.e., stress inoculation, stress management training or relaxation methods) to enhance resilience (Heim & Nemeroff, 2009). In the future it will be important to demonstrate the effectiveness, and assess the cost-efficacy, of interventions in the aftermath of trauma. And, finally, reluctance to seek help is an important issue that needs to be addressed, perhaps by increasing the desirability of treatment (Stein *et al*., 2009).

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