Recovery After the Tsunami: Timeline for Rehabilitation

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In the aftermath of the Asian tsunami, there is potentially a large, traumatized population in need of psychosocial support, but determining which individuals require psychological intervention and knowing how and when to treat them may be the key to positive long-term outcomes. The early identification of people at high risk of developing subsequent psychiatric disorders from among those experiencing a transient stress reaction following trauma is often the initial step in the recovery process. Clinical instruments for screening and/or predicting those most at risk are available and require validating for cultural and linguistic sensitivity. Timely treatment is essential, since inappropriately targeted therapy can compromise recovery and may even exacerbate posttraumatic stress symptoms, particularly if treatment is initiated before grief reactions have subsided. Finally, appropriate treatment interventions, which incorporate cognitive-behavioral therapy and prolonged exposure, offer the best current therapeutic options for the treatment of posttraumatic stress disorder and associated comorbid conditions such as anxiety, depression, and grief. However, since most of the supportive data for the psychosocial consequences of trauma were obtained from small-scale studies of discrete trauma events in Western countries, it may not be possible to extrapolate these findings to a large-scale natural disaster in Asia, such as the Asian tsunami. More data are required to assist in the development of strategies for the effective management of the psychological consequences of trauma worldwide, with emphasis on creating mental health strategies that are culturally sensitive and valid for various trauma events and disaster scenarios.
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The Asian tsunami devastated communities and families in Indonesia, Sri Lanka, India, and Thailand, and the psychological consequences of this natural disaster are immense. An extensive and multidisciplinary literature on this subject exists[1,2]; can mental health strategies used after previously reported trauma events assist us in managing the psychosocial outcomes following the Asian tsunami? Firstly, it must be realized that no 2 traumas or disasters are the same and that even well-performed studies cannot fully instruct us about the implications for mental health following a disaster in another place at another time. Secondly, most of the treatment studies in the literature have reported on trauma events experienced in Western countries where the social, cultural, and religious environments differ greatly from the community- and family-based structures of Asian societies. Thirdly, these studies have mostly examined discrete trauma events such as rape, crime, motor vehicle accidents (MVAs), and industrial accidents[3–6] and not the impact of large-scale natural disasters that involve extensive devastation, large populations, widespread grief, and ongoing social and logistical problems. However, many of the studies conducted in recent years have examined the effects of such disasters, and their findings have shed new light on risk and protective factors and on mechanisms and processes that influence survivors' mental health.[1]

Almost all individuals who suffer a trauma event show symptoms of distress in the immediate aftermath of the event. In fact, virtually all posttraumatic stress disorder (PTSD) symptoms are reported at markedly elevated rates in the initial weeks after trauma exposure.[7] This is accepted as a normal reaction to trauma and is not an indicator of an emerging psychiatric disorder. Most people affected by a trauma event will adapt in a period of 3 to 6 months following trauma,[8–10] and only a small proportion will develop long-term psychiatric disorders.[7] These reports suggest that treating all people after trauma is not necessary or indicated. For effective mental health management, it is the early identification of people at high risk of developing subsequent psychiatric disorders from

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among those experiencing a transient stress reaction, and appropriate treatment interventions, that may be the key to positive long-term outcomes.

Once people at high risk for developing a subsequent psychiatric disorder have been identified, it is important to answer the following questions: Is early intervention more effective than long-term evaluation and treatment? What role does grief assessment have in recovery? Which of the available therapies are most effective? This article will address these questions in an attempt to describe the recovery process following trauma and to indicate a timeline for rehabilitation.

EARLY RESPONSES AFTER A DISASTER

Even though almost all symptoms of PTSD are reported at markedly elevated rates in the initial weeks after a trauma, this is considered a normal response to a traumatic event. In this context, it is important to differentiate distress and unhappiness from an incipient psychiatric disorder, since most people will adapt in the 3 to 6 months after a trauma. Grief is also a normal response in the early aftermath of a disaster, and it is highly culturally specific. Most cultures have their own particular grief rituals/ceremonies, and these play an important part in the overall trauma recovery process.

After a trauma, the victims need to receive assistance in order of priority. Practical requirements (food, water, housing, sanitation) should take precedence, followed by grief and emotional support and then psychological interventions for those people experiencing acute stress disorder (ASD) and/or PTSD. However, the timing of treatment after a major disaster should not be measured in days, weeks, or months from the disaster itself but must be related directly to when the trauma has finally subsided. The following factors are important in attempting to determine when the trauma actually ends: availability of resources such as food, water, housing, and sanitation; knowledge of the fate of loved ones; and social stability and resolution of chaos.

Psychiatric support mechanisms are often not available to provide effective and appropriate early intervention in the immediate aftermath of a major disaster such as the Asian tsunami. Given these limited resources, it is important to identify those who will benefit most from treatment through screening and monitoring programs.

WHO TO TREAT: PREDICTORS OF AND SCREENING FOR PSYCHIATRIC DISORDERS AFTER DISASTERS

It would be helpful to be able to identify people at risk for subsequent psychiatric disorders, since early intervention could then be used to prevent the development of such disorders. Accumulating evidence over the past decade has shown the potential benefit of treating people several weeks after a traumatic event.[3,11,12]

A major reason for the introduction of ASD in the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition,[13] was to identify acute posttraumatic stress reactions that are precursors of chronic PTSD.[14] To meet the criteria for ASD, one must experience a stressor and respond with fear or helplessness (criterion A) and have at least 3 of 5 dissociative symptoms (criterion B), at least 1 reexperiencing symptom (criterion C), marked avoidance (criterion D), and marked arousal (criterion E). Acute stress disorder describes posttraumatic stress reactions that occur between 2 days and 4 weeks following a trauma.[14] Although ASD is conceptually similar to PTSD, it has a stronger emphasis on dissociative symptoms, and this diagnosis was introduced to identify acutely traumatized people who would suffer long-term PTSD.[15] Dissociation is a reaction that can decrease distress by "numbing" an individual, thereby reducing the distress that may be perceived. It can arguably limit the processing of a traumatic experience and subsequently impede adapting. Dissociation has sometimes been found to be highly predictive of PTSD.[16,17]

To date, 12 studies of ASD and PTSD following MVAs, brain injury, crime, typhoons, burns, and cancer have been conducted worldwide (Table 1). These studies have shown that although ASD is highly predictive of PTSD, screening for ASD misses many people who develop PTSD. It has been reported that the majority of patients with diagnosed ASD subsequently developed PTSD (72%–83%),[16–22] while in studies of patients who developed PTSD, < 50% were initially identified as experiencing ASD.[16,17,19,23–25] This evidence indicates that although ASD may be highly predictive of subsequent PTSD, many trauma survivors can develop PTSD without initially displaying ASD. Consequently, current data challenge the utility of ASD in accurately identifying the traumatized population at risk of developing PTSD, and it has been suggested that the ASD diagnosis should not be included in the DSM-V,[7] since no symptom, or constellation of symptoms, has been shown to be particularly predictive of PTSD. Nonetheless, the results from prospective studies have established that individuals with very high levels of distress frequently develop PTSD, suggesting that it may be more effective to focus on this distressed population when considering psychiatric interventions.

The introduction of ASD in the DSM-IV raised the need for standardized instruments to measure ASD, and there are now various screening instruments developed for this purpose. The Acute Stress Disorder Interview (ASDI)[4] is a 19-item structured clinical interview that has been validated against independent clinical diagnosis based on DSM-IV criteria. The ASDI has proven sensitivity (91%) and specificity (93%) and good psychometric properties and is user-friendly, but lacks ordinal scales. The ASDI

Table 1. Relationship Between Acute Stress Disorder (ASD) and Posttraumatic Stress Disorder (PTSD) in Various Populations

Trauma	Country	Time Since Trauma	Patients With ASD Who Developed PTSD, %	PTSD Patients With Initial ASD, %
Burn[47]	United States	6 mo	87	78
Typhoon[25]	Guam	8 mo	30	37
Brain injury[16]	Australia	6 mo	82	40
Assault[18]	United Kingdom	6 mo	83	57
MVA[17]	Australia	6 mo	78	39
MVA[19]	Australia	2 y	82	29
Brain injury[20]	Australia	2 y	80	72
MVA[21]	United Kingdom	6 mo	72	59
MVA[24]	Switzerland	1 y	34	10
MVA[22]	United Kingdom	6 mo	77	34
MVA[23]	Australia	1 y	30	34
Cancer[48]	Australia	6 mo	53	64

Abbreviation: MVA = motor vehicle accident.

has been shown to successfully predict subsequent PTSD in acutely traumatized populations.[16,17] Another promising screening instrument is the Acute Stress Disorder Scale (ASDS),[26] which was developed as a self-report measure that would provide identification of ASD, a predictor of subsequent PTSD, and a self-report version of the ASDI, but included an ordinal scale for severity rating. The ASDS was found to possess good sensitivity (95%) and specificity (83%) for identifying ASD against the ASDI, although in a study of bushfire survivors, one third of those identified by the ASDS as being at risk did not develop PTSD.[26] The development of other instruments to assess or screen for risk of PTSD may be as useful at predicting future PTSD as current ASD instruments.

Many individuals will have panic attacks during a traumatic experience. Those who develop PTSD may have ongoing panic, which may perpetuate distress and prolong symptoms. Panic is common after near-drowning or suffocation experiences and consequently may be common in the Asian tsunami survivors.[27,28] Therefore, panic is an important therapeutic target in the treatment of PTSD. Interoceptive exposure, whereby the patient is exposed to internal sensations associated with panic but learns that these sensations are not dangerous, is the most effective intervention to reduce panic disorder.[29,30]

EARLY TREATMENT OPTIONS AND EFFICACY

The most common immediate psychological intervention following a disaster is psychological debriefing. Psychological debriefing has been the initial treatment of choice after a disaster in Western countries for many years. It is used in the initial days after a trauma event and involves education, advice, and disclosure of the traumatic experience. However, psychological debriefing does not appear to limit subsequent disorder, and it may even be detrimental to the stress reaction process by aggravating symptoms.[31] Significantly, authors for the Cochrane Database of Systematic Reviews have concluded that there is no evidence that single-session individual psychological debriefing is a useful treatment for the prevention of PTSD after traumatic incidents, and they recommended that compulsory debriefing of victims of trauma should cease.[31] It would appear to be more beneficial to provide victims with social support and stabilization in the initial days following a disaster.

Normal or uncomplicated grief is a natural response in the early aftermath of the death of a loved one, and most uncomplicated grief reactions are alleviated within 6 months. If the grief response does not ease, complicated grief may have developed, and this occurs in 10% to 15% of cases.[32] For this reason, the grief response needs to be monitored for more than 6 months after a trauma. Even though there are diagnostic criteria and clinical instruments available for the evaluation of complicated grief, there is at present no way of identifying those at risk at an early stage.

Therapeutic options for complicated grief are similar to those included in treatment strategies for PTSD.[33] Although there is limited evidence concerning treatment options, the best evidence supports the use of cognitive-behavioral therapy (CBT).[34] Cognitive-behavioral therapy includes exposure-type exercises, which help in the processing of the grief reaction through reliving the experience and communicating about the loss of loved ones; cognitive therapy, which confronts feelings of guilt and panic and how people are coping at the present time; and future planning to help affected people move forward by scheduling positive events and social activities and setting new goals. Early intervention may not be possible, or appropriate, for complicated grief, and whatever interventions are used to treat complicated grief must match cultural standards, since grief is highly culturally specific. Most cultures have their own particular grief rituals/ceremonies, and these play an important part in the overall trauma recovery process. It also should be appreciated that grief may mask other conditions or may be associated with comorbid conditions such as depression. Since the devel-

opment of these disorders is not linear, long-term management issues may arise.

LATE TREATMENT OPTIONS AND EFFICACY

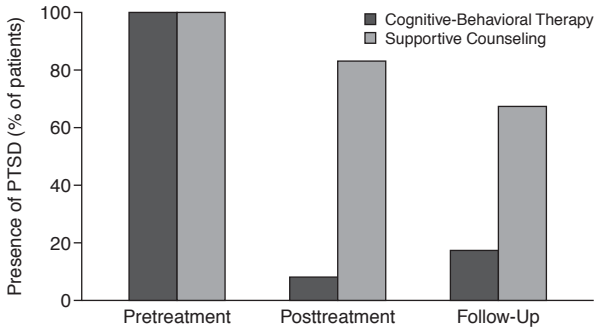
Delayed intervention, more than 6 months or even years after a traumatic event, has been shown to be as effective as early intervention (within 6 months). Specifically, the effect sizes of therapy offered in the initial month after trauma[3,12] are comparable to the effect sizes in treatments offered several years after trauma exposure.[35,36] Further, early treatment may be harmful in some cases.[37]

Cognitive-behavioral therapy is a combination of therapies, including education about the rationale for treatment, anxiety management techniques, cognitive therapy, and prolonged exposure (PE; see Foa, "Psychosocial Therapy," this supplement). The rationale for treatment needs to be individually appropriate and the treatment approach clear to both the therapist and the patient. Without understanding of the rationale, there will be no motivation to overcome the common difficulties encountered during treatment. Cognitive-behavioral therapy is the optimal psychosocial approach to treat PTSD and comorbid conditions such as anxiety, depression, and grief, as evidenced by the inclusion of CBT in all practice guidelines worldwide. Cognitive-behavioral therapy is an effective treatment for patients with chronic PTSD,[5,35,36,38–42] particularly for those patients who have suffered a discrete trauma.[5,35,36,38,40]

Nevertheless, there are limitations to the application of CBT following trauma. In intent-to-treat analyses, only 2 in 3 people were reported to benefit from treatment.[43] Cognitive-behavioral therapy requires considerable resources for one-to-one consultations, and therapy cannot be started until the trauma has ceased. This last point is particularly important because active CBT can be harmful if the acute trauma is ongoing.[37] Given that late CBT can be as effective as early CBT in the treatment of PTSD and associated symptoms,[3,12,35,36] it may be more beneficial to delay CBT until the trauma has demonstrably ceased. Exposure is arguably the most potent factor in CBT, although cognitive therapy can be as effective. Combining cognitive therapy and PE has not been shown to lead to better outcomes than providing PE alone, however.[36,38]

In 5% to 10% of PTSD cases, onset is delayed for 6 months or more after the trauma.[44–46] Delayed onset can be more common in aid/relief workers, military personnel, and other people who have had responsibilities during a crisis. Delayed onset arises after adjustment to "normal life," with compounding stressors such as overwhelming responsibilities, or with exposure to further traumas. Individuals exposed to the most distressing experiences may need ongoing assessment. Adjustment problems and grief can be common after injury, loss of home, and bereavement, for example, and so screening measures may be useful for PTSD, grief, depression, and associated comorbid conditions months after the trauma for these at-risk groups.

Figure 1. Prevention of Posttraumatic Stress Disorder (PTSD) in Patients With Acute Stress Disorder Immediately After 5 Treatment Sessions Starting Within 2 Weeks of Trauma and at 6 Months' Follow-Up[a]

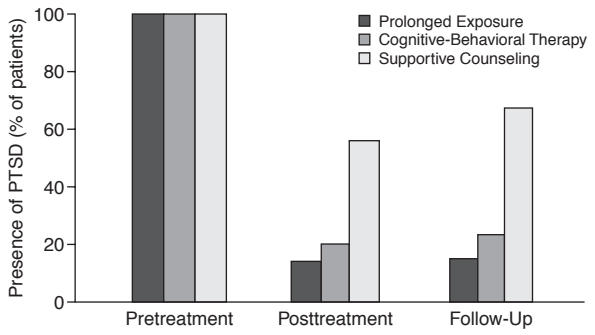


[a]Data from Bryant et al.[3]

PRACTICALITY OF TREATMENT AFTER A MAJOR DISASTER

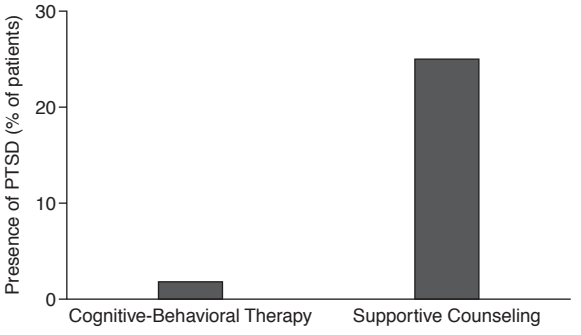
Following a major disaster, the primary goals in the initial 1 to 2 months are to restore stability, improve social networks, decrease hyperarousal, and help natural recovery. Screening for ASD/PTSD is only useful when there are resources in place to offer intervention, and, following the Asian tsunami, psychiatric support mechanisms were not available to provide effective and appropriate early intervention in its immediate aftermath. In addition, if resources were made available at a later date, it would be too late to screen for people most at risk. There is evidence that early intervention can prevent the development of long-term mental disorders, such as PTSD.[3,5,6,11,12] For example, CBT can prevent development of PTSD in patients with ASD who complete treatment (Figures 1 and 2),[3,12] and results of CBT in ASD patients have been sustained for up to 4 years (Figure 3).[5] Other studies have reported similar results,[11] and a recent study suggests that the treatment effects of CBT may be facilitated by the use of hypnosis.[6] However, most of the available evidence comes from prospective studies performed after discrete trauma events such as rape, crime, MVAs, and industrial accidents,[3,5,6,12] for which the trajectory of recovery can be predicted. It may not be possible to extrapolate these findings to victims of a major disaster, such as the Asian tsunami, which is not a discrete event and for which the trajectory of recovery is unknown because of community devastation, widespread grief, and ongoing social and logistical problems.

Figure 2. Prevention of Posttraumatic Stress Disorder (PTSD) in Patients With Acute Stress Disorder Immediately After 5 Treatment Sessions Starting Within 2 Weeks of Trauma and at 6 Months' Follow-Up[a]



[a]Data from Bryant et al.[3]

Figure 3. Long-Term Benefits (as measured by prevention of posttraumatic stress disorder [PTSD]) of Early Provision of Cognitive-Behavioral Therapy Versus Supportive Counseling to Trauma Survivors With Acute Stress Disorder[a]



[a]Data from Bryant et al.[5]

SUMMARY AND CONCLUSION

Even though most of the established literature on the psychosocial consequences of trauma events describes discrete trauma events studied in Western countries,[3,5,6,12] more recent data are shedding new light on the effects of disasters globally, particularly on risk and protective factors and on mechanisms and processes that influence survivors' mental health.[1] This new information will hopefully assist in the development of strategies for the effective management of the psychological implications of trauma worldwide, with emphasis on creating mental health strategies that are culturally sensitive and valid for various trauma events and disaster scenarios.

Studies have shown that treatment following a trauma event should be targeted at individuals with very high levels of distress rather than those presenting with ASD symptoms only. However, treatment should be provided only when patients are in a position to cope with it, that is, once external stability has been restored and the initial grief reaction has subsided. Since late treatment has been shown to be as effective as early intervention, it is more beneficial for patients to establish normal social networks before starting therapy. Cognitive-behavioral therapy is considered the optimal therapeutic option, both for early intervention and for later (delayed) treatment. Exposure may be the most potent element of CBT and is easier to administer and train therapists to use than are other components of CBT, particularly when large populations are affected that require treatment. Although early intervention is effective and leads to long-term gains, it is no better than later treatment and it may do more harm if administered inappropriately.

Before early treatment is considered, it is essential that people's initial grief response be considered. At this time, there is no evidence that early intervention for grief is indicated; in fact, one should allow the natural grief process to occur. If one is suffering from chronic PTSD and complicated grief, it may be beneficial to initially treat the PTSD symptoms and then proceed to addressing the complicated grief reactions. In doing so, however, it is important to be aware that grief is highly culturally specific and that most cultures have their own particular grief rituals/ceremonies, which play an important part in the overall trauma recovery process.

In determining the timeline for psychosocial rehabilitation, it is important to not interfere with natural adaptation processes that can assist individuals and communities. In the context of the Asian tsunami, mental health strategies need to be integrated into the social and organizational restructuring that occurs in the months and years after a disaster of this magnitude. Although lessons learned from strategies developed in the West can be helpful, these approaches must be adapted and evaluated in the contexts of the tsunami-affected regions in which they are to be employed.

Disclosure of off-label usage: The author has determined that, to the best of his knowledge, no investigational information about pharmaceutical agents that is outside U.S. Food and Drug Administration–approved labeling has been presented in this article.

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