Published in final edited form as:

Nord J Psychiatry. 2008 ; 62(Suppl 47): 11–18. doi:10.1080/08039480802315608.

Posttraumatic stress disorder: The development of effective psychological treatments

Anke Ehlers and David M. Clark

King's College London, Institute of Psychiatry, Department of Psychology

Abstract

Posttraumatic stress disorder (PTSD) has only relatively recently been introduced into the diagnostic classification of mental disorders. Building on advances in the treatment of other anxiety disorders, a range of effective psychological treatments for PTSD has been developed. The most effective of these treatments focus on the patient's memory for the traumatic event and its meaning. This paper briefly reviews the currently available evidence for these treatments. It then illustrates the process of developing effective psychological treatments by discussing how a combination of phenomenological, experimental and treatment development studies and theoretical considerations was used to develop a trauma-focused cognitive-behavioral treatment, Cognitive Therapy (CT) for PTSD. This treatment program builds on Ehlers and Clark's (2000) model of PTSD, which specifies two core cognitive abnormalities in PTSD. First, people with chronic PTSD show idiosyncratic personal meanings (appraisals) of the trauma and/or its sequelae that lead to a sense of serious current threat. Second, the nature of the trauma memory explains the occurrence of reexperiencing symptoms. It is further proposed that the idiosyncratic appraisals motivate a series of dysfunctional behaviors (such as safety-seeking behaviors) and cognitive strategies (such as thought suppression and rumination) that are intended to reduce the sense of current threat, but maintain the problem by preventing change in the appraisals and trauma memory, and/or lead to increases in symptoms. CT addresses the cognitive abnormalities and maintaining behaviors in an individualized, but focused, way. Four randomized controlled trials and two dissemination studies showed that CT for PTSD is acceptable and effective.

Keywords

Posttraumatic stress disorder; trauma; cognitive behavior therapy; cognitive therapy; randomized controlled trial; clinical trial

In the immediate aftermath of traumatic events such as terrorist violence, natural disaster, sexual or physical assault, or severe accidents, many people experience symptoms of posttraumatic stress disorder (PTSD). Typical symptoms include unwanted reexperiencing of the event, avoidance of reminders, emotional numbing, hypervigilance, and problems with sleep and concentration(1, 2). The disorder is associated with significant disability, often affecting the patient's ability to work or to have mutually supportive relationships.

Psychological treatments of PTSD

When the diagnosis of PTSD was introduced into the *Diagnostic and Statistical Manual of Mental Disorders (DSM-III)* (3) in 1980, effective cognitive behavioral treatments (CBT) for phobias and other anxiety disorders had already been developed (see review by Öst, this

issue). Research on the treatment of posttraumatic stress disorder benefited from these advances and led to the rapid development of a range of effective cognitive behavioral treatments. Keane and Foa and colleagues (4-6) pioneered the systematic application of *in vivo exposure* to trauma reminders and systematic *imaginal exposure* to the treatment of PTSD. Resick and colleagues (7, 8) were among the first to apply principles of cognitive therapy such as *cognitive restructuring* to the treatment of PTSD. Several other authors developed other treatment programs that involved a range of exposure and cognitive interventions (e.g., 9-12). Shapiro's (13,14) *Eye Movement Desensitization and Reprocessing* (EMDR) includes brief exposure to trauma-related images while patients track the therapist's rapid finger movements with their eyes or receive other bilateral stimulation, and cognitive interventions. Other experts applied principles of anxiety and stress management to the management of symptoms of PTSD (15).

Psychological treatments lead, on average, to large improvements in PTSD symptoms. The mean effect size (Cohen's *d* statistic) for the difference between the pre- and post-treatment scores was $d = 1.43$ across 26 studies of psychological treatments (16). (An effect size $d = 1$ means that the treatment led to improvement by one standard deviation.) However, not all psychological treatments are equally effective in treating PTSD. According to recent meta-analyses, trauma-focused treatments are more effective than other treatments (16, 17). Trauma-focused CBT (which includes protocols focusing on exposure such as Foa's *Prolonged Exposure* (6) and those focusing on cognitive restructuring such as Resick's *Cognitive Reprocessing Therapy* (7) and EMDR were superior to stress management and other therapies such as supportive therapy or hypnotherapy (17). On average, 67% of patients who complete the trauma-focused treatments (and 56% of those who enter these treatments; intent-to-treat analysis) no longer met diagnostic criteria for PTSD (16). For supportive therapy, the corresponding recovery rates were 39% among treatment completers and 36% in intent-to-treat analyses (16). On the basis of these results, recent UK (18) and Australian (19) treatment guidelines recommend trauma-focused CBT and EMDR as the treatments of choice for PTSD. Both treatments address the patient's troubling memories of the traumatic events and the personal meaning of the event and its consequences.

Generalizability of treatment effects

Much of the early research on CBT programs for PTSD focused on sexual assault in women (5,8,20). This raises the question of whether the treatments also work in other traumatized populations. Encouragingly, trauma-focused CBT has now been shown to be effective in mixed trauma populations (9,11), and special populations such as refugees (12,21), military personnel (22), or survivors of childhood sexual abuse (23).

Acceptability of trauma-focused treatments

Patients with PTSD avoid reminders of the traumatic event and respond to such reminders with psychological distress and physiological arousal. This poses a challenge for trauma-focused psychological treatments as they involve asking patients to revisit the memory of the trauma with the help of the therapist, and engage in behaviors or confront situations that they currently avoid. This raises the question of how acceptable these treatments are. A recent meta-analysis (10) found that on average 75.9% of PTSD patients completed treatments focusing on prolonged exposure, 67% completed EMDR, and 82.8% completed treatment programs that combined exposure with cognitive therapy. Recent larger-scale evaluations of prominent CBT programs for PTSD such as *Prolonged Exposure* (5) or *Cognitive Reprocessing Therapy* (8) found that about a third of patients do not complete treatment (24,25). Thus, between a quarter and a third of patients can be expected to drop out of established trauma-focused CBT programs for PTSD, and this drop-out rate may be

greater than that for other treatments that do not focus on the trauma (25). Although the reasons for a patient's failure to complete treatment are often unclear and may include rapid improvement in some cases, it is likely that some patients do not complete trauma-focused treatments because they find them hard to tolerate.

Furthermore, some clinicians are reluctant to use trauma-focused treatments because they believe that these treatments may worsen the patient's symptoms. The available evidence, however, overall does not support this concern. While some studies have reported temporary worsening of symptoms in a subgroup of patients receiving exposure (26,27), others did not observe symptom exacerbation (28,29). Care needs to be taken to appropriately titrate patients' level of engagement with the trauma memory so that they do not become overwhelmed or lose touch with present reality (27,30,31). Overall, one of the current challenges in PTSD research is to maximize the acceptability of trauma-focused treatments for patients and therapists.

Developing a cognitive-behavioral treatment of PTSD

Clark (32) described an approach that has been particularly helpful in devising effective and acceptable cognitive therapy (CT) programs for anxiety disorders. It involves:

- Identifying core cognitive abnormalities in the disorder,
- Developing a theory of the maintenance of the disorder,
- Testing the theory with experiments and prospective longitudinal studies,
- Developing a focused version of CT that targets the cognitive abnormality and maintaining factors,
- Testing the efficacy and effectiveness in randomized controlled trials (RCTs) and dissemination studies.

This approach has been successfully applied to panic disorder (33), hypochondriasis (34), and social phobia (35). In the following, we will describe how this approach has been helpful in furthering our understanding of PTSD, and has led to the development of a very effective and acceptable treatment program, CT for PTSD.

Identifying core cognitive abnormalities and developing of a cognitive model of PTSD

Close attention to the phenomenology of a disorder is helpful in identifying treatment targets and furthers the understanding of the disorder. In PTSD, several aspects are noteworthy:

- Many people recover on their own after a traumatic event,
- PTSD is particularly characterized by anxiety symptoms, although other emotions such as shame, guilt, sadness and anger are often also present,
- The reexperiencing symptoms in PTSD have several features that distinguish them from other autobiographical memories.

We will now discuss these phenomenological characteristics in turn.

First, epidemiological studies show that many people are resilient and do not develop PTSD following trauma. Furthermore, a large proportion of those who show initial symptoms of PTSD recover without intervention (36). Thus, factors that explain why some people do not recover on their own are relevant for treatment, as reversing these factors is likely to lead to improvement. The Ehlers and Clark model (37) described below focuses on such maintaining factors.

Second, many of the symptoms PTSD such as avoidance or hypervigilance are anxiety symptoms, and PTSD is classified as an anxiety disorder in the DSM (1, 3). From a cognitive perspective, anxiety is the result of appraisals relating to impending (future) threat. This creates an interesting puzzle: PTSD is a disorder in which the problem is a memory for an event that has already happened, so why do patients with this disorder have so many anxiety symptoms? Ehlers and Clark (37) suggested that this apparent puzzle can be resolved by proposing that persistent PTSD occurs only if individuals process the traumatic event and/or its sequelae in a way which produces a sense of a *serious current threat*.

Ehlers, Clark and colleagues (37-41) interviewed patients with PTSD and found that the perceived threat has two sources. First, people with chronic PTSD show excessively negative appraisals of the trauma and/or its sequelae. These appraisals go beyond what everyone would find horrific about the traumatic event and represent highly idiosyncratic personal negative meanings. For example, a bus driver who was assaulted by a passenger believed that he was a bad father who let his children down because he asked the passenger to buy a ticket before he was attacked. Some patients believe that the fact that the trauma happened to them shows that they or significant others are very likely to die soon in another trauma. Others find their reactions during the event shameful and believe that others would detest them if they knew about their responses. Others interpret the initial reexperiencing symptoms as a sign that they are going crazy or losing control of their lives. For others, people's reactions in the aftermath of the event are the most distressing aspect of the trauma and they believe that no one cares about them or that people reject them because of what happened to them.

The second source of the perceived current threat in PTSD according to the Ehlers and Clark model are characteristics of the trauma memory that lead to reexperiencing symptoms. Four aspects of *involuntary* reexperiencing of trauma memories stand out: (a) reexperiencing lacks the awareness of the self in the past, and the sensations and perceptions appear as they were happening in the present ('nowness', hence the perception of current threat); (b) reexperiencing can take the form of *affect without recollection* (37) where emotional responses (including physiological responses or behaviors such as collapsing or running away) are triggered without a simultaneous recollection of the trauma itself; (c) during reexperiencing people do not access other information from memory that would be relevant for its meaning (e.g., a man who believed at a certain moment during the trauma that he would never see his children again experienced overwhelming sadness when this moment popped into his mind, and he had difficulty accessing the fact that he was still living with his children); (d) many stimuli can trigger intrusive memories, and the link to the trauma is often of a sensory rather than meaningful nature (e.g., a color, sound, smell may trigger an intrusion if it bears resemblance to something present during the trauma). This makes it hard for patients to spot the triggers, and the intrusions appear to come out of the blue. Despite the vivid reexperiencing of aspects of the trauma, patients with PTSD often have difficulty intentionally retrieving a complete memory for the event. Their *intentional recall* of the trauma is disjointed, important details may be missing, and they often have difficulty recollecting the temporal order of the event. In order to explain these rather puzzling characteristics of trauma memory retrieval, Ehlers and Clark (37) suggested that people with PTSD have a disturbance in autobiographical memory characterized by poor elaboration, strong associative learning, and strong perceptual priming. The poor elaboration leads to the disjointed and relatively poor intentional recall and weak inhibition of cue-driven retrieval (see also 42). Associative learning and perceptual priming make it likely that involuntary memories are triggered by matching cues.

The model (37) further specifies that the idiosyncratic appraisals motivate a range of dysfunctional behaviors and cognitive strategies that are intended to reduce the sense of

current threat, but maintain PTSD by either (a) preventing elaboration of the trauma memory (e.g., avoidance of talking about the event), (b) preventing reappraisal (e.g., hypervigilance to threat or excessive precautions (safety-seeking behaviors) maintain the belief that another trauma is likely to happen), (c) increasing PTSD symptoms directly (e.g., suppression of intrusive memories may lead to paradoxical increases in intrusion frequency), or (d) by several of these pathways (e.g., rumination may lead to increased intrusions and maintain appraisals such as appraisals about permanent change for the worse).

Testing the Ehlers and Clark (2000) model of PTSD

Consistent with the model, five prospective longitudinal studies have found that negative appraisals of the trauma and its sequelae and the hypothesized maintenance behaviors and cognitive strategies (rumination, thought suppression, ongoing dissociation, safety-seeking behaviors) predict chronic PTSD (43-47).

Several experimental and prospective longitudinal studies support the importance of the characteristics of the trauma memory specified in the model. For example, sense ofnowness, lack of context of intrusive memories, and degree of memory disorganization in the initial weeks after trauma predicts chronic PTSD (47-49). In line with a role of perceptual priming in intrusions, laboratory studies with volunteers showed that objects that were presented in a 'traumatic' context lead to greater perceptual priming than those presented in a neutral context. People who developed intrusive memories showed greater priming than those who did not develop intrusive memories (50,51). Trauma survivors with PTSD showed greater perceptual priming for trauma-related words than those without PTSD, and degree of priming in the initial weeks after the trauma predicted chronic PTSD at 6 months (52). In line with the hypothesis of disjointedness of trauma memories, trauma survivors with PTSD take longer to retrieve autobiographical information from memory when imagining the trauma than those without PTSD, but not when imagining other negative events (53).

Cognitive Therapy for PTSD

The Ehlers and Clark (37) model provides the conceptual framework for a new version of trauma-focused CBT, CT for PTSD. The treatment addresses the cognitive abnormalities and maintaining factors specified in the model and has three goals. These will be briefly described along with the procedures that are used to address them.

Goal 1: Identify and change idiosyncratic negative appraisals (personal meanings) of the trauma and/or its sequelae—As in other CT programs, excessively negative appraisals of *trauma sequelae* such as the initial PTSD symptoms (43, 44, 54) and other people's responses after the event (e.g., 44), are modified by the provision of information, Socratic questioning, and behavioral experiments. Patients who describe a sense of permanent change since the trauma (e.g., 55) are encouraged to 'reclaim' their former lives by reinstating significant activities or social contacts they have given up since the trauma.

Changing negative appraisals of the *trauma* poses a special challenge as much of the patient's evidence for the problematic appraisals stems from what they remember about the trauma. Thus, work on appraisals of the trauma needs to be *closely integrated* with work on the trauma memory. The disjointed intentional recall of the trauma in PTSD (a) makes it difficult to assess the problematic meanings by just talking about the trauma, and (b) has the effect that insights from cognitive restructuring may not be sufficient to produce a large shift in affect. We have therefore developed a special procedure to shift problematic meanings of the trauma, termed *Updating Trauma Memories*. This involves (a) identifying the moments

during the trauma that create the greatest distress and sense of ‘nowness’ during recall (hot spots) through imaginal reliving (or narrative writing) and discussion of intrusive memories, (b) identifying information that updates the impression the patient had at the time either by identifying the course, circumstances and outcome of the trauma, or by cognitive restructuring, and (c) actively incorporating the updating information into the hot spots. Patients are asked to bring the hot spot to their mind (either through reliving or reading the narrative) and to then remind themselves of the new meaning either (a) verbally (e.g., “I know now that ....”), (b) by imagery (e.g., visualizing how one’s wounds have healed; visualizing perpetrator in prison) or (c) by performing movements or actions that are incompatible with the original meaning of this moment (e.g., moving about, jumping up and down for hot spots that involve prediction that the patient will die or be paralyzed).

Goal 2: Reduce reexperiencing by elaboration of the trauma memories and discrimination of triggers—Four main techniques are used to elaborate the trauma memory and reduce reexperiencing: imaginal reliving of the event (6), writing out a detailed account of the event (7), revisiting the site, and discrimination of triggers. Each procedure has advantages, and the relevant weight given to them depends on the patient’s level of engagement with the trauma memory and the length of the event. *Imaginal reliving*, in which the patient visualizes the event while simultaneously describing what is happening and what he or she is feeling and thinking, is particularly good at facilitating engagement with the memory and retrieval of all aspects of the memory (including emotions and sensory components). *Writing a narrative* is particularly useful when aspects of what happened or the order of events are unclear. Reconstructing the event with diagrams and models and a visit to the site can be of further assistance in such instances. For patients who tend to dissociate when talking about the trauma, writing may also be easier to manage than imaginal reliving. *Revisiting the site* of the traumatic event is particularly helpful in facilitating the realization that the event is in the past. When visiting the site, therapist and patient therefore discuss the way the scene is different from the day of the trauma (‘Then’ versus ‘Now’).

Building on the observation that trauma memories are disjointed and often lack crucial context information, Ehlers and colleagues (37,38) outlined that memory elaboration needs to link the worst moments of the trauma with new information that updates their meanings (e.g., the fact that they are not paralyzed if they thought they would be paralyzed; reasons for why it was not their fault if they feel responsible for what happened). To establish this new link, CT for PTSD uses the *Updating Trauma Memories* procedure described above.

Discrimination of triggers of reexperiencing symptoms usually involves two stages. First, patient and therapist carefully analyze of where and when intrusions occur to identify triggers. This involves some detective work as patients are usually not aware of many of the sensory triggers. Systematic observation (by the patient and the therapist) is usually necessary before all triggers are identified. Once triggers have been identified, the next aim is to break the link between the triggers and the trauma memory. This involves several steps in therapy. First, the patient learns to distinguish between ‘Then’ versus ‘Now’, i.e., the patient learns to focus on how the present triggers and their context (‘Now’) are different from the trauma (‘Then’). Second, intrusions are intentionally triggered in therapy so that the patient can learn to apply the ‘Then’ versus ‘Now’ discrimination. This can be facilitated by carrying out actions that were not possible during the trauma (e.g., movements that were not possible in the trauma, touching objects that remind them of their present life). Third, patients apply these strategies in their natural environment. When reexperiencing occurs, they remind themselves that they are responding to a memory, not current reality. They focus their attention on how the present situation is different from the trauma, and may carry out actions that were not possible during the trauma.

If reexperiencing symptoms persist after successful updating of the hot spots and discrimination of triggers, imagery transformation techniques can be useful. The patient transforms the image into a new image that signifies that the trauma is over. The transformed images can provide convincing evidence that the intrusions are a product of the patient's mind rather than representing current reality. Image transformation is also particularly helpful with intrusions that represent images of things that did not really happen during the trauma (usually anticipated bad consequences of the trauma).

Goal 3: Drop dysfunctional behaviors and cognitive strategies—The first step in addressing behaviors and cognitive strategies that maintain PTSD is usually to discuss the problematic consequences of the strategy. Sometimes these can be demonstrated directly by a behavioral experiment. For example, asking the patient to try hard not to think about a certain image (e.g., black-and-white cat sitting on therapist's shoulder) demonstrates that thought suppression is likely to increase intrusions. In other instances, a discussion of advantages and disadvantages is helpful, for example when addressing rumination. The next step involves dropping or reversing the problematic strategy, usually in a behavioral experiment.

Similarities and differences to other trauma-focused CBT programs

Several of the treatment techniques involved in CT for PTSD overlap with those of other effective CBT treatments for PTSD, but there are three general categories of differences.

First, the treatment has a stronger emphasis than many other CBT programs on identifying and modifying problematic appraisals of trauma sequelae (initial PTSD symptoms, other people's responses after the event, etc.), and on the modification of a wide range of behavioral and cognitive maintaining strategies (e.g., rumination, hypervigilance, overt and covert safety-seeking behaviors).

Second, a number of fairly novel procedures are utilized. These include: discrimination of triggers of reexperiencing; active incorporation of updating information into the trauma memory; behavioral experiments that demonstrate the way in which various maintaining processes (such as thought suppression and hypervigilance for danger) operate; and imagery transformation techniques for updating meanings of hot spots and modifying persisting intrusions.

Third, the way in which some of the overlapping procedures are used differs from how they are used in many other CBT programs. Imaginal reliving and narrative writing are not presented as techniques for promoting emotional habituation to a painful memory but instead are used to identify hot spots that will be addressed with cognitive restructuring and also to facilitate understanding of how one event followed from another. Given this distinction, imaginal reliving is used in a considerably smaller portion of treatment sessions (on average 3 out of 12 sessions) than in repeated and prolonged exposure CBT programs. A similar distinction applies to exercises that involve entering avoided situations. Rather than aiming to promote emotional habituation by repeated *in vivo* exposure, the exercises are explicitly used to test specific predictions about overgeneralization of danger and to reduce the sense of nowness that occurs when a trauma memory is activated. Cognitive restructuring focuses on the idiosyncratic meanings of the trauma that are identified through work on the trauma memory. For this reason, unlike some other programs, patients are *not* taught to use daily thought diaries, which could run the risk of promoting rumination (9), and sessions do not involve discussion of preset cognitive themes (7).

In some CBT programs (e.g., 9), imaginal reliving and verbal cognitive restructuring are seen as separate procedures which are given in separate parts of the treatment session. In CT

for PTSD, the two are closely intertwined, with the results of cognitive restructuring being actively incorporated into the trauma memory.

How effective and acceptable is CT for PTSD?

CT for PTSD has been evaluated in four RCTs and in two dissemination studies with a range of populations. Most studies focused on PTSD following trauma in adulthood. Ehlers, Clark and colleagues (31) presented a consecutive case series and a RCT comparing CT for PTSD with a 3-month wait list control condition. Patients had chronic PTSD following a range of different traumas that had happened between 6 months and 20 years ago. CT was very effective. In the consecutive case series, 85% of the patients recovered from PTSD and the pre-post treatment effect size was $d = 2.70$ for self-reported PTSD symptoms (intent-to-treat analysis). One patient (5%) dropped out as she moved abroad. In the RCT, 71.4% of the patients recovered from PTSD. The pre-post treatment effect size was $d = 2.82$ for self-reported and $d = 2.07$ for clinician-rated PTSD symptoms (intent-to-treat analysis). No patient dropped out.

Another RCT tested whether CT is effective as an early intervention for acute PTSD. The challenge of early intervention studies in PTSD is that a substantial proportion of those who have PTSD in the initial months after trauma recover without intervention (36). In an outreach program, Ehlers, Clark and colleagues (56) identified road traffic accident survivors who had a high risk of chronic PTSD, namely patients with a score of 20 or above on the Posttraumatic Stress Diagnostic Scale (57) who failed to respond to self-monitoring of their intrusive memories (58). On average, treatment was started about 4 months after the accident. Patients were randomly allocated to either CT for PTSD, a self-help booklet condition (including one session with a therapist), or a control condition that involved assessment only over 9 months. CT was superior to both the self-help booklet and assessment-only condition. The latter two conditions did not differ on most measures; contrary to expectations, the self-help booklet condition did *worse* than the assessment-only condition on two outcome measures. At follow-up, 89% of the patients receiving CT for PTSD had recovered, compared to 39% in the self-help and 45% in the assessment-only condition. The corresponding treatment effect size was $d = 2.69$ for self-reported and $d = 2.17$ for clinician-rated PTSD symptoms (intent-to-treat analysis). No patient dropped out.

More recently, we have tested whether an intensive 1-week version of CT for PTSD is effective and acceptable to patients. A consecutive case series and a RCT found that the intensive treatment shows comparable efficacy and acceptability as the weekly version of CT for PTSD. Furthermore, both the intensive and weekly CT programs were more effective than emotion-focused supportive therapy. The 1-week treatment may offer some advantages as patients improve more quickly than with the traditional one-session-per-week program. It is also sometimes easier for patients to organize their lives if they can focus treatment for a single week, rather than try to attend sessions spread over 3 to 4 months with associated homework.

One of the challenges for new CBT programs is to demonstrate that the treatments also work if they are delivered by clinicians other than those involved in the development of the treatment. The first dissemination study of CT for PTSD involved training clinicians working in a community treatment clinic in Omagh, Northern Ireland, following a car bomb in a crowded town center in 1998. Treatment started a median of 10 months after the bombing. Gillespie et al. (59) presented the results of the consecutive case series of 91 PTSD patients. Outcomes were similar to those achieved in the original RCTs of CT for PTSD, with a pre-post treatment effect size of $d = 2.45$ (self-reported PTSD symptoms). A similar result was recently obtained when new therapists were trained in CT for PTSD to

treat London bombing survivors at one of the trauma clinics participating in a screen-and-treat program (60).

Following the positive results of the initial Omagh study (59), a new treatment center was opened for all people affected by terrorism and other civil conflict in Northern Ireland over the past four decades. The clinic serves a very chronic and severely disabled population of trauma survivors, most of whom have experienced multiple trauma including major losses, have significant comorbidity (in particular severe depression), and may experience ongoing threat. Many have had several unsuccessful treatments in the past. As it was unclear whether CT would be effective in this population, Duffy et al. (61) conducted a RCT where *all* patients with PTSD who were referred to the treatment center were randomly allocated to either immediate CT or a 3-month wait, followed by CT. Therapists included those originally trained by Clark and colleagues as well as new therapists. The pre-post treatment effect size was $d = 1.74$ (completer) and $d = 1.25$ (intent-to-treat analysis) for self-reported PTSD symptoms. Thus, treatment was still very effective in this very disabled population. However, there were more drop-outs (20%) than in the other RCTs (0%). The majority of these were either due to the unique context in Northern Ireland (threats to self or family linked to the civil conflict) or therapist non-adherence to treatment protocol in relation to imaginal reliving and behavioral experiments (not tackling beliefs, inadequate or inappropriate preparation).

Finally, Smith et al. (62) recently developed an adaptation of the treatment program that is suitable for children and adolescents. A RCT comparing the CBT program with a wait list showed that the treatment is highly effective and acceptable, with a pre-post treatment effect size of $d = 3.43$ (self-reported PTSD symptoms). No patient dropped out. All patients treated with the CBT program had recovered by follow-up.

Conclusion

Since the introduction of the diagnosis of PTSD in 1980, significant progress has been made in developing effective treatments for this disorder. A range of effective trauma-focused treatments are now available, and one of the main challenges remains to make these treatments acceptable to patients and therapists, and to make them more widely available. We have described how a combination of phenomenological, experimental and treatment development studies was used to create an effective and acceptable version of CBT, Cognitive Therapy for PTSD. Future studies will have to investigate further how well the treatment performs with different populations of trauma survivors. The initial experience in Omagh suggests that it transports well to other populations and contexts.

Acknowledgments

The research described in this paper was funded by the Wellcome Trust, grant 069777.

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