

# Acute Stress Disorder, Posttraumatic Stress Disorder and Complex PTSD



## Classification and grouping of interventions

The purpose of this chapter is to provide a brief summary of the interventions for which, on the strength of the available evidence, recommendations have been made for or against use in either clinical practice or research. As noted previously the Guidelines do not substitute for the knowledge and skill of competent individual practitioners and are designed to guide appropriate interventions in the context of each person's unique circumstances and their overall mental health care needs. Practitioners should be enabled to interpret and implement treatment recommendations in the context of good clinical judgement.

The systematic evidence review underpinning the development of these Guidelines investigated the full range of current treatments used for people with PTSD and ASD. Studies were grouped into broad categories (e.g., trauma-focussed CBT, eye movement desensitisation and reprocessing [EMDR], psychodynamic therapy), and in cases where there was a sufficient evidence base, these broad groups were subdivided into more specific subgroups (e.g., for adults with PTSD, trauma-focussed CBT was subdivided into types of trauma-focussed CBT). In these cases, a description is provided of the broad as well as the more specific subgroups of interventions.

The interventions are presented in the following sequence. A universal intervention is applicable for all who are exposed to trauma, while an indicated intervention is applicable for those people with symptoms.

- For children and adolescents within the first 3 months of trauma exposure
  - Early psychosocial prevention interventions (universal)
  - Early psychosocial treatment interventions (indicated)
- For children and adolescents with clinically relevant posttraumatic stress symptoms
  - Psychological treatments
  - Non-psychological and non-pharmacological treatments/interventions
- For adults who are likely to be exposed to trauma
  - Pre-incident preparedness training
- For adults within the first three months of a traumatic event
  - Early single-session psychosocial prevention interventions for adults (universal)
  - Early multiple-session psychosocial prevention interventions for adults (universal)
  - Early psychosocial treatment interventions for adults (indicated)
  - Early pharmacological interventions for adults (indicated)

- For adults with clinically relevant posttraumatic stress symptoms
  - Psychological treatments
  - Pharmacological treatments
  - Non-psychological and non-pharmacological treatments

Within each category, interventions are listed according to the nature of the recommendation:

- Strong recommendation for use
- Conditional recommendation for use
- Strong recommendation against use
- Conditional recommendation against use
- Recommendation for further research

*It is important to note that interventions that have been recommended for further research are NOT currently recommended for the treatment of PTSD. Nor should it be inferred that evaluating these interventions should take priority over strengthening the evidence for some more routinely used interventions or among important populations who are under-represented in current research.*

# Children and adolescents

## Children and adolescents within the first three months of a traumatic event

### Early psychosocial prevention interventions (universal)

#### Conditional recommendation against use

##### Individual psychological debriefing

Psychological debriefing aims to normalise reactions and promote emotional processing of the traumatic event through a structured process. The debriefing interventions are single-session and based on critical incident stress debriefing (CISD); individuals are asked to provide detailed facts about their traumatic experience, their thoughts, reactions, and symptoms before being provided with psychoeducation about symptoms and how to deal with them.

The terms 'psychological debriefing' and 'critical incident stress debriefing' are often used interchangeably. The former describes a class of interventions delivered shortly following a trauma (usually between 24 and 72 hours) that aim to relieve distress and facilitate a rapid return to normal functioning, thereby mediating or avoiding long-term psychopathology. Psychological debriefing operates on the principles of ventilation (an opportunity to talk about the experience), normalisation of distress, and psychoeducation regarding potential symptoms. CISD, on the other hand, is a specific form of debriefing developed in the 1980s.<sup>1</sup> It centres predominantly around group-based interventions for secondary victims, such as emergency services personnel, rather than primary victims. While generally group-based, it also advocates individual (or one-on-one) interventions as an acceptable and expected variant. It relies heavily on processes of reconstruction of the traumatic event, ventilation, and normalisation, and includes a structured education component. Over time, CISD has been amalgamated within a framework of self-help activities and structured organisational processes called critical incident stress management (CISM).

It should be noted that CISD and psychological debriefing differ from operational debriefing, a group process undertaken in high-risk industries to review a particular operation or activity. The aim of operational debriefing is to review the events and processes of the operation and to apply the lessons learned to future events. Operational debriefing is considered good practice in high-risk industries as a method of improving service quality and is not a focus of these Guidelines.

#### Recommendation for further research

##### Self-directed online psychoeducation

Psychoeducation provides individuals (in this context, caregivers and/or their children) with information about the reactions that commonly follow a trauma, which reactions are consistent with a diagnosis of PTSD, and information about what maintains PTSD. The information is aimed at normalising and relieving trauma reactions by providing basic coping and resilience strategies. One study included psychoeducation more broadly with strategies such as:

- promoting adaptive cognitive appraisals
- decreasing excessive early avoidance coping
- promoting use of social support.

Psychoeducation for caregivers can include information regarding common child reactions to trauma, their likely time course, and how best they can assist their child's emotional recovery (e.g., such as offering their child the opportunity to talk, not avoiding talking about the accident, and encouraging normal routine).

## Early psychosocial treatment interventions (indicated)

### Conditional recommendation for use

#### Child and family traumatic stress intervention (CFTSI)

The child and family traumatic stress intervention (CFTSI) is a four-session caregiver plus child model designed for early intervention and secondary prevention for children aged 7–17.<sup>2</sup> The CFTSI focuses on two PTSD risk factors: poor social or familial support and poor coping skills. It aims to ameliorate these risks by (1) increasing communication between the affected child and their caregivers about feelings, symptoms, and behaviours with the goal of increasing the caregivers' support of the child, and (2) teaching specific behavioural skills to both the caregiver and child to assist in coping with symptoms.

## Children and adolescents with clinically relevant posttraumatic stress symptoms

### Psychological treatments

#### Strong recommendation for use

##### Trauma-focussed CBT for children

Trauma-focussed CBT is intended to help an individual come to terms with trauma through exposure to and emotional processing of memories of the event. Trauma-focussed CBT for children is typically delivered by a trained practitioner to children or adolescents over 6–12 sessions, or more if clinically indicated. The intervention should be adapted to the child or young person's age or development. Trauma-focussed CBT generally includes psychoeducation about reactions to trauma, affect regulation skills, elaboration and processing of the trauma memories, processing of trauma-related emotions (such as shame, guilt, and anger), restructuring of trauma-related meanings for the individual, and strategies to overcome avoidance.

##### Trauma-focussed CBT for caregiver and child

This is a trauma-focussed CBT intervention delivered to the child/adolescent and their caregiver. When possible, parents or caregivers are included throughout treatment to support the child or adolescent's practice and mastery of skills and to enhance positive parenting and parental support.

#### Conditional recommendation for use

##### Eye movement desensitisation and reprocessing (EMDR)

Eye movement desensitisation and reprocessing (EMDR) was originally developed by Francine Shapiro to treat traumatic memories in adults with PTSD. For use with children, modifications of the EMDR protocol are made to adjust for child age and developmental level. For example, whenever needed, the eye movements can be replaced by tapping, and face-figures can be used to assess the child's emotional state.

EMDR is a standardised, eight-phase, trauma-focussed therapy involving the use of bilateral physical stimulation (eye movements, taps, or tones). EMDR is based on the assumption that, during a traumatic event, overwhelming emotions or dissociative processes may interfere with information processing. This

leads to the experience being stored in an 'unprocessed' way, disconnected from existing memory networks.

In EMDR the person is asked to focus on the trauma-related imagery and the associated thoughts, emotions, and body sensations while bilateral physical stimulation, such as moving their eyes back and forth, occurs. Processing targets may involve past events, present triggers, and adaptive future functioning. It is proposed that this dual attention facilitates the processing of the traumatic memory into existing knowledge networks, although the precise mechanism involved is not known.

## Recommendation for further research

### **Narrative exposure therapy for children (KidNET)**

KidNET is a modified version of narrative exposure therapy (NET) that has been developed for use with children. NET is a standardised short-term intervention adapted from testimony therapy (traditionally used with survivors of torture and civilian casualties of war), as well as from standard exposure approaches. It was originally developed both to treat survivors and to document human rights violations. In NET, the person is asked to develop and describe a narrative of their life from early childhood to present, focussing in detail on the traumatic events and elaborating on the associated thoughts and emotions. It is proposed that NET works in two ways: promoting habituation to traumatic memories through exposure, and reconstructing the individual's autobiographic memory.

### **Parent–child relationship enhancement (play therapy)**

Child play interventions are guided by the unfolding child–parent interactions (if the parent is present in the session) and by the child's play with developmentally and culturally appropriate toys selected to elicit trauma play or enable children to communicate their thoughts and feelings. Regular child play sessions are interspersed with individual parent sessions.

### **Trauma-focussed CBT for caregiver and child (combined individual and group)**

This is a trauma-focussed CBT intervention with a combination of group sessions, parent education sessions, and individual sessions. Interventions include psychoeducation, relaxation training, cognitive restructuring, social problem solving, and trauma-focussed intervention strategies, including graded exposure and trauma processing using narrative techniques.

### **Trauma-focussed CBT for child (group)**

This is a CBT intervention with a trauma focus delivered in a group setting. The specific interventions included in the systematic review studies involve six to eight modules delivered by facilitators and include psychoeducation on trauma, dual attention tasks (such as knee tapping while thinking of traumatic events), controlled breathing, progressive muscle relaxation, identifying thoughts and feelings, reframing unhelpful thoughts, graded exposure techniques, and trauma processing using artwork or sharing written trauma narratives with the group.

## Non-psychological and non-pharmacological treatments/interventions

### Recommendation for further research

#### **Mind–body skills group**

'Mind–body' techniques used in the studies in the systematic review include guided imagery, relaxation techniques, meditation, autogenic training, and biofeedback. In addition to these modalities, a variety of

forms of self-expression may be offered, such as art therapy and written exercises. In refugee populations exposed to war-related traumatic events, there is emerging evidence for the delivery of these mind–body techniques in small groups.

## Adults

### Pre-incident preparedness training

#### Recommendation for further research

##### Attention bias modification training (ABMT)

Attention bias modification training (ABMT) involves the delivery of brief (approximately 20-minute), computerised tasks. Attentional avoidance of negative information is encouraged through use of a modified dot-probe task where probes always appear in the location opposite negative stimuli. This procedure is designed to 'train' an individual's attention away from or towards negative or threatening information. The immediate effects of ABMT appear to be most prominent when applied prior to exposure to a potentially traumatic event. ABMT has been delivered to soldiers immediately prior to combat deployment in order to attenuate the association between combat exposure and PTSD-related symptoms.

##### Attention control training

Attention control training uses the same format as ABMT but presents equal numbers of targets in the locations of threat and neutral attention stimuli (such as words). It is not designed to shift attention patterns but rather to balance attention between neutral and threat stimuli.

##### Heart rate variability biofeedback (HRVB)

Heart rate variability biofeedback (HRVB) is a form of cardiorespiratory intervention that consists of feeding back beat-by-beat heart rate data to the participant who tries to maximise respiratory sinus arrhythmia (RSA). RSA is the heart pattern that occurs when heart rate increases during inhalation and decreases during exhalation. This intervention has also been tested in the context of pre-combat deployment in order to prevent subsequent PTSD.

### Adults within the first three months of a traumatic event

#### Early single-session psychological interventions for adults (universal)

#### Recommendation for further research

##### Group 512 Psychological Intervention Model (Group 512 PIM)

Group 512 PIM is an intervention tested on Chinese military rescuers and based on the standard principles of critical incident stress debriefing (CISD) developed by Mitchell.<sup>1</sup> Group 512 PIM involves four stages including introduction, discussing the facts, thoughts, reactions, and symptoms related to the trauma followed by stress management tips. Group 512 PIM differs from standard CISD by including a final stage of cohesion training, where participants play games requiring team cooperation to foster military unit cohesion. This is a critical part of Group 512 PIM, as cohesion is thought to have protective effects against stress.<sup>3</sup>

## Conditional recommendation against use

### Group psychological debriefing

Group psychological debriefing is a single-session, semi-structured intervention, applied shortly after exposure to a PTE, during which groups are guided through a seven-stage discussion soon after exposure to a severe stressor. Facts, thoughts, and impressions are explored and education is provided on how to cope with possible stress reactions. Several methods of group debriefing have been proposed, most notably Mitchell's (1983) critical incident stress debriefing (CISD). The goals of CISD following work-related exposure to a PTE are: (1) prevention and mitigation of the symptoms of traumatic stress and (2) promotion of recovery and acceleration of return to normal functioning.

See the description of individual psychological debriefing (children and adolescents) for information on the distinction between psychological debriefing, CISD, and operational debriefing.

### Individual psychological debriefing

Individual psychological debriefing is the application of critical incident stress debriefing (CISD) in an individual setting. The intervention generally comprises an hour's debriefing, combining a review of the traumatic experience, encouragement of emotional expression, and promotion of cognitive processing of the experience.

See the description of individual psychological debriefing (children and adolescents) for information on the distinction between psychological debriefing, CISD, and operational debriefing.

## Early multiple-session prevention interventions for adults (universal)

### Recommendation for further research

#### Brief dyadic therapies

These are brief (usually two or three sessions) CBT-based therapies delivered dyadically (e.g., with an individual and their partner) with the aim of improving communication and fostering a shared approach to addressing psychological and practical difficulties. For example, brief dyadic therapy as described by Brunet and colleagues<sup>4</sup> aims to target social support process following trauma exposure, and involves elements of psychoeducation and motivational interviewing to enhance communication between the patient and their significant other. It involves two sessions, which aim to promote disclosure of thoughts and emotions relating to the trauma while attempting to reduce social constraints on disclosure and negative interactions between the dyad.<sup>4</sup>

#### Internet-based CBT

'Trauma TIPS', an internet-based self-guided intervention, is based on CBT principles of psychoeducation, stress/relaxation techniques, and *in vivo* exposure. Trauma TIPS aims to decrease levels of distress and anxiety by providing information on successful coping, instructions and guidance for *in vivo* exposure, and stress management techniques.<sup>5</sup>

## Early psychosocial treatment interventions for adults (indicated)

### Strong recommendation for use

#### Stepped/collaborative care

A stepped care model recognises that not all those exposed to potentially traumatic events will develop a diagnosable disorder; many will experience only sub-threshold symptoms and others will not experience significant symptomatology at all. Stepped care aims to ensure that individuals receive care commensurate with the severity and complexity of their need. The approach involves ongoing monitoring of people who are more distressed and/or at heightened risk of poor psychological adjustment, with increasingly intensive interventions delivered as indicated. Interventions are generally CBT-based, but sometimes based on other psychological approaches (e.g. motivational interviewing) and may include components of case management and prescription of pharmacological intervention.

The collaborative care model by Zatzick and colleagues<sup>6-8</sup> is a stepped care model where injury patients are screened for high levels of PTSD symptoms. Those with risk factors are offered integrated care including pharmacotherapy, motivational interviewing targeting problematic alcohol use, and CBT targeting depression and PTSD symptoms. Elements of the treatment are provided in a stepped fashion with elements with greater ease of delivery, such as psychoeducation and problem solving, given initially, followed later by more complex elements such as activity scheduling. Patient symptoms are repeatedly measured and higher-intensity care is initiated if the person requires it. The stepped care model proposed by O'Donnell and colleagues<sup>9</sup> aimed to address a comprehensive range of post-trauma psychopathology beyond PTSD. In a two-stage screening process, patients were screened for high-risk symptoms of PTSD, depression, and anxiety, and treated with an evidence-based modular CBT manual that allowed treatment to be tailored to the patient's individual symptom-cluster profiles.

### Conditional recommendation for use

#### Trauma-focussed CBT (TF-CBT)

Trauma-focussed CBT is intended to help an individual come to terms with trauma through exposure to and emotional processing of, memories of the event. This includes prolonged exposure, cognitive restructuring, cognitive processing therapy, and cognitive therapy. Typically, TF-CBT involves homework and includes psychoeducation, exposure work, cognitive work, and more general relaxation/stress management; the relative contribution of these elements varies between different forms of TF-CBT.

#### Cognitive therapy

Beck introduced cognitive therapy (CT) as a treatment for depression in the 1970s, and several others were promoting similar approaches around the same time (e.g., Ellis, Meichenbaum). Cognitive therapy helps the individual to identify, challenge, and modify any biased or distorted thoughts and memories of their traumatic experience, as well as any subsequent maladaptive or unhelpful beliefs about themselves and the world that they may have developed. It does not involve exposure to trauma memories with the aim of undertaking reprocessing. Cognitive therapy techniques include monitoring of thoughts and emotions and modification of negative appraisals and behaviours – in particular those that lead the PTSD sufferer to overestimate current threat (fear).<sup>10-12</sup>

### **Cognitive processing therapy**

Cognitive processing therapy (CPT) is a form of cognitive therapy refined specifically for the treatment of PTSD.<sup>13</sup> CPT is a 12-session cognitive-behavioural manualised treatment (treatment presented in a 'manual' format) for PTSD that systematically addresses key posttraumatic themes, including safety, trust, power and control, self-esteem, and intimacy. The primary goal of treatment is to create more balanced, adaptive, multifaceted trauma appraisals and beliefs (both looking back on the traumatic experience and in the present).

### **Prolonged exposure (PE)**

Prolonged exposure is a manualised therapy developed by Edna Foa's group that consists of psychoeducation about common reactions to trauma, breathing retraining, *in vivo* exposure (approaching safe situations that patients avoided due to trauma-related fear), imagery exposure (repeated recounting of trauma memories during sessions and listening to recordings of the recounting made during therapy sessions), and processing (discussion of thoughts and feelings related to the exposure exercises). The intervention as described in these studies also includes psychoeducation and training in breathing control. The number of sessions administered in these studies was either five or twelve sessions of 90 minutes.<sup>11,12</sup>

### **Brief EMDR**

Brief EMDR can range from one to three sessions and involves clients focusing on fragments of their trauma memory while simultaneously engaging in dual attention stimulation using eye movements.

## **Recommendation for further research**

### **Helping to overcome PTSD through empowerment (HOPE)**

Helping to overcome PTSD through empowerment (HOPE<sup>14</sup>) is a present-centred cognitive behavioural therapy and empowerment-based individual treatment created to address PTSD in the context of intimate partner violence (IPV) and the clinical challenges of residents of women's shelters who have ongoing safety issues. HOPE is informed by Herman's (1992)<sup>15</sup> multistage model of recovery that views recovery from chronic trauma, including IPV, as occurring in three stages:

1. establishing safety
2. remembrance and mourning
3. reconnection.

HOPE incorporates many of the traditional components of CBT for PTSD (e.g., cognitive restructuring, skill building) with a focus on helping women realistically appraise the degree of threat they are under and to learn how to manage their PTSD symptoms without increasing them or risking their safety. HOPE also incorporates empowerment strategies, helping women to identify aspects of their situation that are under their control and providing them with the skills (e.g., assertiveness with safety planning) that aim to empower them.<sup>16</sup>

### **Internet-based guided self-help**

Internet-based guided self-help uses internet-based programs to treat individuals with PTSD using CBT approaches. Use of the intervention is guided by a therapist. Patients receive guidance and feedback on homework assignments from the therapist.

## Structured writing therapy

Structured writing is a broad term that encompasses interventions that rely exclusively on writing assignments. Of the two studies that employed structured writing interventions, one study<sup>17</sup> adapted their structured writing therapy program from the Interapy program, which is an internet-based 10-session structured writing intervention.<sup>18</sup> The other study<sup>19</sup> conducted by Bugg and colleagues adapted the Pennebaker writing paradigm, which requires participants to write about the feelings and emotions associated with their traumatic experience once a day for three consecutive days.<sup>20</sup> Across these two studies, participants were individuals with ASD or PTSD who sustained a traumatic injury such as a traffic accident or a sexual or non-sexual assault.

## Early pharmacological interventions for adults (indicated)

### Recommendation for further research

#### Hydrocortisone

Hydrocortisone is the synthetic form of the adrenal gland-produced hormone cortisol. It has been used to try to bring about homeostasis (stability) to the hypothalamic-pituitary-adrenal axis by inhibiting further release of adrenaline and noradrenaline.

## Adults with clinically relevant posttraumatic stress symptoms

### Psychological treatments

#### Strong recommendation for use

#### Cognitive processing therapy (CPT)

Cognitive processing therapy (CPT) is a form of cognitive therapy refined specifically for the treatment of PTSD.<sup>13</sup> CPT is a 12-session cognitive-behavioural manualised treatment for PTSD that systematically addresses key posttraumatic themes, including safety, trust, power and control, self-esteem, and intimacy. The primary goal of treatment is to create more balanced, adaptive, multifaceted trauma appraisals and beliefs (both looking back on the traumatic experience and in the present).

Treatment helps the person to identify unhelpful thoughts and beliefs ('stuck points'), challenge them, and replace them with rational alternatives in an adaptation of standard cognitive therapy approaches. It has a smaller exposure component than imaginal exposure therapy (restricted to writing an account of the experience). It also helps to address associated problems such as depression, guilt, and anger.

#### Cognitive therapy (CT)

Cognitive therapy (CT) is a variant of trauma-focussed CBT in which the therapist and patient collaboratively develop an individualised version of Ehlers and Clark's model of PTSD,<sup>21</sup> which serves as the framework for therapy. Ehlers and Clark (2000) suggested that PTSD becomes persistent when individuals process the trauma in a way that leads to a sense of serious, current threat. The sense of threat is hypothesised to arise as a consequence of excessively negative appraisals of the trauma and/or its sequelae, and a disturbance of the autobiographical memory for the trauma which leads to involuntary re-experiencing of aspects of the trauma. The problem is maintained by unhelpful behavioural and cognitive strategies that are intended to control the symptoms and perceived threat. Accordingly, CT for PTSD aims to modify excessively negative appraisals, correct the autobiographical memory disturbance, and remove

the problematic behavioural and cognitive strategies. CT is generally administered for 12 weekly treatment sessions (of 90 minutes for the initial sessions, and 60 minutes for the following sessions).<sup>22</sup>

## **EMDR**

EMDR is a standardised, eight-phase, trauma-focussed therapy involving the use of bilateral physical stimulation (eye movements, taps, or tones). EMDR is based on the assumption that, during a traumatic event, overwhelming emotions or dissociative processes may interfere with information processing. This leads to the experience being stored in an 'unprocessed' way, disconnected from existing memory networks.

In EMDR the person is asked to focus on the trauma-related imagery, and the associated thoughts, emotions, and body sensations while bilateral physical stimulation, such as moving their eyes back and forth, occurs. Processing targets may involve past events, present triggers, and adaptive future functioning. It is proposed that this dual attention facilitates the processing of the traumatic memory into existing knowledge networks, although the precise mechanism involved is not known.

## **Prolonged exposure (PE)**

Exposure therapy is long established as an effective treatment for a range of anxiety disorders. The key objective of exposure therapy is to help the person confront the object of their anxieties. A fundamental principle underlying the process of exposure is that of habituation, the notion that if people can be kept in contact with the anxiety-provoking stimulus for long enough, their anxiety will inevitably reduce. This may occur within an exposure session (within-session habituation) or across a series of sessions (between-session habituation). More contemporary models emphasise information processing as a key mechanism.

Prolonged exposure is a manualised therapy consisting of psychoeducation about common reactions to trauma, breathing retraining, *in vivo* exposure (approaching safe situations that patients avoided due to trauma-related fear), imagery exposure (repeated recounting of trauma memories during sessions and listening to recordings of the recounting made during therapy sessions), and processing (discussion of thoughts and feelings related to the exposure exercises).

## **Trauma-focussed CBT (TF-CBT)**

Trauma-focussed cognitive behavioural therapy (TF-CBT), is a broad term that encompasses any treatment that employs the standard principles of CBT combined with some form of trauma processing. Generally, TF-CBT involves the integration of CBT principles with components of exposure therapy, including imaginal exposure and graded *in vivo* exposure. Across most studies from the systematic review that underpins these Guidelines, the typical format of TF-CBT involves psychoeducation, breathing/relaxation training (arousal reduction strategies), imaginal exposure, *in vivo* exposure, and cognitive restructuring.

## **Conditional recommendation for use**

### **Guided internet-based trauma-focussed CBT**

Most internet-based interventions for PTSD commence with psychoeducation, and then present the rationale for CBT-based treatment. These programs incorporate cognitive techniques, with the aim of identifying and modifying unhelpful patterns of cognition. Usually, behavioural components are included; generally encompassing imaginal and *in vivo* exposure.<sup>23</sup> Internet-based interventions vary in the level of therapist assistance provided. Guided internet-based programs can be delivered by a specialist therapist who provides input and feedback on homework and encourages engagement with the program,<sup>23,24</sup> or by

a non-specialist mental health professional who intervenes to check on progress or provides input on demand, often by telephone or by email.<sup>25</sup>

### **Narrative exposure therapy (NET)**

Narrative exposure therapy (NET) is a standardised short-term intervention adapted from testimony therapy (traditionally used with survivors of torture and civilian casualties of war), as well as from mainstream exposure approaches. It was originally developed both to treat survivors and to document human rights violations. In NET, the person is asked to construct a narrative of their life from early childhood to present, focussing in detail on the traumatic events and elaborating on the associated thoughts and emotions. It is proposed that NET works in two ways: promoting habituation to traumatic memories through exposure, and reconstructing the individual's autobiographic memory.

A number of successful randomised controlled trials (RCTs) have been conducted in a variety of cultural settings, demonstrating NET's applicability in both Western and non-Western countries.<sup>(e.g. 26,27)</sup>

### **Present-centred therapy (PCT)**

Present-centred therapy is a variant of supportive counselling. These approaches are often used as comparison conditions in randomised controlled trials. PCT is a non-trauma focussed manualised intervention designed to target daily challenges that PTSD sufferers encounter.<sup>28</sup> It includes psychoeducation about the impact of PTSD symptoms, the development of effective strategies to deal with day-to-day challenges, and homework to practice newly developed skills. Typically 10 group sessions of 90 minutes are delivered by therapists who help participants identify stressors and discuss them in a supportive, nondirective manner.

### **Stress inoculation training (SIT)**

The stress inoculation training (SIT) used in these studies is an anxiety management program for use with rape victims adapted from Veronen and Kilpatrick (1983).<sup>29</sup> The nine sessions include breathing retraining, and 'coping strategies' such as muscle relaxation, thought stopping, cognitive restructuring, and role play.<sup>30</sup>

### **Trauma-focussed CBT (group)**

Trauma-focussed CBT has been previously described as an early psychosocial treatment intervention for adults. In the group context, typically up to 16 sessions are delivered and run for 60–90 minutes each. Group interventions in the included studies encompass CPT,<sup>31,32</sup> Beck's CBT<sup>33</sup> and other protocols.<sup>34</sup> All treatment interventions require (to varying degrees) engagement with the traumatic memory, opportunities for cognitive restructuring, and skills aiming to reduce avoidance.

## **Recommendation for further research**

### **Couples trauma-focussed CBT**

The relevant study delivered 15 sessions of manualised cognitive-behavioural conjoint therapy (CBCT), which is designed to treat PTSD and enhance intimate relationships in couples where one partner has been diagnosed with PTSD.<sup>35</sup>

### **Group and individual (combined) trauma-focussed CBT**

The treatment intervention used in the one relevant study on group and individual (combined) trauma-focussed CBT was CPT-SA, an adaptation of Resick and Schnicke's (1993) cognitive processing therapy for rape victims. The intervention consisted of 17 weeks of a manualised group and individual therapy, with

participants attending a 90-minute group session every week and a 60-minute individual therapy session for the first nine weeks and the final 17th week.<sup>36</sup>

### **Meta-cognitive therapy**

Meta-cognitive therapy, a form of non-trauma focussed CBT, targets the disrupted thinking style characteristic of PTSD (threat monitoring, worry, and rumination) rather than focussing on trauma processing.<sup>37</sup>

### **Non-trauma-focussed CBT (affect regulation)**

The non-trauma-focussed CBT interventions included in the systematic review use a variety of non-trauma-focussed affect regulation techniques.<sup>38,39</sup>

### **Reconsolidation of traumatic memories (RTM)**

RTM is a brief intervention that involves activation of a traumatic memory. The participant's trauma narrative is ended as soon as autonomic arousal is observed. A procedure follows that includes imagining a black and white movie of the event, dissociating from its content, and re-winding it when fully associating over two seconds. This is designed to change the perspective from which the memory is recalled. RTM is administered in three sessions of up to 120 minutes each.<sup>40,41</sup>

### **Single-session TF-CBT**

These studies delivered a single session of modified behavioural treatment to earthquake survivors. The 60 minute treatment session focusses on reduction of fear and avoidance through exposure to simulated tremors in an earthquake simulator and self-exposure instructions.<sup>42,43</sup>

### **Virtual reality therapy**

Virtual reality therapies, such as virtual reality exposure (VRE<sup>44</sup>) and VR-graded exposure therapy (VR-GET<sup>45</sup>) are exposure therapies that integrate real-time computer graphics with other sensory input devices to immerse a participant in a virtual environment and facilitate the processing of memories associated with the traumatic event. Typically up to 12 graded sessions of virtual reality are administered, with the first session(s) focusing on psychoeducation and anxiety management techniques.

### **Written exposure therapy (WET)**

Written exposure therapy<sup>46</sup> is a brief trauma-focussed intervention of five, 30-minute sessions that include psychoeducation and confronting the trauma memory through the use of writing tasks. Participants are given scripted instructions to write about the same trauma memory each session.

## **Pharmacological treatments**

### **Conditional recommendation for use**

#### **Selective serotonin reuptake inhibitors (SSRIs)**

The most common approach to the pharmacological treatment of PTSD is through prescription of a selective serotonin reuptake inhibitor (SSRI). This class of drugs is widely prescribed for depression and anxiety and includes fluoxetine, paroxetine, and sertraline, each of which are conditionally recommended for use in the pharmacological treatment of PTSD.

## **Venlafaxine**

Venlafaxine is one of the most widely used serotonin and noradrenaline reuptake inhibitors (SNRIs). Two studies included in the review suggest that venlafaxine is generally well tolerated and may be of benefit in the treatment of patients with PTSD.<sup>47,48</sup>

## **Recommendation for future research**

### **Ketamine**

Ketamine is an antagonist of the glutamate N-methyl-D-aspartate (NMDA) receptor.

### **Quetiapine**

Quetiapine is an atypical antipsychotic that is used for individuals with significant agitation.

## **Non-psychological and non-pharmacological treatments**

### **Recommendation for further research**

#### **Acupuncture**

Acupuncture involves the insertion of fine needles at specific points on the body (acupressure points) to reduce symptoms of PTSD.

#### **Mindfulness-based stress reduction (MBSR)**

Therapeutic applications of mindfulness are commonly called mindfulness-based interventions (MBIs).<sup>49</sup> The first MBI, mindfulness-based stress reduction (MBSR), was developed in 1979 by Professor Jon Kabat-Zinn from the University of Massachusetts Medical Centre. The original intent of MBSR was to help outpatients attending a stress reduction clinic to relieve the suffering associated with stress, pain, and illness.<sup>49</sup> Since then, other programs based on the foundational and structural approach of MBSR have been developed.<sup>50</sup>

MBSR is a program that uses a variety of techniques to cultivate the state of mindfulness (i.e., nonjudgemental present-moment awareness).<sup>51</sup> It is typically delivered in a series of weekly 2.5-hour group meetings. Mindfulness training delivered via telehealth (two sessions in person and six by telephone) showed a positive effect for veterans when compared with psychoeducation. This brief treatment was based on MBSR principles but was delivered in individual sessions and did not include the full program.

#### **Neurofeedback**

Neurofeedback involves real-time displays of brain activity that are used to help individuals train (self-regulate) their brain activity. In neurofeedback training, neural activity is recorded from scalp electrodes and fed back to participants in a readily understood, visual format (such as simple computer games). Neurofeedback training is hypothesised to help individuals with PTSD acquire self-regulation skills by stabilising EEG activity, thereby improving focus and attention.<sup>52</sup>

#### **Physical exercise**

The physical exercise in the Rosenbaum et al (2015) study consisted of a 12-week intervention with a weekly supervised exercise session, two unsupervised home-based exercise sessions, and a walking program facilitated by the provision of a pedometer and exercise diary.<sup>53</sup> In the integrated exercise study, military veteran participants attended three one-hour group sessions each week for 12 weeks, for a total of

36 sessions.<sup>54</sup> Exercise sessions included aerobic exercise, strength training with weights and resistance bands, and yoga movements and poses presented within a framework of mindfulness principles.

### **Repetitive transcranial magnetic stimulation (rTMS)**

Repetitive TMS (rTMS) is a non-invasive procedure that involves the application of electrical current pulses, induced by a strong pulsating electromagnetic field. Electromagnetic energy passes through the scalp and skull without inducing pain or injury. rTMS aims to stimulate nerve cells in targeted areas of the brain, which can lead to an increase or decrease in brain activity in specific regions. It is thought that the dorsolateral prefrontal cortex may be implicated in PTSD symptoms, and that interventions such as rTMS that can target this area of the brain might ameliorate symptoms of PTSD.

### **Transcendental Meditation (TM)**

TM is a specific type of silent meditation developed by Maharishi Mahesh Yogi that involves repetition of a sound (a mantra) to facilitate a settled state of restful alertness. TM differs from mindfulness practice in that mindfulness involves focusing on the present moment in a specifically recommended way, whereas TM is taught as the effortless thinking of a mantra without concentration or contemplation.

### **Yoga**

Yoga is a mind–body practice that typically combines physical postures, regulation of the breath, and techniques to cultivate attention. The emphasis on each of these factors varies according to the type of practice.

The studies providing evidence for yoga are largely pilot studies. The populations studied include veterans and women, with the types of yoga investigated including Sudarshan Kriya (SKY) yoga,<sup>55,56</sup> Kripalu,<sup>57,58</sup> and trauma-informed yoga.<sup>59</sup>

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