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**Interventions for
Post-Traumatic Stress Disorder in
Children and Adolescents**

By

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Keyword: PTSD

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Post-Traumatic Stress Disorder in Children and Adolescents

ABSTRACT

Clinical features, epidemiology, and aetiology of post-traumatic stress disorder (PTSD) are outlined. Treatment outcome studies involving children with PTSD who have survived traumatic accidents, natural disasters and child sexual abuse are reviewed. An evidence-based assessment and treatment protocol is outlined for children and adolescents with PTSD. Key components of effective treatment are psychoeducation about trauma reactions, sustained exposure to trauma-related cues and memories until habituation occurs, coping skills training for children to help them manage anxiety, and parent training to equip parents with the skills to help them facilitate their children's recovery.

INTRODUCTION

Following trauma some children and adolescents develop post-traumatic stress disorder (PTSD). Diagnostic criteria for PTSD from the ICD-10 [1] and DSM-IV-TR [2] classification systems are given in table 1. The following traumatic events may lead to PTSD: natural disasters such as floods, hurricanes, and earthquakes; violent crimes such as kidnapping, rape or murder of a parent, sniper fire, and school shootings; transportation accidents such as automobile and plane crashes and sinking of passenger ships; severe burns; exposure to community violence; war; peer suicide; and sexual and physical abuse [3,4]

Insert Table 1 about here

CLINICAL FEATURES

Three clusters of symptoms are associated with PTSD (1) re-experiencing the traumatic event; (2) avoidance or emotional numbing; and (3) hyperarousal.

Re-experiencing

Re-experiencing of the traumatic event may present as recurring nightmares; re-enactment of the traumatic event in spontaneous play; trauma-thematic spontaneous play; intensification of distress when exposure to reminders of the event; and repetitive intrusive daydreams or flashbacks. Flashbacks are vivid dissociative episodes in which the child experiences the trauma as if it were happening again.

Avoidance

With avoidance, the child makes efforts to avoid thoughts, feelings, activities, or situations associated with the trauma. Attempts to avoid external situations associated with the trauma may lead to a constricted lifestyle, to separation anxiety and clinginess and a refusal to separate from parents. Where parents support the child's avoidance, this may reinforce the avoidant behaviour. Where parents coerce the child into situations they wish to avoid, this too, may intensify avoidance. Attempts to suppress negative affect associated with the trauma may lead to generalized constricted affect and the child may show an inability to have tender or loving feelings. This emotional constriction can lead to detachment or estrangement from family members. Adolescents may resort to drug and alcohol abuse as a way of avoiding trauma-related affect. They may also report a foreshortened view of the future, being unable to envisage growing to maturity and having a long and fulfilling life.

Hyperarousal

With hyperarousal the child shows an exaggerated startle response, hypervigilance, poor concentration, irritability or outbursts of anger, and difficulty falling or staying asleep. These sleep problems are often associated with intense fear of the dark and of trauma-related nightmares. Hypervigilance may present as obsessional checking of locks and security devices in the home and overconcern about the health and welfare of parents. Irritability and angry outbursts may lead to difficulties with maintaining peer relationships and conflict with parents and teachers. Poor concentration may lead to a deterioration in school work.

Developmental considerations

Proposals have been made to modify the DSM criteria of PTSD to be more applicable to children under 4 [5,6]. The criteria for young children would permit clinicians to diagnose PTSD on the basis of one symptom per DSM-IV-TR criterion category, and infer the presence of some symptoms, such as flashbacks, from behaviour. Constriction of play and loss of acquired developmental skills for toileting and language have been proposed as additional criteria to indicate avoidance. A new cluster of symptoms has also been proposed which includes new aggressive responses to others and separation anxiety, fear of the dark, and fear of lone toilet training.

PTSD following acute and chronic trauma

Terr [7] distinguishes between Type I PTSD that develops in response to a single traumatic event and Type II PTSD which occurs following repeated traumatization or child abuse and is associated with pervasive long-term adjustment problems [8]. Roth et al [9] have referred to such reactions as complex PTSD. In a meta-analysis of 34 studies involving over two and a half thousand cases, Fletcher [10] found that Type II PTSD was far more frequently accompanied by dissociation. This probably reflects children's attempts to accommodate to ongoing exposure to chronic abuse and trauma.

Acute stress disorder

Acute stress disorder (ASD) was introduced in DSM-IV to describe post-traumatic reactions of less than four weeks duration. ASD criteria require at least one symptom from each of the PTSD re-experiencing, avoidance, and hyperarousal clusters. The ASD

diagnosis, however, also places considerable emphasis on dissociation during, or immediately following, the event, with a requirement for three of five possible symptoms (numb, dazed, derealisation, depersonalisation, dissociative amnesia).

EPIEDEMOIOLOGY

Community surveys show that 13-43% of girls and boys have experienced at least one traumatic event in their lifetime. Of those children and adolescents who have experienced a trauma, 3-15% of girls and 1-6% of boys develop PTSD [11, 12]. For adults lifetime PTSD prevalence rates are 10-12% for women and 5-6% for men [13]. In his meta-analysis, Fletcher [10] found that PTSD occurs in 36% of children exposed to both acute and chronic traumatic events. In a 5-8 year follow-up study 52% of children who survived the sinking of the cruise ship *Jupiter* developed PTSD at some point during the follow-up period. About a third of these cases recovered within a year of the disaster. For about another third who developed PTSD, the disorder persisted over the 5-8 year follow-up period [14]. 57% of survivors also developed other anxiety and affective disorders, and the prevalence and persistence of these were highest among children who developed PTSD [15]. Thus, it may be expected that a third of children who develop PTSD will have a good outcome within a year and a third will have a poor long-term outcome with symptoms persisting indefinitely. The remaining third will show improvement over a period of 5-8 years. Co-morbid anxiety and affective disorders will be common for children with a diagnosis of PTSD. In adults co-morbid anxiety, affective, somatization and substance use disorders are common [16]. Because not all children exposed to trauma develop PTSD, other factors are required to explain the aetiology of the condition.

AETIOLOGY

Characteristics of traumatic events; premorbid psychosocial adjustment and family circumstances; and post-trauma factors determine the severity and chronicity of PTSD symptomatology [17]. The role of demographic, cognitive and neurobiological factors in the aetiology and course of PTSD in children are less well established [10], although findings from studies of adults suggest useful hypotheses [13].

Trauma related factors

The frequency, suddenness and degree of life-threateningness of the trauma are the main trauma variables associated with the severity of symptomatology. A clear relationship between degree of exposure and severity of PTSD symptomatology has been found in many studies of children and adolescents, for example, the California sniper study [18-21], the 1988 Armenian earth quake study [22], the 1889 hurricane Hugo study [23], the sinking of the cruise ship *Jupiter* study [24,25] and the Mostar Bosnian war study [26]. Similar findings have been obtained in studies of adults [13]. Behavioural formulations [27] have partially been based on evidence this association between magnitude of the trauma and post-traumatic response which is often referred to as a dose-effect relationship.

Behavioural formulations of PTSD, argue that through classical conditioning, cues present at the time of the trauma that were paired with trauma experiences that elicited extreme trauma-related anxiety, later elicit similar post-traumatic anxiety and intrusive memories. Repeated exposure to these cues would lead to extinction, but people suffering from PTSD avoid these cues, and this avoidance is negatively reinforced through instrumental conditioning. Negative reinforcement involves the strengthening of a response which leads to a reduction in aversive stimulation. Behavioural treatment based on this formulation involves exposure to trauma-related cues, and prevention of avoidance responses.

Premorbid personal and family adjustment factors

Children with poor premorbid psychological adjustment who come from multiproblem families are more likely to develop chronic PTSD [10, 28-33]. Poor premorbid psychological adjustment, in this context, refers to prior psychiatric disorders, physical illnesses, and learning or intellectual disabilities. Disorganized families, families in which domestic violence has occurred and families in which parents have significant personal adjustment problems are grouped together here under the label multiproblem, and all have difficulty offering children an optimal level of support. Studies of adults with PTSD have also found that poor psychological premorbid adjustment and family adversity are significant risk factors [13]. Treatment programmes that aim to enhance family support for children with PTSD are informed by these findings on premorbid adjustment.

Recovery factors

A predominantly negative appraisal of the trauma, an extreme initial reaction to the trauma, significant additional stressful life events in the aftermath of the trauma, and the absence of adequate levels of parental or school support in the post-trauma period have all been found to determine the severity of PTSD symptoms [21, 32, 34-39]. Children are more likely to develop severe PTSD symptomatology if they appraise the trauma to be extremely life threatening, and show immediate, severe reactions including intense fear and amnesia for aspects of the trauma. PTSD is also more likely where children face additional life challenges, unrelated to the trauma, in the months and years following the trauma. Where parents have also been traumatized, their children's symptoms persist longer in cases where parents show protracted PTSD symptomatology. This is probably because such parents both model ineffective coping and are unable to offer their children the level of support they require. Where parents are skilled at processing their own

emotions and managing the aftermath of traumatization, they are better at facilitating their children's recovery. Children with a good academic record who receive good support from their schools during the post-trauma period show more rapid recovery [39]. Studies of adults with PTSD, like those of children, have found that recovery is related to trauma appraisal, number of additional post-trauma life events, and level of social support [13]. Treatment programmes that include the enhancement of family, school and peer group support for children with PTSD are informed by these findings on factors that impact on recovery from trauma.

Demographic factors

Conflicting results have been found in research on the relationship between demographic factors such as age, ethnicity, socio-economic status and response to trauma. The prevailing view is that younger children from ethnic minority groups and lower socioeconomic groups may be more at risk of PTSD, although such hypotheses are not always born out by research results [3, 4, 17, 32, 40]. In studies of adults with PTSD, people from black and hispanic ethnic groups have been found to be more vulnerable to the development of PTSD [13].

Cognitive factors

PTSD, particularly following exposure to chronic traumatic events, is associated with significant changes in survivors' belief systems [9, 10, 41]. Traumatic events are highly threatening, unpredictable and uncontrollable. As such, they undermine survivors' beliefs about the safety of the world, their capacity to control and master challenges in their environment, their evaluation of themselves as worthwhile and competent, and the possibility of living a full and satisfying life. Where traumatic events involve violence or

abuse, they undermine survivors' views of the trustworthiness of others. PTSD not only affects cognitive content, such as beliefs, but also cognitive processes. Studies of cognitive processes in children with PTSD arising from exposure to acute stressors have shown that they have memory deficits [42]; an attentional bias to trauma-congruent information [43]; and tend to estimate that negative events are more likely to happen to others than to themselves, suggesting a process of denial [44]. In the sinking of the *Jupiter* cruise ship study, children who blamed themselves by making internal attributions for negative experiences showed poorer recovery a year after the event [45]. Results from studies of adults with PTSD show that poorer recovery occurs for patients who interpret the world as excessively dangerous, who view their PTSD symptoms as evidence for global rather than situational psychological dysfunction, as stable rather than transitory, and as evidence for loss of control [46]. These adult studies also show that poorer recovery occurs in patients who use avoidant coping strategies which prevent the processing of traumatic memories through exposure and rehearsal. Such negative coping strategies include denial, thought suppression, rumination, safety behaviours (such as car crash survivors repeatedly checking the rear view mirror) and not talking about the trauma. In light of this evidence Ehlers & Clark [47] argue that chronic PTSD in adults is maintained by three sets of cognitive factors: (1) excessively negative appraisals of the trauma and its aftermath; (2) a disturbance of autobiographical memory characterized by poor elaboration and conceptualization of the trauma, strong associative memory and strong perceptual priming which leads to rapid recollection of vivid emotional memories in response to trauma cues; and (3) the use of problematic avoidant coping strategies which prevents adaptive modification of negative appraisals and vivid emotional traumatic memories. There is some support for the validity of this model in children and adolescents with PTSD [48]. Treatment programmes based on this model aim to promote the

recollection, rehearsal and elaboration of trauma-related memories, and the abandonment avoidant coping strategies.

Neurobiological factors

Adult and animal studies of neurobiological correlates of PTSD suggest that the syndrome may be associated with dysregulation of the noradrenergic system, the hypothalamic pituitary axis (HPA), the endogenous opiate system, the hippocampus and the amygdala [13, 49]. Studies of the neurobiological correlates of PTSD in children are sparse; most have been conducted within the field of child abuse; and the pattern of results is not as unambiguous and consistent as that from the adult and animal studies, largely because of methodological shortcomings of the childhood studies [50]. However, a number of conclusions may be drawn which suggest hypotheses about the neurobiological correlates of PTSD in children. Compared with normal controls, adults with PTSD show chronically enhanced secretion of adrenaline and noradrenalin, associated with hyperarousal. With respect to HPA dysregulation, adults with PTSD show abnormally low levels of cortisol and when given a low dose of dexamethasone, adults with PTSD show hypersuppression of cortisol, a very different response from adults with major depression. It appears that the HPA is set to produce large responses to further traumatic events. Adults with PTSD show conditioned secretion of endorphins (associated with analgesia) when exposed to trauma cues and this may account for emotional numbing in PTSD. Reduced hippocampal volume has been found in neuroimaging studies of adults with chronic PTSD, and this may be associated with autobiographical memory deficits seen in PTSD, since the hippocampus subserves 'cold' verbally accessible memories of episodes located in time and space. The amygdala in contrast, which subserves 'hot' or emotionally charged memories, may overfunction in people with PTSD, so that trauma cues readily lead to

recall of emotionally charged traumatic memories. Animal models of PTSD suggest that the neurobiological process of kindling in the amygdala and associated neuronal networks may explain how repeated re-experiencing of traumatic memories may sensitize PTSD patients to trauma cues. Brewin [51] has argued that sensory, motor and physiological (but not verbal) aspects of traumatic memories are encoded (probably in the amygdala) with no input from the hippocampus and are triggered by cues associated with the trauma.

Effective therapy involves accessing these situationally accessible memories (SAMs), elaborating upon them verbally, so they become encoded (probably in the hippocampus) as verbally accessible memories (VAMs). VAMs can be voluntarily retrieved, threatening aspects of these edited, and assimilated into the person's autobiographical memory and worldview.

RESULTS OF TREATMENT OUTCOME STUDIES

Eight controlled treatment outcome studies of PTSD in children and adolescents have been published in the English language literature. Of these, three involved child sexual abuse (CSA) survivors, the majority of whom had suffered repeated abuse [52-55].

Participants in the other studies were earthquake survivors in Armenia and Italy [56, 57]; survivors of the sinking of the ship *Jupiter* in Greece [25]; hurricane survivors in the US [58], and survivors of single incident stressors in the US such as road traffic accidents, gunshot injury, fires, severe storms, severe illness or traumatic bereavement [59].

CSA survivors

Deblinger et al [55] found that compared with a control group referred to social services, 7-13 year old CSA survivors with clinically significant PTSD symptomatology who participated in a programme involving psychoeducation about trauma reactions, graded

exposure to trauma-related cues and memories until habituation occurred, coping skills training for anxiety management, safety skills training and behavioural parent training showed fewer PTSD symptoms after therapy. The programme is described in Deblinger and Helfin [60]. Only 16% of children who met the criteria for PTSD before treatment continued to meet these criteria after treatment. The study also included a group that received behavioural parent training for the non-offending parent only and a group that received a graded exposure programme without behavioural parent training. Where non-offending mothers participated in behavioural parent training only 36% of children who had significant behaviour problems and depression before treatment continued to do so after treatment. Where mothers did not receive behavioural parent training, 80% of children continued to have behaviour problems and 62% continued to have significant depressive symptoms after treatment. Behaviour problems were assessed with the Child Behaviour Checklist [61] and depression, with the Children's Depression Inventory Kovacs [62].

Cohen and Mannarino [52.53] found that compared with the control group who received supportive therapy only, after treatment and at one-year follow-up, three to seven year old CSA survivors who participated in a programme involving psychoeducation, graded exposure, coping skills training, safety skills training and behavioural parent training showed marked improvements on the Child Behaviour Checklist [61] and the Child Sexual Behaviour Inventory [63]. The treatment protocol is described in Cohen and Mannarino [64]. One year after treatment, only 7% of treated cases scored in the clinical range on the total behaviour problem scale of the Child Behaviour Checklist compared with 30% of controls. One year after treatment, only 4% of treated cases scored in the clinical range on the Child Sexual Behaviour Inventory compared with 40% of controls.

In a second study with adolescents, Cohen and Mannarino [54] found that compared with the control group who received supportive therapy only, after treatment

teenage CSA survivors who participated in a programme involving psychoeducation, graded exposure, coping skills training and behavioural parent training showed improvements on the Children's Depression Inventory [62] and the Child Behaviour Checklist [61].

From the results of these studies it may be concluded that programmes which included psychoeducation, graded exposure, coping skills training, safety skills training and behavioural parent training, were significantly more effective in alleviating PTSD anxiety, depression and adjustment problems than supportive therapy or referral to social services. Post-treatment improvements reported by children and parents were maintained at long-term follow-up.

Disaster and accident survivors

Yule [25] found that compared with untreated controls, 5-9 months after attending one debriefing session and two open group sessions, child survivors of the sinking of the ship *Jupiter*, showed fewer PTSD symptoms on the Impact of Events Scale [65] and fewer fears on a modified version of the Fear Survey Schedule [66].

March et al [59] found that after treatment and at 6 months follow-up, children who had been exposed to a range of single incident traumas and who participated in group-based psychoeducation, graded exposure and coping skills training showed reduced PTSD symptomatology, anxiety and depression compared with baseline measures. 57% of cases no longer met the criteria for PTSD immediately after treatment, and 86% of participants were free of PTSD symptoms at 6-month follow-up. Participants in this study were survivors of traumas in the USA such as road traffic accidents, gunshot injury, fires, severe storms, severe illness or traumatic bereavement.

Goenjian et al [57] found that compared with controls, child earthquake survivors in Armenia who participated in a therapeutic programme involving group and individual sessions focusing on psychoeducation, coping skills training and grief work showed greater improvement in post-traumatic stress symptoms and depressive symptomatology.

Galante et al [59] found that compared with controls, children who attended seven monthly one-hour debriefing sessions following a devastating earthquake in Italy were found to show fewer PTSD symptoms and behaviour problems.

In a controlled outcome study of thirty-two, six to twelve year old children with PTSD who had survived a hurricane, Chemtob et al [58], found that a three session Eye Movement Desensitization and Reprocessing [EMDR, 67, 68] programme was an effective treatment for PTSD. EMDR involves psychoeducation and the coupling of imaginal exposure to trauma-related stimuli with saccadic eye movements to facilitate accelerated processing of traumatic memories. Compared with untreated controls, after treatment children randomly assigned to EMDR showed significantly greater improvement on the Children's Reaction Inventory, the Revised Children's Manifest Anxiety Scale [69] and the Children's Depression Inventory [62]. After treatment 56% no longer met the criteria for PTSD. Gains on these measures were maintained at six-month follow-up and children in the treatment group made significantly fewer health visits to the school nurse compared with children in the control group. All of the children in this study had previously failed to respond to a cognitive behavioural programme involving exposure procedures.

From the results of these five studies it may be concluded that these programmes which included, debriefing, psychoeducation, graded exposure, coping skills training, and grief work using both group and individual therapy formats, were effective in treating PTSD and related adjustment problems. These programmes led to reductions behaviour

problems and symptoms as rated by teachers, therapists and researchers. Short-term gains were maintained at long-term follow-up.

Implications for practice

From this review it is clear that effective PTSD treatment programmes for children and adolescents include a number of key elements notably psychoeducation about trauma reactions, sustained exposure to trauma-related cues and memories until habituation occurs, coping skills training for children to help them manage anxiety, and parent training to equip parents with the skills to help them facilitate their children's recovery. For single incident accidents and disasters, debriefing or brief intervention involving 3-7 sessions may be appropriate, but for survivors of chronic abuse, longer programmes of up to 25 sessions may be required. Grief work is appropriate where bereavement has occurred. Professional guidelines for the treatment of PTSD in children [11, 70, 71] are consistent with the conclusions of this review of outcome studies and other reviews of the child and adult PTSD treatment outcome literature [e.g, 72, 73]

ASSESSMENT IN CLINICAL PRACTICE

Where children and adolescents have experienced traumatic events, the 13 item children's version [26] of the Impact of Events Scale [65] may be used as a reliable and efficient way to screen for PTSD.

Intake assessments may involve both conjoint and separate interviews with the youngster and parents. The following issue should be covered: current symptoms and concerns, attempts that have been made to manage these, the way these symptoms and concerns have developed since the traumatic events, and the youngsters developmental and family history and premorbid functioning.

The Child PTSD Interview is a useful protocol for obtaining a child's account of the trauma and reactions to it [18]. Structured interviews that reliably yield DSM IV diagnoses of PTSD include the Childhood PTSD Interview – Child form [74]; the Clinician Administered PTSD Scale-Child and Adolescent Version [75]; the Children's PTSD Inventory [76] and the Child Post-Traumatic Stress Disorder Reaction Index [77]. To evaluate associated symptoms a number of self-report instruments may be administered including the Revised Children's Manifest Anxiety Scale [69], the revised Fear Survey Schedule for Children [66] and the Children's Depression Inventory [62]. For victims of abuse, it is appropriate to administer the Trauma Symptom Checklist [78] and the Revised Children's Impact of Traumatic Events Scale [41]. The Kidcope is a widely used measure of coping strategies in studies of childhood PTSD [79]. The self-report versions of the Child Dissociation Scale [80, 81] may be used to evaluate the presence and degree of dissociation.

The Child Behaviour Checklist [61] is a useful way to obtain parents' views on youngsters' current overall adjustment in wide range of domains. Where children have been sexually abused, the Child Sexual Behaviour Inventory [63] may be used to evaluate parents' perceptions of inappropriate sexualized or promiscuous behaviour. The parent report version of the Child Dissociation Checklist [80] may be used to evaluate the presence and degree of dissociation.

At the conclusion of the assessment it is useful to summarize findings in which the main PTSD symptoms are listed, and salient predisposing, precipitating, maintaining and protective factors are specified. Such formulations may be used to fine-tune the treatment plan and as the basis of treatment contracts with parents and children.

Psychoeducation

The aim of psychoeducation is to provide a rationale for treatment and allay youngsters' and parents' fears that the child is 'going mad'. The three DSM IV TR clusters of symptoms listed in table 1 should be described. The way avoidant strategies prevent traumatic memories from being processed may be explained. The need to bring these traumatic memories into consciousness, habituate to them and process them may then be presented as the rationale for exposure-based treatment. Other issues that may be covered in psychoeducation are the need to re-establish routines for daily living and sleeping, the need for the child to obtain support from family, friends and school staff, the need for parents to develop strategies for managing behavioural problems which have developed as result of traumatization, and the need to address substance use, if youngsters are using drugs or alcohol to manage PTSD symptoms.

Symptom-monitoring

Youngsters and/or parents may be invited to keep structured diaries in which they record the frequency and intensity of certain key symptoms. With re-experiencing symptoms, the number of flashbacks per day or the number of nightmares per night may be recorded. For hyperarousal symptoms, ratings may be made on a 100 point subjective units of discomfort (SUDs) fear thermometer which ranges from 0=perfectly relaxed and calm, to 100=the worst imaginable anxiety and distress. Ratings may be made either at fixed times during the day (9.00 in the morning, at 12.00 noon and at 9.00 at night) or at critical points such as during flashbacks or after awakening from nightmares. Also, youngsters may record intrusion recovery times, that is, how many minutes it took them to return to a rating of less than 50 SUDs after a flashback or nightmare. With avoidance symptoms, some index of the frequency or duration of exposure to trauma-related cues or memories may be recorded. For example, whether or not they spent 5 minutes per day talking to a parent

about a frightening aspect of the trauma; the number of times they had the courage to walk past the scene of the trauma rather than avoiding it; or the number of days they were able to overcome separation anxiety and go to school. Symptom-monitoring systems should be tailored to the unique requirements of each case. Symptom monitoring diaries should be reviewed as the start of every session.

Re-establishing routines

Where PTSD has led to disruption normal daily and night time routines, early in treatment youngsters may be invited in collaboration with their parents to plan normal daily routines including going to school, socializing with peers, engaging in regular pleasant recreational activities, getting regular physical aerobic exercise, and regularizing their sleep-waking cycle. Sleep management involves setting fixed times for going to bed and getting up; agreeing on a system for gradually phasing out parental night-time contact in youngsters who have been coping with anxiety by sleeping with their parents; and using relaxation exercise and audiotapes or soothing music to help them sleep when they go to bed initially and following nightmares which have awakened them.

Coping skills training

Coping skills training equips youngsters with ways of managing anxiety associated with flashbacks and nightmares and anxiety evoked during therapeutic exposure to trauma-related cues and memories. This type of training involves learning relaxation skills and cognitive coping skills. With relaxation skills training, youngsters learn a sequence of exercises that reduce muscle tension. With cognitive coping skills training children learn to

challenge fearful or threatening cognitions and to appraise anxiety-evoking situations in less threatening ways. Detailed accounts such skills training is given in [82, 83].

Graded Exposure

Exposure procedures all involve recalling traumatic memories as vividly as possible, holding these in consciousness and tolerating the intense anxiety associated with them until habituation occurs. Exposure to trauma-related cues may be used bring traumatic memories into consciousness. Video or audio recordings or photographs of trauma-related stimuli may be used and the site of the trauma may be visited. Visualization, writing, painting, drawing, drama, and doll-play may all be used to help youngsters keep the traumatic memories in consciousness. Commonly, exposure is facilitated in a gradual way with children being exposed to a graded hierarchy of increasingly anxiety provoking situations. Situations may be graded, in terms of the amount of anxiety they evoke, with reference to the 100 SUDs fear thermometer. Where routine visualization evokes very high levels of anxiety, the amount of anxiety associated with visualizing traumatic scenes may be reduced by inviting youngsters to visualize these scenes as if viewing them from a distance or as if they were on TV.

Format of exposure sessions. Exposure sessions are carefully planned in a collaborative way with the youngster and parents. Youngsters are briefed that the aim of each exposure session is hold their traumatic memories vividly in consciousness until their SUD rating drops to an agreed level. They are informed that initially their SUDs will rise, then reach a peak, and then gradually decrease. It should be made very clear to youngsters that to terminate exposure before habituation may sensitize them rather than help them to habituate to trauma-related memories. Because habituation can be a slow process, 90-minute treatment sessions may be most appropriate. To facilitate habituation,

youngsters may be invited to use their relaxation skills and cognitive coping skills or ask their parents to hold their hands, thereby providing social support. Each time youngsters complete an exposure exercise and habituate to the anxiety provoking situation, they should be reinforced. They may be reinforced with praise, and if appropriate with tokens or stars on a star chart, which can be accumulated and exchanged for valued prizes or treats on a reinforcement menu. Between exposure sessions, youngsters may be invited to listen to audiotapes of exposure sessions each day and/or to write a detailed account of the traumatic memories addressed in exposure sessions and read these accounts each day. These homework assignments consolidate habituation gains made during exposure sessions.

Imaginal exposure. For imaginal exposure to traumatic memories or trauma-related nightmares, youngsters are invited to sit in a comfortable position with their eyes closed, to relax using relaxation and breathing exercises and to visualize the traumatic scene as vividly as possible, They are then asked to verbally recount their visualization of the traumatic scene or dream, in the first person, present tense. To enhance the vividness of the visualization, the therapist may request detailed accounts of what the youngster sees, hears, smells, tastes and feels. Throughout this, process, at intervals of about five minutes, the therapist requests SUDs ratings. When SUDs ratings show marked increases, the therapist may ask the child to rerun that part of the scene (the 'hot spot') a number of times. This repeated exposure facilitates habituation. It is appropriate to progress from visualizing a less anxiety provoking scene to visualizing a more anxiety provoking scene after habituation to the former has occurred. When habituation to the most anxiety-provoking scene has occurred, it may be appropriate to progress to media assisted exposure and *in vivo* exposure, particularly where residual PTSD symptoms remain.

Media assisted exposure. For media-assisted exposure, traumatic memories are evoked using audiotapes, video recordings or photographs of trauma-related cues. Clips from TV or recorded films of trauma-related situations such as car crashes, bank raids, earthquakes, hurricanes that are particularly reminiscent of the actual trauma may be used. Audiotaped recordings of the sort of sounds that accompanied the trauma may be used, for example, a tape-recording of a howling wind for a hurricane survivor. Photographs of the trauma scene may also be used. During exposure to recordings or photographs of trauma-related cues, youngsters are invited to describe what the cues remind them of. Detailed sensory questioning is used to help them elaborate their memories. As with imaginal exposure, youngsters may be invited to verbally rerun 'hot spots' in these exposure sessions also to facilitate habituation.

***In vivo* exposure.** If parents have attended a number of imaginal or media-assisted exposure sessions and have observed the way the therapist has conducted these, then they may be invited to adopt the role of the therapist for *in vivo* exposure. The parents are invited to accompany the child to the trauma site, to encourage the youngster to verbalize memories it evokes, and use coping strategies to help them to habituate to being at the site of the trauma.

Confrontation of, and exposure to abusers. Where youngsters have been abused, confronting their victimizer either in imagination or *in vivo* is a critical part of the exposure process. This confrontation process involves staying in the presence of the imagined or actual abuser. Then, youngsters must clearly and forcefully state how the abuse has hurt them; how angry and betrayed they feel as a result of this; and how they will never let the abuse recur because they now have the skills to protect themselves in future and the support of the non-abusing parent. Abuse survivors may be invited to imagine and rehearse this sort of conversation in therapy. As homework, they may also be

invited to write detailed, emotionally charged letters to the abuser covering these points. However, only under carefully considered circumstances should such letters ever be sent. In the case of intrafamilial abuse, it may be appropriate in some instances for the therapist to facilitate a session in which the youngster, supported by the non-abusing parent, reads aloud a prepared confrontational letter to the abusing parent. A fuller discussion of family intervention where children have been traumatized by intrafamilial CSA is given elsewhere [82]

Grief work as exposure. Grief work is necessary where youngsters with PTSD have experienced traumatic events which led to bereavement. Natural disasters, transportation accidents and shootings are examples of such events. Grief work involves movement through a series of processes including shock, denial, emotional turmoil, acceptance and resolution. These are not discrete stages, nor is progress through these process particularly orderly, and not all bereaved people experience all processes. However to move towards resolution, imaginal exposure to memories of both positive and negative episodes of interaction with the deceased, and to memories of their death is necessary. This may be facilitated by media-assisted exposure, involving viewing photographs, videotapes, and other memorabilia that remind the bereaved of the deceased. In facilitating grief work in children with PTSD, it is appropriate to follow the procedures outlined above for imaginal and media-assisted exposure. *In vivo* exposure involving visiting the disaster site or the deceased's grave may also be incorporated into grief work. The goal of such grief work is to help the child develop a worldview in which their valued relationship with the deceased as a living person is part of their past, but their valued memory of them lives on in the present. It should be acknowledged that the emotional pain associated with bereavement, takes time to resolve. This type of child-focused grief work is best offered within a family context, particularly where it is a family

member who has died. Loss of a family member necessitates family reorganization. As the child makes progress in processing traumatic memories associated with bereavement, other family members may be invited to sessions to discuss the impact of the bereavement on family's rules, roles and routines. A full discussion of facilitating such family sessions is given elsewhere [82].

Safety skills and self-regulation skills training

Safety skills may be required for survivors who have been victimized by others so that they will be equipped to prevent re-victimization. Safety skills training is an essential part of treatment for survivors of abuse and violence. Youngsters need to be coached in anticipating and recognizing situations in which they may be victimized again. They also need to be coached in planning how to avoid or escape from potentially risky situations, by for example, withdrawing from such situations as soon as they recognize them, saying 'no' assertively, calling for help, and retaining a belief that they are in charge of their own lives.

Where survivors of sexual or aggressive victimization have difficulty controlling aggressive or sexual urges, they may need to be coached in socially appropriate ways to regulate and express these intense feelings. Relaxation skills, aerobic physical exercise, and distraction through absorption in music or other activities may be used to regulate intense sexual and aggressive impulses. However, intense urges may also require expression. For managing strong sexual urges, youngsters may be helped to plan routines for private masturbation rather than public masturbation or inappropriate sexual interaction with others. For managing intense anger that is unresponsive to strategies already mentioned, youngsters may be helped to plan routines for expressing this privately in socially appropriate ways, by for example routinely scheduling time for hitting a punch bag.

Parent training

Parents of traumatized children may be offered behavioural parent training to help them provide their children with appropriate support as they progress through an exposure programme, and also to manage trauma-related behavioural problems. These include separation anxiety, avoidance of routine social activities, sleep difficulties, aggression, defiance and oversexualized behaviour. Parents and children may be coached in how to use reward programmes. This begins with pinpointing behavioural goals. Common goals include completing daily therapeutic exposure homework assignments, school attendance (if separation anxiety has prevented school attendance), engaging in daily social interactions with peers (if they have become reclusive), sleeping in their own beds for some or all of each night (if, through separation anxiety they have been sleeping with parents), regulating intense anger using relaxation and breathing exercises (if they have problems with controlling aggression), and managing sexual urges in a socially appropriate way (if they display oversexualized behaviour following CSA). At any one time, no more than three behavioural goals should be addressed. Large goals, may be broken down into smaller and more easily achievable targets. Plans for reinforcing target behaviours need to be established. For rigid, entrenched problematic behaviour patterns, praise and approval may be insufficient reinforcement and a more formal system may be required. Token or star chart systems are appropriate for young children. A points system may be used for adolescents. In collaboration with their children, parents may be helped to develop a reinforcement menu and arrive at an agreement about how an accumulation of tokens, stars or points may be periodically exchanged for a reward or privilege on the reinforcement menu.

Where youngsters occasionally have difficulty using the self-regulation skills mentioned in the previous section to control their sexual and aggressive impulses, parents

may use time-out from reinforcement to help them develop better self-control. Here youngsters who display inappropriate aggression or sexual behaviour spend a brief period alone under parental supervision, until they regulate their intense emotions and calm down. They then return to interacting with their parents, and are reinforced for using time-out to successfully regulate their intense emotions. It is important that time-out is framed as a benign parental strategy for fostering self-regulation skills and not as a punishment, since this would amount to re-victimization.

Trying to help parents suffering from PTSD implement a behavioural programme for their child is likely to lead to a failure experience. This may impact negatively on both the parents' and the child's recovery. Therefore, where parents suffer from PTSD, they should be offered an opportunity to undergo their own exposure programme, to begin to resolve their own PTSD symptoms, before attempting to implement a child-focused behavioural programme.

School consultations

School staff require psychoeducational input, of the type outlined earlier, when a pupil has been traumatized. A meeting between the school staff, child, parents, and therapist may be convened. In this meeting, the profound effects of PTSD symptoms on academic performance should be highlighted. Teachers should be informed of the temporary need for the youngsters' workload to be tailored to take account of this. Arrangements should also be made for youngsters to have a designated member of the school staff to whom they can go if they become particularly distressed during school hours. This staff member should be briefed in how to facilitate the child in expressing concerns and informed that ventilating feelings and recounting trauma-related memories is a productive rather than a destructive process.

Cognitive restructuring

Traumatization may lead people to adopt catastrophic and pessimistic beliefs about the world, the future, the self and others. Common post-traumatic beliefs are that nowhere in the world is safe; a short life is inevitable; the traumatized person is going insane or losing their mind; the traumatized person is helpless, shameful, guilty, and stigmatized; and others are untrustworthy. In cognitive restructuring [83] youngsters with PTSD are invited to identify and articulate these post-traumatic beliefs. They are asked to accept that their new beliefs about the world are hypotheses deserving rigorous testing, rather than newly revealed truths. They may be invited to write down the beliefs they had about the world, the future, the self and others before the trauma and after the trauma. Then they may be invited through Socratic questioning within therapy sessions and behavioural experiments outside therapy sessions to collect evidence about each post-traumatic belief and evaluate the degree to which the belief is supported by evidence. As each new piece of evidence accumulates, for each belief they may be asked to rate their conviction that the belief is true on a 100 point scale ranging from 1=I'm am completely uncertain about how true this belief is, to 100=I'm absolutely sure this belief is true.

Treating pervasive comorbid difficulties

In adolescents with complex PTSD following chronic victimization, borderline personality disorder and substance abuse are among the more challenging co-morbid difficulties. Dialectical behaviour therapy [84] is an effective intensive protocol for dealing with self-mutilation and pervasive relationship management difficulties which occur in older teenagers with borderline personality disorder. Where, drug and alcohol abuse have become the youngsters main way of managing unprocessed traumatic memories, family

therapy for substance abuse, an established evidence based treatment, may be offered [82]

Relapse prevention

Relapse prevention involves helping youngsters and parents anticipate situations in which relapses may occur, planning strategies for detecting potential relapses early, and writing out a relapse management plan. Relapses are more probable in situations where there are many trauma related cues; where the person has little social support and a high level of other life stresses; and when entry into the situation occurs unexpectedly or at a trauma anniversary. Relaxation skills, cognitive coping skills, especially retaining an optimistic perspective, and arranging social support from family, close friends or a therapist are useful elements to include in a relapse management plan.

CONCLUSIONS

PTSD treatment programmes of the type described in this paper should be routinely available to symptomatic child and adolescent CSA survivors, and to youngsters who have experienced natural disasters, major accidents or serious illnesses. Future research should focus on comparative efficacy new protocols such as EMDR and established programmes; the mechanisms which underpin effective programmes; and ways of modifying existing programmes to meet the needs of particularly vulnerable survivors with treatment-resistant PTSD.

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Table 1. Diagnostic criteria for PTSD from DSM-IV-TR and ICD 10

DSM -IV-TR	ICD-10
<p>A. The person has been exposed to a traumatic event in which both of the following were present:</p> <ol style="list-style-type: none"> 1. The person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others 2. The person's response involved intense fear, helplessness or horror or in the case of children disorganized or agitated behaviour <p>B. The traumatic event is persistently re-experienced in one or more of the following ways</p> <ol style="list-style-type: none"> 1. Recurrent and intrusive distressing recollections of the event including images, thoughts, or perceptions. In children repetitive play may occur in which themes or aspects of the trauma are expressed 2. Recurrent distressing dreams of the event. In children there may be frightening dreams without unrecognisable content 3. Acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated. In children trauma-specific re-enactment may occur.) 4. Intense psychological distress at exposure to internal or external cues that symbolize or resemble and aspect of the traumatic event 5. Physiological reactivity on exposure to internal or external cues that symbolize or resemble the traumatic event <p>C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma) as indicated by three (or more)</p>	<p>This arises as a delayed and/or protracted response to a stressful event or situation of an exceptionally threatening or catastrophic nature, which is likely to cause pervasive distress to almost anyone (e.g. natural or man-made disaster, combat, serious accident, witnessing the violent death of others, being a victim of rape, torture, terrorism or another crime).</p> <p>Typical symptoms include episodes of repeated reliving of the trauma in intrusive memories (flashbacks) or dreams, occurring against the persisting background of a sense of numbness and emotional blunting, detachment from other people, unresponsiveness to surroundings, anhedonia, and avoidance of activities and situations reminiscent of the trauma. Commonly there is a fear and avoidance of cues that remind the sufferer of the original trauma. Rarely there may be dramatic acute bursts of fear, panic, or aggression triggered by stimuli arousing a sudden recollection and/or re-enactment of the trauma.</p> <p>There is usually a state of autonomic hyperarousal with hypervigilance, enhanced startle reaction, and insomnia. Anxiety and depression are commonly associated with the above symptoms and signs and suicidal ideation is not infrequent. Excessive use of alcohol and drugs may be a complicating factor.</p> <p>The disorder may be diagnosed if it occurs within six months of the trauma. In addition there must be repetitive intrusive recollection or re-enactment of the event in memories, daytime imagery or dreams. Conspicuous emotional detachment, numbing of feeling, and avoidance of</p>

<p>of the following:</p> <ol style="list-style-type: none"> 1. Efforts to avoid thoughts, feelings or conversations associated with the trauma 2. Efforts to avoid activities, places, or people that arouse recollection of the trauma 3. Inability to recall an important aspect of the trauma 4. Markedly diminished interest or participation in significant activities 5. Feelings of detachment or estrangement from others 6. Restricted range of affect (e.g. unable to have loving feelings) 6. Sense of foreshortened future (e.g. does not expect to have a career, marriage, children or a normal lifespan) <p>D. Persistent symptoms of increased arousal as indicated by two (or more) of the following:</p> <ol style="list-style-type: none"> 1. Difficulty falling or staying asleep 2. Irritability or outbursts of anger 3. Difficulty concentrating 4. Hypervigilance 5. Exaggerated startle response <p>E. Duration of disturbance (symptoms in criteria B,C, & D) longer than 1 month</p> <p>F. The disturbance causes clinically significant distress and impairment of social or academic functioning.</p>	<p>stimuli that might arouse recollection of the trauma are often present but are not essential for the diagnosis. The autonomic disturbances, mood disorder, and behavioural abnormalities all contribute to the diagnosis but are not of prime importance.</p>
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Note: Adapted from DSM-IV-TR (American Psychological Association, 2000) and ICD 10 (World Health Organization, 1992).