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OBM Neurobiology

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Review

Trauma-Focused Cognitive Behavioral Therapy (TF-CBT), Cognitive Behavioral Intervention on Trauma in Schools (CBITS), and Other Promising Practices in the Treatment of Post-Traumatic Stress Disorder in Children and Adolescents: Evidence Evaluation

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Academic Editor: Jeffrey Kibler

OBM Neurobiology
2022, volume 6, issue 4
doi:10.21926/obm.neurobiol.2204146

Received: April 11, 2022
Accepted: October 11, 2022
Published: November 15, 2022

Abstract

PTSD is a serious mental health condition with a lifetime prevalence of 1% to 14% in the general population. Several studies have evaluated evidence-based treatment approaches for children and adolescents. Interventions focusing on trauma are considered first-line treatments. Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) and a similar type of group intervention, the Cognitive Behavioral Intervention on Trauma in Schools (CBITS), have received the most empirical support from randomized controlled trials. Moreover, several other promising therapeutic CBT protocols are in the process of being applied and evaluated. This literature review highlights the common elements of CBT approaches for treating PTSD in children and adolescents, provides a detailed review of the therapeutic ingredients of TF-

CBT and CBITS, and presents various other promising CBT protocols that are currently being used or evaluated. Future directions for the field are also discussed.

Keywords
Post-traumatic stress disorder; cognitive behavioral therapy; children; adolescents; trauma; evidence-based interventions

1. Introduction

Psychological trauma is a debilitating mental health condition resulting from traumatic experiences. It causes overwhelming or underwhelming distress (in cases of neglect) that exceeds the person's coping ability, leading to serious long-term negative consequences [1].

Because experiences vary among individuals, people respond differently to a similar traumatic event. Therefore, not all individuals who experience a traumatic event become psychologically traumatized. Often traumatic events precede the current incident, making some people more vulnerable to having a later traumatic reaction [2].

In recent violent incidents at schools, universities, and other parts of the community, mental health professionals have focused on the symptoms and consequences of maladaptive traumatic stress and post-traumatic stress disorder (PTSD) in children and adolescents. Apart from single-event traumas, both childhood abuse and neglect are common in the United States [3] and worldwide; childhood abuse and neglect result in complex PTSD, which is further aggravated by relational trauma between caregiver and child [4].

A variety of psychological treatments are effective in treating post-traumatic stress symptoms and concomitant difficulties in children. These interventions are considered first-line treatment for children and adolescents. Treatments that specifically focus on the child's traumatic experiences are superior to nonspecific or nondirective therapies in healing post-traumatic symptomatology. This is valid for children of all ages with PTSD and for therapies derived from various theoretical backgrounds, such as psychoanalytic, attachment, and cognitive-behavioral treatment models [5-7].

Trauma-focused-cognitive behavioral therapy (TF-CBT) is the most widely used and best-researched manual-based CBT protocol for PTSD [8-10], whereas Cognitive Behavioral Intervention for Trauma in Schools (CBITS) is the most-researched CBT protocol implemented in groups. Follow-up studies have demonstrated the sustainability of profits for 6 months, 1 year, and 2 years post-treatment [11, 12]. Several other therapeutic CBT protocols are being applied and evaluated, leading to promising results in special populations of different origins and specificities in symptomatology.

Till now, the extensive analysis of both well-established and innovative interventions for PTSD remains limited, and the results of related studies are inconsistent. In addition, the factors affecting the outcomes of these programs require further evaluation [13, 14].

This study is a systematic descriptive review with the following specific goals:

1. To highlight the common elements of CBT approaches in treating children and adolescents with PTSD.

2. To provide a detailed review of the therapeutic ingredients of TF-CBT and CBITS with substantial evidence of effectiveness. Previous studies on and the treatment process of these two approaches are described. Furthermore, the achievement of results and accessibility to different target populations are discussed. The review also presents several other promising CBT protocols that are currently being used and/or evaluated and have accumulated less evidence of effectiveness to date. Moreover, future directions of the field are discussed.

2. Conceptual Definition of Trauma, PTSD, and Acute Stress Disorder (ASD)

The definition of trauma varies depending on the context; however, in a broader sense, it includes both physical and psychological harm and injury [15]. According to a study, more than one out of four children experience a major traumatic event before reaching adulthood [16]. These traumas may include events that may occur over some time or at a point in time. Examples are child abuse; domestic, community, or school violence; disasters; vehicular or other accidents; medical traumas; war; terrorism; refugee trauma; the traumatic death of significant others; and other shocking, unexpected, or terrifying experiences. Although most children are resilient to trauma exposure, some of them develop substantial and potentially long-lasting mental health problems. Therefore, PTSD and ASD are diagnoses that refer to a set of psychological and physical symptoms following exposure to such a stressful traumatic event [17]. According to the *International Classification of Diseases 11th Revision* (*ICD-11*) diagnostic descriptions, in contrast to a single trauma event, prolonged or repeated trauma causes complex PTSD (C-PTSD), which has been diagnosed in many children participating in the treatment approaches. The type of trauma (relational trauma, single trauma, trauma caused by a man-made factor, or a natural disaster) affects the natural course of symptoms and the design of interventions, as well as their outcome [18].

3. Criteria for PTSD and ASD Diagnosis

In the new edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*), PTSD is not categorized under “anxiety disorders,” but is included in a new section that groups the disorders related to trauma and stress (i.e., trauma-related and stressor-related disorders). PTSD is a mental disorder, with exposure to at least one or more traumatic events considered an essential diagnostic criterion. Diagnostic criteria in children aged 7 years and older comprise four clusters of symptoms that appear or worsen after exposure to actual or threatened death, severe injury, or sexual maltreatment by direct experience, direct observation, hearing of a traumatic experience that happened to a close friend or relative, or exposure to stressful reminders of the trauma.

These clinical features are required to occur for more than 1 month and be associated with distress and functional impairment. In children aged 7 years and younger, distinct PTSD criteria currently apply, which include developmentally specific phenomenology. ASD is a distinct psychiatric disorder that is diagnosed when traumatic stress or dissociative features occur within 3 days to 1 month of trauma exposure and last at least 3 days.

Changes in diagnostic semiology in the subsequent versions of the *DSM* indicate the increase in understanding and research on PTSD over the last two decades. The changes concern the stressor definition, the groups in whom the specific symptoms are classified, and the required number of

symptoms for each group (the onset, duration, and requirements of clinical discomfort or functional impairment) [19].

4. Epidemiology and Prevalence

The lifetime prevalence of PTSD in the general population ranges from 1% to 14% [1, 19-21]. In a recent study by Koenen et al. [21] with 71,083 individuals, the lifetime prevalence of PTSD was 3.9% among the participants and 5.6% among individuals exposed to trauma.

Giaconia et al. [22] reported that at the age of 18 years, more than 2 out of 5 adolescents in a community sample of working-class or lower-middle-class households met the criteria for at least one trauma according to *DSM-III-R*. Moreover, more than 6% fulfilled the criteria for PTSD diagnosis during their lifetime.

In a national sample of adolescents (12–17 years), 3.7% of male and 6.3% of female adolescents met the diagnostic criteria of PTSD [23]. In the National Comorbidity Survey Adolescent Supplement (NCS-A) study by Merikangas et al. [24], with approximately 10,000 adolescents aged 13–18 years in the U.S, the estimated lifetime prevalence of PTSD was 5.0%, with 1.5% having a severe impairment. The prevalence of PTSD among female adolescents (8.0%) was higher than in male adolescents (2.3%).

5. Trajectories of Post-Traumatic Adaptation: Risk and Protective Factors

Effects of traumatic stress exposure in children differ widely and can potentially vary over time. Cases with unfavorable outcomes are characterized by either initial severe reactions accompanied by persistent or episodic post-traumatic damage (chronic PTSD) or initial mild to moderate responses accompanied by intense damage (delayed-onset PTSD) [25].

Delayed-onset PTSD was assumed to be rare. However, a study revealed that 2 out of 10 young people, as well as adults, do not exhibit clinically significant symptoms for several months or even years after the initial exposure to traumatic events [26].

Negative prognostic factors for the development of chronic pediatric PTSD include the presence of pre-traumatic psychiatric disorders, problematic caregiver/family relationships, poverty, emotional distress, and exposure to relational trauma (e.g., maltreatment, sexual abuse, and domestic abuse). Moreover, post-traumatic reduced social support, withdrawal, psychiatric comorbidity, poor family adjustment to trauma, and post-traumatic cognitive distortions (distraction, rumination, thought suppression, and increased threat sensitivity) are included in the negative prognostic factors [27-31].

Some children, however, are resilient or without essential clinical manifestations of trauma exposure [32]. Therefore, they can adapt and preserve both the functioning and development of resilient behavior. In other cases, children show moderate to severe initial reactions during early-onset PTSD (i.e., within 3 months of exposure) but improve and retrieve normal functioning over time with or without therapy [25].

6. Assessment of PTSD Symptomatology in Children

For the assessment of post-traumatic symptomatology in children, the following should be performed: 1. the acquisition of a detailed history of traumatic event exposure as well as any

previous traumas in the individual history of the child; 2. the clinical observation of the child (behavior, the content of speech/thoughts, emotional reactions, nonverbal communication, insight on difficulties, and cognitive functioning—attention, judgment, and orientation); 3. the usage of projective techniques, such as play and drawing; and 4. the application of general and special trauma assessment tests, such as Child Behavior Checklist (CBCL), Clinician-Administered PTSD Scale for Children and Adolescents (CAPS-CA-5), and the UCLA children/adolescent PTSD reaction index [26].

The specialists ensure that a child's evaluation always begins with a sensitive clinical interview. Children with undeveloped verbal skills can express their experiences through simple projective techniques, such as play, drawing, or storytelling. These often reveal their discomfort through repetitive and graphic representations of their experiences.

The routine evaluation of children in the group or community where the traumatic event, especially a natural disaster, took place constitutes a useful practice [33]. These procedures involve minimal clinical supervision and are economical and less time-consuming. In addition, in cases of traumatic experiences after natural disasters, group interviews with children, such as those conducted in classrooms or other smaller groups, could also be used. Therefore, a thorough individual assessment of these children with symptoms, such as increased arousal, sleep disorders, withdrawal, avoidance of reminders of the trauma, and intrusive thoughts related to their experience, is essential. Group interviews can be used to elicit children's cognitive and emotional responses, assess current adjustments, explore coping strategies, validate their emotions, and encourage support.

7. Brief Overview of the CBT

CBT provides a framework to help children understand the association between their thoughts, feelings, and behaviors. Therefore, children can acknowledge, challenge, and re-evaluate their negative thoughts in an optimal way. CBT comprises many behavioral techniques to facilitate changes in behavior, the important ones being positive reinforcement of supportive behaviors, contingency management, self-assessment of nonhelpful beliefs, and gradual exposure to traumatic memories [3, 34-36]. The expected results of CBT relate to each of the following areas of the model:

A. Cognitive modification, resulting in reduced anxious or negative thoughts.
B. Improved emotional response, leading to a reduction in anxiety and depressive symptoms.
C. Changes in behavior that lead to improved self-efficacy; therefore, the child learns to overcome and face traumatic experiences and challenges [37-39].

8. CBT for the Treatment of PTSD in Children and Adolescents

Numerous studies have highlighted the effectiveness of CBT for PTSD in children and adolescents exposed to various traumatic experiences [5, 10, 17, 40-43]. During CBT, therapists educate youths on stress reduction techniques, leading to the individual's preparedness to gradually expose himself/herself to and, therefore, gain mastery over the trauma stimuli. CBT for individuals with PTSD is also effective when conducted in groups in various community or mental health clinics [44-46].

The bulk of empirical investigations have compared CBT with waitlist control groups; CBT was more effective even when compared with other well-known treatments, such as supportive [5, 40]

and narrative therapy [41]. CBT following appropriate developmental modifications is also effective in 3–6-year-old children who have experienced sexual abuse [47, 48] or other traumas [49]. Therefore, as suggested by the UK National Institute for Clinical Excellence (NICE) guidelines, CBT is effective in the treatment of PTSD. Children and young people with PTSD should be offered a course of trauma-focused CBT suitably adapted to their age, circumstances, and developmental level [3, 50].

As stated in the introduction, this study specifically provides an overview of two evidence-based preventive interventions, TF-CBT [8] and a similar type of group intervention, the CBITS [46]. Both have received the most empirical support through randomized controlled trials (RCTs).

Regarding these aforementioned interventions, the most important information on the RCTs, quasi-experimental, and open trials described in sections 8, 9, and 10 are listed in Table 1.

Table 1 CBT - oriented PROTOCOLS & CLINICAL TRIALS.

Authors	Description	Measures	Target Population	Results **	advantages	Weaknesses
Cohen et al, 2004 [5]	RCT; 229 consecutively referred children 8–14 y.o. mostly Caucasian. Subjects randomly assigned to either TF-CBT or CCT; 12 weekly individual sessions to parent and child for each treatment.	For Children: K-SADS-PL; CDI; STAIC; CAPS. For their parents: K-SADS-PL; CBCL; CSBI; BDI; PERQ; PSQ; PPQ.	Children experienced contact sexual abuse	Children received TF-CBT exhibited greater improvements on measures PTSD, depression, total behavior problems, interpersonal trust, perceived credibility, and shame. Parents assigned to TF-CBT reported greater improvements to their own scores of depression, abuse-related distress, parental support, and parenting practices.	Blind-independent evaluators; treatments with strong theoretical base; large subject sample; participants recruited from geographically distinct regions; therapists with diverse discipline and theoretical backgrounds; a multiply traumatized population included;	No treatment control group; study did not elucidate which specific TF-CBT components are critical to effectiveness; few Hispanic and Asian families included;
Cohen & Mannarino, 1998 [40]	RCT; 49 recently sexually abused children aged 7-14, randomly assigned to receive either sexual abuse-specific (SAS)-CBT or NST; 12 weekly individual sessions to	For Children: CDI For Parents: CBCL.	Children experienced contact sexual abuse	Children received SAS-CBT exhibited greater improvements on most outcome measures, especially DE & social competence.	Blind-independent evaluators; SAS-CBT sessions closely monitored for adherence to the assigned treatment modality; strong theoretical base.	Small subject sample; study did not elucidate which specific CBT components are critical to effectiveness;

	parent and child for each treatment.					
Eva Gilboa-Schechtman et al, 2010 [41]	RCT; 38 adolescents randomly assigned to receive prolonged exposure therapy for adolescents (PE-A), non-directive trauma focused or time-limited dynamic therapy (TLDP-A, non-directive).	For adolescents: K-SADS-PL; CGAS; CPSS; BDI; Treatment Expectancy and Satisfaction self-rating scale; Therapeutic alliance; WAI	Adolescent with PTSD, victims of single-event traumas (i.e., motor vehicle accidents; non-sexual assault; sexual assault).	Both treatments decreased PTSD and depression scores and increased functioning; PE-A exhibited greater decrease of PTSD, depression and greater increase in global functioning than TLDP-A; gains maintained at 6- and 17-month follow-ups. Advantages of PE-A over TLDP-A no longer significant at 17 months follow up.	Sample comprising adolescents only; Adherence to protocol strictly monitored during weekly supervision. Videotaped Sessions watched by supervisors to ensure fidelity; gains obtained by clinicians with modest experience indicating that PE-A can be disseminated to real-world settings.	Modest sample size; important to examine gains for a longer time
King et al, 2000 [42]	36 sexually abused children (aged 5–17 years) randomly assigned to a child-alone CBT condition, a family CBT condition, or a WLC condition.	For Children: PTSD section of the ADIS; FT-SAC; CQ-SAC; R-CMAS; CDI; For Parents: CBCL; GAF scale.	Children experienced contact sexual abuse with PTSD symptoms	Treated children exhibited improvements in self-report PTSD and ANX symptoms; Improvements also occurred in relation to parent-completed measures and clinician ratings of	Active parental involvement in the therapeutic process; high reliability in PTSD diagnoses made by two diagnosticians (blind each other); detailed manuals prepared to	Modest sample size; assessments conducted by same persons (e.g., therapist); ethical issues regarding use of WLC (delayed treatment); important to

				global functioning. Parental involvement did not improved CBT efficacy; gains maintained at 12-wk follow-up.	facilitate adherence with treatment protocols; files checked for compliance at weekly supervision meetings; videotaped sessions checked for treatment adherence by independent rater; comparison with WLC.	examine gains for a longer time.
Smith et al, 2007 [43]	RCT; 24 children and adolescents (8-18 y.o.) with PTSD randomly allocated to a 10-wk course of individual CBT vs. WLC for 10 wks.	For Children: ADIS - C; CAPS-CA; CPSS; C-RIES; DSRS; RCMAS; C-PTCI; For Parents: ADIS - P	Individuals with PTSD after experiencing single-incident traumas (motor vehicle accidents, interpersonal violence, or witnessing violence)	Participants received CBT showed greater improvement in symptoms PTSD, DE, ANX, and better global functioning. After CBT, 92% of treated participants no longer met criteria PTSD; after WL, 42% of participants no longer met criteria. CBT gains maintained at 6-month follow-up. Effects of CBT were	Use of baseline symptom-monitoring period before randomization; protocol mainly comprising cognitive components instead of relaxation training and other stress management techniques; Adherence to	Modest sample size; Individual CBT was delivered by therapists with great experience, thus, questionable if protocol can be disseminated to real-world settings; treatment relatively brief (few sessions, i.e., approx. 9).

				partially mediated by changes in maladaptive cognition.	protocol monitored during monthly supervision (included viewing videotapes of sessions and addressed treatment adherence).	
Jaycox et al, 2010 [44]	RCT - Field trial; 118 Children, 60% of them screened positive for PTSD symptoms, after randomization, allocated to TF CBT (n=60, 12-session individual or conjoint intervention in clinic), and to CBITS interventions (n=58, 10-group session and 1–3 individual session in school), 15 months after Hurricane Katrina. 98% of CBITS sample began the school intervention vs. 37% only of TF-CBT sample began at the clinic.	For Children: Disaster Experiences Questionnaire; UCLA PTSD Reaction Index; CPSS; CDI; SSQ; PTSD appendix of K-SADS-PL; For teachers: SDQ	New Orleans students with PTSD symptoms who exposed to Hurricane Catrina.	Both treatments led to reduction of PTSD symptoms but many still had elevated PTSD symptoms at post treatment.; School intervention (CBITS) offer a more acceptable and feasible approach by overcoming some logistical barriers and stigma; teachers reported lower rates of child problems than did the children themselves.	Results highlight importance of long-term support for mental health needs of children following physical disasters; Results indicate that 1. bulk of families may not access therapy at community clinics albeit manage to access similar services at school environments. 2. cautious assessment of previous traumas is needed to fully evaluate impact of	Modest sample size; since there was no control group, difficult to gauge whether symptoms would be improved during these 15 months without treatment; need for a longer follow up period.

					current trauma in children's lives.	
Kataoka et al, 2003 [45]	Quasi-experimental study; 152 students enrolled in group CBT therapy with trauma-related DE and / or PTSD symptoms vs. n=47 being on a WL; intervention consisted of 8-sessions, delivered in Spanish by bilingual, bicultural school social workers; parents and teachers able to receive psychoeducation and social support.	Students completed a self-report questionnaire regarding exposure to violence and symptoms; modified version of the Life Events Scale; CPSS; CDI. For Parents: questionnaire regarding sociodemographic information.	Latino immigrant students who exposed to a wide range of community violence.	Students in the intervention group greater improvement in PTSD and DE symptoms vs. those on the waitlist at 3-month follow-up,	A beneficial intervention implemented at school environment and carried out by school clinicians; Intervention specifically designed for the needs of Latino minority students who have limited access to mental health services	Treatment was relatively brief (8 sessions); modest decline in trauma-related mental health problems; need for a longer follow up period
Stein et al, 2003 [46]	RCT; Sixth-grade students randomly assigned to 10-session CBITS early intervention group (n = 61) vs. WL delayed comparison group (n = 65) conducted by trained school mental health clinicians.	For students: Life-event-scale; CPSS; CDI; For Parents: Pediatric Symptoms Checklist; For teachers: teacher-child rating scales	Trauma accompanied with PTSD symptoms as a result from exposure to violence.	Compared to WLC, after 3 months intervention, CBITS students' group had lower scores on PTSD, DE and psychosocial dysfunction;teacher report for classroom problems did not show difference between 2 groups at 3 months. At 6 months, after both 2 groups received the CBITS,	First RCT targeting to children with PTSD symptoms who exposed to wide range of community violence; CBITS targets to multicultural populations; heterogeneity of participants (comorbid cases were also allowed	Teachers did not report improvement in classroom behavior at 3 months and 6 months time point in early / delayed intervention groups; CBITS was compared with WL group and not with another intervention group; absence of blinded evaluators:

				outcome was not different for PTSD and DE; groups showed similar ratings for psychosocial function; teacher reported no difference.	to participate) demonstrated that CBITS is able to be applied in real world settings;	participants not blinded to treatment they received.
Cohen & Mannarino, 1996a [47]	RCT; 67 preschool children and their parents evaluated immediately after completion of either CBT for Sexually Abused Preschoolers (CBT-SAP) or NST. Treatment consisted of 12 individual sessions for both child and parents.	<u>For Children:</u> PRESS; <u>For Parents:</u> CBCL; CSBI; Weekly Child Behavior Report;	Preschool children exposed to sexual abuse within 6 months prior to referral to study.	CBT-SAP group exhibited significant improvement vs. NST group posttreatment on most outcome measures.	Study highlights the importance of appropriate parental support on short-term functioning of sexually abused children; treatment monitored for integrity with the therapeutic model through intensive training and supervision, use of treatment manuals, and rating of audiotaped sessions.	Modest sample size; study design doesn't allow to evaluate independent impact of discrete components of either treatments in reducing symptomatology.

Deblinger et al, 2001 [48]	44 mothers and 44 children (ages 2 to 8 y.o) participated in either NST or CBT groups after randomization. Study assessed gains made by children - parents after 11 wks therapy and 3 months follow up.	Administered to Mothers: Miller Behavior Style Scale; IES; PERQ; PPQ; SSQ; TSQ; PTSD section of K-SADS-E; CBCL; CSBI-3); Administered to children: WIST;	Preschool children exposed to sexual abuse	Mothers participated in CBT groups reported greater reductions posttreatment in intrusive thoughts and negative parental emotional reactions regarding abuse; children treated with CBT demonstrated greater improvement in their knowledge regarding body safety skills vs. children received NST.	Study highlights the favorable role of CBT intervention in groups to reduce symptoms in this special population; In addition, gradual exposure may not be the most critical ingredient of therapy for this population; Adherence to protocol strictly monitored during weekly supervision. Videotaped Sessions watched by supervisors to ensure fidelity.	Modest sample size; participants were required to attend a minimum of 3 sessions to be included to the tested sample; Treatment was relatively brief (few sessions approx., 8); majority of children did not demonstrate significant behavior problems at pretreatment, making the detection of differential treatment effects difficult; since there was no controls, difficult to gauge whether symptoms would improve over time without treatment; need for a longer follow up period.

Scheeringa et al, 2011 [49]	RCT; 64 children randomly assigned to either 12-session manualized TF-CBT or 12-wks WL	For parents: PAPA; AEC; For therapists: TFC; ACC.	Very young children exposed to a wide range of traumas	All participants were offered treatment. Effect sizes were large for PTSD and other comorbid conditions, except ADHD; at six-month follow-up, effect size increased for PTSD; highly detected feasibility for specific TF-CBT techniques (approx. 80–90%);	Study highlights that developmentally modified TF- CBT is also feasible and efficacious in very young children;	Ethical Concern regarding the use of WL control group; high attrition post treatment and at 6 month follow up; modest sample size; intervention conducted in an underprivileged, low social-economic group in urban American setting
Deblinger, Steer & Lippmann, 1999 [11]	100 sexually abused children (from 7 to 13 y.o), and their nonoffending mothers, randomly assigned to 1 of 3 CBT condition (child only, mother only, or mother and child), or a community comparison condition; Intervention included 12 treatment sessions provided weekly; participants followed for 3, 6 months, 1 and 2 y. after treatment.	For mothers: CBCL; PPQ; PTSD index; PTSD section of K-SADS-E; For children: CDI; STAIC; PTSD index	Children who experienced contact sexual abuse	Mothers assigned to treatment described decreases in their children's externalizing behaviors and increases in effective parenting skills, and their children reported reductions in DE; Children assigned to treatment exhibited greater reductions in PTSD symptoms; treatment improvements held across the 2–year	Study highlights sexually abused children's post-treatment improvements in externalizing behavior, DE and PTSD maintained over the 2-year follow-up.	Substantial missing outcome data at 2 years follow up; a tremendous variability in the experiences of participants who sought therapy in communities; CBT was compared with a non-well defined and controlled alternative therapy

				follow-up period, except effective parenting practices, where slight deterioration at 1 year follow up detected.		
Cohen, Mannarino & Knudsen, 2005 [51]	82 sexually abused children & adolescents ages 8–15 y.o and their primary caretakers randomly assigned to TF-CBT or NST that delivered over 12 sessions; study examined symptomatology at 1 year follow up;	For Children: CDI; TSC-C; STAIC; For Parents: CSBI; CBCL	Children who witnessed or exposed to sexual abuse	TF-CBT group evidenced greater improvement in ANX, DE, sexual problems, dissociation at 6-month follow-up and in PTSD and dissociation at 12-month follow-up;	Study provides support for durability of TF-CBT effectiveness for this special population; For both treatments, sessions closely monitored for adherence to the assigned treatment modality;	NST probably more effective if it would last longer than 12 sessions; poor sensitivity about psychometric detection for PTSD symptoms; high dropout rate for NST group.
Dalgleish et al, 2015 & Hitchcock et al, 2022 [52, 53]	RCT; 44 participants randomly allocated to receive developmentally tailored TF-CBT intervention or Treatment As Usual (TAU). Treatment includes 12 weekly sessions. Evaluation conducted at posttreatment, 3-	For Parents: Young Child PTSD Checklist; PEDS; PFC; DIPA.	Children aged 3 to 8 y.o with a primary diagnosis PTSD following a single-event discrete trauma.	Most children lost their PTSD diagnosis following completion of TF-CBT (84.6%) relative to TAU (6.7%); Effect sizes were also in favor of TF- CBT for secondary outcome measures.	First European study to explore efficacy of TF-CBT in very young children who suffer from full blown PTSD diagnosis; clinical psychologists delivered the intervention;	Modest sample size; Protocol used a strong focus on cognitive elements vs. Scheeringa et al. (2011) [49] previous intervention; larger trial with longer follow up period is warranted to

	month, 12-month follow-up				fidelity and clinical adherence established through continued monitoring and independent rating; clinicians completed TFC; Treatment sessions video-taped and all assessments audio-taped.	increase treatment options.
McMullen et al, 2013 [54]	RCT; involving 50 boys, aged 13–17 y.o [former child soldiers (n = 39) and other war-affected boys (n = 11)]; Randomly assigned to intervention group vs. WLC group; intervention group received 15-session culturally adapted TF-CBT; assessment completed at baseline, post intervention, 3-month follow-up.	For children: UCLA-PTSD Reaction Index; African Youth Psychosocial Assessment;	War affected Congolese boys (mainly former soldiers) with PTSD symptoms who witnessed a wide range of traumatic events	In TF-CBT group highly significant reductions in PTSD symptoms, overall psychosocial distress, DE, ANX, conduct problems & increase in prosocial behaviors; 3-month follow-up found that gains maintained.	Study highlights that TF-CBT can be modifiable and flexible in the culture of special populations, comprising even children who have experienced war trauma, and living in extremely difficult conditions.	Moderate sample size; need for a longer follow up period; ethical issues regarding use of WLC (delayed treatment); data exclusively obtained from children; because TF-CBT was compared with a WLC and not an active treatment, results could be attributed to nonspecific psychotherapeutic effects rather than

						specific effects of TF-CBT.
Hoagwood et al,2007 [55]	Quasi-experimental trial; 700 youths participated; adapted TF-CBT was delivered either in school or in the clinic by clinicians; 45 separate clinic or school sites, operated by 9 provider organizations, participated; approximately 8 sessions for each person, at least.	PTSD–RI; BDI-A; CDI; Multidimensional Scale for Children; Behavioral Assessment Schedule for Children.	Children and adolescents affected by the September 11 terrorist attack in New York.	>50% of youth who received CBT-oriented therapy demonstrated reduced PTSD symptoms at end of treatment; an even greater percentage evidenced improvement at 4-month follow-up.	Essential care taken to provide participants with culturally appropriate child recording psychometrics; high-quality levels CBT training to clinicians before intervention; Gains obtained by clinicians with modest CBT experience indicating that CATS CBT intervention can be disseminated to real-world conditions; Largest TF-CBT intervention and evaluation in the US.	Therapists with diverse theoretical backgrounds; the target population mainly included Latino children derived from low-income urban families.

*ACC=*Adaptability Checklist–Child; ADIS = Anxiety Disorders Interview Schedule; *AEC= Adverse Events Checklist; BDI:=Beck Depression Inventory II; BDI-A=* Beck Depression Inventory for adolescents; CAPS = Clinician Administered PTSD Scale; CBCL=Child Behavior Checklist; CBITS= Cognitive Behavioral Intervention on Trauma in Schools; CBT = cognitive-behavioral therapy; CCT: Child Centered Therapy; CDI = Children's Depression Inventory;

CGAS=Children's Global Assessment Scale; CQ-SAC = Coping Questionnaire for Sexually Abused Children; CPSS = Child PTSD Symptom Scale; C-PTCI=Children's Post Traumatic Cognitions Inventory; C-RIES = Children's Revised Impact of Event Scale; CSBI: Child Sexual Behavior Inventory; DIPA=Diagnostic Infant and Preschool Assessment; DSRS = Depression Self-Rating Scale; FT-SAC = Fear Thermometer for Sexually Abused Children; GAF=Global Assessment Functioning scale; IES=Impact of Event Scale; K-SADS-PL= *Kiddie-Schedule for Affective Disorders and Schizophrenia- Present and Lifetime Version*; MVA = motor vehicle accident; NS = nonsignificant; NST: non - directive supportive therapy; PAPA=Preschool Age Psychiatric Assessment; PEDS= Pediatric Emotional Distress Scale; PERQ=*Parent's Emotional Reaction Questionnaire;* PFC= Preschool Feelings Checklist; PPQ: *Parenting Practices Questionnaire;* PRESS=Preschool symptom self-report; *PSQ: Parental Support Questionnaire;* PSS= PTSD Symptom Scale; PTSD= Post Traumatic Stress Disorder; PTSD–RI=UCLA PTSD Reaction Index; R-CMAS = Revised Children's Manifest Anxiety Scale; RCT = randomized controlled trial; STAIC=*State-Trait Anxiety Inventory for Children;* ST=Supportive therapy; TFC=Treatment Fidelity Checklist; TF-CBT: Trauma Focused Cognitive Behavioral Therapy; TSC-C: Trauma Symptom Checklist Child version; TSQ=Therapy Satisfaction Questionnaire; WAI: Working Alliance Inventory; WIST: What If Situations Test; Wk(s)=week(s); WLC = waiting-list controls

** Only statistically significant results are presented ($p < 0.001$)

9. TF-CBT

TF-CBT is the most widely used and best-studied protocol that is based on CBT principles [8, 9, 11]. It is a "supported and effective" intervention and is based on the standards of evidence-based practice [56]. The protocol is designed for children with PTSD, comorbid depression, anxiety, and other trauma-related difficulties (shame, self-blame, etc.).

The TF-CBT model includes nine components that are described as follows by using the acronym, PRACTICE [8]:

(P) Psychoeducation regarding post-traumatic symptomatology: the education of a child/adolescent regarding the clinical manifestations of the disorder and the therapeutic options, as well as the formation of a therapeutic alliance.

Aid to **(P) parental skills**: on the basis of learning theories and behavioral techniques, parents are taught the utilization of effective parenting interventions, such as praise, positive attention, selective attention, time out, and contingency reinforcement procedures.

Teaching (**R) relaxation skills:** Children are taught how to use a range of relaxation techniques, such as focused breathing exercises, progressive muscle relaxation, and other personalized relaxation activities, to reverse the physiological manifestations of traumatic stress.

Enhancement of **(A) affective modulation skills:** children are taught emotional education skills, such as the identification of their feelings, the utilization of positive self-talk, thought interruption, and positive imagery. In addition, they learn problem-solving techniques, social skills, as well as, the recognition and self-regulation of their negative affective states.

The skills of **cognitive coping (C)** and **processing and narration of the trauma (T):** with the help of the therapist, children create a narrative of their traumatic experiences, repair cognitive distortions related to the traumatic nature of their experiences, and place those experiences within the context of their lives.

In vivo (I) control (mastery) over childhood trauma reminders: this is achieved with gradual exposure of the child to fearful stimuli.

Conduct of (C) combined child-parent sessions: these are joint sessions in which the child shares the narrative trauma with the parents; moreover, other family issues are addressed at the same time.

(E) Enhancement of the future safety and development of the child: with the help of the therapist, the child is able to deal with safety concerns associated with the prevention of future trauma, thereby returning to a normal developmental trajectory.

TF-CBT consists of 12–20 sessions, lasting 60–90 min each, and is suitable for children and adolescents aged 3 to 18 years [8]. It is delivered separately to children and their parents and is also provided in a group format. Gradual exposure is an important part of this intervention [13]. To address transportation barriers, various RCTs have evaluated the efficacy of TF-CBT in multiple settings (e.g., homes, foster homes, schools, and residential treatment facilities).

Studies on TF-CBT have included more than 900 youths, with over 16 randomized trials demonstrating clinically significant improvement. Follow-up studies have indicated profit sustainability for 6 months, 1 year, and 2 years after treatment. Therefore, TF-CBT is “supported and efficacious in PTSD, depressive and anxiety symptoms, conduct problems, sexualized behaviors, and shame, negative cognitions evoked by trauma, interpersonal trust, and social competence” [11, 12, 40,51-54, 57-59].

TF-CBT has been evaluated in multiracial populations, such as American, Caucasian, African American, and Latino residents. Moreover, European, African, and Australian young people have demonstrated positive outcomes in multiple domains. To be more specific, TF-CBT was applied to English-speaking and Hispanic populations after the terrorist attacks of September 11, 2001, and was effective in reducing PTSD symptoms [55, 60]. An adapted model in two studies has also revealed significant improvement in both PTSD and grief symptoms [5, 53]. Moreover, parents have also reported a significant reduction in their distress and depressive symptomatology and significant gains in their ability to support and deal with their children's behavioral difficulties [61].

10. CBITS

CBITS is the best-supported CBT protocol in a group intervention, especially for children with PTSD. CBITS is delivered in a group format (6 to 8 children per group), with 10-week sessions of 1 h each. CBITS has been delivered to adolescents from 5th to 12th grade, specifically to those who have witnessed or experienced traumatic life events, such as violence in the community and/or at schools. Moreover, it is suitable for individuals who have experienced or witnessed accidents and injuries, physical abuse, domestic violence, and natural or man-made disasters. It is usually provided inside the school environment but beyond the school schedule and includes all the elements of PRACTICE, except for the parent education component, which is limited and optional. However, a new component for teachers has been added to its design. This component educates teachers regarding the potential impact of trauma on students' behavior and academic competence in the classroom. The trauma narrative component is mainly conducted during short one-to-one sessions in which children meet the group's primary caregiver.

CBITS was designed for trauma-impacted, recently immigrated students from Latino, Korean, Armenian, and Russian backgrounds; it was designed to be delivered in inner-city school mental health clinics. However, CBITS has been applied to a wide variety of populations in the US and worldwide. It was initially applied in two major studies in East Los Angeles in the US, primarily on Latino children exposed to violence in the community. Compared with waitlist control groups, more reduction in PTSD and depressive symptomatology was observed with CBITS intervention [42, 43].

In the field trial by Jaycox et al. [44] that was conducted 15 months after Hurricane Katrina in Southern California, children with PTSD were randomly assigned to a group intervention at school (CBITS) or an individual intervention (TF-CBT). Both interventions resulted in reduced symptoms of post-traumatic stress; however, a larger percentage of children completed the whole intervention in the CBITS group [62].

11. Advantages and Disadvantages of TF-CBT and CBITS

The TF-CBT and CBITS interventions are flexible and easily adaptable to diverse populations. They are easy to learn in a short time and are specifically designed and evaluated in multicultural and multilingual populations. In addition, they can be applied to populations with different languages. Both interventions have been experimentally validated by RCTs that demonstrated their effectiveness in several traumatized youths.

CBITS is specially designed to be used by school-based clinicians with appropriate training and specifically focuses on the implementation of trauma services in school settings. Common obstacles in CBITS include transportation barriers, mental health stigma (which prevents someone from

getting care), and the dependence on parents and families to seek and find proper care. CBITS is accessible to all eligible students, regardless of the parent's ability to be involved in the treatment.

These interventions, however, may not be appropriate or some parts of them may require modification in adolescents with externalized behavioral problems. In cases where trauma-induced behaviors interfere with therapeutic engagement, it would be more beneficial for the person to deal with the problematic behavior first and address his/her trauma afterward. In addition, in adolescents with active suicidal ideation or substance abuse, the part of the intervention focusing on trauma exposure could worsen the distress associated with these clinical conditions. In such cases, another intervention that does not prioritize trauma exposure but focuses on the practical management of the deviant behaviors would have advantages [13, 63, 64]. Finally, it is not clear whether the application of TF-CBT in the school environment ensures its accuracy because organizational (e.g., organizational culture and implementation climate) and individual factors of the providers (especially attitudes) can hinder its implementation and effectiveness [65-68].

12. Other Promising Treatment Practices and Protocols

This section describes protocols that have been used or are currently being evaluated to treat post-traumatic symptomatology but have not gained the evidence-based support of TF-CBT and CBITS. They are also designed to handle other crucial and essential components for achieving a positive therapeutic outcome; for example, new and promising practices for more comorbid situations, such as depression, externalizing behaviors, grief, and family social exclusion. Moreover, these practices are designed after considering particular cultural elements of the target population, such as grief symptoms in Latino immigrants. In some programs, trauma exposure, which is a necessary component for a positive outcome, is excluded. These promising protocols are presented in Table 2.

Table 2 PROMISING TREATMENT PRACTICES AND PROTOCOLS.

OTHER PROMISING INTERVENTION PRACTICES	Model Description	Trauma Types	Target Population & Results	Theoretical Basis	Citation of Clinical and Research Evidence
12.1. Support for Students Exposed to Trauma (SSET)	Adaptation of CBITS; provided by school staff; Design like a "traditional" lesson plan; individual sessions & parental training sessions are eliminated	Wide range of traumas, especially related to family, school, or community violence, natural or man-made disaster, accident or fire, or being physically abused or injured	Children suffering from PTSD symptoms and concomitant DE, especially those with elevated distress at baseline of treatment; SSET vs. CBITS: smaller reductions in symptoms in 1st Intervention	Based on CBT principles accompanied with trauma narrative	1 RCT: Jaycox, Langley, Stein, et al., (2009) [69]
12.2. UCLA Trauma and Grief Component Therapy (TGCT)	Primarily provided at schools; mainly focuses on adolescents; conducted in individual- or group form including approx. 10-24 sessions	War-related stimulus, community violence, terrorist acts, or other single or complex traumatic events.	Youths suffering from PTSD, traumatic Grief, comorbid DE, ANX & impaired functionality; gains maintained in follow up even after 6 months.	Based on CBT principles enriched with traumatic grief-specific component	1 RCT: Layne et al., (2008) [25]; 2 Quasi-experimental studies: Goenjian et al,. (2021; 1995) [70, 71] & Hoagwood (2007), CATS Consortium (2007) [59, 60]; 2 Open trials: Layne et al., (2001) [72];

					Saltzman et al., (2001).
12.3. Surviving Cancer Competently Intervention Program (SCCIP)	Provided in 4 all-day group family sessions	Distress and symptoms of DE, ANX, Arousal, Agitation related to Cancer	Cancer survivors, siblings, and parents; Intervention showed favorable results in children; modifications in family functioning were more difficult.	Model based on cognitive and family therapy	1 Open trial: Kazak et al. (2004) [73]
12.4. Trauma Systems Therapy (TST)	Utilizes multi-disciplinary team to implement an array of interventions, within multiple systems; include common CBT elements enriched with interventions in the broader systems in order to stabilize the child, family, distressed social environment.	Youths with a wide range of traumas, related to family and socially environment dysfunctional issues.	Focusses on both PTSD symptoms and other comorbid symptoms of ANX and DE; useful for families who encounter a range of barriers to treatment engagement, multiple traumas, and a host of social environment issues.	Systemic and CBT - influenced intervention inspired by Bronfenbrenner's social-ecological model	1 Open trial: Saxe et al., (2005) [74]; Saxe, Elli & Kaplow, (2007) [75]
12.5. Prolonged Exposure Therapy (PET)	14 individual sessions lasting 60 to 90 min. containing education at skills and in vivo exposure to trauma, implemented by clinicians with no previous experience in BT, after receiving short training ET.	Adolescents exposed to sexual abuse.	Improvement in PTSD symptoms vs. controls; gains maintained at 12-month follow-up.	Based on the behavioral technique of gradual exposure	Quasi-experimental study: Foa et al., (2013) [76]
12.6. Structured Psychotherapy for Adolescents Responding to	Group intervention lasting 16 sessions; direct exposure of participant to the trauma is optional and depends on	Wide range of chronic and complex traumas, mainly related to family,	Chronically injured adolescents who live to chaotic environments, with PTSD & concomitant	Based on common CBT techniques, in addition with elements from DBT, TARGET – A, TGCT.	2 quasi-experimental studies: DeRosa

Chronic Stress (SPARCS)	desire of participant to discuss his/her traumatic experiences.	socially & chronic dysfunctional environments.	problems; effective to restore normal development, life domain functioning, and risk behaviors.		& Pelcovitz, (2009) [77]; Weiner, Schneider, and Lyons, (2009) [78]
12.7. Trauma Adaptive Recovery Group Education and Therapy for Adolescents and Pre-Adolescents (TARGET-A)	Usually delivered in 12 50-minute individual sessions; designed primarily for adolescents who either refuse to narrate their trauma or their externalized behavioral problems, hinder their commitment to therapy.	Youths with complex PTSD symptoms involved in justicial procedures	Adolescents who witnessed interpersonal trauma or other chronic traumas; Intervention effective in improving sobriety and PTSD related outcomes; results varied by participants ethnicity	CBT skills along with other interventions e.g. emotion regulation, education about impact of trauma etc.; GE not a basic therapeutic component.	Case reports: Ford & Russo, 2006 [79]; 2 RCTs: Ford et al., 2011, 2012 [80, 81]
12.8. Combined CBT Approach for Children & Families at Risk of Physical Abuse (CPC-CBT)	Parents and children attend 16 wks sessions; parental and child interventions conducted concurrently for the first 75 minutes of the session by two group therapists in each group; rest of the 45 minutes involves the integrated joint parent-child sessions.	Traumas related to history of harsh physical discipline, and stressful parenting strategies	Families who are at risk, or who have already been abused.	Elements of TF-CBT, mobilization interview, recruitment of support services	1 RCT: Runyon, Deblinger, & Steer, (2010) [82]; 1 open-label study: Runyon, Deblinger & Schroeder, (2009) [83].
12.9. Risk Reduction through Family Therapy (RRFT)	Comprises 16- 20 sessions, in which each session lasts 60-90 min; it addresses traditional barriers associated with difficult-to-reach population; tailored	Traumas related to sexual assault or abuse	Adolescents with risky behaviors and trauma-related symptoms; results indicated significant reductions in substance use, substance use risk	Family-focused, integrated treatment that combines TF-CBT, Multisystemic Therapy, and other approaches	1 RCT: Danielson et al., 2012 [84]; 1 open trial: Danielson et al., 2010 [85]

	to individual adolescents' and family's needs		factors, (parent-reported PTSD & DE symptoms, improvements in family conflict; Gains maintained at 6-month follow up		
12.10. Intervention for Seeking Safety (SS)	Carried out in individual or group basis, 25 sessions approx.; parents invited to attend 1 session; methodology comprises modification of negative emotions, reduction of the risk of substance abuse, correction of non-helpful beliefs related to the experience of trauma; designed as a stand-alone intervention.	Wide range of traumas related to substance abuse	Adolescents with co-morbidity of PTSD and substance abuse; intervention proved superior vs. usual therapy regarding cognitions related to SUD, PTSD, several areas of pathology not targeted in the treatment; Gains maintained at 3-month follow up	CBT-oriented intervention protocol enriched with seeking – safety skills	Regarding Adolescents, a small pilot RCT: Najavits et al. (2006) [86]
12.11. Alternatives for Families – A Cognitive Behavioral Therapy (AF-CBT)	Implemented in community area services, and mental health clinics; includes 20 sessions 60-90min each; includes a structured session guide, with handouts to facilitate implementation	Wide range of traumas related to harsh relationships, physical abuse, and systematic conflicts between children and caregivers	Youths 5-17 y.o from families with modest to low socio-economic profile and / or physically abusive parents; intervention showed improvements in various aspects e.g. abuse risk, family dysfunction, threats of force, child to parent minor assault; gains maintained at 18 month follow up	Comprises Learning / behavioral and cognitive theory, family-systems, developmental victimology, and psychology of aggression.	4 RCTs: Kolko et al., 1996a; 1996b; 2012; 2018 [87-90]. 1 pilot open study: Kolko et al., 2011 [91].

12.12. Bounce Back: An Elementary School Intervention for Childhood Trauma (BB)	Includes 10 group sessions; also includes 2-3 individual sessions in which children complete trauma narration and share its grief with parent; also contains parental training	Traumas related to violence at school, family, community, or experienced natural disasters or traumatic separation from a loved one;	Elementary school children derived from various socioeconomic and cultural backgrounds; positive outcome for PTSD symptoms and comorbid DE and ANX; gains maintained at 3-month follow up	Developed as adaptation of CBITS for elementary students	2 RCTs: Langley et al., 2015; Santiago et al., 2018 [92, 93].
12.13. Child and Family Traumatic Stress Intervention (CFTSI)	Brief caregiver-child intervention, consisting of 5 - 8 sessions; provided within 30 days of exposure to prevent development of chronic PTSD.	Wide range of traumas (i.e., physical, or sexual abuse, domestic or community violence, rape, assault, traffic accidents, etc)	Children aged 7 to 18 y.o with variant ethnic and racial backgrounds in order to reduce the escalation of traumatic stress and PTSD; intervention efficacious in reducing children's and parental trauma symptoms and in decreasing probability of full-fledged PTSD and related disorders.	CBT oriented intervention enriched with therapeutic elements enhancing family communication and support	1 RCT: Berkowitz et al., 2011; 3 open studies: Marans et al., 2011; Oransky et al., 2013; Hahn, et al., 2015 [94-97].
12.14. Dialectical Behavior Therapy (DBT)	Multi-modal, comprehensive, and flexible intervention; modified for adolescents (DBT-A), lasting approximately 12 wks.	Wide range of traumas related to suicide ideation, other suicide risk factors, borderline features, emotional dysregulation.	Adolescents 13-19 y.o with trauma history who mainly live in shelters or hospital settings; results indicate decrease in trauma-based symptoms, suicidality, and NSSI; gains maintained in varying degrees at three-month follow up.	Based on CBT principles, enriched with other innovative ingredients, such as problem-solving techniques, acceptance-based strategies, therapists' availability outside hospital etc	Case Series: Geddes et al., 2013 [98]

12.15.Modular Approach to Therapy for Children with Anxiety, Depression, Trauma, or Conduct Problems (MATCH-ADTC)	Intervention with transdiagnostic, flexible and modular design; allows therapy procedures to be applied in an individualized manner while it can aggregate many practices from the extensive literature on EBTs into more tailored interventions.	Traumas related to comorbid disorders and multiple dysfunctions in real world settings	Designed for children ages 6-15 y.o, with comorbid disorders i.e. DE, ANX, PTSD, CD; youths (based on children and parents' reports) showed faster improvement over time in various dysfunctional states vs. those in community care; youths also spent less time in treatment, were less likely to get additional treatment, less likely to be prescribed psychotropics.	Based on transdiagnostic CBT elements, addressed to cope with multiple comorbidities and also enriched with flexibility, for strategies to shift in response to fluctuating treatment needs. trans	4 RCTs: Harmon et al., 2021; Weisz et al., 2012; 2020; Chorpita et al., 2017 [99-102]

12.1 Support for Students Exposed to Trauma (SSET)

SSET is an adaptation of CBITS. It is provided by school staff without any clinical experience but with the support of a clinician in the situation of an urgent mental health issue. SSET is more like a "traditional" lesson plan, in which the individual and parental training sessions are eliminated. In this context, exposure to the imagination is applied in a more psychoeducational and academic structure and is formulated in a lesson plan format. In the study of Jaycox, Langley, Stein et al. [69], including 76 children with PTSD, the application of SSET resulted in the reduction of post-traumatic symptoms and concomitant depression. However, compared with CBITS, less improvement was observed. Furthermore, SSET intervention is mainly effective in young people with high levels of distressful symptoms before treatment sessions.

12.2 UCLA Trauma and Grief Component Therapy (TGCT)

UCLA TGCT was designed by the UCLA Trauma Psychiatry Service and was used in Armenia after the 1988 earthquake. Although it can be delivered in community mental health or other settings, UCLA TGCT has been primarily provided at schools. It mainly focuses on adolescents, with both individual and group sessions being available. It is used in addition to other empirically supported techniques and targets the alleviation of PTSD symptoms and traumatic grief. Therefore, youths restore their normal development course [70, 71].

According to a study by Layne et al. [72], this intervention was beneficial in reducing PTSD, traumatic grief, and depressive symptoms in a sample of Bosnian adolescents. In addition, adolescents exposed to community violence and exhibiting PTSD symptoms also benefited from this intervention [103]. Moreover, it was effective in reducing PTSD symptoms in adolescents after a terrorist act [59, 60].

In a study by Smith et al. in 2007 [43] including 24 young people (8–18 years) who experienced a single traumatic event, the intervention group exhibited a significant improvement in the symptoms of PTSD, depression, anxiety, and functionality compared with the wait list group; gains were maintained even after 6 months.

12.3 Surviving Cancer Competently Intervention Program (SCCIP)

SCCIP is an intervention model based on cognitive and family therapy. It is a 1-day program delivered through four sessions to a group of families. Compared with the waitlist group, the SCCIP group exhibited more relief in the symptoms of arousal and agitation in adolescent cancer survivors. The target groups are the survivors, siblings, and parents. Although the intervention provided favorable results in children, modifications in family functioning were more challenging [73].

12.4 Trauma Systems Therapy (TST)

TST is a systemic and CBT-influenced intervention inspired by Bronfenbrenner's social-ecological model [104]. It focuses on both post-traumatic stress symptoms and other comorbid symptoms of anxiety and depression [75]. In an open study, this intervention was applied to 110 children and adolescents aged 5–20 years [74]. The intervention focused on strengthening the ability of individuals to control uncomfortable emotions and deal with significant distress. Moreover, it

promoted changes in the social context that perpetuates the symptoms. TST is an effective intervention for families who experience obstacles in completing a treatment, multiple injuries, and several issues related to the social environment of the families. Saxe et al. [74] demonstrated that participants exhibited significant improvements in PTSD symptoms. Moreover, family and school-related problems were relieved within a 3-month follow-up period.

12.5 Prolonged Exposure Therapy (PET)

PET teaches individuals to gradually approach trauma-related memories and emerged in a study by Foa et al. [76], which included 61 girls aged 13–18 years who had been sexually abused. Therapists were clinicians with no previous experience in behavioral therapy and who worked in community mental health clinics after receiving a short training in exposure therapy. The intervention included 14 individual sessions lasting 60 to 90 min and containing education on skills and in vivo exposure to the trauma. A significant improvement in PTSD symptoms was observed in the behavioral therapy group (n = 31) compared with the nonspecific counseling support group (n = 30, comparison group). Moreover, therapeutic gains were maintained during a 12-month follow-up. However, Foa's model has certain disadvantages. Some studies have indicated that exposure-based approaches can lead to higher dropout rates compared with nontrauma focused ones [105, 106]. However, this finding was not confirmed in a subsequent meta-analysis regarding the RCTs of PTSD treatments, especially in children and adolescents [107].

12.6 Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS)

SPARCS is a 16-session group intervention. It is beneficial for chronically injured adolescents, aged 12–19 years, who live in or return to chaotic environments and exhibit post-traumatic symptoms and concomitant problems in various areas of functionality [77]. Weiner, Schneider, and Lyons [78] applied this intervention and observed a significant improvement in 33 adolescents who were of various origins, were aged 13–21 years, and experienced moderate to severe distinct traumatic experiences. The SPARCS methodology is mainly based on CBT techniques and also includes the components of dialectical behavioral therapy (e.g., mindfulness), Trauma Adaptive Recovery Group Education, and Therapy for Adolescents and Preadolescents (TARGET-A; e.g., emotion regulation and current PTSD symptom management skills), and TGCT (e.g., adaptive remembrance of the deceased and psychoeducation regarding grief). In contrast to trauma-focused interventions, direct exposure of the participant to the trauma is optional in SPARCS intervention and depends on the desire of the participant to discuss the traumatic experiences.

12.7 TARGET-A

This intervention was specifically designed to address complex presentations of PTSD and also to focus on assisting juvenile delinquents involved in judicial procedures. It focuses on young people aged 12–19 years who have experienced interpersonal trauma (e.g., abuse), other chronic traumas (e.g., domestic violence and community violence), or other stressors [79]. Because of the manifestations of complex PTSD, the exclusive use of basic CBT skills in TARGET-A programs is not sufficient. Therefore, interventions from other psychotherapeutic backgrounds, such as emotion regulation and current PTSD symptom management skill acquisition, psychoeducation on trauma

impact, training for nonprofessional helpers in implementation and reinforcement of the intervention, and substance abuse counseling and support, are also used. As in SPARCS intervention, the young person can choose to talk about previous traumatic events. Therefore, gradual exposure to traumatic ingredients is not a nuclear component of TARGET-A [80, 81, 108]. In addition, it is an approach designed for older children or adolescents who either refuse to narrate their trauma or their externalized behavioral problems hinder their commitment to therapy.

12.8 Combined CBT Approach for Children and Families at Risk of Physical Abuse (CPC-CBT)

CPC-CBT is implemented in families who are at risk of abuse or who have already been abused. Efficacy data for this intervention come from an RCT study [82] and a small open-label study [83].

It is specifically applied to young people with a history of harsh punishment and stressful parenting disciplinary techniques, leading to PTSD, depression, abuse-related negative beliefs, and externalized behavioral difficulties. CPC-CBT includes the elements of TF-CBT, mobilization interviews, recruitment of support services (e.g., facilitating the supervision & movement of children), and improvements in communication skills specifically aimed at preventing domestic violence. In this intervention, parents, and children participate in 16-week 2-hour sessions. Parental and child interventions are conducted concurrently for the first 75 min of the session by two therapists in each group. The rest of the 45 min comprise joint parent-child sessions.

12.9 Risk Reduction Through Family Therapy (RRFT)

RRFT is a CBT-oriented intervention consisting of 16–20 sessions (depending upon the intensity of symptoms) of 60–90 min each. The sessions are aimed at reducing risky behaviors and trauma-related symptoms in young people aged 13 to 18 years and who are victims of sexual assault or abuse. It comprises psychoeducation, problem-solving skills, family communication skills, substance abuse management, and PTSD symptom management. Moreover, it contains healthy sexual behavior lessons and techniques aimed at reducing the risk of re-victimization.

RRFT addresses a wide range of interrelated symptoms in a single intervention (i.e., symptoms and risk behaviors are not treated separately). Moreover, it addresses traditional barriers associated with this difficult-to-reach population. RRFT is tailored to individual adolescents' and families' requirements based on the family's goals for treatment, needs, and strengths [84, 85].

12.10 Intervention for Seeking Safety (SS)

SS is a CBT-oriented intervention designed for individuals and groups; it assists young individuals in coping with the comorbidity of PTSD and substance abuse [109]. Its methodology includes the modification of negative emotions, reduction of the risk of substance abuse, and correction of nonhelpful beliefs related to the trauma experience.

In a small pilot RCT by Najavits et al. [86], the intervention proved superior to the usual therapeutic interventions in a group of adolescent girls with PTSD and substance abuse.

12.11 Alternatives for Families—A Cognitive Behavioral Therapy (AF-CBT)

AF-CBT is an intervention with empirically substantiated data and has been designed to improve relationships between children and caregivers in families, whose relations are characterized by

physical abuse or systematic conflicts. Some parents impose severe physical discipline or emotional neglect. Methodological adjustments have been implemented for children with comorbid externalized behavioral problems or developmental disabilities, especially in social communication. AF-CBT is based on the study by Kolko et al. [87-91], which is an RCT involving 55 people, mostly of American-African origin. The authors demonstrated a significant positive outcome in the target domains.

Since its introduction, AF-CBT has been delivered in English, Spanish, Japanese, and other languages. Therefore, the intervention has been appropriately applied to physically abusive parents and their school-age children. Moreover, it has been implemented both in community area services and mental health clinics. AF-CBT usually includes 20 sessions of 1–1.5 h each. The target population is young people aged 5–17 years from medium to low socio-economic status (SES) families. The intervention has not been designed for specific cultural groups. Its theoretical basis comprises learning/behavioral and cognitive theory, family systems, developmental victimology, and the psychology of aggression.

This intervention has several advantages. AF-CBT contains comprehensive material for children, parents, and families. It focuses on family conflicts, aggression, and the provision of alternative methods to set limits instead of overt physical punishment or child abuse. Moreover, it includes a structured session guide with handouts to facilitate implementation. Finally, the material can be adapted by clinicians to the requirements of the clients on the basis of their frequent decisions on what content to emphasize. However, this approach has certain disadvantages also. The treatment can sometimes be lengthy. Moreover, because of the difficult living conditions of treated families, it is sometimes complex to accommodate them and embrace their commitment to the treatment [89, 91].

12.12 Bounce Back: An Elementary School Intervention for Childhood Trauma (BB)

BB is a group-based CBT-oriented intervention that educates elementary school children to cope with their traumatic experiences and to recover from them. It is often applied to children who have experienced or witnessed violence in the community, family, or school environment. Furthermore, children who have experienced natural disasters or traumatic separation from a loved one due to death, imprisonment, deportation, or placement in a childcare facility are referred to receive this intervention.

The intervention includes 10 group sessions where children learn and practice emotion modification, relaxation, helpful thinking, problem-solving, conflict resolution, positive activities, and social support. It also includes 2–3 individual sessions in which children recall their traumatic memory and the accompanying grief and share it with a parent/caregiver. Subsequently, children practice the skills acquired from these sessions. Moreover, BB contains materials for parent training sessions [93].

BB is developed by adapting CBITS for elementary school students and contains many of the same therapeutic elements. However, it is designed with additional elements and engaging activities, such as emotion recognition, behavioral activation, and social support. It also requires more parental involvement that is developmentally appropriate for children aged 5–11 years. It is designed to be applied in schools and to children from a variety of national and socioeconomic backgrounds and cultural levels. In the study by Langley et al. [92], BB was applied to 77 primary

school children of various origins, with the intervention lasting 3 months. The outcome was positive for post-traumatic symptoms, comorbid depression, and anxiety in both groups (immediate intervention and delayed intervention).

The program is advantageous because its implementation at schools enables clinicians to reach underserved students who are not otherwise fortunate to receive mental health care. It reduces the barriers to health-care access, such as transportation. Moreover, BB is typically delivered at no cost to families. However, BB has some limitations, such as not all students are permitted by their parents to participate in screening or intervention groups at schools. Furthermore, some participants may require to receive further treatment beyond this early intervention group treatment. Therefore, clinicians who deliver BB need to link it with other mental health services and make appropriate referrals after the end of the BB process or in parallel.

12.13 Child and Family Traumatic Stress Intervention (CFTSI)

CFTSI is a brief intervention, consisting of 5 to 8 sessions. It is an empirically supported treatment for children aged 7 to 18 years and is designed to reduce the escalation of traumatic stress and PTSD occurrences. It has been successfully applied and evaluated in populations with varying ethnic and racial backgrounds. CFTSI is delivered within 30–45 days after traumatic events, such as physical or sexual abuse, domestic or community violence, rape, assault, and traffic accidents. The goal of CFTSI is to increase communication and family support. CFTSI highlights the importance of family support as a primary protective factor for children with trauma exposure [94, 95, 97, 110-112].

12.14 Dialectical Behavior Therapy (DBT)

DBT is a complex and comprehensive intervention originally developed for chronically suicidal adults. After the developmentally appropriate adaptations since the publication of the original treatment manual, DBT now also targets adolescents with a history of trauma; moreover, it has already been implemented in individuals living in shelters or in hospital settings [113]. The DBT approach is based on the principles of CBT and focuses on two main aspects, problem-solving techniques (in conjunction with strategies based on acceptance of the individual) and other dialectical processes. The dialectic addresses issues related to the equilibrium between interventions of change versus interventions of acceptance of the individual. The DBT intervention consists of the following five components: (1) skills training; (2) a behavioral therapy plan; (3) the availability of therapists outside of clinical settings, including working at home with the adolescent and his family; (4) organization of the individual's daily life by selectively enhancing mastery and providing pleasure through creative and enjoyable activities; and (5) inclusion of consulting team to the intervention therapist group. DBT highlights the balance between behavioral change, problem-solving, and emotional modification, with the validation of youth's requirements, mindfulness techniques, and acceptance [98, 114-117].

12.15 Modular Approach to Therapy for Children with Anxiety, Depression, Trauma, or Conduct Problems (MATCH-ADTC)

MATCH-ADTC is an evidence-supported intervention based on CBT and designed for children aged 6 to 15 years. Unlike most treatment approaches that focus on a single diagnosis, this

intervention overcomes barriers to therapists' use of empirically supported interventions through its transdiagnostic modular design.

The intervention is designed for multiple disorders and maladaptive states, including anxiety, depression, and post-traumatic stress, as well as for conduct problems. MATCH-ADTC was developed by Chorpita and Weisz [118] and assembles years of empirical studies on evidence-based treatments. Recent data [99-102, 118, 119] indicates that children treated with MATCH-ADTC exhibited significantly faster rates of improvement over time than did children in the usual community care. The outcomes regarding internalizing and total problems and the severity ratings on major problems were reported by children and parents. Compared with children in standard community care, children treated with this intervention spent less time in treatment, were less likely to require additional treatment services, and were less likely to be prescribed psychotropic medication.

13. Conclusions, Dilemmas, and Future Challenges

Effective and empirically supported intervention protocols for PTSD are available, with most of them, including CBT approaches [3, 120, 121]. CBT and psychoeducation can provide the necessary support for the child, youth, and family when post-traumatic stress and avoidance discourage trauma exploration. Most of the CBT treatments result in improvements in common concomitant difficulties, with the therapeutic gains maintained over time. These therapies have many modules in common with the well-established TF-CBT and CBITS interventions (e.g., psychoeducation, gradual exposure, and problem-solving skills). However, they also present innovative strategies to address the barriers to a positive therapeutic outcome.

In the last three decades, a rapid increase in knowledge regarding the development and management of PTSD in children and adolescents has been noted. However, many key issues remain unaddressed. Nevertheless, children with post-traumatic stress are increasingly being recognized, assessed, and treated.

The main benefits of the intervention programs included in the current review are summarized in the subsequent sentences: 1. They all comprise strategies and skills that are transdiagnostic; therefore, they are effective in treating not only PTSD but also various other coexisting diagnoses, such as depression, grief, and externalized behaviors. For example, exposure to feared stimuli is beneficial not only for treating post-traumatic symptoms but also for treating other comorbid anxiety disorders. Problem-solving techniques are essential not only in youth with post-traumatic symptoms but also in youths with internalizing disorders. 2. These intervention approaches can be provided not only by mental health professionals but also by other specialties (e.g., teachers). This possibility widens the perspective for dissemination in school settings in a cost-effective way. 3. The group interventions provide a protective environment in which children can practice a plethora of techniques. However, it is challenging to adapt these programs to the individual requirements of each child.

Whether these programs are practicable in various community settings (e.g., the school environment) remains controversial. Moreover, whether their efficacy is ensured when administered by different program leaders, for example, trained teachers and volunteers who are not mental health professionals, remains uncertain [122]. In some cases, the assessment of the intervention studies is not based on data from multiple sources (children, parents, and teachers),

and in most cases, researchers do not use diagnostic interviews, which would increase the reliability of the outcome measures [123]. Finally, these group approaches may not be the most efficacious techniques for reducing post-traumatic stress in those children who have already experienced noteworthy symptoms or in those who exhibit complex presentations of PTSD due to multiple, repeated, and prolonged trauma. The TF-CBT and CBITS methods have been criticized for the management of children with multiple traumas. In such cases, it is recommended that the child be the one to choose, with the help of the clinician, which trauma will be the focus of treatment. Although a clinician may perceive a trauma as the largest significance for the child, the child may associate greater impact with another trauma [96, 124].

The prevention programs have received much criticism from several researchers who argue that without demonstrating consistent efficacy across different types of traumas, study designs, and target populations, these programs cost money that could be invested in other forms of therapy. In addition, the detection process could create moral issues, as people deemed healthy may be false negatives because of inadequate screening procedures [125].

However, prevention programs have, gradually and internationally, established their presence in the treatment options of the specialist. Therefore, research is emerging, and the outlook is positive for the upcoming years. The necessity for early, selective, intensive, persistent, multifaceted, and participatory interventions is imperative.

Future challenges in the research and development of intervention programs include the following:

- An in-depth understanding of risk factors for the escalation of post-traumatic stress symptoms would benefit from prospective studies that may assist in the development of more targeted and selective prevention programs.
- Development of effective interventions for PTSD for particular populations, such as refugees and people with coexisting chronic diseases.
- The sustainability of treatment benefits over time should be explored. Sandler [126] suggested prevention programs should be judged on the basis of their long-term effects, instead of their immediate effects.
- The importance of including booster sessions and sessions with parents or primary caregivers should also be further highlighted. To achieve this, strategies must first be implemented to maximize parental participation.
- In many cases, evidence-based treatments were more effective in mental health settings, compared with school settings. This is because the mediation of both organizational and individual factors affects the program delivery by the school-trained clinician. Specifically, mental health interventions in school settings must fulfill the requirements of the school, e.g., the inclusion of teacher involvement, peer or group interventions, coordination between learning and mental health specialists, and coordination between school discipline and therapeutic interventions. Therefore, strategies that could enhance the training of mental health clinicians at schools should be explored to change the clinician's perceptions, increase their sense of self-efficacy, and increase their motivation to faithfully apply protocols that have been proven effective, such as TF CBT and CBITS [66].
- The efficacy of these intervention programs in youth with high levels of post-traumatic stress symptoms must be further investigated.

- Further studies on the special elements that mostly "work" in prevention programs are required. Moreover, their importance in empowering young health professionals who are trained in these interventions should be highlighted.
- New CBT practices should be embraced to support trauma-impacted youths who might refuse to narrate their distressing experience thoroughly. Such practices should focus on affect dysregulation, education on the developmental impact of trauma, and cognitive restructuring regarding beliefs about oneself as diminished or worthless in relation to the traumatic events, as implemented in SPARCS and TARGET-A interventions. [127].
- Dissemination of the latest methods of these programs by using technology (telehealth programs).
- Additional research is required to improve current methodological issues associated with design, analysis, and descriptions of participation and dropout rates. Furthermore, whether researcher bias is factored into the outcome should be determined.
- These programs must be re-evaluated to include qualitative analyses supplementing the quantitative results. For this, the appraisal of the perspectives of children, parents, and educators must be performed.

Abbreviations

ASD	Acute Stress Disorder
APA	American Psychiatric Association
CBITS	Cognitive Behavioral Interventions for Trauma in Schools
CBT	Cognitive Behavioral Therapy
DSM-5	Diagnostic and Statistical Manual of Mental Disorders-5th Edition
NHS	National Health Service
NICE	National Institute for Health and Care Excellence
PTSD	Post-Traumatic Stress Disorder
RCT	Randomized Controlled Trial
TF-CBT	Trauma-Focused Cognitive Behavior Therapy

Author Contributions

Syros Ioannis conceived the original idea, wrote the manuscript and supervised the project. Karantzali Aggeliki and Anastassiou-Hadjicharalambous Xenia provided critical feedback and helped shape the manuscript.

Competing Interests

The authors have declared that no competing interests exist.

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