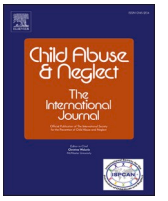
Child Abuse & Neglect 134 (2022) 105899

Contents lists available at ScienceDirect

Child Abuse & Neglect

journal homepage: www.elsevier.com/locate/chiabuneg



Invited Review

A systematic review and meta-analysis of trauma-focused cognitive behavioral therapy for children and adolescents

J.F.B. Thielemann [a,*], B. Kasparik [a], J. König [a], J. Unterhitzenberger [a,b], R. Rosner [a]

[a] Department of Psychology, Catholic University of Eichstätt-Ingolstadt, Levelingstr. 7, 85049 Ingolstadt, Germany
[b] Centre for Children and Adolescents Inn-Salzach e.V., Department of Child and Adolescent Psychiatry, Vinzenz-von-Paul-Straße 14, 84503 Altoetting, Germany

ARTICLE INFO

Keywords:
TF-CBT
Meta-analysis
Review
Post-traumatic stress
Group
Children

ABSTRACT

Background: Among minors, posttraumatic stress symptoms (PTSS) are a common consequence of traumatic events requiring trauma-focused treatment.
Objective: This meta-analysis quantified treatment effects of trauma-focused cognitive behavioral therapy (TF-CBT) with PTSS as primary outcome and symptoms of depression, anxiety, and grief as secondary outcomes.
Participants and setting: Inclusion criteria for individual settings: (1) patients aged between 3 and 21, (2) at least one traumatic event, (3) minimum 8 sessions of (4) TF-CBT according to Cohen, Mannarino and Deblinger (2006, 2017), (5) a quantitative PTSS measure at pre- and post-treatment, (6) original research only. Inclusion criteria for group settings: had to involve (1) psychoeducation, (2) coping strategies, (3) exposure, (4) cognitive processing/restructuring, (5) contain some reference to the manual and no minimum session number was required.
Methods: Searched databases were PsychInfo, MEDLINE, Cochrane Library, PTSDPubs, PubMed, Web of Science, and OpenGrey.
Results: 4523 participants from 28 RCTs and 33 uncontrolled studies were included. TF-CBT showed large improvements across all outcomes from pre- to post-treatment (PTSS: g = 1.14, CI 0.97–1.30) and favorable results compared to any control condition including wait-list, treatment as usual, and active treatment at post-treatment (PTSS: g = 0.52, CI 0.31–0.73). Effects were more pronounced for group settings. We give pooled estimates adjusted for risk of bias and publication bias, which initially limited the quality of the analyzed data.
Conclusions: TF-CBT is an effective treatment for pediatric PTSS as well as for depressive, anxiety, and grief symptoms. It is superior to control conditions, supporting international guidelines recommending it as a first-line treatment.

1. Introduction

Traumatic experiences are common among minors with 57.7 % reporting exposure to at least one type of traumatic event in the past year (Finkelhor, Turner, Shattuck, & Hamby, 2013). For posttraumatic stress disorder (PTSD), an estimated conditional prevalence rate of 15.9 % was found for children exposed to any traumatic experience (Alisic et al., 2014). Co-occurring symptoms of depression

* Corresponding author at: Department of Clinical and Biological Psychology, Catholic University of Eichstätt-Ingolstadt, Levelingstr. 7, 85049 Ingolstadt, Germany.
E-mail address: jonathan.thielemann@ku.de (J.F.B. Thielemann).

https://doi.org/10.1016/j.chiabu.2022.105899
Received 13 May 2022; Received in revised form 11 September 2022; Accepted 15 September 2022
Available online 23 September 2022

and anxiety are common (American Psychiatric Association, 2013) with evidence of comorbid diagnoses in almost one in two children and adolescents with PTSD (Kar & Bastia, 2006). In addition, comorbidity may be further complicated by unresolved grief symptoms when the trauma involves the death of a loved one (Cohen, Mannarino, & Staron, 2006). International guidelines recommend the use of manualized trauma-focused cognitive behavioral therapy (TF-CBT)[1] with caregiver participation for the treatment of pediatric PTSD (Forbes, Bisson, Monson, & Berliner, 2020; National Institute for Health and Care Excellence, 2018; Phoenix Australia Centre for Posttraumatic Mental Health, 2013).

TF-CBT according to the manual of Cohen, Mannarino, and Deblinger (2006, 2017) and its earlier versions (Cohen & Mannarino, 1993; Deblinger & Heflin, 1996) is the single most extensively studied intervention manual for pediatric PTSD. It is a widespread, easy-to-learn, and cost-effective treatment employing standard cognitive behavioral therapy (CBT) techniques, and has been used in several countries worldwide. The official manual was published in 2006 (Cohen, Mannarino, & Deblinger, 2006) and revised in 2017 (Cohen, Mannarino, & Deblinger, 2017) to reflect advances made in research, application to complex trauma and group settings, as well as updates for DSM-5. TF-CBT according to Cohen et al. contains a sequence of nine components that form the acronym PRACTICE including psychoeducation and parenting skills (P), relaxation (R), affective modulation (A), cognitive coping (C), trauma narrative (T), in vivo exposure (I) conjoint parent-child sessions (C) and enhancing safety and development (E). The authors suggest a minimum of eight sessions to cover all the relevant components. Additionally, caregiver participation is seen as an integral part of TF-CBT according to Cohen et al. Typically, a session lasts 90 min with 45 min dedicated to the child and caregiver, respectively.

TF-CBT according to Cohen et al. has been well-evaluated and found to be effective in reducing posttraumatic stress symptoms (PTSS) as well as symptoms of depression, anxiety, and grief in children and adolescents after exposure to various types of trauma in different populations and settings (Cohen, Deblinger, Mannarino, & Steer, 2004; Deblinger et al., 2006; Dorsey et al., 2020). As a result, it has been extensively disseminated in the US also using the National Child Traumatic Stress Network Initiative (National Child Traumatic Stress Network, 2012). Furthermore, it has been applied to new patient groups such as refugees (Unterhitzenberger, Wintersohl, Lang, König, & Rosner, 2019) and trafficked children (Wang et al., 2016), as well as complex PTSD cases (Hébert & Amédée, 2020). In addition, several implementation manuals for specific settings have been developed including residential treatment facilities (Cohen & Mannarino, 2013), military families (Cohen, Mannarino, & Cozza, 2014), foster care (Deblinger, Mannarino, Runyon, Pollio, & Cohen, 2016), and LGBTQ youth (Cohen, Mannarino, Wilson, & Zinny, 2018). Although TF-CBT according to Cohen et al. was originally developed in the US as an individual therapy, it has also been used in low and middle income countries and in a group setting with promising results (Dorsey et al., 2020). Only recently, the intervention was offered to inpatients (Cabrera, Moffitt, Jairam, & Barton, 2020) and young adults up to the age of 25 (Peters et al., 2021). Given its widespread use and the new treatment applications, it is of the outmost importance not only to summarize the well-conducted efficacy RCTs but also to evaluate how well these effects carry over into practice, and determine whether they also apply to these specific patient populations. For the latter, we also need to consider uncontrolled studies to gain an overview of the patient groups to whom TF-CBT according to Cohen et al. can be applied. As a consequence of recent crises all over the world, there is a great need for effective trauma treatment for minors.

Most systematic reviews and meta-analyses that have been published on interventions for traumatized children used TF-CBT as a generic term to refer to both TF-CBT according to Cohen et al. and general CBT with trauma-focused work. In addition, the researchers who pooled effect sizes (ES) for PTSS mainly analyzed TF-CBT in subgroup or moderator analyses only (Bastien, Jongsma, Kabadayi, & Billings, 2020; Gutermann et al., 2016; Hoogsteder, ten Thije, Schippers, and Stams, 2021; Mavranezouli et al., 2020; Morina, Koerssen, & Pollet, 2016). Several systematic reviews are available on TF-CBT according to Cohen et al. (de Arellano, Lyman, Jobe-Shields, George, Dougherty, Daniels, and Delphin-Rittmon, 2014) and more recently, there have been reviews of specific aspects, such as the role of the caregiver (Martin, Everett, Skowron, & Zalewski, 2019), its effectiveness in low and middle income countries (Thomas, Puente-Duran, Mutschler, & Monson, 2020), in refugees (Chipalo, 2021), and in children of preschool age (McGuire, Steele, & Singh, 2021). However, we only know of one review that set out to evaluate the TF-CBT according to Cohen et al. and calculated pooled ES for PTSS but it was published 10 years ago (Cary & McMillen, 2012).

1.1. *Summary of previous analyses*

The systematic review by Cary and McMillen (2012) is commonly referred to when describing the evidence base of TF-CBT. The authors distinguished between TF-CBT according to Cohen et al. and studies that did not comprise all but at least 4–5 of the most relevant treatment components. In comparison to active non-CBT control conditions, they found small to medium ES in favor of TF-CBT according to Cohen et al. for PTSS and depression. This effect was sustained at the 12-month follow-up for PTSS but not for depression. However, the analyses were limited to three RCTs as studies with CBT control groups were excluded, and many of the frequently cited RCTs were published later (e.g. Dorsey et al., 2014; Goldbeck et al., 2016; Jensen et al., 2014; Murray et al., 2015).

In their meta-analysis, Gutermann et al. (2016) performed a sub-group analysis of 18 studies on TF-CBT according to Cohen et al., reporting a large pre-post ES for PTSS. Most notably, this was the only meta-analysis on TF-CBT that considered pre-post ES and studies other than RCTs. However, TF-CBT was not the authors' main focus. Consequently, they did not explore between-group effects or any outcomes other than PTSS.

Another recent meta-analysis (Bastien et al., 2020) included a comparison of TF-CBT according to Cohen et al. with any control condition. For PTSS, a medium ES in favor of TF-CBT according to Cohen et al. was found. However, it should be noted that the study

[1] [1] In the literature, TF-CBT is used as a generic term for CBT with trauma-focused work as well as for Cohen et al.'s TF-CBT manual. 'TF-CBT according to Cohen et al.' will be used throughout the manuscript when referring to their manual or its earlier versions.

defined a narrower period from 2011 to 2019 and unfortunately missed some studies that would have fit their inclusion criteria, resulting in only seven RCTs being included. Thus, this analysis only partly represented the existing literature.

Apart from that, several meta-analyses are available of interventions for traumatized children and adolescents that include other TF-CBT therapies (Hoogsteder, ten Thije, Schippers, & Stams, 2021; Lenz & Hollenbaugh, 2015; Mavranezouli et al., 2020; Morina et al., 2016). In sum, for PTSS these analyses found large ES in favor of TF-CBT when compared to wait-list conditions and small to medium ES when compared to active treatments. For depression, these effects were less pronounced with small to medium ES compared to wait-list conditions and small effects compared to active treatments. However, in some of these analyses, limitations were obvious such as the exclusion of intention-to-treat analyses (Lenz & Hollenbaugh, 2015) and collapsed outcomes (Hoogsteder et al., 2021). Interestingly, one of the meta-analyses (Mavranezouli et al., 2020) included separate analyses for TF-CBT group settings for the first time. Unfortunately, the TF-CBT group analyses mostly included studies with no reference to TF-CBT according to Cohen et al.

1.2. Current study

In the light of this state of the literature, an update on TF-CBT according to Cohen et al. is warranted. In addition to examining gold standard efficacy RCTs, we extended the focus by looking at the intervention's effectiveness, and also considered uncontrolled studies and group settings. Effectiveness studies can offer insights into how treatment can be implemented in mental health care settings with varying stakeholders and resources. They can likewise estimate the degree to which the effects of efficacy RCTs translate into the field. In addition, uncontrolled studies may provide valuable information on implementation in differing contexts as well as on applications that warrant further investigation in RCTs. In an attempt to provide a more complete picture, this systematic review and meta-analysis quantified the treatment effects of TF-CBT according to Cohen et al. from pre- to post-treatment as well as in comparison to control conditions at post-treatment with due consideration of designs, comparators, and settings for PTSS and secondary outcomes of depression, anxiety, and grief.

2. Methods

2.1. Search and screening of studies

The meta-analysis was conducted in line with the PRISMA guidelines (Liberati et al., 2009; Page et al., 2021; for the PRISMA checklist, see supplementary material S1), and pre-registered with PROSPERO (CRD42020139403). We searched the databases PsychInfo, MEDLINE, Cochrane Library, PTSDPubs, PubMed, Web of Science and OpenGrey for studies published between January 1, 1990, and August 19, 2021. A pre-defined combination of search terms was used for the title and abstract searches (see Table 1). After removing any duplicates, the database results and a manual search of reference sections of relevant works coupled with expert suggestions identified 1262 publications (see Fig. 1). There were no limitations regarding language. All titles and abstracts were screened by two independent raters using Covidence (Veritas Health Innovation, 2014). Any conflicts between raters were resolved by reviewing the abstracts. For the remaining studies, the first author read all full texts and assessed the inclusion and exclusion criteria. Ambiguous cases were resolved by contacting the authors of the publications in question and discussing them with the co-authors.

2.2. Inclusion and exclusion criteria

For individual treatment settings, (1) the patients had to be aged between 3 and 21, (2) had to have experienced at least one traumatic event, (3) had to have participated in at least 8 sessions (4) of TF-CBT according to the Cohen et al. manual (Cohen, Mannarino, and Deblinger, 2006, 2017) or one of its earlier versions (Cohen & Mannarino, 1993; Deblinger & Heflin, 1996). In addition, (5) results based on a quantitative PTSS measure applied before and after treatment had to be reported via clinical interview or self-report. (6) Only original research was included, excluding reviews, meta-analyses, and case reports. The only exclusion criterion was if the recipients of treatment were not children or adolescents themselves (e.g. their parents only). If we were unable to extract PTSS pre-post ES (c.f. criterion 5), we contacted authors and included the study if they provided supplementary data. For group settings, there were some differences in the inclusion criteria: no minimum number of sessions was required as many TF-CBT groups

Table 1
Pre-defined search terms.

Search categories	Search terms
Diagnosis	Trauma* or Posttrauma* or Post-trauma* or PTSD or PTSS or grief or griev*
Trauma-related	Abuse* or Assault* or Abduct* or Accident* or Kidnapp* or Life-threat* or Maltreat* or Mistreat* or Neglect* or Refugee or Shooting or Terroris* or Victim* or Violence or War or Hurricane or Tsunami or Earthquake or Flood or "Natural disaster" or bereave* or loss
Youth	Adolescen* or Child* or Youth or Kid or Juvenile or Infant or Minor or Teenager or Young*
TF-CBT	"Trauma focused cognitive behavioral treatment" or "Trauma-focused cognitive behavioral treatment" or "Trauma focused cognitive behavioral therapy" or "Trauma-focused cognitive behavioral therapy" or "Trauma focused cognitive behavior*" or "Trauma-focused cognitive behavior*" or "Trauma focused cog*" or "Trauma-focused cog*" or "Trauma focused" or Trauma-focused or TF-CBT or grief-focused or "grief focused"

Note. Combination: (Diagnosis or Trauma-related) and Youth and TF-CBT.

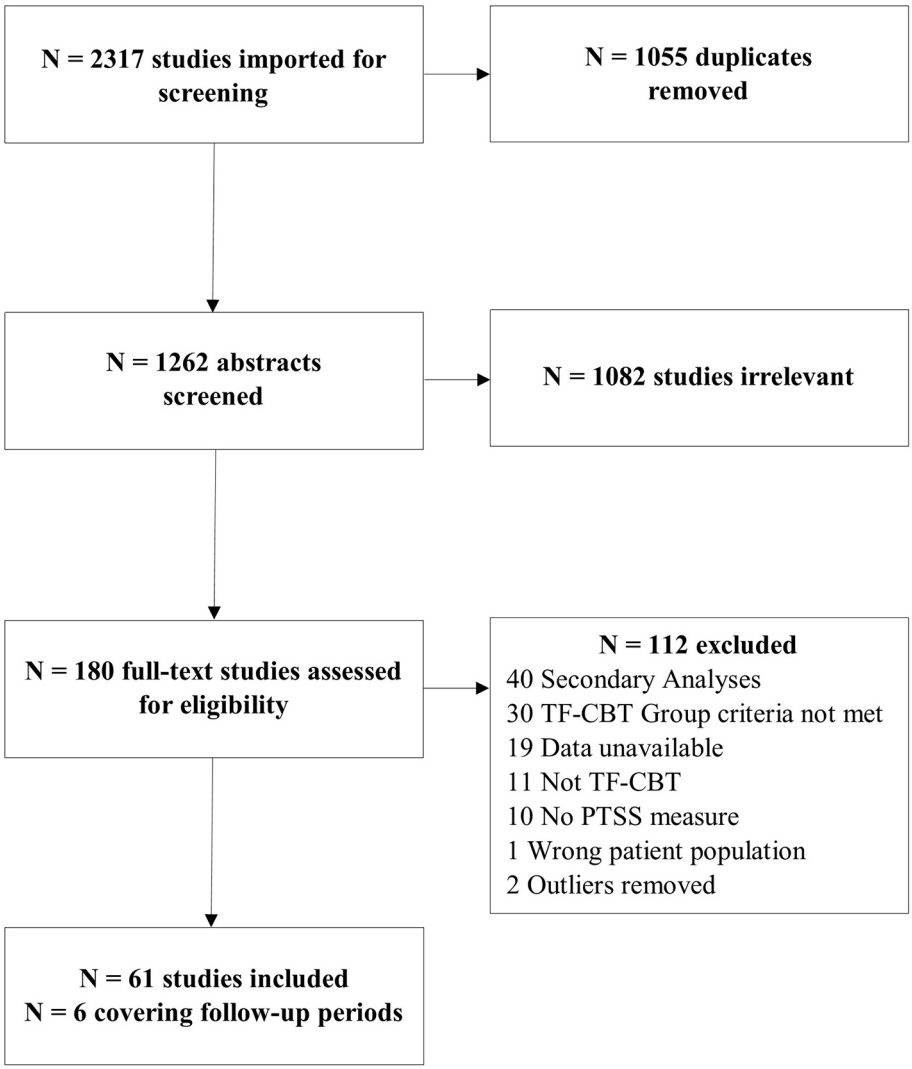


Fig. 1. Flowchart study selection.
Note. The two outliers refer to the same study covering the follow-up period.

are conceptualized with fewer sessions. Consequently, they also did not need to cover all components of the manual as some of them are usually left out. Instead, group settings had to involve (1) psychoeducation, (2) coping strategies (i.e. relaxation, affective modulation, cognitive coping), (3) exposure, (4) cognitive processing/restructuring of trauma-related thoughts and beliefs, and (5) some reference to the manual or one of its earlier versions. For the latter, a clear statement was sufficient. However, in case of ambiguity, the decision was made in discussion with the co-authors.

2.3. Treatment and control groups

For the control groups, randomized wait list (WL), treatment as usual (TAU), and active treatment (AT) conditions were included. As the latter two contained comparable treatments, they were merged for analysis. If two TAU/AT control groups were available, the higher dose of treatment was used. If studies included two TF-CBT conditions, these were included separately in the pre-post analysis unless only merged results were reported. If a control group was available, it was compared to both TF-CBT conditions, separately. In one case, there was a combination of four TF-CBT conditions and four control conditions that were comparable with regard to treatment dose (Dorsey et al., 2020). These control conditions were matched to their respective TF-CBT condition as data were collected in separate countries and regions.

2.4. Efficacy and effectiveness

While efficacy refers to the intervention operating under perfectly controlled conditions to maximize internal validity, effectiveness is characterized by its application to 'real-world' settings (Singal, Higgins, & Waljee, 2014). In contrast to the preregistration, we decided to distinguish between efficacy and effectiveness RCTs rather than RCTs and dissemination and implementation (D&I) trials as some D&I trials had randomized control groups whereas others did not. This decision was made to keep our analyses more parsimonious. The criteria for classifications were adapted from Gartlehner, Hansen, Nissman, Lohr, and Carey (2006), and can be found in the supplementary material (S2). These assessments were carried out by two independent evaluators (JT and BK) and disagreements were resolved in discussions. It should be noted that efficacy and effectiveness are on a continuum and a clear-cut distinction is hardly possible. Thus, studies referred to as efficacy or effectiveness RCTs may contain some features of the other type of trial.

2.5. Risk of bias assessment

Following recommendations from the Cochrane Handbook (Higgins et al., 2022), two independent evaluators (JT and BK) carried out risk of bias assessments for all RCTs with the Risk of Bias assessment tool (Rob 2.0) using Excel (Sterne et al., 2019). This tool assesses five domains that potentially pose a risk of bias. Namely, these are the randomization process (D1), deviations from the intended intervention (D2), missing outcome data (D3), measurement of the outcome (D4), and selection of the reported results (D5). Accordingly, studies were attributed the ratings 'low risk', 'some concerns' or 'high risk'.

For uncontrolled studies, the Risk Of Bias In Non-randomized Studies – of Interventions (ROBINS-I) assessment tool was used (Sterne et al., 2016) following the same procedure. While D2-D5 were the same, D1 was replaced by three additional domains referring to 'confounding', 'selection bias', and 'bias in classification of intervention'. However, since TF-CBT and valid pre-post assessments were defined by the inclusion criteria and we were not interested in including non-randomized control groups, these domains were not applied. Additionally, ROBINS-I used slightly different risk ratings including 'low', 'moderate', 'serious' and 'critical' as well as 'no information'. To ensure comparability, we converted the ratings to the RoB 2.0 categories with 'serious' and 'critical' being subsumed as 'high risk'. 'No information' was viewed separately and did not affect the overall ratings (see Results section). Five RCTs and 22 uncontrolled studies were identified as posing a high risk of bias. All analyses were rerun excluding 'high risk' studies.

2.6. Outcomes and data extraction

All data were extracted by JT and BK to protect against errors, and inconsistencies were resolved in discussion. We extracted outcome data on PTSS, depression, anxiety, and grief. Clinical interviews were the first choice. If these were not available, we used self-report. If only subscales of PTSD clusters were reported, we merged them using the formula presented in the Cochrane Handbook for Systematic Reviews of Interventions (Higgins et al., 2022). Authors were contacted for missing information and studies were excluded if the PTSS data could not be obtained for pre- and post-treatment. Missing data on other variables merely resulted in exclusion of studies from analyses of the respective variable.

2.7. Statistical analyses

We included all eligible studies in the within-group and between-group analyses generating ES (Hedges' g and 95 % CIs) for PTSS, depression, anxiety, and grief. We used Comprehensive Meta-Analysis, version 3 (Borenstein, Hedges, Higgins, & Rothstein, 2013). If available, we used intention-to-treat data. If the pre-post correlation necessary for the calculation of pre-post ES was unavailable, it was imputed based on the overall mean of included studies with available correlations for the respective outcome. The pooled ES were based on a random effects model as the samples, modality of treatment, and methods were very heterogeneous (Hedges & Vevea, 1998). Q statistic was computed to confirm the model and I^2 to assess heterogeneity (Higgins, Thompson, Deeks, & Altman, 2003). If Q was non-significant, we assumed a fixed model, and reported ES accordingly. We employed funnel plots with Hedges' $g > 4$ being deemed to be indicative of outliers (see supplementary material, S3). We conducted additional subgroup analyses of within-group ES for RCTs only, individual setting, and group setting. Within the RCT group, further sub-group analyses (within-group and between-group) were performed for individual and group settings, efficacy and effectiveness trials as well as WL and TAU/AT conditions. Sub-group analyses were performed when at least three TF-CBT conditions or three post-treatment comparisons were available. Sensitivity analyses indicated the presence of publication bias in some analyses. To address these biases, we used Duval and Tweedie's (2000) trim and fill method to impute missing studies to the left of the mean in order to make the funnel plots symmetrical.

3. Results

Fig. 1 shows the study selection procedure. After removing duplicates, 1262 remained of which we ultimately selected 61. Of these, $k = 28$ studies were RCTs and $k = 33$ were uncontrolled studies. The majority ($k = 50$, 21 of them RCTs) were conducted in an individual setting, and $k = 11$ (seven of them RCTs) in a group setting. Within the RCTs, there were $k = 14$ efficacy trials and $k = 14$ effectiveness trials. Seven RCTs included WL control conditions whereas $k = 15$ contained TAU/AT control conditions. The control conditions of the remaining six RCTs were either a second TF-CBT condition and thus included as an additional treatment condition or were excluded for other reasons.

3.1. Study characteristics

An overview of all included studies and study characteristics can be found in the supplementary material S4. Even though the majority of studies were from the US (60 %), we were able to include studies from 14 other countries mostly from Africa (13 %), Europe (11 %), Asia (5 %), and Australia (5 %). The weighted means and pooled standard deviations presented in this section rely on the analyzed sample.

3.1.1. Participants and caregivers

We were able to include 4523 out of the original 6370 participants in the analyses (TF-CBT n = 3490, control groups n = 1033, range 11–640 participants per study). The mean age was 11.99 years (SD_p = 2.47, range 3–21, available for k = 46, n = 3805). The overall sample included slightly more female participants (59.46 %, k = 56, n = 4322). Participants experienced a mean of 4.93 traumatic events (SD_p = 3.96, k = 27, n = 2594). Diagnostic status for PTSD derived via structured diagnostic interviews (i.e. excluding diagnoses derived from self-report instruments) within the TF-CBT conditions at baseline and post-treatment was available for 334 participants with 269 meeting the diagnostic criteria at baseline (80.54 %) and 81 at post-treatment (24.25 %, k = 12). In control conditions, this information was available for 198 participants with 161 meeting the criteria at baseline (81.31 %) and 85 at post-treatment (42.93 %, k = 5). The mean number of treatment sessions was 16.66 (SD_p = 7.97, k = 16, n = 1099). In total, 1750 participants dropped out of studies (k = 51 studies), 988 of these after randomization or during treatment and 348 were lost to follow-up. For the remaining 414 participants, the time of dropout could not be coded. However, most studies adopted an intention-to-treat approach, including participants with premature treatment termination in their analyses.

Nearly all studies (n = 59) reported caregiver involvement including biological parents, foster parents, adoptive parents, stepparents, other relatives, legal guardians, professional caregivers (e.g. social workers) or a combination thereof. In total, 3255 caregivers were recorded (k = 34), most of whom were female (87.89 %, k = 17, n = 1952 caregivers). However, the degree of involvement varied markedly across studies ranging from almost no involvement or involvement only for some children to the full TF-CBT protocol with parallel sessions in place or professional caregivers delivering the intervention.

3.1.2. Therapists

In total, 881 therapists were recorded (range: 1–133 therapists per study, k = 41), most of them female (85.05 %, k = 13, n = 516 therapists). Education ranged from no education in mental health prior to the study over bachelor's and master's degrees in psychology and social work to doctorates. However, most studies used therapists with master's degrees or did not specify their education level simply referring to them as ‘therapists’ or ‘psychologists’. They had mean experience of 6.8 years (SD_p = 19.24, range 0–10.77 years, k = 8, n = 232). Most of the therapists were trained by treatment developers or certified TF-CBT trainers. Training usually involved online training (tfcbt2.musc.edu), a 1–2 day in-person workshop, and reading the TF-CBT manual. In some instances, less (e.g. reading the manual only) or more intensive training (e.g. a 10-day in-person workshop) was provided. Typically, therapists received weekly supervision, again ranging from less frequent (once per month) to more frequent (three times per week). Overall, we calculated a mean of 0.70 supervision sessions a week (k = 25, n = 621).

3.2. Treatment applications

Some studies reported changes to standard TF-CBT according to Cohen et al. These included adding 4–8 sessions specific to grief, additional activities from other manuals, and culture-specific elements (e.g. metaphors, jargon, songs, games, and religious beliefs). Moreover, some studies varied the mode of treatment delivery by making use of group formats, tablet-supported therapy, telehealth, animal-assisted therapy, school setting, inpatient setting, and interpreters. Additionally, some adjusted treatment length, session length, or session frequency. In addition, patient groups (e.g. refugees, orphans, foster children etc.), and trauma types (e.g. sexual, war-related, mixed etc.) varied strongly across studies. In fact, the studies were so heterogeneous regarding patients and traumas that we did not extract these variables as coding turned out to be impossible. However, none of the studies reported major difficulties in integrating these applications into the existing protocol.

3.3. Risk of bias assessment

All risk of bias assessments of the individual studies can be found in the supplementary material S5. Five out of the 28 included RCTs, were assigned an overall ‘low’ risk of bias rating, 18 studies were classified as presenting ‘some concerns’, and five trials were identified as having a ‘high’ risk of bias according to RoB 2.0’s algorithm.

Problems with the randomization process (D1) appeared in only one study. We did not consider differences in the characteristics of participants' parents, as they were not subject to randomization. There were few deviations from the interventions (D2) with most studies providing acceptable to excellent adherence ratings. However, two studies were attributed ‘high risk’ ratings as some problematic aspects were identified. One study reported deviations caused by the trial context (providers made fewer referrals after disappointment over assignment to control condition). Additionally, the study reported doubtful treatment adherence (treatment adherence was described as ‘variable’). Another study provided no information on any measure of treatment fidelity and prompted several reasons for questioning adherence (e.g. no information on training and supervision, one therapist only, additional activities from another manual, etc.). Although many studies reported missing outcome data (D3), it was either confirmed that missingness did not depend on the true value of the outcomes or at least it could not be assumed (i.e. data were missing at random). Regarding the

outcome measurement (D4), there were several studies that presented at least 'some concerns'. In most cases, the outcome assessors were (partly) not blinded to treatment conditions. Given the likelihood that this knowledge may have influenced the outcomes, this resulted in either 'some concerns' or 'high risk' ratings. Consequently, two studies received a 'high risk' rating because of non-blinded assessors. The reason for the last 'high risk' rating was unequal assessment points across groups. The criterion 'selection of reported results' (D5) led to most 'some concerns' ratings, as many authors of RCTs did not specify their analyses adequately beforehand. Although many trials were registered, the available information was, in many cases, not sufficient.

With regard to the 33 included uncontrolled studies, none received a 'low' risk of bias rating, k = 11 were rated 'moderate' (i.e. 'some concerns'), and k = 22 studies were identified as 'serious' or 'critical' (i.e. 'high risk'). Deviations from the interventions (D2) were difficult to assess as information on adherence was frequently missing (k = 10). However, we felt it was inappropriate to rate all these studies as posing a high risk of bias in this domain. They were often well conducted in terms of training and supervision, and did not give any reason to doubt treatment adherence. Thus, we decided not to judge these studies in this domain (i.e. 'no information'), leaving the overall rating unaffected. Nevertheless, one study received a 'critical' rating as too many other interventions were provided at the same time, making it impossible to judge the treatment effect. Almost half (k = 13) of these studies received 'serious' to 'critical' ratings with respect to missing outcome data (D3), as substantial proportions of the original sample were not included. Outcome assessors were always assumed to have knowledge of the intervention received, resulting in at least a 'moderate' risk in the outcome measurement category (D4). However, we made a distinction between assessors. Participants (self-report) were regarded as posing a 'moderate' risk since they may have different hypotheses regarding treatment effects. In contrast, therapists or researchers (interviews) were regarded as posing a 'serious' risk since they normally have hypotheses in favor of their intervention. This resulted in k = 16 'serious' risk ratings. Although we only detected problems in five instances in the selection of the reported results (D5), this domain always resulted in at least 'moderate' risk ratings, as none of the uncontrolled studies was preregistered. 'Serious' risk ratings were attributed for including more than one outcome measure without reporting all results, reporting incomplete data for only some assessment points, and reporting data on a subset only.

3.4. Effect sizes

Within-group and between-group pooled ES are shown in Tables 2 and 3, respectively. If not stated otherwise, all reported ES below refer to the analyses excluding studies with a high risk of bias rating as ES did not differ substantially (see supplementary material S6). Within-group analyses for 'all eligible studies' refers to RCTs and uncontrolled studies in individual as well as group settings. Accordingly, subgroup analyses for 'RCTs only' include individual and group settings and subgroup analyses for 'individual' as well as 'group' includes RCTs and uncontrolled studies. For between-group analyses, 'any control' refers to WL and TAU/AT comparators in individual and group settings including efficacy as well as effectiveness trials. Consequently, subgroup analyses for 'WL' and 'TAU/AT'

Table 2
Pre-post within-group effect sizes for PTSS, depression, anxiety and grief.

Outcome	Sample	n	g	95 % CI	SE	z	*p*	Q	I^2	Duval and Tweedie
PTSS	All eligible studies	42	(1.27) 1.14[a]	(1.10–1.44) 0.97–1.30	(0.09)	(14.68)	(.000)	336.13***	87.80	6
	RCTs only	31	(1.34) 1.26[a]	(1.08–1.59) 1.01–1.51	(0.13)	(10.23)	(.000)	294.33***	89.81	2
	Individual	29	(1.09) 0.94[a]	(0.91–0.1.27) 0.77–1.11	(0.09)	(11.88)	(.000)	198.56***	85.90	6
	Group	13	(1.66) 1.53[a]	(1.35–1.97) 1.22–1.85	(0.16)	(10.40)	(.000)	65.04***	81.55	2
Depression	All eligible studies	28	0.63	0.51–0.76	0.06	9.94	.000	87.97***	69.31	0
	RCTs only	20	0.59	0.43–0.75	0.08	7.16	.000	56.99***	66.66	0
	Individual	23	0.63	0.49–0.77	0.07	8.78	.000	75.37***	70.81	0
	Group	5	0.65	0.35–0.95	0.15	4.27	.000	12.29*	67.45	0
Anxiety	All eligible studies	18	0.56	0.43–0.69	0.07	8.17	.000	32.92*	48.35	0
	RCTs only	16	0.52	0.38–0.66	0.07	7.34	.000	27.88*	46.20	0
	Individual	14	0.59	0.42–0.77	0.09	6.79	.000	30.56**	57.43	0
	Group	4	0.49[b]	0.29–0.68	0.10	4.92	0.000	2.23	0	0
Grief	All eligible studies	8	(1.37)[b] 1.35[a,b]	(1.23–1.51) 1.21–1.48	(0.07)	(19.21)	(0.000)	13.05	46.34	1
	RCTs only	5	1.40[b]	1.23–1.56	0.09	16.46	.000	3.56	0	0
	Individual	3	1.25	0.54–0.1.96	0.13	3.44	<.01	6.79*	70.52	0
	Group	5	(1.44)[b] 1.41[a,b]	(1.28–1.59) 1.26–1.55	(0.08)	(18.08)	(.000)	2.57	0	1

Note. High risk of bias studies are excluded; n = number of included TF-CBT conditions; Individual = TF-CBT conducted in an individual treatment setting; Group = TF-CBT conducted in a group setting.

[a] Recalculated with imputed studies (trim and fill method according to Duval and Tweedie).

[b] Fixed model assumed due to non-significant Q-value.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

contained studies in individual and group settings as well as efficacy and effectiveness trials. Likewise, subgroup analyses for 'individual' and 'group' contained WL and TAU/AT comparators as well as efficacy and effectiveness trials. Subsequently, 'efficacy' and 'effectiveness' analyses included WL and TAU/AT comparators as well as individual and group settings. For the ES of individual studies and the funnel plots showing observed and imputed studies, see supplementary material S7.

3.4.1. Pre-post within-group effects

Across all included TF-CBT conditions, the mean pre-post within-group ES was large for PTSS (g = 1.14, CI 0.97–1.30) and grief (g = 1.35, CI 1.21–1.48) and medium for depression (g = 0.63, CI 0.51–0.76) and anxiety (g = 0.56; CI 0.43–0.69). Similar results were found for RCTs (PTSS: g = 1.26, CI 1.01. - 1.51; grief: g = 1.40, CI 1.23–1.56; depression: g = 0.59, CI 0.43–0.75; anxiety: g = 0.52, CI 0.38–0.66) and individual settings only (PTSS: g = 0.94, CI 0.77–1.11; grief: g = 1.25, CI 0.54–1.96; depression: g = 0.63, CI 0.49–0.77; anxiety: g = 0.59, CI 0.42–0.77). Looking at studies conducted in a group setting only, the mean ES for PTSS (g = 1.53, CI 1.22–1.85) was even larger, but, again, similar for grief (g = 1.41, CI 1.26–1.55), depression (g = 0.65, CI 0.35–0.95), and anxiety (g = 0.49, CI 0.29–0.68). All sub-group analyses within RCTs paralleled these patterns (see Table 4).

3.4.2. Post-treatment between-group effects

Compared to any control group, the post-treatment between-group ES for TF-CBT conditions was medium for PTSS (g = 0.52, CI 0.31–0.73) and small for depression (g = 0.40, CI 0.27–0.52), anxiety (g = 0.26, CI 0.13–0.39), and grief (g = 0.30, CI -0.06–0.67). Compared to waitlist conditions, the ES were large for PTSS (1.18, CI 0.55–1.82) and again small for depression (g = 0.47, CI 0.27–0.68) and anxiety (g = 0.32, CI 0.13–0.51). Compared to TAU/AT conditions, the ES were small across all outcomes (PTSS: g = 0.32, CI 0.15–0.50; depression: g = 0.34, CI 0.19–0.50; anxiety: g = 0.20, CI 0.03–0.36; grief: g = 0.30 CI -0.06–0.67). The pattern was similar in individual therapy settings (PTSS: g = 0.37, CI 0.23–0.50; depression: g = 0.40, CI 0.26–0.53; anxiety: g = 0.25, CI 0.10–0.39) and in efficacy trials (PTSS: g = 0.33, CI 0.17–0.50; depression: g = 0.34, CI 0.17–0.52; anxiety: g = 0.17, CI −0.02–0.36). Regarding effectiveness trials, the ES was medium for PTSS (g = 0.70, CI 0.38–1.01) and small for secondary outcomes (depression: g = 0.45, CI 0.27–0.63; anxiety: g = 0.35, CI 0.16–0.54; grief g = 0.33, CI -0.07–0.73). The same pattern was found for group settings (PTSS: g = 0.79, CI 0.38–1.20; grief: g = 0.33, CI -0.07–0.73). Some results must be interpreted with caution due to the limited number of available comparisons. For the WL comparison regarding depression, it was only possible to compute an ES that included high risk of bias studies as excluding them resulted in fewer than three comparisons. The analysis for anxiety regarding efficacy trials as well as all grief-related analyses did not yield statistically significant results.

Table 3
Post-treatment between-group effect sizes for PTSS, depression, anxiety and grief.

Outcome	Sample	n	g	95 % CI	SE	z	*p*	Q	I^2	Duval and Tweedie
PTSS	Any control	22	0.52	0.31–0.73	0.11	4.83	.000	98.46***	78.67	0
	TAU/AT	16	0.32	0.15–0.50	0.09	3.69	.000	36.74**	59.18	0
	WL	6	1.18	0.55–1.82	0.32	3.65	.000	41.25***	87.88	0
	Effectiveness	13	0.70	0.38–1.01	0.16	4.35	.000	84.56***	85.81	0
	Efficacy	9	0.33[a]	0.17–0.50	0.08	3.98	.000	10.27	22.13	0
	Individual	12	0.37[a]	0.23–0.50	0.07	5.42	.000	10.74	0	0
	Group	10	0.79	0.38–0.1.20	0.21	3.74	.000	83.89***	89.27	0
Depression	Any control	14	0.40[a]	0.27–0.52	0.06	6.14	.000	18.80	30.83	0
	TAU/AT	10	0.34[a]	0.19–0.50	0.08	4.41	.000	16.33	44.89	0
	WL	6	0.47[a,b]	0.27–0.68	0.11	4.50	.000	1.56	0	0
	Effectiveness	6	0.45[a]	0.27–0.63	0.09	4.89	.000	5.71	12.48	0
	Efficacy	8	0.34[a]	0.17–0.52	0.09	3.82	.000	12.38	43.43	0
	Individual	12	0.40[a]	0.26–0.53	0.07	5.75	.000	18.45	40.38	0
Anxiety	Any control	12	0.26[a]	0.13–0.39	0.07	3.82	.000	14.28	22.954	0
	TAU/AT	8	0.20[a]	0.03–0.36	0.09	2.30	<.05	9.93	29.512	0
	WL	6	(0.38)[a]	(0.17–0.58)	(0.11)	(3.57)	(.000)	2.84	0	1
		6	0.32[a,c]	0.13–0.51						
	Effectiveness	5	0.35[a]	0.16–0.54	0.10	3.65	.000	2.90	0	0
	Efficacy	7	0.17[a]	−0.02–0.36	0.10	1.77	n.s.	9.56	37.24	0
	Individual	10	0.25[a]	0.10–0.39	0.07	3.36	<.01	11.362	20.79	0
Grief	Any control	5	0.30	−0.06–0.67	0.08	1.63	n.s.	19.58**	79.57	0
	TAU/AT	5	0.30	−0.06–0.67	0.08	1.63	n.s.	19.58**	79.57	0
	Effectiveness	4	0.33	−0.07–0.73	0.20	1.63	n.s.	19.25***	84.41	0
	Group	4	0.33	−0.07–0.73	0.20	1.63	n.s.	19.25***	84.41	0

Note. High risk of bias studies are excluded; n = number of included comparisons; PTSS = Posttraumatic Stress Symptoms; TAU/AT = Treatment as usual/active treatment control conditions; WL = Wait-list control conditions; Effectiveness = Effectiveness RCTs only; Efficacy = Efficacy RCTs only; Individual = RCTs conducted in an individual treatment setting; Group = RCTs conducted in a group setting; n.s. = non-significant.

[a] Fixed model assumed due to non-significant Q-value.

[b] Analysis includes high risk of bias studies (calculation otherwise not possible due to low number of studies).

[c] Recalculated with imputed studies (trim and fill method according to Duval and Tweedie).

** $p < .01$.

*** $p < .001$.

Table 4
Pre-post within-group effect sizes for PTSS, depression and anxiety for subgroups within RCTs.

Outcome	Sample	n	g	95 % CI	SE	z	*p*	Q	I^2	Duval and Tweedie
PTSS	Effectiveness	16	1.45	1.19–1.72	0.14	10.73	.000	78.22***	80.82	0
	Efficacy	15	(1.17)	(0.80–1.54)	(0.19)	(6.21)	(.000)	114.04***	87.72	1
Depression			1.11[a]	0.76–1.47						
	Individual	19	1.10	0.82–1.38	0.15	7.59	.000	127.72***	85.91	0
	Group	12	1.66	1.32–2.01	0.18	9.50	.000	64.36***	82.91	0
	Effectiveness	9	0.66	0.42–0.90	0.12	5.37	.000	27.49**	70.90	0
	Efficacy	11	0.53	0.31–0.75	0.11	4.69	.000	25.47**	60.75	0
	Individual	16	0.62	0.41–0.82	0.10	5.95	.000	54.93***	72.69	0
	Group	4	0.52[b]	0.32–0.71	0.10	5.23	.000	2.00	0	0
Anxiety	Effectiveness	7	0.57[b]	0.43–0.70	0.07	8.34	.000	5.94	0	0
	Efficacy	9	0.50	0.27–0.74	0.12	4.18	.000	18.80*	57.46	0
	Individual	12	0.55	0.37–0.74	0.10	5.81	.000	25.65**	57.12	0
	Group	4	0.49[b]	0.29–0.68	0.10	4.92	.000	2.23	0	0
Grief	Effectiveness	4	1.42[b]	1.25–1.58	0.09	16.38	.000	2.18	0	0
	Group	4	1.42[b]	1.25–1.58	0.09	16.38	.000	2.18	0	0

Note. High risk of bias studies are excluded; only analyses with a sufficient number of TF-CBT conditions are reported; n = number of included TF-CBT conditions; Effectiveness = Effectiveness RCTs only; Efficacy = Efficacy RCTs only; Individual = RCTs conducted in an individual treatment setting; Group = RCTs conducted in a group setting.

[a] Recalculated with imputed studies (trim and fill method according to Duval and Tweedie).

[b] Fixed model assumed due to non-significant Q-value.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

4. Discussion

This systematic review and meta-analysis assessed the treatment effects of TF-CBT according to Cohen et al. for pediatric PTSS and secondary outcomes of depression, anxiety, and grief. Our results that are derived from 61 studies that met the inclusion criteria, provided strong support for TF-CBT according to Cohen et al. Effects for PTSS were greater than for secondary outcomes, as well as more pronounced in group settings and effectiveness studies than in individual settings and efficacy studies. Additionally TF-CBT according to Cohen et al. was found to be superior to control conditions, with greater effects when compared to WL conditions than TAU/AT. These findings are in line with previous analyses confirming TF-CBT as an effective treatment for pediatric PTSS and secondary outcomes as well as its superiority over no treatment and other treatment approaches (Cary & McMillen, 2012; Morina et al., 2016). Furthermore, this was the first meta-analysis to confirm the feasibility of implementing TF-CBT according to Cohen et al. in 'real-world' settings and its application in group settings.

4.1. PTSS

Regarding the uncontrolled large ES for TF-CBT according to Cohen et al., our findings for PTSS closely matched those of Gutermann et al. (2016). Moreover, the controlled medium ES compared to any control group is in line with previous analyses on TF-CBT according to Cohen et al. (Bastien et al., 2020; Cary & McMillen, 2012). The results also fit the broader TF-CBT literature with small effects when comparing treatment to TAU/AT conditions (Lenz & Hollenbaugh, 2015; Morina et al., 2016) and large effects when compared to WL conditions (Lenz & Hollenbaugh, 2015; Mavranezouli et al., 2020; Morina et al., 2016). In the context of general pediatric PTSS treatments, the effects tend to follow the same pattern but the large effects versus WL conditions were less pronounced for other treatments (Gutermann et al., 2016; Morina et al., 2016). Psychotherapy research suggests that achieving large treatment effects compared to TAU/AT conditions is generally hard to accomplish since these conditions may themselves contain powerful interventions (Frost, Laska, & Wampold, 2014). Consequently, the small ES in favor of TF-CBT according to Cohen et al. in comparison even to TAU/AT underlined its treatment capabilities and superiority over other treatments.

This might help to interpret the counterintuitive finding that effectiveness trials had a greater PTSS ES than efficacy trials when compared to control conditions, which contrasts with the common notion that effects from efficacy RCTs do not translate well into practice (Singal et al., 2014). Efficacy trials tend to include TAU/AT conditions as comparators rather than WL conditions and are conducted in individual settings most of the time. In contrast, effectiveness trials are more heterogeneous in terms of comparator and setting. Accordingly, all studies identified as efficacy trials exclusively contained TAU/AT conditions and only one group RCT while effectiveness trials included a mixture. Within group settings, WL and TAU/AT controls were evenly distributed across the studies. However, slightly more ES were extracted for TAU/AT conditions due to one study yielding multiple ES. Since greater ES were found in group settings and in comparison to WL rather than TAU/AT conditions, this probably contributed to the difference between efficacy and effectiveness trials.

Regarding group settings, the small number of efficacy trials and the large ES for PTSS may be further explained by the fact that most of the TF-CBT according to Cohen et al. group studies targeted underserved populations, often in low and middle income countries. In this context, these very strong effects are not surprising considering the general lack of access to mental health care and

the high baseline symptomatology found in these samples. Additionally, a strictly controlled design was not feasible in many circumstances due to missing infrastructure, which prompted the need for rather pragmatic solutions. Subsequently, all but one group RCT were identified as effectiveness trials. Nevertheless, the strong effect on PTSS found in group settings was not entirely limited to underserved populations with limited access to mental health care as 36 % of studies contributing to the uncontrolled ES were conducted in high income countries (43 % for controlled ES). This is a very interesting finding especially since smaller effects for group interventions were found in an earlier analysis (Gutermann et al., 2016) and in adults (Lewis, Roberts, Andrew, Starling, & Bisson, 2020). Thus, a specific group factor might be at play such as a sense of community that supports trauma-focused work and subsequent healing in children and adolescents.

4.2. Secondary outcomes

Regarding secondary outcomes, the large uncontrolled effect of TF-CBT according to Cohen et al. on grief suggests that it can effectively address these symptoms. However, all relevant studies were either conducted in a group setting in low and middle income countries or undertaken by the working group of the treatment developers (Brown, Goodman, Cohen, Mannarino, & Chaplin, 2020; Cohen, Mannarino, & Knudsen, 2004; Cohen, Mannarino, & Staron, 2006; Dorsey et al., 2020; O'Donnell et al., 2014). Additionally, some studies did not define a minimum time criterion and possibly included participants with both normal and pathological grief reactions. Thus, this result may be partly explained by naturally occurring improvements over time and is difficult to generalize. Furthermore, compared to control conditions, only a small non-significant effect was found. There may be a threefold explanation for this result. First, all available comparators were TAU/AT conditions, and it may be that other treatments were equally effective in this domain. Second, grief baseline symptomatology was not clinically significant in one of the RCTs leaving almost no room for improvements in either condition. Third, no reliable instrument assessing grief in children and adolescents has been established up to now. So far, the evidence is still preliminary as only two RCTs and three uncontrolled studies have evaluated grief symptoms.

TF-CBT according to Cohen et al. showed reliable uncontrolled effects on depression and anxiety in the medium range from pre- to posttreatment and small effects compared to control conditions across all analyses. This confirmed earlier findings on the ability of TF-CBT according to Cohen et al. to alleviate these secondary symptoms, even though they were not targeted directly (Cohen, Deblinger, et al., 2004; Deblinger et al., 2006). In contrast to PTSS, we found no differences with regard to design, setting or comparators for these outcomes.

The analyzed sample confirmed that TF-CBT according to Cohen et al. could be effectively delivered to children and adolescents with single as well as multiple traumatic experiences. It effectively reduced pediatric PTSS in a relatively short number of sessions (Hansen, Lambert, & Forman, 2002) in settings with varying degrees of caregiver involvement, therapist training, and prior treatment experience of therapists. Thus, it is a perfect candidate for cost-effective D&I in settings with variable resources available. Furthermore, the included studies varied in terms of treatment duration, session length, and session frequency as well as treatment applications such as culture, telehealth, setting and additional elements. These are important factors for the treatment of affected minors with a wide range of traumas and specific care settings, underlining the flexibility of TF-CBT according to Cohen et al.

4.3. Limitations

We encountered several limitations whilst conducting our analyses. Most importantly, the indication of publication bias suggested that some studies with smaller effects may not have been published. We used appropriate methods to address this problem, but the true results of unpublished reports can, of course, never be known. It should also be mentioned that we may have missed studies that were not captured by our search terms. Additionally, some studies that would have matched our inclusion criteria ultimately had to be excluded due to unavailable data. Another major limitation was the inclusion of categorical rather than dimensional instruments in some of the older studies. This may have disguised ES and contrasting them with newer measures should be addressed in future studies. In addition, we did not run a formal analysis to confirm the large difference between ES in the subgroup analyses statistically. Moreover, due to the multitude of instruments used to assess the outcomes, no minimal symptom criterion was defined, leading to great variance in baseline symptomatology. Additionally, an instrument to assess pediatric grief reliably was not available. Furthermore, some analyses were limited to very few studies revealing some specific areas that warrant further attention.

5. Conclusion

TF-CBT according to Cohen et al. is an efficacious and effective treatment for pediatric PTSS with promising results on secondary outcomes of depression, anxiety, and grief. With regard to PTSS, it is superior to control conditions including TAU/AT, justifying its widespread use and recommendation in international guidelines as a first-line treatment (Forbes et al., 2020; National Institute for Health and Care Excellence, 2018; Phoenix Australia Centre for Posttraumatic Mental Health, 2013). Results also support further D&I in countries other than the US with group settings constituting a viable cost-effective and timesaving option when resources are limited. This is especially useful in the case of mass casualties involving large groups of young people such as Covid-19, wars around the world, the increasing frequency of natural disasters due to climate change, and terrorist attacks. TF-CBT according to Cohen et al. groups can be easily implemented and delivered via schools, child and youth welfare system facilities or other institutions. In practice, it may also be used to treat child and adolescent traumatic grief since the initial results are very promising, and the evidence for other grief-specific interventions is still relatively sparse (Boelen & Smid, 2017; Bui, 2018; Currier, Holland, & Neimeyer, 2007; Rosner, Kruse, & Hagl, 2010).

Future TF-CBT research should focus on group settings with a view to evaluating whether they do indeed produce stronger effects, and to providing treatment for large groups of people in a timely and cost-effective manner. In addition, we are in need of a reliable instrument to assess pediatric grief symptoms. RCTs in individual settings and western countries with different comparators are required to substantiate treatment effects on grief and to evaluate TF-CBT according to Cohen et al. in comparison with other grief-related treatments. Promising avenues may also be its application in telehealth to provide treatment during the pandemic and in rural areas where less mental health care is available. Moreover, offering TF-CBT according to Cohen et al. to inpatients may constitute a way of addressing the high rates of PTSD among this population. Additionally, providing treatment to young adults could expand the range of effective treatments available to this group.

Supplementary data to this article can be found online at https://doi.org/10.1016/j.chiabu.2022.105899.

Declaration of competing interest

None.

Data availability

Data will be made available on request.

Acknowledgements

None.

Funding

This work was supported by the German Federal Ministry of Education and Research (grant number: 01EF1802AC). It played no role in the design, the collection, the analysis and the interpretation of the data, in the writing of the article or the decision to submit the manuscript for publication.

References

Alisic, E., Zalta, A. K., van Wesel, F., Larsen, S. E., Hafstad, G. S., Hassanpour, K., & Smid, G. E. (2014). Rates of post-traumatic stress disorder in trauma-exposed children and adolescents: Meta-analysis. *The British Journal of Psychiatry: the Journal of Mental Science, 204*, 335–340. https://doi.org/10.1192/bjp.bp.113.131227

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*. American Psychiatric Association. https://doi.org/10.1176/appi.books.9780890425596

de Arellano, M. A. R., Lyman, D. R., Jobe-Shields, L., George, P., Dougherty, R. H., Daniels, A. S., & Delphin-Rittmon, M. E. (2014). Trauma-focused cognitive-behavioral therapy for children and adolescents: Assessing the evidence. *Psychiatric Services, 65*(5), 591–602. https://doi.org/10.1176/appi.ps.201300255

Bastien, R. J.-B., Jongsma, H. E., Kabadayi, M., & Billings, J. (2020). The effectiveness of psychological interventions for post-traumatic stress disorder in children, adolescents and young adults: A systematic review and meta-analysis. *Psychological Medicine, 50*(10), 1598–1612. https://doi.org/10.1017/S0033291720002007

Boelen, P. A., & Smid, G. E. (2017). Disturbed grief: Prolonged grief disorder and persistent complex bereavement disorder. *BMJ, 357*, Article j2016. https://doi.org/10.1136/bmj.j2016

Borenstein, M., Hedges, L., Higgins, J., & Rothstein, H. (2013). *Comprehensive Meta-Analysis Version 3*. Englewood, NJ: Biostat.

Brown, E. J., Goodman, R. F., Cohen, J. A., Mannarino, A. P., & Chaplin, W. F. (2020). An exploratory trial of cognitive-behavioral vs client-centered therapies for child-mother dyads bereaved from terrorism. *Journal of Child & Adolescent Trauma, 13*(1), 113–125. https://doi.org/10.1007/s40653-019-00264-2

Bui, E. (2018). *Clinical handbook of bereavement and grief reactions*. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-65241-2

Cabrera, N., Moffitt, G., Jairam, R., & Barton, G. (2020). An intensive form of trauma focused cognitive behaviour therapy in an acute adolescent inpatient unit: An uncontrolled open trial. *Clinical Child Psychology and Psychiatry, 25*(4), 790–800. https://doi.org/10.1177/1359104520918641

Cary, C. E., & McMillen, J. C. (2012). The data behind the dissemination: A systematic review of trauma-focused cognitive behavioral therapy for use with children and youth. *Children and Youth Services Review, 34*(4), 748–757. https://doi.org/10.1016/j.childyouth.2012.01.003

Chipalo, E. (2021). Is trauma focused-cognitive behavioral therapy (TF-CBT) effective in reducing trauma symptoms among traumatized refugee children? A systematic review. *Journal of Child & Adolescent Trauma, 14*(4), 545–558. https://doi.org/10.1007/s40653-021-00370-0

Cohen, J. A., Deblinger, E., Mannarino, A. P., & Steer, R. A. (2004). A multisite, randomized controlled trial for children with sexual abuse-related PTSD symptoms. *Journal of the American Academy of Child and Adolescent Psychiatry, 43*(4), 393–402. https://doi.org/10.1097/00004583-200404000-00005

Cohen, J. A., & Mannarino, A. P. (1993). A treatment model for sexually abused preschoolers. *Journal of Interpersonal Violence, 8*(1), 115–131. https://doi.org/10.1177/088626093008001009

Cohen, J. A., & Mannarino, A. P. (2013). Trauma-focused cognitive therapy in residential treatment facilities: An implementation manual. Retrieved from https://tfcbt.org/tf-cbt-rtf-implementation-manual/.

Cohen, J. A., Mannarino, A. P., & Cozza, S. J. (2014). Trauma-focused cognitive behavioral therapy for military families: An implementation manual. https://tfcbt.org/tf-cbt-military-implementation-manual/. Retrieved from.

Cohen, J. A., Mannarino, A. P., & Deblinger, E. (2006). *Treating trauma and traumatic grief in children and adolescents*. New York, London: The Guilford Press.

Cohen, J. A., Mannarino, A. P., & Deblinger, E. (2017). *Treating trauma and traumatic grief in children and adolescents, second edition* (2nd ed.). New York: Guilford Publications.

Cohen, J. A., Mannarino, A. P., & Knudsen, K. (2004). Treating childhood traumatic grief: A pilot study. *Journal of the American Academy of Child and Adolescent Psychiatry, 43*(10), 1225–1233. https://doi.org/10.1097/01.chi.0000135620.15522.38

Cohen, J. A., Mannarino, A. P., & Staron, V. R. (2006). A pilot study of modified cognitive-behavioral therapy for childhood traumatic grief (CBT-CTG). *Journal of the American Academy of Child and Adolescent Psychiatry, 45*(12), 1465–1473. https://doi.org/10.1097/01.chi.0000237705.43260.2c

Cohen, J. A., Mannarino, A. P., Wilson, K., & Zinny, A. (2018). Implementing trauma-focused cognitive behavioral therapy for LGBTQ youth and their caregivers. https://tfcbt.org/tf-cbt-lgbtq-implementation-manual/. Retrieved from.

Currier, J. M., Holland, J. M., & Neimeyer, R. A. (2007). The effectiveness of bereavement interventions with children: A meta-analytic review of controlled outcome research. *Journal of Clinical Child and Adolescent Psychology: The Official Journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53, 36*(2), 253–259. https://doi.org/10.1080/15374410701279669

Deblinger, E., & Heflin, A. H. (1996). Treating sexually abused children and their nonoffending parents: A cognitive behavioral approach. In *Interpersonal violence*. Thousand Oaks: Sage Publications.

Deblinger, E., Mannarino, A. P., Cohen, J. A., & Steer, R. A. (2006). A follow-up study of a multisite, randomized, controlled trial for children with sexual abuse-related PTSD symptoms. *Journal of the American Academy of Child and Adolescent Psychiatry, 45*(12), 1474–1484. https://doi.org/10.1097/01.chi.0000240839.56114.bb

Deblinger, E., Mannarino, A. P., Runyon, M. K., Pollio, E., & Cohen, J. A. (2016). Trauma-focused cognitive behavioral therapy for children in foster care: An implementation manual. https://tfcbt.org/tf-cbt-foster-care-implementation-manual-copy-deblinger-et-al-2016/. Retrieved from.

Dorsey, S., Pullmann, M. D., Berliner, L., Koschmann, E., Mc Kay, M., & Deblinger, E. (2014). Engaging foster parents in treatment: a randomized trial of supplementing trauma-focused cognitive behavioral therapy with evidence-based engagement strategies. *Child abuse & Neglect, 38*(9), 1508–1520. https://doi.org/10.1016/j.chiabu.2014.03.020

Dorsey, S., Lucid, L., Martin, P., King, K. M., O'Donnell, K., Murray, L. K., & Whetten, K. (2020). Effectiveness of task-shifted trauma-focused cognitive behavioral therapy for children who experienced parental death and posttraumatic stress in Kenya and Tanzania: A randomized clinical trial. *JAMA Psychiatry, 77*(5), 464–473. https://doi.org/10.1001/jamapsychiatry.2019.4475

Duval, S., & Tweedie, R. (2000). Trim and fill: A simple funnel-plot-based method of testing and adjusting for publication bias in meta-analysis. *Biometrics, 56*(2), 455–463. https://doi.org/10.1111/j.0006-341x.2000.00455.x

Finkelhor, D., Turner, H. A., Shattuck, A., & Hamby, S. L. (2013). Violence, crime, and abuse exposure in a national sample of children and youth: An update. *JAMA Pediatrics, 167*(7), 614–621. https://doi.org/10.1001/jamapediatrics.2013.42

Forbes, D., Bisson, J. I., Monson, C. M., & Berliner, L. (Eds.). (2020). *Effective treatments for PTSD: Practice guidelines from the international society for traumatic stress studies* (3rd ed.). New York, London: The Guilford Press.

Frost, N. D., Laska, K. M., & Wampold, B. E. (2014). The evidence for present-centered therapy as a treatment for posttraumatic stress disorder. *Journal of Traumatic Stress, 27*(1), 1–8. https://doi.org/10.1002/jts.21881

Gartlehner, G., Hansen, R. A., Nissman, D., Lohr, K. N., & Carey, T. S. (2006). Criteria for distinguishing effectiveness from efficacy trials in systematic reviews. *Technical Reviews, 12*.

Goldbeck, L., Muche, R., Sachser, C., Tutus, D., & Rosner, R. (2016). Effectiveness of trauma-focused cognitive behavioral therapy for children and adolescents: a randomized controlled trial in eight German Mental Health Clinics. *Psychotherapy and Psychosomatics, 85*(3), 159–170. https://doi.org/10.1159/000442824

Gutermann, J., Schreiber, F., Matulis, S., Schwartzkopff, L., Deppe, J., & Steil, R. (2016). Psychological treatments for symptoms of posttraumatic stress disorder in children, adolescents, and young adults: A meta-analysis. *Clinical Child and Family Psychology Review, 19*(2), 77–93. https://doi.org/10.1007/s10567-016-0202-5

Hansen, N. B., Lambert, M. J., & Forman, E. M. (2002). The psychotherapy dose-response effect and its implications for treatment delivery services. *Clinical Psychology: Science and Practice, 9*(3), 329–343. https://doi.org/10.1093/clipsy.9.3.329

Hébert, M., & Amédée, L. M. (2020). Latent class analysis of post-traumatic stress symptoms and complex PTSD in child victims of sexual abuse and their response to trauma-focused cognitive behavioural therapy. *European Journal of Psychotraumatology, 11*(1), 1807171. https://doi.org/10.1080/20008198.2020.1807171

Hedges, L. V., & Vevea, J. L. (1998). Fixed- and random-effects models in meta-analysis. *Psychological Methods, 3*(4), 486–504. https://doi.org/10.1037/1082-989X.3.4.486

Higgins, J. P. T., Thomas, J., Chandler, J., Cumpston, M., Li, T., Page, M. J., & Welch, V. A. (2022). Cochrane handbook for systematic reviews of interventions. www.training.cochrane.org/handbook. Retrieved from.

Higgins, J. P. T., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. *BMJ, 327*(7414), 557–560. https://doi.org/10.1136/bmj.327.7414.557

Hoogsteder, L. M., ten Thije, L., Schippers, E. E., & Stams, G. J. J. M. (2021). A meta-analysis of the effectiveness of EMDR and TF-CBT in reducing trauma symptoms and externalizing behavior problems in adolescents. *International Journal of Offender Therapy and Comparative Criminology, 66*(6–7), 735–757. https://doi.org/10.1177/0306624X211010290

Jensen, T. K., Holt, T., Ormhaug, S. M., Egeland, K., Granly, L., Hoaas, L. C., … Wentzel-Larsen, T. (2014). A randomized effectiveness study comparing trauma-focused cognitive behavioral therapy with therapy as usual for youth. *Journal of Clinical Child and Adolescent Psychology, 43*(3), 356–369. https://doi.org/10.1080/15374416.2013.822307

Kar, N., & Bastia, B. K. (2006). Post-traumatic stress disorder, depression and generalised anxiety disorder in adolescents after a natural disaster: A study of comorbidity. *Clinical Practice and Epidemiology in Mental Health, 2*, 17. https://doi.org/10.1186/1745-0179-2-17

Lenz, A. S., & Hollenbaugh, K. M. (2015). Meta-analysis of trauma-focused cognitive behavioral therapy for treating PTSD and co-occurring depression among children and adolescents. *Counseling Outcome Research and Evaluation, 6*(1), 18–32. https://doi.org/10.1177/2150137815573790

Lewis, C., Roberts, N. P., Andrew, M., Starling, E., & Bisson, J. I. (2020). Psychological therapies for post-traumatic stress disorder in adults: Systematic review and meta-analysis. *European Journal of Psychotraumatology, 11*(1), 1729633. https://doi.org/10.1080/20008198.2020.1729633

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P. A., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions: Explanation and elaboration. *BMJ, 339*, Article b2700. https://doi.org/10.1136/bmj.b2700

Martin, C. G., Everett, Y., Skowron, E. A., & Zalewski, M. (2019). The role of caregiver psychopathology in the treatment of childhood trauma with trauma-focused cognitive behavioral therapy: A systematic review. *Clinical Child and Family Psychology Review, 22*(3), 273–289. https://doi.org/10.1007/s10567-019-00290-4

Mavranezouli, I., Megnin-Viggars, O., Daly, C., Dias, S., Stockton, S., Meiser-Stedman, R., & Pilling, S. (2020). Research review: Psychological and psychosocial treatments for children and young people with post-traumatic stress disorder: A network meta-analysis. *Journal of Child Psychology and Psychiatry, and Allied Disciplines, 61*(1), 18–29. https://doi.org/10.1111/jcpp.13094

McGuire, A., Steele, R. G., & Singh, M. N. (2021). Systematic review on the application of trauma-focused cognitive behavioral therapy (TF-CBT) for preschool-aged children. *Clinical Child and Family Psychology Review, 24*(1), 20–37. https://doi.org/10.1007/s10567-020-00334-0

Morina, N., Koerssen, R., & Pollet, T. V. (2016). Interventions for children and adolescents with posttraumatic stress disorder: A meta-analysis of comparative outcome studies. *Clinical Psychology Review, 47*, 41–54. https://doi.org/10.1016/j.cpr.2016.05.006

Murray, L. K., Skavenski, S., Kane, J. C., Mayeya, J., Dorsey, S., Cohen, J. A., … Bolton, P. A. (2015). Effectiveness of trauma-focused cognitive behavioral therapy among trauma-affected children in Lusaka, Zambia: a randomized clinical trial. *JAMA Pediatrics, 169*(8), 761–769. https://doi.org/10.1001/jamapediatrics.2015.0580

National Child Traumatic Stress Network. (2012). TF-CBT: Trauma-focused cognitive behavioral therapy. Retrieved from https://www.nctsn.org/sites/default/files/interventions/tfcbt_fact_sheet.pdf.

National Institute for Health and Care Excellence. (2018). Post-traumatic stress disorder: NICE guideline. Retrieved from https://www.nice.org.uk/guidance/ng116.

O'Donnell, K., Dorsey, S., Gong, W., Ostermann, J., Whetten, R., Cohen, J. A., & Whetten, K. (2014). Treating maladaptive grief and posttraumatic stress symptoms in orphaned children in Tanzania: Group-based trauma-focused cognitive-behavioral therapy. *Journal of Traumatic Stress, 27*(6), 664–671. https://doi.org/10.1002/jts.21970

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., & Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ, 372*, Article n71. https://doi.org/10.1136/bmj.n71

Peters, W., Rice, S., Cohen, J., Murray, L., Schley, C., Alvarez-Jimenez, M., & Bendall, S. (2021). Trauma-focused cognitive-behavioral therapy (TF-CBT) for interpersonal trauma in transitional-aged youth. *Psychological Trauma: Theory, Research, Practice and Policy, 13*(3), 313–321. https://doi.org/10.1037/tra0001016

Phoenix Australia Centre for Posttraumatic Mental Health. (2013). Australian guidelines for the treatment of acute stress disorder and posttraumatic stress disorder in children and adolescents. Retrieved from http://phoenixaustralia.org/resources/ptsd-guidelines/.

Rosner, R., Kruse, J., & Hagl, M. (2010). A meta-analysis of interventions for bereaved children and adolescents. *Death Studies, 34*(2), 99–136. https://doi.org/10.1080/07481180903492422

Singal, A. G., Higgins, P. D. R., & Waljee, A. K. (2014). A primer on effectiveness and efficacy trials. *Clinical and Translational Gastroenterology, 5*, Article e45. https://doi.org/10.1038/ctg.2013.13

Sterne, J. A. C., Hernán, M. A., Reeves, B. C., Savović, J., Berkman, N. D., Viswanathan, M., & Higgins, J. P. (2016). Robins-I: A tool for assessing risk of bias in non-randomised studies of interventions. *BMJ, 355*, Article i4919. https://doi.org/10.1136/bmj.i4919

Sterne, J. A. C., Savović, J., Page, M. J., Elbers, R. G., Blencowe, N. S., Boutron, I., & Higgins, J. P. T. (2019). Rob 2: A revised tool for assessing risk of bias in randomised trials. *BMJ, 366*, Article l4898. https://doi.org/10.1136/bmj.l4898

Thomas, F. C., Puente-Duran, S., Mutschler, C., & Monson, C. M. (2020). Trauma-focused cognitive behavioral therapy for children and youth in low and middle-income countries: A systematic review. *Child and Adolescent Mental Health*. https://doi.org/10.1111/camh.12435. Advance online publication.

Unterhitzenberger, J., Wintersohl, S., Lang, M., König, J., & Rosner, R. (2019). Providing manualized individual trauma-focused CBT to unaccompanied refugee minors with uncertain residence status: A pilot study. *Child and Adolescent Psychiatry and Mental Health, 13*, 22. https://doi.org/10.1186/s13034-019-0282-3

Veritas Health Innovation. (2014). *Covidence systematic review software*. Melbourne, Australia: Veritas Health Innovation: Veritas Health Innovation. Retrieved from www.covidence.org.

Wang, D. C., Aten, J. D., Boan, D., Jean-Charles, W., Griff, K. P., Valcin, V. C., & Wang, A. (2016). Culturally adapted spiritually oriented trauma-focused cognitive–behavioral therapy for child survivors of restavek. *Spirituality in Clinical Practice, 3*(4), 224–236. https://doi.org/10.1037/scp0000101