Exploring Effectiveness of Treatment Possibilities for Sexually Abused Children and Adolescents:

A Systematic Review of Randomized Controlled Trials

Henny Tichelaar

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Utrecht University

Abstract

Childhood sexual abuse (CSA) occurs in 118 per 1.000 children and can have major implications for child well-being on short-term, but also lasting effects on developmental outcomes later in life, especially when left untreated. There is no clear evidence of one 'best practice' treatment for CSA victims. In this study, we reviewed existing literature on effectiveness of different treatment and treatment components for reducing CSA victims' symptoms and enhancing their functioning. We searched PsycINFO, PubMed, Scopus and Web of Science for randomized controlled trials (RCTs) on treatment effectiveness with combined search terms of 'sexual abuse', 'child', 'adolescent', 'treatment', 'therapy' and derivatives. Our search yielded studies on cognitive behavioral therapy (with and without adaption to CSA), trauma-focused cognitive behavioral therapy (TF-CBT), group treatments, prolonged-exposure treatment, EMDR and filial therapy. Treatment components researched separately were added pharmacotherapy and trauma narration. No treatment was consistently shown to be effective. Mixed outcomes were shown per study as well as per treatment category we distinguished. Most studies only included pretest and posttest (without follow-up) and outcomes measures differed greatly. Therefore, a thorough comparison remained challenging. Further limitations and recommendations are discussed. Overall, the main implication is to design more studies researching effectiveness of certain components. Combining smaller units of analyses might be able to further the field of CSA treatment faster.

Keywords Childhood sexual abuse, CSA, sexual abuse, child, adolescent, treatment, treatment component, intervention, therapy, effectiveness, randomized controlled trial, RCT, review, literature search.

Introduction

Child sexual abuse [CSA] as defined by the World Health Organization [WHO] entails involvement of children in sexual activities that they do not fully understand, are unable to give informed consent to, for which they are not developmentally prepared, or that violate the standards of the society in which the children live. CSA is thought to take place in the context of a relationship of power, position of inequality and/or exploitation of vulnerability (Mathews & Collin-Vézina, 2019). Children can be victimized on a single occasion, but most experience multiple events over a period of time (MacDonald et al., 2012; WHO, 2020). First incidence as well as duration of exposure can depend on a wide array of different characteristics related to the victim, perpetrator or wider context. For example, girls and disabled children are at heightened risk for victimization, whereas adolescents and people with learning disabilities or mental health problems are more likely to be perpetrator (MacDonald et al., 2012; Putnam, 2003; WHO, 2020). With regards to contextual factors, CSA is known to occur more often in institutions or when children live with non-biological parents.

CSA is difficult to notice as an informant, since it is often highly secretive in nature (Greenspan et al., 2013; McElvaney, 2015). As a result, prevalence rates based on informant report are far lower than those based on self-reports (Stoltenborgh et al., 2011). Overall, taking both type of measurement into account, worldwide prevalence is still being estimated at 11.8% (118 per 1000 children), with 18% of girls being victimized and 8% of boys. CSA victims can suffer severe and enduring consequences to their development. Symptoms can occur directly following the abuse, but victims can also remain asymptomatic (estimated up to 40%) (Greenspan et al., 2013; MacDonald et al., 2012). However, some of these asymptomatic children may develop CSA-related problems later in life, so-called ‘sleeper effects’.

Neurobiological sequelae have been shown to directly relate to CSA, such as changes in stress response systems and reduced brain volume, but are also hypothesized to relate to affective and behavioral symptoms shown later in life (MacDonald et al., 2012; Putnam, 2003). With regards to affective disorders, for example, there are more anxiety and depressive symptoms observed for CSA victims. Also, the relationship between CSA and post-traumatic stress symptoms has been undisputed (Trask et al., 2011). Adults with a history of CSA, in particular, show earlier onsets of depression and prolonged duration of depressive episodes

(Putnam, 2003). Also, depressive adults with histories of CSA show less benefits from standard treatments, indicating a need for early intervention. A behavioral symptom, often uniquely related to CSA and therefore targeted frequently interventions is sexualized behaviors (MacDonald et al., 2012; Putnam, 2003). These symptoms are in particular related to CSA in early and middle childhood, but also lead to more high-risk sexual behavior in adolescence. A history of CSA is associated with a higher arrest rate for sex crimes and prostitution for both genders (Putnam, 2003). Females showing increased sexualized behaviors are at higher risk for early pregnancy and their babies are more likely to be of low birth weight. In sum, CSA is associated with different problems on neurobiological, affective and behavioral domains. Children referred to treatment following CSA often meet the criteria for multiple diagnoses (Trask et al., 2011). In the absence of appropriate and effective therapy, problems can become more intertwined and more serious, therefore early intervention is warranted.

Previous reviews

A number of reviews have uncovered different treatment possibilities varying from Eye Movement Desensitization and Reprocessing [EMDR] to animal-assisted therapies (Choudhary et al., 2016; Cummings et al., 2012; Greenspan et al., 2013; MacDonald et al., 2012; Passarela et al., 2009; Parker & Turner, 2014; Putnam, 2003). In an early updated review on general literature on CSA, Putnam (2003) concluded that cognitive behavioral therapy [CBT] for child and non-offending parent was most effective in treating CSA sequelae. Cummings et al. (2012) reviewed literature on psychosocial interventions, pharmacotherapy and early preventative interventions. The preventative interventions focus on preventing post-traumatic stress disorder [PTSD] after a general traumatic event. Regarding pharmacotherapy Cummings et al. (2012) conclude that there is limited evidence, due to few randomized controlled trials [RCTs], showing effectiveness in preventing CSA-related PTSD. However, the evidence base for trauma-focused cognitive behavioral therapy [TF-CBT] as psychosocial intervention “is expanding”. Greenspan et al. (2013) review different effectiveness studies into CBT, TF-CBT, EMDR, play therapy and animal-assisted therapy. In line with Cummings et al. (2012), Greenspan et al. (2013) also acknowledge that TF-CBT is the most researched treatment, but they conclude that for all included types of treatment there is some evidence shown for effectiveness in reducing CSA-related symptoms. Following this, their overall conclusion is that for all various treatments the effectiveness

studies for CSA victims specifically is in its infancy and they suggest that symptom reduction is not very dependent on the type of treatment.

MacDonald et al. (2012) focus on CBT-approaches only and also show symptom reduction, primarily for depression, anxiety and PTSD. However, they conclude that the reductions are only moderate in size and suggest that the evidence base for CBT-approaches is weaker than implied by other reviewers. Like MacDonald et al. (2012), Passarela et al. (2010) also focus on CBT-approaches only. Their inclusion of three effectiveness studies showed results favoring CBT for child and adolescent victims of CSA with a PTSD-diagnosis. In changing approach to reviewing effectiveness of psychoanalytic and psychodynamic treatments for CSA, Parker and Turner (2014) were unable to include any study based on their eligibility criteria. All potentially relevant publications were excluded because they compared a psychoanalytic or psychodynamic to a different treatment type (and so, were not examining absolute effects) or the study design did not pass RCT-criteria. At last, the most recent review of Choudhary et al. (2016) also focused on including only RCTs examining effectiveness, but without limiting their few to a selected approach. Therefore, this review yielded 17 included studies of which characteristics were discussed as a way of describing developments within the field of treatments for CSA. Highlighted was also that psychotherapy for CSA nowadays includes various modality specific therapeutic techniques (Choudhary et al., 2016).

Types of treatment

On the basis of the earlier reviews, we expect to encounter studies researching effectiveness of CBT for CSA victims. Four different learning principles underlie this type of treatment: classical (associative) conditioning, operant conditioning (through use of reinforcement and punishment), observational/imitative learning and cognitive learning, emphasizing impact of thought patters on feelings and behavior (MacDonald et al., 2012). New learning experiences eventually overpower previous forms of maladaptive information processing, which is visible in the core component of cognitive restructuring (Hazzlett-Stevens & Craske, 2002). For CSA victims, maladaptive cognitions such as being permanently soiled or believing it is their own fault are restructured in order to change maladaptive internalizing or externalizing behavior, and so, alleviating symptoms (MacDonald et al., 2012).

These basic principles to CBT have been adapted in several ways to fit different CSA populations. One way is on the basis of age. Since general CBT requires some self-reflective processes relying on cognitive abilities, it is not a viable treatment option for younger children. However, as preschool children constitute one third of sexually abused children, an adaptation to this age group is warranted. Therefore, CBT for Sexually Abused Preschool children [CBT-SAP] was developed (Cohen & Mannarino, 1996). CBT-SAP entails 12 weekly sessions for parent(s) and child separately. Each session focuses on parent reports of sexually inappropriate behavior of the child, which is then addressed in an individual session with the child at age-appropriate level. Taking parent reports of sexualized behavior as starting point makes it possible to target these directly in the child-only sessions and provide parents with tools to help extinguish this behavior through CBT techniques such as operant conditioning and observational/imitative learning.

Another adaptation of general CBT is TF-CBT, shifting the core focus to gradual exposure and the treatment of trauma symptoms after CSA experiences (Greenspan, et al., 2013). A core principle of activity in TF-CBT is building gradual exposure (Cohen et al., 2017). Exposure as a treatment technique aims to reduce maladaptive behaviors that occur as a response to a particular situation, through consistently presenting harmless consequences of that situation. Within the context of gradual exposure, the therapist essentially breaks down the feared situation and exposes the child gradually to related stimuli, each time presenting benign consequences. For example, a child may become overly fearful with regards to bearded men, since their perpetrator was a bearded male. Gradually exposing the child could mean that the therapist tells about the kind bearded men he or she knows and in a later session, bring in a friendly bearded colleague for the child to meet.

For TF-CBT, building gradual exposure is central to the treatment process as a whole but also reflected in singular treatment components. Components are often summed up in the acronym ‘PRACTICE’ (Cohen et al., 2017). ‘PRACTICE’ entails Psychoeducation and Parenting skills, Relaxation skills, Affect expression and modulation skills, Cognitive coping and processing skills, Trauma narration, In vivo mastery of trauma reminders, Conjoint parent-child sessions and Enhancing future safety. By working through these specific phases, TF-CBT helps the child build and practice extensive skills for processing the abuse, so they become and stay free of trauma symptoms in post-abuse life.

Group-delivered therapy for child sexual abuse seems promising as well, especially for adolescents, since it is generally their preferred type of treatment and research shows that peers can help guide disclosure of sexually abusive events (Glodich & Allen, 1998; McElvaney, 2015). Group therapy can be applied for reducing emotional, behavioral and (other) specific trauma symptoms related to CSA, but also for psychoeducational purposes regarding sexuality. It is often hypothesized that group treatment poses a unique context in which feelings of isolation and social stigmatization can be addressed most effectively (Reeker et al., 1997). Sharing of experiences creates groupwide social support, which in turn can alleviate or prevent further symptoms. Group treatment is mainly a method of delivery, which means that different types of treatment can be delivered in such a setting. It has been reported to be treatment setting of choice for CSA victims because it is considered high cost effective and low labor intensive (Reeker et al., 1997; McCrone et al., 2005). Group treatment can be applied for different ages and for individuals as well as parent-child dyads or families

Another type of treatment, Prolonged Exposure for Adolescents [PE-A], is only suitable for adolescents (Foa et al., 2013). PE-A relies on eight different modules in which psychoeducational techniques are used to teach clients about trauma reactions and provide rationale behind the different aspects of treatment. PE-A centers around two different types of exposure. First, client and therapist work through a module of in vivo exposure. Within the context of in vivo exposure, client and therapist work on desensitizing the client to trauma reminders as the child experiences them in real-world conditions. In order to complete this specific module, the adolescent is required to practice coping with trauma reminders at home as well. The module thereafter involves imaginal exposure, in which the adolescent and therapist revisit the traumatic experience (by going back to specific memories) in order to reprocess, also the ‘worst’ moments are revisited repeatedly. The process of imaginal exposure lasts for a minimum of six and maximum of 12 sessions. PE-A is built on the premises that trauma reminders (whether imaginal or in vivo) are cues for maladaptive behavior and the experiencing of symptoms. By focusing on desensitization, symptom reduction is aimed.

Another treatment focusing on imaginal exposure is Eye Movement Desensitization and Reprocessing [EMDR]. The traumatic CSA-related memory is desensitized by short episodes of imaginal exposure whilst the therapist subsequently offers external bilateral stimuli in a rhythmic side-to-side pattern (Shapiro, 2007). This is repeated until the heightened emotional sensitivity to the traumatic memory has disappeared and possible

dysfunctional cognitions about the trauma become functional. EMDR opts to induce a physiological condition in which adequate information processing is achieved: the unprocessed memories of traumatic experiences are than linked to neurological networks including healthy processed memories (Rodenburg et al., 2009). Taking away maladaptively processed information is thought to be the working mechanism of EMDR.

A final treatment option that is often used for victims of child sexual abuse is play therapy (Greenspan et al., 2013). Since it has been widely accepted that the disclosure of sexual abuse is important for the victims' healing process and play therapy is considered to be helpful in narrating children's experiences, the two have been linked in clinical setting. Play provides and age-appropriate manner for children to express their subjective feelings, which they are unable to express through collective adult language. Since most children under the age of 11 lack the capacity of abstract thought, children more naturally express themselves through play and activity, which then become the vehicle of communication in play therapy (Bratton et al., 2005).

In sum, based on earlier addressed reviews, we expect to encounter effectiveness studies into the treatment types as elaborated on above. Reviewing the treatment effectiveness will differ from earlier reviews as we specifically focus on individual studies' outcome measures and opt to analyze these as systematically as possible. We might uncover new treatment types, as the most recent review included studies published no later than 2015 (Choudhary et al., 2016). For instance, a notable new development could be the inclusion of serious gaming in treatment for CSA victims. Serious games are designed for therapeutic or (psycho)educational purpose, their use stretches beyond their entertainment value. Fitting our aim of searching for effective treatments, serious games could be of interest since they have been shown to increase effectiveness for ADHD treatment and can benefit sexual education delivery (Arnab et al., 2013; Bul et al., 2016).

Our study

In this review, we opt to uncover which treatments are effective. Therefore, in contrast to earlier reviews of Cummings et al. (2012), Greenspan et al. (2013), Parker and Turner (2014) and Putnam (2003) only RCTs are included here. Also, a broader focus is chosen than by MacDonald et al. (2012), Passarela et al. (2010) and Parker and Turner (2014). Our search will not be limited to one treatment type, as we would like to review effectiveness of all available treatment approaches. Our design is most compatible to that of Choudary et al.

(2016), but we plan to add by discussing outcome measures of included studies in more detail to be able to indicate which overall treatment(s) might be considered 'best practice'. The need for best practices to be established is pressing in light of the observation that current practice might be considered 'ethically disputable', since there are several different treatments available, while there is no unambiguous and methodically solid evidence for any specific approach (MacDonald et al, 2012; Parker & Turner, 2014; Vuijsje, 2016).

Following the above, we opt to create possibilities for more detailed analysis of included therapies and therefore will include studies researching the effectiveness of individual treatment components as well. The finding that previous reviews cannot be combined into one clear, comprehensible overview, stresses the need to investigate individual treatment components even more in order to uncover where the effectiveness is concentrated. Therefore, we search for an answer to the question: which effective treatments or treatment components have been identified in previous research for CSA victims?

Method

Literature Search

Via three search methods, we identified eligible studies on the effectiveness of treatment possibilities for CSA until August 13th, 2019. First, we searched the electronic databases of PsycINFO, PubMed, Scopus and Web of Science for empirical, peer-reviewed articles using the following four types of search terms. We included terms related to 'sexual abuse', 'child sexual abuse', 'sexual victimization', 'sexual trauma', 'sexual violence' and derivatives in our search term. Also, considering our focus on treatments for children only, we included variations of 'child(ren)' and 'adolescent(s)'. Additionally, we included terms related to 'therapy' and 'treatment'. At last, we included derivatives of 'randomized' and/or 'control group' in our search terms, so we would only obtain RCTs. These search terms were similar to the search terms used in previous narrative and systematic reviews on the effectiveness of treatments for CSA (Choudhary et al., 2016; Cummings et al., 2012; Greenspan et al., 2013; MacDonald et al., 2012; Passarela et al,, 2010; Parker & Turner, 2014; Putnam, 2003). We checked whether the search terms yielded all articles included in these previous narrative and systematic reviews which was the case for more than 90% of the studies. Second, we searched the reference lists of the previous narrative and systematic reviews on the effectiveness of treatments for CSA. Third, we searched the reference lists of the articles that met our inclusion criteria for eligible studies. We applied a very broad strategy with this reference search, including all articles that mentioned any of our search

terms in the title terms. These searches yielded a total of 1105 hits, which were imported in EndNote (version 19.1) for screening of their eligibility. After removing duplicates, 729 articles remained. Figure 1 depicts the flow chart of the literature search and eligibility screening.

Eligibility Criteria

To be included in this systematic, studies had to meet the following eligibility criteria: publications had to 1) study child sexual abuse (and not abuse in general, at least 75% percent of the sample had to consist of CSA victims), 2) include children below the age of 18 enrolled in therapy for CSA (i.e., studies into adults with "history of CSA" were excluded), 3) study effectiveness of treatment application after CSA (i.e., preventive interventions were excluded) on child mental health outcomes 4) have a randomized controlled design (i.e., study design should include an experimental and a control condition and should have made use of random allocation of participants to groups), and 5) were peer-reviewed. We did not set any restrictions with regard to the language of the paper, as long as an English abstract was available for screening purposes. During the full-text screening phase, papers written in languages other than English (a total of six, two French, two German and two Turkish) were translated by experienced speakers of the language. Ultimately, none of these were included.

The eligibility of the studies for inclusion was first assessed on the basis of their abstracts, which led to exclusion of 614 publications. The remaining 115 studies were screened full-text. A total of 31 RCTs were eventually included in our full analysis, see Figure 1 (Appendix A.1). The first author conducted abstract and full screening, but consulted the second author in case of unclarity. Most unclarities were with regard to study design. In case of disagreements between the coders, this was discussed until consensus was reached.

Data Extraction

Data extracted from the included studies were placed in different categories, an extensive overview can be found in Appendix B. Regarding study design we extracted data on the included treatment type(s) and number of measurements, indicating whether the design was only pre-/post-test or more longitudinal. For information on the sample, we extracted number of participants, percentage of female participants, their mean age and presence of other distinctive characteristics of the sample in general. Although all studies included were RCTs, we explicitly stated whether randomization was successful. Extracted data about the study outcomes contained the outcomes over time for both groups combined and the outcomes over time per group. In order to create a complete overview, all the studies'

outcome measures were extracted, regardless of whether they did or did not show effectiveness. For each measurement instrument, information regarding the informant and the construct it aims to measure was included. All effects shown in Table 1 (Appendix A.2) are significant, as displayed in the included studies and checked by authors. Data extraction was performed by both first and second author. Any differences were discussed until consensus was reached.

Results

The studies that were included in this systematic review and their findings are presented in Table 1. There are considerable differences between characteristics of the 31 retrieved studies. In total, ten different treatment types were identified as experimental condition and a total of 13 different control treatments. In this result section, studies are grouped into five different treatment categories on the basis of common treatment components: CBT, CBT with adaptation to CSA victims, TF-CBT, Group therapy and Other treatments (EMDR, PE-A and filial (play) therapy). The studies included were published between 1985 and 2016. Most of the studies were conducted by the research group of Cohen, Deblinger, Mannarino and colleagues: 12 of 31 studies were (co-)authored by one of these researchers.

Overall, 23 different samples were investigated consisting of 1391 participants in total, ranging from 13 to 203 participants per sample. Ten out of 23 samples were exclusively female, the other 13 samples combined boys and girls. Ages of children included in the studies ranged from 4 to 18. Nine samples focus exclusively on (pre)adolescent children and one sample consists of only preschool-aged children. The other samples had wider age ranges or the mean age was in middle childhood. Regarding sample type, there were seven samples in which participants all showed (sub)clinical PTSD. In three studies, non-Western samples were subject to analysis. These studies were done in Iran, Congo, and Zambia.

In terms of study design, 17 of 31 studies included more than two measurement times. Fourteen of these studies included follow-up measurements, ranging from six weeks to three years after treatment. Seven studies also included extra measurements during treatment. A wide array of measurement instruments were used to assess treatment outcomes (e.g., depression, anxiety, PTSD symptoms, sexualized behaviors, self-concept, general functioning and more). In some cases, effects were calculated for subscales of instruments individually, whereas in other cases some or all subscales were taken together. All studies used a total of

230 outcome measures, of which 63% was based on child report, 29% on parent report and 1% was as reported by a teacher or clinician. The remaining 7% of outcomes represented a parent- and child-report composite.

Cognitive Behavioral Therapy [CBT]

Five studies examined effectiveness of CBT in four different samples. Three studies found significantly more improvement in the treatment groups compared to the treatment-as-usual [TAU] and wait list [WL] control groups. First, Deblinger et al. (1996) found that children in the child-only CBT and mother-and-child CBT group showed greater improvements in PTSD symptoms than children in the mother-only CBT and TAU group. Children's depression and externalizing behavior decreased to a greater extent in the mother-only CBT and mother-and-child CBT groups than in the child-only CBT and TAU groups. Authors did not report differences in effects regarding internalizing behavior and anxiety. A second study using the same sample found that effects were maintained after a 2 year follow-up Deblinger et al. (1999). The third study by King et al. (2000) found greater improvements in the children receiving CBT or family-CBT than children in the WL condition immediately after treatment with regard to PTSD symptoms, fear and general functioning, but no differences in improvement on chronic anxiety, fear, and behavioral symptoms. At 12 weeks follow-up, effects were maintained for hyperarousal and re-experiencing symptoms of PTSD, but further improvements for the CBT groups were found regarding total PTSD symptoms, avoidance, fear, chronic anxiety, and general functioning. Authors did not report differences in effects for coping with CSA and depression. Two of five studies comparing CBT to a different type of treatment (supportive treatment and pharmacotherapy, respectively) found no differences between the treatment groups in improvement of children's depression and distress related to trauma and adolescent's depression and clinical improvement (Dominguez, 2001; Shamseddeen et al., 2011).

CBT with adaptation to CSA victims

Four studies focused on CBT with adaptation to CSA victims. Three out of four studies found stronger effects for the experimental group in comparison to nondirective supportive therapy [NST] in two samples. First, Cohen and Mannarino (1998) showed larger improvements in children receiving adapted CBT in terms of social competence and depression than children receiving NST, whereas children in both groups improved equally in terms of anxiety, sexualized behavior, and behavioral symptoms. Both groups did not show

improvement in internalizing and externalizing behavior. Second, Cohen and Mannarino (1996; 1997) adapted CBT for use for CSA victims of preschool age [CBT-SAP] and showed that preschool children enrolled in CBT-SAP improved more than children enrolled in NST with regard to total behavioral symptoms and internalizing behavior problems. The effects were maintained six months after treatment (Cohen & Mannarino, 1997). Directly after treatment, children receiving CBT-SAP showed improvement in terms of externalizing behavior, sexualized behaviors, and problematic behaviors, whereas children receiving NST did not (although significance of this difference in change was not tested). Both groups did not change in social competence and affective symptoms. Between six and 12 months after treatment, the CBT-SAP group improved more than the NST group in terms of problematic behaviors, total behavioral symptoms, as well as specific internalizing and externalizing symptoms. A difference in improvement was not reported for sexualized behaviors and social competence. A fourth study examining CSA-specific CBT for girls and their mothers showed effects as well, but in the unexpected direction. Celano et al. (1996) found that girls receiving adapted CBT and TAU both improved similarly with regard to externalizing behavior, PTSD symptoms, trauma, and global functioning, but unexpectedly the TAU group showed more improvement than the adapted CBT-group on internalizing symptoms.

Trauma Focused Cognitive Behavioral Therapy [TF-CBT]

TF-CBT was used in seven studies with five different samples. Three of these studies consistently found more improvement for the TF-CBT-children than children in the control group. First, Kane et al. (2016) found that Zambian orphans enrolled in TF-CBT improved more than orphans enrolled in TAU in terms of trauma symptoms and functional impairment (large effects). Second, when comparing TF-CBT to child-centered therapy [CCT] controls, Cohen et al. (2004) showed that immediately after treatment children in the TF-CBT group improved more with regard to PTSD symptoms, depressive symptoms, total behavior problems, attributions regarding credibility and trust, and shame. These effects were generally small. Both groups improved similarly in terms of anxiety, attributions regarding feeling different and negative events, social competence, and specific internalizing, externalizing and sexualized behaviors. In the third study by Cohen et al., 2005, researchers found that 12 months after treatment children receiving TF-CBT showed greater improvements in depressive symptoms, anxiety, and sexual problems than children receiving NST, but no differences in improvement were found for sexualized behaviors, PTSD symptoms, dissociation, anger, social competence and behavior problems.

One study found mixed results when TF-CBT was compared to CCT (Deblinger et al., 2006). Similar 6-to-12-month follow-up improvements were found in both groups regarding PTSD, anxiety, depression and total behavioral scores as well as for attributions regarding negative events, credibility and trust, but no improvements in feeling different, feelings of shame, social competence and sexualized behaviors. These effects of time were generally small (Deblinger et al., 2006). Regarding externalizing behavior, CCT-children improved more from the end of treatment to 12 months after treatment than their TF-CBT counterparts. Regarding internalizing behavior, CCT-children show more improvement from the end of treatment to six months after treatment, whereas TF-CBT children improved more between six and 12 months after treatment.

In a fifth study, Cohen et al. (2007) investigated the effects of TF-CBT with and without added sertraline-treatment. Both groups improved in terms of presence of clinical PTSD, PTSD symptoms, anxiety, behavioral problems, and mood and feelings. TF-CBT together with sertraline was more effective in reducing global impairment than TF-CBT without sertraline (medium effect). No changes were reported with regard to internalizing and externalizing behavior, social competence, and CSA-related attributions. There were no side effects of the psychotropic medication use.

Finally, two studies by Deblinger et al. (2011) and Mannarino et al. (2012) specifically examined the effects of treatment length (8 or 16 sessions) and adding the component of 'Trauma Narration' [TN] to TF-CBT. Children receiving TF-CBT with TN and without TN both improved after treatment in terms of PTSD symptoms, fear, depression, anxiety, shame, behavior problems, sexualized behavior and abilities to recognize and respond to abuse (Deblinger et al., 2011). Yet, the TF-CBT with TN group showed greater improvement in fear/discomfort and externalizing problems, whereas the TF-CBT without TN group showed greater improvement in anxiety (small to medium effects). However, only on anxiety there was further improvement in the 12-month follow-up period for both TF-CBT with and without TN (Mannarino et al., 2012). Regarding the effects of treatment length on PTSD-symptoms of reexperiencing and avoidance, children who received 8 sessions of TF-CBT improved more than children who received 16 sessions, irrespective of the addition of TN (Deblinger et al., 2011).

Group treatment

Nine studies specifically examined forms of treatment delivered in a group setting. Four studies found significant differences in improvement between clients receiving group therapy compared to clients that did not receive group therapy. First, Baker (1985) found that adolescent girls enrolled in group therapy improved more than girls in individual therapy in self-concept, but not in anxiety or depression. Second, in the study of Burke (1988), girls in group therapy improved more than girls on a wait list in terms of depression, anxiety, fear regarding sexual abuse, and internalizing behavior problems, but not on general fear. Effects were maintained six weeks after treatment. Third, O'Callaghan et al. (2013) found that Congolese adolescent girls receiving the TF-CBT group therapy improved more in terms of PTSD, depression/anxiety, conduct problems and prosocial behavior (large effects) than girls on a wait list. Effects were maintained at 3-month FU for PTSD and conduct problems, and even increased moderately for depression and prosocial behavior. Lastly, Trowell et al. (2002), comparing a psychoeducational group program for sexually abused girls to focused individual therapy, showed similar decreases in PTSD symptoms of avoidance and arousal and in global impairment of functioning after treatment for all girls. Effects were maintained at one year follow-up or, with regard to global functioning, even increased at follow-up. Group therapy was only more effective than the control condition in reducing symptoms of re-experiencing at two years follow-up.

Another study (Verleur et al. 1986) did not statistically test whether the improvements of girls receiving group therapy (with stress inoculation training, gradual exposure, and sexual education) were significantly different from girls receiving no treatment. Yet, the authors found that adolescent girls in group therapy improved in terms of sexual awareness and self-esteem, whereas girls receiving no treatment only showed improvements in self-esteem. A study by Deblinger et al. (2001) compared two types of group therapy: CBT-group therapy and supportive group counseling. Deblinger et al. (2001) showed that children in both treatments improved moderately on all assessed outcomes (PTSD symptoms, social and behavior function, sexual behavior, ability to recognize and respond to abusive situations) over the course of therapy with effects maintained at 3-month follow-up.

Finally, three studies found no significant differences in improvement between clients receiving group therapy compared to clients that did not receive group therapy. First, Berliner and Saunders (1996) found that children enrolled in group therapy and individual therapy both improved similarly in terms of anxiety, specific fears, sex-associated fears, interpersonal discomfort, depression, behavior problems, and sexual behavior. Second, in the study of Hyde

et al. (1995) there were no differences between family treatment with or without group therapy in children's improvement in general health and behavior and depressive symptoms. In addition, there were no effects of both treatments on self-esteem and behavior problems. Thun et al. (2002) found that adolescent girls receiving group therapy or no therapy both improved similarly in terms of self-reliance and impulse control, but did not improve in terms of body image and self-confidence.

Other treatments

There were six articles examining specific types of treatment that could not be classified in one of the abovementioned categories. One study examined the effects of EMDR (Jaberghaderi et al., 2004). Adolescent girls in the EMDR group as well as the CBT control group improved similarly on measures of PTSD symptoms and teacher-reported behavior problems.

Four different articles compared PE-A and CCT in one sample of 61 adolescent girls with (sub)clinical PTSD symptoms (Foa et al., 2013; Kaczkurkin et al., 2016; McLean et al., 2015; Zandberg et al., 2016). All studies found effects favoring PE-A. PE-A was more effective than CCT at end of treatment and after a one-year follow-up in terms of improvements on prevalence of PTSD, negative post-trauma cognitions, general functioning, and severity of PTSD and depressive symptoms (Foa et al., 2013; Kaczkurkin et al., 2016; McLean et al., 2015). PE-A was especially more effective than CCT in improving PTSD symptoms for girls with high state-anger (Kaczkurkin et al., 2016). Zandberg et al. (2016) examined effects on specific social-emotional behavior problems and found that PE-A was more effective (medium effect sizes) than CCT in reducing somatic complaints, attention problems, rule breaking, aggressive behavior, affective, conduct, internalizing, externalizing and total problems.

A final study by Bassett Costas (1998), comparing filial therapy, which is considered a form of play therapy, with a control group receiving no treatment, did not find any significant effects on children's behavioral symptoms, self-concept, anxiety or emotional disturbance.

Discussion

31 RCT studies have tested effectiveness of a range of treatments that are used in practice for children who experienced sexual abuse. Our literature search yielded a total of 31 studies reporting on the effectiveness of 11 different types of treatment. For the purpose of

analysis, we grouped these into five categories: CBT, CBT adapted to CSA, TF-CBT, group therapy, and 'other' treatments such as EMDR, PE-A and filial therapy. Overall, 18 of 31 studies showed effects favoring the experimental treatment over the control condition (mostly TAU or WL control groups) in improvement on at least one outcome measure regarding children's emotional or behavioral symptoms or adaptive functioning. When effect sizes were reported, they were generally small to medium.

CBT

Across five studies into CBT, outcomes were measured for CBT applied to children, mothers, children and mothers combined, families and in combination with pharmacotherapy. Sample size ranged from 25 to 90 participants, so only relatively samples were used. In four of five studies, around 75% was female. Mean age was comparable across three of four samples (10 and 11 years). For one sample, gender and age distributions were not reported, which causes results to lose meaning for the science and practice concerning treating CSA victims since they lack context and so cannot be generalized in any way.

Together, 32 outcome measures were selected to measure CBT-effects for nine different constructs. Two-thirds of these outcomes were self-reported by participants. Notably, one study chose to measure internalizing, externalizing and total behavior through child and parent report separately, strengthening their design. Two studies into two different samples found effects favoring CBT above TAU and wait-listed controls. Effects seem to diminish when compared to another treatment. A possible explanation could be that the core activity of cognitive restructuring in general is insufficient for the persistent symptoms, since they root in a specific traumatic event. The symptoms become more salient through trauma reminders faced by the child in post-abuse life (Cohen et al., 2017). Therefore, it has been suggested that adding trauma-specific components to CBT treatment could enhance effectiveness.

CBT with adaptation to CSA victims

Three different CSA-adapted CBT-treatments were found and tested across four studies: 'Recovering from Abuse Program' [RAP], sexual abuse specific-CBT [SAS-CBT] and CBT-SAP. SAS-CBT focused mainly on parental involvement following from the hypothesis that they can have a therapeutic role (Cohen et al., 2017). SAS-CBT was found to be effective for child-reported depressive symptoms and for parent-reported social

competence. Social competence can, however, not directly be related to experiencing CSA (see Introduction) and so it is disputable if this can be considered an effect of treatment. Also, it is questionable if social competence increased at all, since it was reported by parents who were themselves subjected to therapy. A possibility is that that changed alertness to behavioral changes in their child, making them less reliable informants.

In comparison, CBT-SAP did find effects on multiple outcome measures. CBT-SAP was favored above NST at post-test for reducing (especially internalizing) behavioral problems. Additional favoring effects were found for externalizing behavior in long term follow-up. These effects underline the importance of age-related adaptations for the large subgroup of children being abused at a young age (one third, see Introduction). Also, the delayed effect on externalizing behavior draws attention to the importance of follow-up measurements. However, for this study, the effect might be partly explained by rapid general developments towards the end of early childhood.

At last, the study into RAP shows a remarkable effect opposed to hypotheses. Parents reported steeper declines in their female children's internalizing behavior for TAU than they did for the CSA-adapted program of RAP. Since duration and intensity of both treatments are the same, children were successfully randomized and an instrument of sufficient psychometric quality was used to assess the internalizing behavior (Child Behavior Check List [CBCL]), there are no immediately evident limitations to the study design. A specific explanation for this finding might be found in the types of treatment combined with, again, the fact that parents were informant. Possibly, since mothers themselves were involved in RAP, their reported data might be affected by own internalizing feelings of shame, guilt and incompetence in protecting the child having learned all details of the abuse in treatment. More general, alternative explanations could be that the TAU was of high quality already or there was a difference in treatment integrity, since RAP was a newly developed treatment program, possibly applied without sufficiently rigid treatment protocol.

TF-CBT

Seven studies, using five different samples, were found researching TF-CBT. Sample sizes were relatively large: three out of five samples consisted of more than 150 participants, leading to more statistical power of results. Samples were predominantly female and, with the exception of one sample (mean age being 8), all studies included participants of early adolescent age. The highest number of outcome measures were found in this category, a total

of 81. In 68% of these were (partly) based on child report, which fits the targeted age group as self-report measures are preferred for older children in light of reliability.

Studies found more improvement for TF-CBT in comparison to TAU, NST or CCT on domains of depression, anxiety, behavioral problems (specifically internalizing), cognitions on credibility, trust and shame, and functional impairment. Effect sizes were largest when TF-CBT was compared to TAU. The effects found when comparing to NST and CCT were somewhat conflicting: whereas both studies at hand favored TF-CBT for all depressive symptoms, TF-CBT was only found more effective on total PTSD and behavioral symptoms when compared to CCT, but not NST. This conflicting finding can be explained by the fact that the TF-CBT versus CCT-study only included participants with (sub)clinical PTSD, so finding reductions on that symptom domain (with possible comorbidity of behavioral symptoms) seems logical. On the other hand, TF-CBT was the preferred treatment for reduction of anxiety symptoms when compared to NST, but not for CCT. An explanation for this finding could be attributed to treatment type in combination with study design. As TF-CBT is specifically focused on trauma, with its working mechanism of gradual exposure through each component, it aims to gradually reduce symptoms (with extensive skill building throughout treatment) and so, this type of treatment may be especially prone to delayed treatment effects. Since comparisons with NST were made at 12 month follow-up, the likelihood of ‘sleeper effects’ for TF-CBT could explain the difference found on reduction of anxiety.

Group treatment

Of eight included studies, half research a more general (or not otherwise specified) type of group treatment, while the other half all study a distinct subtype of group therapy. Duration of treatments ranges from five weeks to six months, which does not fully fit the premise that group treatment is often favored in practice due to low labor intensiveness and low costs. In 5 out of 8 studies all participants were female, this skewed distribution could have influenced results. Since group therapy capitalizes on social aspects, it might be that the large amount of female participants in these studies inflates effects. In addition, for male CSA victims specifically, therapeutic benefits of group treatment have been implicated to be insufficient for alleviating their symptoms, which can deflate overall treatment effects (Grayston & De Luca, 1995). Half of the samples exist solely out of adolescents. Although this will limit generalizability of the results for the entire population of CSA victims, it does

fit the notion that group treatment is the preferred treatment for adolescents. Not all outcomes measure constructs directly related to experiencing CSA. Especially, the measures reflecting social skills differ, but might have been included since group treatment is preeminently a form of treatment that calls upon social skills for the core activity of sharing experiences and working mechanism of creating social support.

Roughly 80% of these outcome measures were informed by the children themselves, since most were of adolescent age. Other informants were parents and, in one instance, teachers. For only 20% of 49 outcome measures, there were results found favoring the group treatment over the control condition. Most and largest effects were found for abuse-related fear, post-traumatic stress symptoms, internalizing symptoms, anxiety, depression, conduct problems and prosocial behavior, because of comparisons to WL control groups. Smaller and less effects were found when group therapy was compared to a different type of treatment: only then group therapy was able to enhance self-concept and the ability to recognize abuse more than the control therapy.

Other treatments

Included in the ‘other treatments’-category were six studies based on three samples regarding effectiveness of EMDR, PE-A and filial therapy. Synthesizing results in this distinguished category is of not relevant, since all were researched in their own individual sample which makes cross-comparisons unnecessary. However, what does stand out is that researchers studying PE-A and EMDR both chose to compare to a different treatment type. No effects were found favoring EMDR above CBT, but PE-A was favored above CCT for PTSD, depressive and behavioral symptoms. Comparing to a no treatment control group, filial therapy still did not find any significant reduction of symptoms.

Limitations and future directions for effectiveness studies

The above analysis of findings per treatment category brings us to some general remarks. Having reviewed all included studies in detail, some limitations need to be addressed. A first limitation is the small sample size of most studies. In aiming to uncover evidence for effectiveness for a certain type of treatment, larger samples need to be addressed, because most included sample sizes cannot single-handedly lead to solid evidence, regardless of RCT design. As prevalence rates of CSA are quite high, this should be possible and is recommended as future direction. However, we do acknowledge that an estimated 40% of

CSA victims is asymptomatic, which limits number of referrals and possible participants for research. Also regarding sample, we found female children overrepresented in most samples. We do not consider this a limitation, however, since prevalence rates show that female children are more at risk for CSA and so, also probably referred to treatment more often.

Second, there are some limitations to be made regarding study designs. A very wide array of constructs was measured using an even wider supply of psychometric instruments. Regardless of the fact that CSA might amount to multiple symptoms, the large quantity of different instruments used seems excessive. On top of measuring CSA-related symptoms of PTSD, depression, anxiety and sexualized behavior, there were additional constructs measured, e.g. social competence, in many publications. These added measurements were insufficiently shown to relate to CSA or the specific aims of treatment at hand. We consider this to be a limitation and recommend more justification of such methodological choices for future research.

Adding to this, we found a substantial amount of outcome measures being parent-reported. In studying young children, this is to be expected. However, it could lead to enhanced effectiveness when parents experience so many positive emotions about their child being helped in treatment, that they overreport symptom changes. Also, we found studies including parents in treatment and using them as informants after, which might lead to even further inflated effects due to treatment-related changes in the parents themselves. In general, we support the use of multi-informant data, but also encourage future researchers to more deliberately consider the use of parent reports and report on specific reasons as to why and how this would benefit their research.

A third study design-related limitation is the absence of longer term follow-ups. Fourteen of 31 studies included follow-up measurements, but these measurements often stretched no further than weeks or months after treatment. Combining findings that CSA can influence developmental trajectory in different ways and ‘sleeper effects’ of treatment were observed for CBT-SAP and TF-CBT, it is recommended to prioritize including follow-up measurements in future research. To conclude, an important strength in study design for most included studies is that for the vast majority of studies duration and intensity of the experimental and control condition was the same. This enlarges the possibility of correctly attributing favoring effects to the experimental treatment at hand and so, should be continuously applied in future research.

At last, some final considerations need to made regarding the effects that were shown by included studies. Partly explained by the large number of measures used for different constructs, we found inconsistent findings in all treatment categories: effects that were found for particular symptoms in one study, lacked in another when cross-compared. These inconsistencies were complicated by the fact that researchers used different types of control groups (no treatment, TAU, WL or various other treatments). Of particular interest here is that we concluded that comparison to TAU yielded most effects for CBT, TF-CBT and group treatment, which is, again, ambiguous since the studies comparing TF-CBT and group treatment to TAU use non-Western samples (respectively, Zambian and Congolese) in which the extent and severity of CSA-experiences might not be comparable to the experiences of Western victims. A third and last non-Western sample of Iranian girls, however, failed to show any treatment effect, ruling out the alternative explanation that non-Western CSA-victims would benefit more from treatment in general.

Conclusion and future directions for the field of CSA-treatment

Overall, we conclude that due to limitations stated above, it is difficult to label one treatment type as ‘best practice’. Analyzing subgroups leads to the conclusion that general CBT is most effective in reducing PTSD, depression, anxiety, fear, behavioral problems and general functioning for early adolescent girls with (sub)clinical levels of PTSD. Regarding CSA-adapted CBT, SAS-CBT was found to be specifically benefitting for depression in early adolescent non-symptomatic girls, whereas CBT-SAP was found effective for reducing behavior problems in preschoolers with behavioral symptoms. Subgroup analysis of participants enrolled in group treatment remained rather specific: for asymptomatic preadolescent girls the main effects found regarded depression, anxiety, abuse-related fear and internalizing problems, whereas asymptomatic adolescent girls primarily benefit from treatment with regard to their self-concept. Sexually exploited Congolese girls had largest reductions in their PTSD-symptoms, depression, anxiety and conduct problems, whereas their prosocial behavior increased. Group treatment was also effective for learning to recognize abuse in preschool-aged boys and girls. PE-A was found able to reduce PTSD, depression and behavioral problems in adolescent girls. The most researched treatment type included was TF-CBT. This treatment type was researched with the most rigorous study designs and found effects for depression, anxiety, (specifically internalizing) behavioral problems and functional impairments for (predominantly) early adolescent girls with and without (sub)clinical PTSD. For the girls with (sub)clinical PTSD specifically, TF-CBT positively altered perceptions of

credibility, trust and shame.

Therefore, our findings are in line with that of Greenspan et al. (2013), who found that TF-CBT was most researched but for all treatments there was at least 'some' evidence. These researchers also concluded effectiveness studies were in their infancy and symptom reduction did not seem very dependent on the exact type of treatment. Initially, our review seems to extend this statement since we found effects for most distinguished treatment types. However, virtually all effective treatments included were derivatives of CBT, for which the evidence base was previously found to be weaker than implied in most research (MacDonald et al., 2012).

This conclusion brings us to our main recommendation for furthering field. Since findings per treatment type were inconsistent, no specific treatment can be undeniably deemed effective. Therefore, a more fruitful approach could be researching effectiveness of different treatment components. As our research question indicates, we had expected to find such studies already, but there only seems to be a limited amount. Our review identified four of these studies, investigating additions of sertraline to TF-CBT, general pharmacotherapy to CBT, TN to TF-CBT and group sessions to family/network treatment. Whereas the additions made to CBT and family/network treatment did not make a difference, the additions of sertraline and TN did enhance TF-CBT-effects on some outcome measures. Despite the fact that pharmacotherapy has not been widely accepted as ideal for use in children, research has shown rapid increases of use in practice over the last decades (Magno Zito et al., 2003). Multiple studies have also led to the widespread acceptance of disclosure and TN to CSA-recovery (Greenspan et al., 2013).

Therefore, our final recommendation is that more efforts should be designed to investigate effectiveness of treatment components. As our review showed, comparing entire treatments on the basis of a wide range of study designs is challenging and therefore we suggest to switch to smaller units of analysis in order to further the field faster. We suggest that this, on the one hand, can provide possibilities for catch-up with regards to fast developing other fields of children's psychotherapy (e.g. earlier mentioned serious gaming) and on the other hand, can enhance effectiveness of existing therapies within this field more easily by opening up possibilities for designing and incorporating new perspectives.

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Appendix A.1

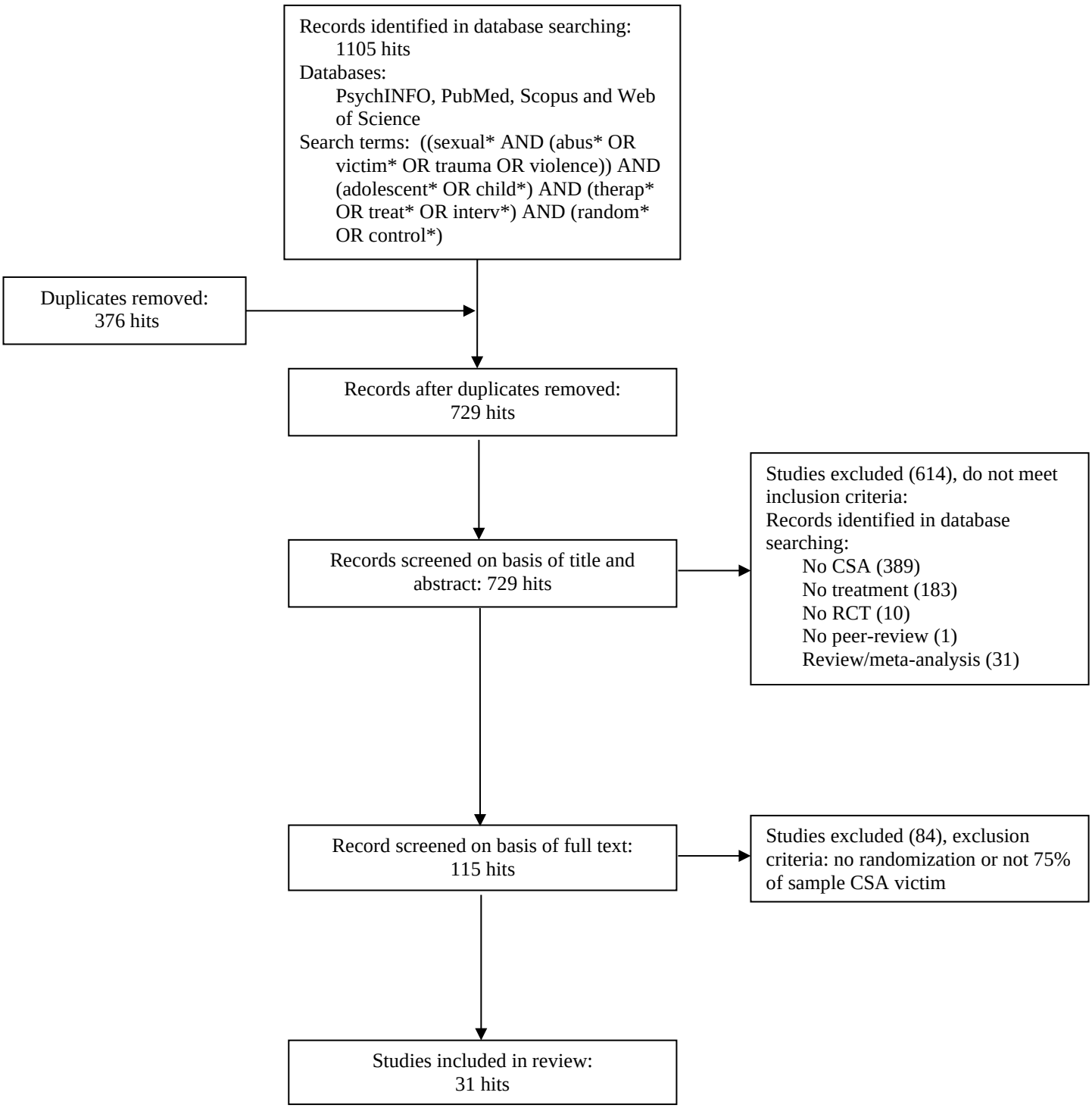

Figure 1. Flow-chart of literature search process.

Appendix A.2

Table 1. Study data extracted from 31 included publications.

Author	Sample code	Experimental condition (EG)	Duration	Control condition (CG)	Duration	N	%F	Mage	Sample type	Random	Ts	Measurement construct	Informant	Findings (time)	Effect size	Findings (time*group)	Effect size
Baker, 1985	baker	Group therapy	6 weeks	Individual therapy	10 weeks	39	100%	13-17	.	.	2	Self-concept	Child	ns	.	ΔEG > ΔCG	.
												Anxiety	Child	ns	.	ns	.
												Depression	Child	ns	.	ns	.
Bassett Costas, 1998	bassettcostas	Filial therapy	10 weeks	No treatment	10 weeks	26	68%	4-10	.	N	2	Behavioral symptoms	Parent	ns	.	ns	.
												Self-concept	Child	ns	.	ns	.
												Anxiety	Child	ns	.	ns	.
												Emotional disturbance	Child	ns	.	ns	.
Berliner & Saunders, 1996	berliner	Group therapy with SIT and gradual exposure	10 weeks	TAU (group)	10 weeks	80	89%	8.3	.	Y	4	Total anxiety	Child	T0 < T1 < T2 < T3	.	ns	.
												Physiological anxiety	Child	T0 < T1 < T2 < T3	.	ns	.
												Worry and oversentivity	Child	ns	.	ns	.
												Concentration anxiety	Child	ns	.	ns	.
												Total fear	Child	ns	.	ns	.
												Failure and criticism	Child	ns	.	ns	.
												Fear of unknown	Child	T0 < T1 < T2 < T3	.	ns	.
												Injury and small animals	Child	T0 < T1 < T2 < T3	.	ns	.
												Danger and death	Child	T0 < T1 < T2 < T3	.	ns	.
												Medical fears	Child	ns	.	ns	.
												Sex-associated fears	Child	T0 < T1 < T2 < T3	.	ns	.
												Interpersonal discomfort	Child	T0 < T1 < T2 < T3	.	ns	.
												Depression	Child	T0 < T1 < T2 < T3	.	ns	.
												Total behavioral score	Child	T0 < T1 < T2 < T3	.	ns	.
												Social competence	Parent	ns	.	ns	.
												Internalizing behavior	Parent	T0 < T1 < T2 < T3	.	ns	.
												Externalizing behavior	Parent	T0 < T1 < T2 < T3	.	ns	.
												Sexual behavior	Parent	T0 < T1 < T2 < T3	.	ns	.
Burke, 1988	burke	Group therapy	.	WL	.	25	100%	8-13	.	Y	3	Depression	Child	ns	.	T0-(T1=T2): ΔEG > ΔCG	.
												Anxiety	Child	ns	.	T0-(T1=T2): ΔEG > ΔCG	.
												General fear (total score)	Child	ns	.	ns	.
												Fear regarding sexual abuse	Child	ns	.	T0-(T1=T2): ΔEG > ΔCG	.
												Internalizing behavior	Parent	ns	.	T0-(T1=T2): ΔEG > ΔCG	.
Celano et al., 1996	celano	RAP	8 weeks	TAU	8 weeks	32	100%	10.5	.	Y	.	Externalizing behavior	Parent	T0 < T1	.	ns	.
												Internalizing behavior	Parent	T0 < T1	.	ΔCG > ΔEG	.
												PTSD symptoms	Parent	T0 < T1	.	ns	.
												PTSD-symptoms/trauma beliefs	Child	T0 < T1	.	ns	.
												Global functioning	Child	T0 < T1	.	ns	.
Cohen & Mannarino, 1996	cohen1	CBT-SAP	12 sessions	NST	.	67	58%	4.7	Symptomatic	Y	2	Social competence	Parent	ns	.	ns	.
												Total score behavior problems	Parent	EG: T0 < T1, CG: T0 = T1	.	ΔEG > ΔCG	.
												Externalizing behavior	Parent	EG: T0 < T1, CG: T0 = T1	.	ns	.
												Internalizing behavior	Parent	EG: T0 < T1, CG: T0 = T1	.	ΔEG > ΔCG	.
												Sexualized behaviors	Parent	EG: T0 < T1, CG: T0 = T1	.	ns	.
												Problematic behaviors (type)	Parent	EG: T0 < T1, CG: T0 = T1	.	ns	.
												Problematic behaviors (total)	Parent	T0 < T1	.	ns	.
												Affective symptoms	Child	ns	.	ns	.
Cohen & Mannarino, 1997	cohen1	CBT-SAP	12 sessions	NST	.	43	56%	5.8	Symptomatic	Y	4	Social competence	Parent	EG: T0 < T1 = T2, CG: T1 = T2 = T3	.	ns	.
												Total score behavior problems	Parent	EG: T0 < T1 = T2, CG: T1 < T2 = T3, T1 = T3	.	T0-T3: ΔEG > ΔCG	.
												Externalizing behavior	Parent	EG: T0 < T1 = T2, CG: T1 = T2 = T3	.	T0-T3: ΔEG > ΔCG	.

												Internalizing behavior	Parent	EG: T0 < T1 = T2, CG: T1 = T2 = T3	.	T0-T3: ΔEG > ΔCG	.
												Sexualized behaviors	Parent	EG: T0 < T1 = T2, T1 < T3, CG: T1 = T2 = T3	.	ns	.
												Problematic behaviors (type)	Parent	EG: T0 < T1 = T2 < T3, T1 < T3, CG: T1 = T2 = T3	.	T0-T3: ΔEG > ΔCG	.
												Problematic behaviors (total)	Parent	EG: T0 < T1 = T2 < T3, CG: T1 = T2 = T3	.	T0-T3: ΔEG > ΔCG	.
Cohen & Mannarino, 1998	cohen2	SAS-CBT	12 weeks	NST	12 weeks	49	69%	11.1	.	Y	2	Behavioral symptoms	Parent	T0 < T1	.	ns	.
												Social competence	Parent	ns	.	ΔEG > ΔCG	.
												Internalizing behavior	Parent	ns	.	ns	.
												Externalizing behavior	Parent	ns	.	ns	.
												State anxiety	Child	T0 < T1	.	ns	.
												Trait anxiety	Child	T0 < T1	.	ns	.
												Depression	Child	T0 < T1	.	ΔEG > ΔCG	.
												Sexual behavior	Parent	T0 < T1	.	ns	.
Cohen et al., 2004	cohen3	TF-CBT	12 weeks	CCT	12 weeks	203	79%	10.8	(Sub)clinical PTSD	Y	2	Reexperiencing	Child/parent	T0 < T1	.	ΔEG > ΔCG	Small
												Avoidance	Child/parent	T0 < T1	.	ΔEG > ΔCG	Medium
												Hyperarousal	Child/parent	T0 < T1	.	ΔEG > ΔCG	Small
												Depressive symptoms	Child	T0 < T1	.	ΔEG > ΔCG	Small
												State/trait anxiety	Child	T0 < T1	.	ns	.
												Attributions of feeling different	Child	T0 < T1	.	ns	.
												Attributions of negative events	Child	T0 < T1	.	ns	.
												Attributions of credibility	Child	T0 < T1	.	ΔEG > ΔCG	Small
												Attributions of trust	Child	T0 < T1	.	ΔEG > ΔCG	Small
												Feelings of shame	Child	T0 < T1	.	ΔEG > ΔCG	Small
												Social competence	Parent	T0 < T1	.	ns	.
												Total score behavior problems	Parent	T0 < T1	.	ΔEG > ΔCG	Small
												Externalizing behavior	Parent	T0 < T1	.	ns	.
												Internalizing behavior	Parent	T0 < T1	.	ns	.
												Sexualized behaviors	Parent	T0 < T1	.	ns	.
Cohen et al., 2005	cohen2	TF-CBT	12 weeks	NST	12 weeks	49	69%	11.1	.	Y	4	Sexualized behaviors	Parent	T0 < T4	.	ns	.
												Depressive symptoms	Child	T0 < T4	.	T0-T4: ΔEG > ΔCG	.
												State anxiety	Child	T0 < T4	.	T0-T4: ΔEG > ΔCG	.
												State/trait anxiety	Child	T0 < T4	.	T0-T4: ΔEG > ΔCG	.
												Trauma symptoms: PTSD	Child	T0 < T4	.	ns	.
												Trauma symptoms: Anxiety	Child	T0 < T4	.	T0-T4: ΔEG > ΔCG	.
												Trauma symptoms: Depression	Child	T0 < T4	.	T0-T4: ΔEG > ΔCG	.
												Trauma symptoms: Sexual problems	Child	ns	.	T0-T4: ΔEG > ΔCG	.
												Trauma symptoms: Dissocation	Child	ns	.	ns	.
												Trauma symptoms: Anger	Child	ns	.	ns	.
												Social competence	Parent	T0 < T4	.	ns	.
												Total score behavior problems	Parent	T0 < T4	.	ns	.
												Externalizing behavior	Parent	ns	.	ns	.
												Internalizing behavior	Parent	T0 < T4	.	ns	.
Cohen et al., 2007	cohen4	TF-CBT with sertraline	12 sessions	TF-CBT with placebo	12 sessions	22	100%	10-17	PTSD symptoms	Y	5	Presence of PTSD	Child/parent	T0 < T4	.	ns	.
												Child's global impairment	Child	ns	.	T0-T4: ΔEG > ΔCG	Medium
												PTSD symptoms	Child	T0 < T4	.	ns	.
												Mood and feelings	Child	T0 < T4	.	ns	.
												Anxiety symptoms	Child	T0 < T4	.	ns	.
												Abuse-related attributions	Child	ns	.	ns	.
												Social competence	Parent	ns	.	ns	.
												Total score behavior problems	Parent	T0 < T4	.	ns	.
												Externalizing behavior	Parent	ns	.	ns	.
												Internalizing behavior	Parent	ns	.	ns	.
												Side effects psychotropic medication	Child/parent	ns	.	ns	.
Deblinger et al., 1996	deblinger1	EG1: Child only	12 weeks	TAU	.	90	83%	9.9	PTSD	Y	2	PTSD symptoms	Child/parent	ns	.	ΔEG1, ΔEG3 > ΔEG2, ΔCG	.

		EG2: Mother only EG3: Child and mother							symptoms (3 minimum)			State anxiety	Child	ns	.	ns	.
												Trait anxiety	Child	ns	.	ns	.
												Depression	Child	ns	.	ΔEG2, ΔEG3 > ΔEG1, ΔCG	.
												Internalizing behavior	Parent	ns	.	ns	.
												Externalizing behavior	Parent	ns	.	ΔEG2, ΔEG3 > ΔEG1, ΔCG	.
Deblinger et al., 1999	deblinger1	EG1: Child only EG2: Mother only EG3: Child and mother	12 weeks	TAU	.	90	83%	9.9	PTSD symptoms (3 minimum)	nr	5	PTSD symptoms	Child	T1 = T2 = T3 = T4 = T5	.	ns	.
												Depression	Child	T1 = T2 = T3 = T4 = T5	.	ns	.
												Externalizing behavior	Parent	T1 = T2 = T3 = T4 = T5	.	ns	.
Deblinger et al., 2001	deblinger2	CBT-group	11 sessions	Supportive group	11 sessions	44	61%	5.5	44 mother and child dyads	Y	3	PTSD symptoms	Parent	T0 < T1 = T2	Medium	ns	.
												Social and behavioral functioning	Parent	T0 < T1 = T2	Small/medium	ns	.
												Sexual behavior	Parent	T0 < T1 = T2	Small/medium	ns	.
												Recognizing abuse	Child	T0 < T1 = T2	Small/medium	T0-T1: ΔEG > ΔCG, T1-T2: ns	.
Deblinger et al., 2006	cohen2	TF-CBT	12 weeks	CCT	12 weeks	155	.	8-14	.	.	4	Reexperiencing	Child/parent	T1 < T2 < T3	Small	ns	.
												Avoidance	Child/parent	T1 < T2 < T3	Small	ns	.
												Hyperarousal	Child/parent	T1 < T2 < T3	Small/medium	ns	.
												Depressive symptoms	Child	T1 < T2, T3	Small	ns	.
												Trait anxiety	Child	T1 < T2, T3	Small	ns	.
												State anxiety	Child	T1 < T2 = T3	Small	ns	.
												Attributions of feeling different	Child	ns	.	ns	.
												Attributions of negative events	Child	T1 < T2 = T3	Small	ns	.
												Attributions of credibility	Child	T1, T2 < T3	Small	ns	.
												Attributions of trust	Child	T1, T2 < T3	Small	ns	.
												Feelings of shame	Child	ns	.	ns	.
												Social competence	Parent	ns	.	ns	.
												Total score behavior problems	Parent	T1, T2 < T3	Small	ns	.
												Externalizing behavior	Parent	ns	.	T1-T3: ΔCG > ΔEG	.
												Internalizing behavior	Parent	ns	.	T1-T2: ΔCG > ΔEG, T2-T3: ΔEG > ΔCG	.
												Sexualized behaviors	Parent	ns	.	ns	.
Deblinger et al., 2011	deblinger3	TF-CBT with TN	EG1: 8 sessions EG2: 16 sessions	TF-CBT without TN	CG1: 8 sessions CG2: 16 sessions	158	61%	7.7	PTSD symptoms	Y	2	Reexperiencing	Child/parent	T0 < T1	.	ΔEG1, ΔCG1 > ΔEG2, ΔCG2	Small
												Avoidance	Child/parent	T0 < T1	.	ΔEG1, ΔCG1 > ΔEG2, ΔCG2	Small
												Hyperarousal	Child/parent	T0 < T1	.	ns	.
												Children's depression	Child	T0 < T1	.	ns	.
												Fear/discomfort	Child	T0 < T1	.	ΔEG > ΔCG	Medium
												Global anxiety	Child	T0 < T1	.	ΔCG > ΔEG	Medium
												Feelings of shame	Child	T0 < T1	.	ns	.
												Recognizing abuse	Child	T0 < T1	.	ns	.
												Internalizing behavior	Parent	T0 < T1	.	ns	.
												Externalizing behavior	Parent	T0 < T1	.	ΔCG > ΔEG	Small
												Sexualized behaviors	Parent	T0 < T1	.	ns	.
Dominguez, 2001	dominguez	CBT	20 sessions	Supportive treatment	20 sessions	25	76%	10.2	.	Y	9-10	Internalizing behavior	Parent	ns	.	ns	.
												Externalizing behavior	Parent	ns	.	ns	.
												Total behavioral score	Parent	ns	.	ns	.
												Internalizing behavior	Child	ns	.	ns	.
												Externalizing behavior	Child	ns	.	ns	.
												Total behavioral score	Child	ns	.	ns	.
												Self-concept	Child	ns	.	ns	.
												Depression	Child	Decelerating decline	.	ns	.
												Intrusive thoughts	Child	Linear decline	.	ns	.
												Avoidance behaviors	Child	Decelerating decline	.	ns	.

Foa et al., 2013	foa	PE-A	8-14 weeks	CCT	8-14 weeks	61	100%	15.3	(Sub)clinical PTSD	Y	6	PTSD symptoms	Child	T0 < T2	Large	T0-T2: ΔEG > ΔCG, T0-T5: ΔEG > ΔCG, T2-T5: ΔEG = ΔCG	T0-T2, T0-T5: Large
												Presence of PTSD	Child	T0 < T2	.	T0-T2: ΔEG > ΔCG, T0-T5: ΔEG > ΔCG, T2-T5: ΔEG = ΔCG	.
												PTSD severity	Child	T0 < T2	.	T0-T2: ΔEG > ΔCG, T0-T5: ΔEG > ΔCG, T2-T5: ΔEG = ΔCG	.
												Depression severity	Child	T0 < T2	.	T0-T2: ΔEG > ΔCG, T0-T5: ΔEG > ΔCG, T2-T5: ΔEG = ΔCG	.
												General functioning	Child	T0 < T2	.	T0-T2: ΔEG > ΔCG, T0-T5: ΔEG > ΔCG, T2-T5: ΔEG = ΔCG	.
Hyde et al., 1995	hyde	Family/network therapy with group sessions	Sessions at 4-6 week intervals	Family/network therapy	Sessions at 4-6 week intervals	47	15%	4-16	.	Y	2	Child health and behavior	Parent	T0 < T1	.	ns	.
												Depressive symptoms	Child	T0 < T1	.	ns	.
												Self-esteem	Child	ns	.	ns	.
												Perceived competence/acceptance	Child	ns	.	ns	.
												Family relations	Child	ns	.	ns	.
												Behavior problems	Teacher	ns	.	ns	.
Jaberghaderi et al., 2004	jaberghaderi	EMDR	6 sessions	CBT	12 sessions	14	100%	12-13	Iranian	Y	2	PTSD symptoms	Child	T0 < T1	Large	ns	.
												PTSD symptoms	Parent	T0 < T1	Large	ns	.
												Behavior problems	Teacher	T0 < T1	Medium	ns	.
Kaczkurkin et al., 2016	foa	PE-A	8-14 weeks	CCT	8-14 weeks	61	100%	15.3	PTSD	Y	6	PTSD symptoms	Child	T0 < T1 < T2 = T3 = T4 = T5	.	High state anger-group: ΔEG > ΔCG	Medium
Kane et al., 2016	kane	TF-CBT	10-12 weeks	TAU	.	46	50%	13.7	Orphans with PTSD	Y	2	Trauma symptoms	Child	ns	.	ΔEG > ΔCG	Large
												Functional impairment	Child	ns	.	ΔEG > ΔCG	Large
King et al., 2000	king	EG1: CBT	20 weeks	WL	.	36	69%	11.4	(Sub)clinical PTSD	Y	3	PTSD symptoms (total)	Child	ns	.	T0-T1: ΔEG1, ΔEG2 > ΔCG, T0-T2: ΔEG1, ΔEG2 > ΔCG	.
		EG2: Family-CBT										Avoidance	Child	ns	.	T0-T1: ΔEG1, ΔEG2 > ΔCG, T0-T2: ΔEG1, ΔEG2 > ΔCG	.
												Hyperarousal	Child	ns	.	T0-T1: ΔEG1, ΔEG2 > ΔCG, T0-T2: ΔEG1 = ΔEG2 = ΔCG	.
												Reexperiencing	Child	ns	.	T0-T1: ΔEG1, ΔEG2 > ΔCG, T0-T2: ΔEG1 = ΔEG2 = ΔCG	.
												Fear	Child	ns	.	T0-T1: ΔEG1, ΔEG2 > ΔCG, T0-T2: ΔEG1, ΔEG2 > ΔCG	.
												Coping with CSA-related symptoms	Child	ns	.	ns	.
												Trait anxiety	Child	ns	.	T0-T1: ΔEG1 = ΔEG2 = ΔCG, T0-T2: ΔEG1, ΔEG2 > ΔCG	.
												Depressive symptoms	Child	ns	.	ns	.
												Behavioral symptoms	Parent	ns	.	T0-T1, T0-T2: ΔEG1 = ΔEG2 = ΔCG	.
												PTSD symptoms	Parent	ns	.	T0-T1: ΔEG1, ΔEG2 > ΔCG, T0-T2: ΔEG1, ΔEG2 > ΔCG	.
												General functioning	Clinician	ns	.	T0-T1: ΔEG1, ΔEG2 > ΔCG, T0-T2: ΔEG1, ΔEG2 > ΔCG	.
Mannarino et al., 2012	deblinger3	TF-CBT with TN	EG1: 8 sessions EG2: 16 sessions	TF-CBT without TN	CG1: 8 sessions CG2: 16 sessions	158	62%	7.6	PTSD symptoms	Y	3	Reexperiencing	Child/parent	ns	.	ns	.
												Avoidance	Child/parent	ns	.	ns	.
												Hyperarousal	Child/parent	ns	.	ns	.
												Children's depression	Child	ns	.	ns	.
												Fear/discomfort	Child	ns	.	ns	.
												Global anxiety	Child	T0 < T2	Medium	ns	.
												Feelings of shame	Child	ns	.	ns	.
												Recognizing abuse	Child	ns	.	ns	.
												Parental depression	Parent	ns	.	ns	.
												Internalizing behavior	Parent	ns	.	ns	.

											Externalizing behavior	Parent	ns	.	ns	.
											Sexualized behaviors	Parent	ns	.	ns	.
McLean et al., 2015	foa	PE-A	14 weeks	CCT	14 weeks	61	100%	15.3	(Sub)clinical PTSD	Y	6	PTSD symptom severity	Child	ns	.	ΔEG > ΔCG	.
												Negative post-trauma cognitions	Child	ns	.	ΔEG > ΔCG	.
												Depression severity	Child	ns	.	ΔEG > ΔCG	.
O'Callaghan et al., 2013	o'callaghan	TF-CBT group	15 sessions in 5 weeks	WL	.	52	100%	16.0	Exploited Congolese girls	Y	3	PTSD and traumatic stress	Child	T0 < T2; T1 = T2	Large	ΔEG > ΔCG	Large
												Depression/anxiety	Child	T0 < T2; T1 < T2	Large; medium	ΔEG > ΔCG	Large
												Conduct problems	Child	T0 < T2; T1 = T2	Large	ΔEG > ΔCG	Large
												Prosocial behavior	Child	T0 < T2; T1 < T2	Large; medium	ΔEG > ΔCG	Medium
Shamseddeen et al., 2011	shamseddeen	Pharmacotherapy with CBT	12 weeks	Pharmacotherapy	6 weeks	55	.	.	Resistant depression	Y	3	Depression	Child	ns	.	ns	.
												Clinical improvement	Child	ns	.	ns	.
Thun et al., 2002	thun	Group therapy	12 weeks	No treatment	.	13	100%	16-18	At-risk youth	Y	2	Body image	Child	ns	.	ns	.
												Self reliance	Child	EG: T0 = T1, CG: T0 > T1	.	ns	.
												Self confidence	Child	ns	.	ns	.
												Impulse control	Child	EG: T0 < T1, CG: T0 = T1	.	ns	.
Trowell et al., 2002	trowell	Psychoeducational group therapy	Up to 18 sessions	Focused individual therapy	Up to 30 sessions	71	100%	10.0	Emotional, behavioral symptoms	Y	4	Global impairment of functioning	Child	T0 < T1 < T2	.	T0-T1: ΔEG = ΔCG	.
												Reexperiencing	Child	T0 < T1 = T2	.	T0-T1: ΔEG = ΔCG, T0-T2, T3: ΔEG > ΔCG	.
												Avoidance	Child	T0 < T1 = T2	.	T0-T1, T2, T3: ΔEG = ΔCG	.
												Hyperarousal	Child	T0 < T1 = T2	.	ns	.
Verleur et al., 1986	verleur	Group therapy with sexual education	Weekly sessions for 6 months	No treatment	.	30	100%	13-17	Incest victims	Y	2	Self-esteem, self-concept	Child	T0 < T1	.	ns	.
												Sexual awareness: physiology	Child	EG: T0 < T1, CG: T0 = T1	.	ns	.
												Sexual awareness: anatomy	Child	EG: T0 < T1, CG: T0 = T1	.	ns	.
												Sexual awareness: venereal disease	Child	EG: T0 < T1, CG: T0 = T1	.	ns	.
												Sexual awareness: birth control	Child	EG: T0 < T1, CG: T0 = T1	.	ns	.
Zandberg et al., 2016	foa	PE-A	8-14 weeks	CCT	8-14 weeks	61	100%	15.33	(Sub)clinical PTSD	Y	6	Anxiety/Depression	Child	T0 < T6	.	ns	.
												Withdrawn/Depression	Child	T0 < T6	.	ns	.
												Somatic Complaints	Child	T0 < T6	.	ΔEG > ΔCG	Medium
												Social Problems	Child	T0 < T6	.	ns	.
												Thought Problems	Child	T0 < T6	.	ns	.
												Attention Problems	Child	T0 < T6	.	ΔEG > ΔCG	Medium
												Rule Breaking	Child	T0 < T6	.	ΔEG > ΔCG	Medium
												Aggressive Behavior	Child	T0 < T6	.	ΔEG > ΔCG	Medium
												Internalizing	Child	T0 < T6	.	ΔEG > ΔCG	Small
												Externalizing	Child	T0 < T6	.	ΔEG > ΔCG	Medium
												Total behavioral score	Child	T0 < T6	.	ΔEG > ΔCG	Medium
												DSM Affective Problems	Child	T0 < T6	.	ΔEG > ΔCG	Small
												DSM Somatic Problems	Child	T0 < T6	.	ns	.
												DSM ADHD	Child	T0 < T6	.	ns	.
												DSM ODD	Child	T0 < T6	.	ns	.
												DSM Conduct Problems	Child	T0 < T6	.	ΔEG > ΔCG	Medium
												Obsessive-Compulsive Problems	Child	T0 < T6	.	ns	.
												Posttraumatic Stress Problems	Child	T0 < T6	.	ns	.
												Positive Qualities	Child	T0 < T6	.	ns	.

Note. Table reflects data extracted for the purpose of comparative analysis. Characteristics of therapy, samples used and study designs are given. ‘Ts’ implies number of measurement, with ‘2’ meaning a pretest and posttest, and >2 meaning including some follow-up (ranging from weeks to years after treatment).

Measurement constructs reflect the outcomes as measured by chosen measurement instruments, the same constructs are, at times, measured by different instrument. All findings stated are significant, ‘ns’ means no significance was found. Findings are stated in such a way that they reflect a more

positive outcome for the child, e.g. ‘T0 < T6’ for anxiety implies that at T6 (follow-up) children performed better/more positive with regards to anxiety (i.e. reporting lower anxiety levels) in comparison to T0. For time*group findings ‘Δ’ was used as notation for change and again, findings were stated on the basis of performance level at outcomes. E.g. ΔEG > ΔCG for conduct problems (when number of Ts is ‘2’) means that the change between pretest and posttest is larger for children in the experimental condition than in the control condition: i.e., children in the experimental condition showed a larger decrease in conduct problems than children in the control condition between pretest and posttest. All effect sizes were computed with Cohen’s *d* and checked for classification as ‘small’ ‘medium’ or ‘large’ by the authors. For all columns, notation of ‘.’ means the specific information was not found in the article.

Appendix B. Codebook full-text screening

Authors + date

Sample code

- When there are studies using the same samples/participants, they are marked with the same code.

Experimental condition

- Experimental group
  Which type of therapy was object of research? Which type of therapy did participants in the experimental group receive? Abbreviation will suffice here.
- When it is unclear which treatment type can be considered the experimental group, the hypotheses of the study will be guiding.

Control condition

- Control group
  Which type of control group was used? Alternative treatment, treatment as usual [TAU], wait-list condition [WL], no treatment?

Duration (experimental/control condition)

- Any information relating to the intensity of treatment. How many times a week/month? How many months does the total treatment trajectory last? Number of sessions totally received?
- Most treatments will take place with weekly sessions and therefore state, for example, ‘8 weeks’ instead of ‘8 sessions’. When only the number of sessions is provided, we do state ‘8 session’.
- When the study includes a no treatment- or wait list-control group, only duration/sessions of the experimental group are stated. When there is another treatment type functioning as control group and duration/sessions differ from that of the experimental group, this information is also stated in this column.

N

- Total sample size

%F

- Percentage of female participants in the study.
- When descriptive statistics are indicated for experimental versus control group separately, an overall mean is calculated.

Mage

- Mean age of participants.
- When there is no mean age stated, this column will include information on the age range of participants.
- When descriptive statistics are indicated for experimental versus control group separately, an overall mean is calculated.

Sample type

- Any information regarding the type of sample (other than being CSA-victim and ≤ 18), for example regarding present psychopathology (PTSD, known anxiety disorders, limited to intrafamilial abuse victims, only rape victims, specificity regarding ethnicity of participants, etc.).

Random [Y/N/.]

- Was randomization successful i.e. were EG and CG sufficiently similar? Are there any differences between groups (that could influence results) stated by researchers?
- Answering 'Y' or 'N' can be based on explicitly stated information or provided tables/figures.
- Extra measures undertaken by researchers to enhance group similarity do not prohibit answering 'Y' in this column.
- '.' is stated, when there is no information provided regarding similarity of groups.

Number of Ts

- How many times did researchers conduct a certain measurement?
- Since only RCTs were included, minimum value in this column is '2' for a pretest and posttest. When there is a higher amount stated in this column, there was at least one follow-up measure conducted at some time after posttest.

Measurement construct

- Measurements constructs reflect the outcomes measured within each sample.
- The measurement constructs stated were listed as a result of what researchers explicitly stated or were derived from the measurements instruments used.

Informant

- Measurement type used by researcher, relating to the source of information gained.
- Example of possible input: Parent report.

Findings (time)

- Significant differences regarding pretest and posttest(s) (and possibly follow-ups) are stated here for the experimental group(s) in order to conclude whether the treatment type was effective in reducing symptoms.
- Findings are stated in such a way that '>' reflects an improvement i.e. more positive situation than previous for the child whereas '<' reflects a diminishment i.e. more negative situation than previous for the child. This is unrelated to the direction of measurement of the instrument used. For example: when the treatment decreases depressive symptoms for the treated children, this is reflected as T0 > T1.
    - Follow-up measures (T2 … Tx) can, hypothetically, be worse than the initial post-treatment measure.
- Only significant differences are stated in this column, when there are no significant effects of time, this is reflected by 'ns'.
- In case of omission of certain outcomes, we assume there is non-significance found and so 'ns' will be stated.

Effect size (time-effect)

- Qualification of effect size found/stated by authors regarding signifcant differences within the group.
- This column will state 'small', 'medium', 'large' or a combination of these depending on the measure of effect size used.
- When there is no effect (in case of 'ns'), this column will contain '.'.

Findings (time * group)

- Significant differences in the amount of change found for the different groups (EG/CG).
- Changes are reflected by the use of 'Δ'.
- '>' and '<' are used according to their usual meaning, '=' is used when there are no significant changes between change in EG(s) and change in CG(s).
- Only significant differences are stated in this column, when there are no significant effects of time, this is reflected by 'ns'.
- In case of omission of certain outcomes, we assume there is non-significance found and so 'ns' will be stated.

Effect size (time * group-effect)

- Qualification of effect size found/stated by authors regarding significant differences between the changes in different groups.
- This column will state 'small', 'medium', 'large' or a combination of these depending on the measure of effect size used.
- When there is no effect (in case of 'ns'), this column will contain '.'.