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Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents. — Source link

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Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents (Review)

Gillies D, Taylor F, Gray C, O'Brien L, D'Abrew N

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[Intervention Review]

Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

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ABSTRACT

Background

Post-traumatic stress disorder (PTSD) is highly prevalent in children and adolescents who have experienced trauma and has high personal and health costs. Although a wide range of psychological therapies have been used in the treatment of PTSD there are no systematic reviews of these therapies in children and adolescents.

Objectives

To examine the effectiveness of psychological therapies in treating children and adolescents who have been diagnosed with PTSD.

Search methods

We searched the Cochrane Depression, Anxiety and Neurosis Review Group's Specialised Register (CCDANCTR) to December 2011. The CCDANCTR includes relevant randomised controlled trials from the following bibliographic databases: CENTRAL (the *Cochrane Central Register of Controlled Trials*) (all years), EMBASE (1974 -), MEDLINE (1950 -) and PsycINFO (1967 -). We also checked reference lists of relevant studies and reviews. We applied no date or language restrictions.

Selection criteria

All randomised controlled trials of psychological therapies compared to a control, pharmacological therapy or other treatments in children or adolescents exposed to a traumatic event or diagnosed with PTSD.

Data collection and analysis

Two members of the review group independently extracted data. If differences were identified, they were resolved by consensus, or referral to the review team.

We calculated the odds ratio (OR) for binary outcomes, the standardised mean difference (SMD) for continuous outcomes, and 95% confidence intervals (CI) for both, using a fixed-effect model. If heterogeneity was found we used a random-effects model.

Main results

Fourteen studies including 758 participants were included in this review. The types of trauma participants had been exposed to included sexual abuse, civil violence, natural disaster, domestic violence and motor vehicle accidents. Most participants were clients of a trauma-related support service.

The psychological therapies used in these studies were cognitive behavioural therapy (CBT), exposure-based, psychodynamic, narrative, supportive counselling, and eye movement desensitisation and reprocessing (EMDR). Most compared a psychological therapy to a control group. No study compared psychological therapies to pharmacological therapies alone or as an adjunct to a psychological therapy.

Across all psychological therapies, improvement was significantly better (three studies, n = 80, OR 4.21, 95% CI 1.12 to 15.85) and symptoms of PTSD (seven studies, n = 271, SMD -0.90, 95% CI -1.24 to -0.42), anxiety (three studies, n = 91, SMD -0.57, 95% CI -1.00 to -0.13) and depression (five studies, n = 156, SMD -0.74, 95% CI -1.11 to -0.36) were significantly lower within a month of completing psychological therapy compared to a control group.

The psychological therapy for which there was the best evidence of effectiveness was CBT. Improvement was significantly better for up to a year following treatment (up to one month: two studies, n = 49, OR 8.64, 95% CI 2.01 to 37.14; up to one year: one study, n = 25, OR 8.00, 95% CI 1.21 to 52.69). PTSD symptom scores were also significantly lower for up to one year (up to one month: three studies, n = 98, SMD -1.34, 95% CI -1.79 to -0.89; up to one year: one study, n = 36, SMD -0.73, 95% CI -1.44 to -0.01), and depression scores were lower for up to a month (three studies, n = 98, SMD -0.80, 95% CI -1.47 to -0.13) in the CBT group compared to a control. No adverse effects were identified.

No study was rated as a high risk for selection or detection bias but a minority were rated as a high risk for attrition, reporting and other bias. Most included studies were rated as an unclear risk for selection, detection and attrition bias.

Authors' conclusions

There is evidence for the effectiveness of psychological therapies, particularly CBT, for treating PTSD in children and adolescents for up to a month following treatment. At this stage, there is no clear evidence for the effectiveness of one psychological therapy compared to others. There is also not enough evidence to conclude that children and adolescents with particular types of trauma are more or less likely to respond to psychological therapies than others.

The findings of this review are limited by the potential for methodological biases, and the small number and generally small size of identified studies. In addition, there was evidence of substantial heterogeneity in some analyses which could not be explained by subgroup or sensitivity analyses.

More evidence is required for the effectiveness of all psychological therapies more than one month after treatment. Much more evidence is needed to demonstrate the relative effectiveness of different psychological therapies or the effectiveness of psychological therapies compared to other treatments. More details are required in future trials in regards to the types of trauma that preceded the diagnosis of PTSD and whether the traumas are single event or ongoing. Future studies should also aim to identify the most valid and reliable measures of PTSD symptoms and ensure that all scores, total and sub-scores, are consistently reported.

PLAIN LANGUAGE SUMMARY

Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Post-traumatic stress disorder (PTSD) is highly prevalent in children and adolescents who have experienced trauma and has high personal and health costs. The aim of this review was to examine the effectiveness of all psychological therapies for the treatment of PTSD in children and adolescents.

We searched for all randomised controlled trials comparing psychological therapies to a control, other psychological therapies or other therapies for the treatment of PTSD in children and adolescents aged 3 to 18 years. We identified 14 studies with a total of 758 participants. The types of trauma related to the PTSD were sexual abuse, civil violence, natural disaster, domestic violence and motor vehicle accidents. Most participants were clients of a trauma-related support service.

The psychological therapies used in the included studies were cognitive behavioural therapy (CBT), exposure-based, psychodynamic, narrative, supportive counselling, and eye movement desensitisation and reprocessing (EMDR). Most included studies compared a

psychological therapy to a control group. No study compared psychological therapies to medications or medications in combination with a psychological therapy.

There was fair evidence for the effectiveness of psychological therapies, particularly CBT, for the treatment of PTSD in children and adolescents for up to a month following treatment. More evidence is required for the effectiveness of psychological therapies in the longer term and to be able to compare the effectiveness of one psychological therapy to another.

The findings of this review are limited by the potential for bias in the included studies, possible differences between studies which could not be identified, the small number of identified studies and the low number of participants in most studies.

BACKGROUND

Description of the condition

Post-traumatic stress disorder (PTSD) is the development of characteristic symptoms following exposure to an extreme traumatic event. The characteristic symptoms of PTSD are re-experiencing the trauma, avoidance of stimuli associated with the trauma, and increased arousal (APA 2000; WHO 1990). Developmental factors can play a strong role in the presentation of PTSD (AACAP 1998; Carr 2004; Yule 1994). Children and adolescents may display symptoms of PTSD which are not seen in adults, such as behavioural problems, developmental regression, physical symptoms and more generalised fears (APA 2000; Schwarz 1994; Yule 2001). Under the Fourth Edition Diagnostic and Statistical Manual of Mental Disorders text revision (DSM-IV-TR) criteria for a PTSD diagnosis, symptoms must be present for at least a month and cause clinically significant distress or impairment in social, occupational or other important areas of functioning (APA 2000). However, these criteria may require amendment for the diagnosis of PTSD in young children (AACAP 2010; Scheeringa 1995). The types of traumatic events that may cause PTSD include natural and man-made disasters, war, physical or sexual abuse, violence to self or others, exposure to suicidal acts, serious injury and life-threatening illness such as cancer or severe burns (AACAP 1998; APA 2000; Parry-Jones 1995).

Post-traumatic stress disorder has a high prevalence and results in high personal and public health costs (Vickers 2005). Social and welfare costs for severe stress and PTSD were estimated to have been GBP 103,000,000 in the UK between 2003 and 2004 (NICE 2005). Although personal cost has not been quantified, multiple studies have noted the co-morbidity between PTSD and other psychiatric disorders, including depression and anxiety disorders, externalising disorders and substance use (APA 2000; Donnelly 2002; Perrin 2000; WHO 1990). In addition, anxiety and depression associated with PTSD are commonly associated with suicidal ideation (AACAP 1998; Donnelly 2002; WHO 1990). It is important, therefore, that negative outcomes such as emotional distress or mental health problems associated with PTSD are reduced in children diagnosed with PTSD.

Estimates of the prevalence of PTSD in children and adolescents who have experienced trauma vary widely. Estimates ranging from 2% to 100% have been cited in reviews of the literature, although most estimates are around 30% to 40% (AACAP 1998; Fletcher 2003; McNally 1996; Saigh 1996). This is consistent with an estimated prevalence of 36% based on a meta-analysis of 34 studies of 2697 children and adolescents who had been exposed to traumatic events (Fletcher 2003). The prevalence of PTSD appears to vary with a number of factors such as the gender and age of the child or adolescent, type of trauma, frequency and severity of exposure, and the amount of time since the traumatic event (Carr 2004; Donnelly 2002; Fletcher 2003; Foy 1996; Terr 1991; Yule 1994). Children and adolescents who have undergone complex trauma defined by repeated or chronic trauma, which is often of an interpersonal nature and begins early in life (Spinazzola 2005), may demonstrate different responses to children and adolescents who have undergone other forms of trauma (Ford 2009; van der Kolk 2005) and therefore may respond differently to different therapies for PTSD (Amaya-Jackson 2007).

Description of the intervention

Most of the literature for the effectiveness of psychological treatments for PTSD is based on preventive therapies in children and adolescents who have experienced trauma rather than the treatment of PTSD (e.g. Carr 2004; Fletcher 2003; Yule 1994; Yule 2001). A number of trauma-specific and generic psychological therapy approaches have been used in the treatment of PTSD for children and adolescents. Cognitive behavioural therapy (CBT) challenges the distorted, negative thinking patterns associated with the trauma in order to help people develop more adaptive cognitions and behaviours (Robertson 2004; Sones 2011). Because people who have undergone trauma often have impaired social and interpersonal responses, interpersonal therapy is used to im-

prove their social and interpersonal function (Robertson 2004). The aim of exposure therapy is to help patients overcome PTSD symptoms through exposure to specific or non-specific cues or memories related to the trauma (Neuner 2004; Robertson 2004). Because the fragmentation and distortion of memories and cognitions associated with trauma are thought to prevent symptom resolution, narrative therapy is used to help someone reconstruct a consistent narrative about the trauma (Neuner 2004). In psychodynamic psychotherapy an individual works with a therapist to develop a better understanding of their responses to the trauma and how it impacts on their feelings, behaviour and relationships (AACAP 2010; BluePages 2012; Foa 1997). In eye movement desensitisation and reprocessing (EMDR) the individual focuses on a disturbing image, memory, emotion or cognition associated with the trauma while the therapist initiates rapid voluntary eye movements (Bryant 2001; Robertson 2004). Other therapies include supportive counselling where counsellors give support, listen to people and help them talk over their problems (BluePages 2012). The major alternative to psychological therapies is pharmacological treatments (AACAP 1998; Donnelly 2002) but at the present time there is not enough evidence to recommend their use for the treatment of PTSD in children and adolescents, either as an alternative or adjunct treatment (NICE 2005). Other alternative treatments include relaxation, massage, hypnosis, attention control and behaviour reinforcement (AACAP 1998; Perrin 2000).

How the intervention might work

Despite the number of trauma therapy models, they are frequently difficult to characterise as a singular therapy as most include common elements. These may include psychoeducation elements which may help the traumatised child or adolescent to normalise PTSD reactions, psychodynamic elements which can help them to emotionally process the trauma and gain a better understanding of its meaning to them, exposure elements to desensitise them to trauma-related memories, cognitive behavioural elements to help them rethink assumptions and reactions to the traumatic event, and coping skills such as problem-solving, safety planning and anxiety management (AACAP 2010; Carr 2004; Robertson 2004; Sones 2011). Inclusion of the parent may enhance the effectiveness of these therapies with children and adolescents by improving parental recognition of trauma symptoms, their ability to help with their child's emotional distress and management of related behaviour problems (AACAP 2010).

Why it is important to do this review

This systematic review on the effectiveness of psychological therapies for the treatment of PTSD in children and adolescents is needed as a systematic review and meta-analysis of this topic has not yet been done. A review of psychological therapies for PTSD in adults published in *The Cochrane Library* (Bisson 2007) found that individual trauma-focused CBT and stress management were effective in the treatment of PTSD. However, the findings of this review may not readily extend to children.

OBJECTIVES

To examine the effectiveness of psychological therapies in reducing PTSD and its associated negative emotional, behavioural and mental health outcomes in children and adolescents diagnosed with PTSD.

METHODS

Criteria for considering studies for this review

Types of studies

All relevant parallel, cross-over and cluster-randomised and quasi-randomised controlled trials. Quasi-randomised studies included studies that used allocation methods with no apparent association with participant characteristics. For example, allocation based on the last number of medical identifier numbers or last number of the date of birth could be included.

Types of participants

Children or adolescents, aged 3 to 18 years, diagnosed with post-traumatic stress disorder (PTSD). PTSD was defined as a clinician diagnosis based on DSM-III, III-R, IV or IV-TR or International Classification of Diseases (ICD-10) criteria or other validated scales for PTSD based on these criteria. Children with comorbid conditions such as depression, substance abuse or behavioural disorders were included.

Types of interventions

Experimental intervention

- All psychological therapies including but not restricted to: cognitive behavioural therapy (CBT), exposure-based therapy, psychodynamic therapy, narrative therapy, supportive counselling, family-based therapy and EMDR

Comparator intervention

- Control (treatment as usual, waiting list controls or no treatment)
- Another psychological therapy
- Pharmacological therapy
- Other treatments

Types of outcome measures

Primary outcomes

1. Improvement from a diagnosis of post-traumatic stress disorder determined by accepted clinical diagnostic criteria such as the ICD-10 or DSM-IV TR.
2. PTSD symptoms measured using scales which are based on diagnostic criteria such as the ICD-10 or DSM-IV-TR and have published reliability and validity, e.g. the Children's PTSD Inventory (Saigh 2000).

Secondary outcomes

3. Quality of life, e.g. Pediatric Quality of Life Inventory Version 4.0 (Varni 2001).
4. Severity or incidence of depressive symptoms, e.g. Children's Depression Inventory (Kovacs 1992).
5. Severity or incidence of anxiety symptoms, e.g. State-Trait Anxiety Inventory for Children (Spielberger 1973).
6. Severity or incidence of behavioural problems, e.g. Child Behavior Checklist (Achenbach 1983).
7. Any adverse events including self harm or suicidal behaviour.
8. Loss to follow-up.
9. Cost.

Outcome scales

Improvement from a previous diagnosis of PTSD would only be included if the clinician making the diagnosis was blinded to the participant's treatment group membership or it was not clear whether they were blinded. However, no study reported that improvement was determined by an unblinded rater. Other outcome data were only included if the scale or questionnaire had been reported to be valid and reliable in a peer-reviewed journal.

Search methods for identification of studies

CCDAN's Specialised Register (CCDANCTR)

The Cochrane Depression, Anxiety and Neurosis Group (CCDAN) maintain two clinical trials registers at their editorial base in Bristol, UK, a references register and a studies-based register. The CCDANCTR-References Register contains over 30,000 reports of randomised controlled trials in depression, anxiety and neurosis. Approximately 65% of these references have been tagged to individual, coded trials. The coded trials are held in the CCDANCTR-Studies Register and records are linked between the two registers through the use of unique Study ID tags. Coding of trials is based on the EU-Psi coding manual. Please contact the CCDAN Trials Search Co-ordinator for further details.

Reports of trials for inclusion in the Group's registers are collated from routine (weekly), generic searches of MEDLINE (1950 -), EMBASE (1974 -) and PsycINFO (1967 -); quarterly searches of the Cochrane Central Register of Controlled Trials (CENTRAL) and review-specific searches of additional databases. Reports of trials are also sourced from international trials registers c/o the World Health Organization's trials portal (ICTRP), ClinicalTrials.gov, drug companies, the handsearching of key journals, conference proceedings and other (non-Cochrane) systematic reviews and meta-analyses. Details of CCDAN's generic search strategies can be found on the Group's website.

Electronic searches

1. CCDANCTR-Studies Register

We searched the Studies Register using the following terms:
Diagnosis = ("post-traumatic stress disorders" or "acute stress disorder" or stress)
And
Age-Group = (child or adolescent)
And
Intervention = (counsel* or *therapy or intervention or training or *education)

2. CCDANCTR-References Register

We searched he References Register using a more sensitive set of free-text terms to identify additional untagged/uncoded references:
Title/Abstract/Keywords = ((PTSD or "post trauma*" or post-trauma* or posttrauma* or trauma* or stress) And (adolesc* or preadolesc* or pre-adolesc* or boy* or girl* or child* or infant* or juvenil* or minors or school* or pediatri* or paediatri* or pubescen* or puberty or student* or teen* or young or youth* or school* or high-school or "high school" or college or undergrad*))

Searching other resources

Reference lists

We checked reference lists of relevant studies and reviews for additional references to potentially relevant studies. Non-English language studies were included.

Data collection and analysis

Selection of studies

The principal review author checked the results of the database searches to exclude references that were clearly not relevant to the review. Two review authors then assessed the titles, abstracts (or both) of the remaining studies, and any studies identified by other methods, for eligibility for the review. Where there was still doubt, we obtained and reviewed the full article. Any disagreements regarding the selection of studies were resolved through consensus or, if necessary, by consultation with a third member of the review team. Where there was still doubt, we obtained and reviewed the full article. Where further clarification was needed from study authors in order to make a decision, we made all reasonable attempts to contact authors.

Data extraction and management

All members of the review team developed and piloted a data extraction form. Two members of the review group extracted methodological and outcome data from each study independently. Each pair then compared their results for any differences. If differences were identified, they were resolved, either by consensus, or referral to a third member of the team. Where further clarification or missing data were needed from study authors, we made all reasonable attempts to contact the authors.

Assessment of risk of bias in included studies

We independently assessed trials as 'low', 'high' or 'unclear' risk of bias according to the following quality criteria.

1. Adequate sequence generation: e.g. computer-generated allocation sequence.
2. Allocation concealment: where an independent party allocated participants to groups.
3. Blinding: of outcome assessors as it was not possible to blind participants.
4. Incomplete outcome data addressed: i.e. if intention-to-treat analyses were reported or there was zero loss to follow-up.
5. Free of selective reporting: this was considered high risk if it appeared some outcomes had not been reported.
6. Free of any other bias: i.e. if no other potential biases were identified.

We also collected information on any other sources of bias (for example, baseline imbalance, cross-over design, differential loss to follow-up, inappropriate administration of an intervention or co-intervention, early stopping and selective reporting of subgroups). If there was any disagreement about whether or not a trial fulfilled a particular quality criteria, these differences were resolved by consensus or referral to a third member of the review team. All quality criteria ratings and supporting information are listed in the 'Risk of bias' table (Characteristics of included studies).

Measures of treatment effect

Binary data

For binary outcomes we calculated the odds ratio (OR) and 95% confidence interval (95% CI) using a random-effects model.

Continuous data

We calculated the standardised mean difference (SMD) and 95% confidence interval of continuous outcomes using a random-effects model. The major reason for using SMDs is to pool continuous outcomes when different measures are used. However, to ensure consistency of reporting in this review, we used SMDs throughout.

To calculate SMDs, means and standard deviations (SDs) were needed. If SDs were not reported, we calculated them from reported measures of variance such as standard errors or 95% confidence intervals.

Skewed data

As a meta-analysis is based on assumptions of normality, we checked all continuous data for skew before inclusion. For a scale which starts from zero, a standard deviation which is more than half the mean suggests skew, while a standard deviation which is more than the mean is considered strong evidence of a skewed distribution (Altman 1996). Therefore, if the standard deviation was greater than the mean, these data were not included. If the standard deviation was more than half the mean, these data were included but a sensitivity analysis of the effects of including these data was done.

Unit of analysis issues

If multiple treatment arms described different comparisons we analysed these separately. For example, in the three-arm trial by Ertl 2011 which incorporated a narrative therapy, supportive counselling and control treatment arm, these data were used in the narrative versus control, supportive therapy versus control and narrative therapy versus supportive therapy comparisons. However, where studies reported more than one arm of the same therapy, e.g. King 2000 which reported individual and individual plus parent CBT, we calculated and used pooled means and SDs in the meta-

analysis. If cluster-randomised trials had been identified, appropriate corrections for the cluster design would have been made and these data incorporated into the meta-analyses. If any cross-over trials which reported first interval data had been identified, these would also have been incorporated. However, no relevant cross-over or cluster-randomised trials were identified.

Dealing with missing data

We used intention-to-treat analysis in all studies where these data were available. However, we also carried out analyses based on best and worst-case data (Higgins 2008 16.2.2) as described in Sensitivity analysis to assess the potential effects of loss to follow-up on results. We also contacted authors for missing data or if the reporting of data was unclear. While the authors of the study by Schauer 2008 provided us with additional information, we were unable to make contact with the authors of Chemtob 2002a.

Assessment of heterogeneity

We used a Mantel-Haenszel Chi^2 test and the I^2 statistic to test for heterogeneity using a fixed-effect model.
Higgins 2008 (9.5.2) gives a rough guide to the interpretation of heterogeneity as:

- 0% to 40%: might not be important;
- 30% to 60%: may represent moderate heterogeneity;
- 50% to 90%: may represent substantial heterogeneity;
- 75% to 100%: considerable heterogeneity.

Assessment of reporting biases

We entered primary outcome data from all included studies into a funnel plot (trial effect against trial size) to investigate the possibility of publication bias (Egger 1997).

Data synthesis

Main comparisons

1. Psychological therapies versus a control
2. Psychological therapies versus other psychological therapies
3. Psychological therapies versus pharmacological therapies
4. Psychological therapies versus other treatments

The majority of interventions employed a variety of psychotherapeutic elements, so we categorised interventions on the primary description of the intervention, the primary objectives of the therapy, or both. However, as it became apparent to us during the review that some of the psychological therapies described in included studies were not based on any clear theoretical domain, we made the decision to include these under the heading of 'Other psychological therapies'.

We organised data under the following categories of psychological therapies.

1. Cognitive behavioural therapy (CBT)
2. Behavioural therapy (BT) (including exposure-based therapy and narrative therapy)
3. Psychodynamic psychotherapy
4. Supportive counselling
5. EMDR
6. Interpersonal therapy (IPT)
7. Other psychological therapy

We collected data for all follow-up periods as long as the loss to follow-up did not exceed 40% for either group. There is little to inform what loss to follow-up is too much (Altman 2000; Fewtrell 2008) with overall rates of between 50% to 80% considered acceptable and no recommendations for differential loss to follow-up. Therefore, we decided a priori to accept a loss to follow-up of no more than 40% for either group. We analysed data as short-term (up to and including one month following completion of the therapy), medium-term (one month to one year following completion) and long-term (one year or more). If there was more than one set of data for any of these periods, we used the first data set. For example, in Ertl 2011 follow-up data at three and six months were reported, therefore we used data for the three-month follow-up period. Where data from multiple PTSD symptom scales were reported (e.g. Cohen 2011), we used clinician scales in preference because these were based on clinician interview with the child and parent which is considered by expert groups as the most valid form of assessment (AACAP 1998).
If the standard deviation (SD) was greater than the mean this would have been considered strong evidence of skewed data (Higgins 2008), therefore if data for both groups showed strong evidence of skew, these would not have been included in a meta-analysis. Where there was a suggestion of skew, i.e. a SD more than half the mean (Altman 1996), we included these data but carried out a sensitivity analyses for the inclusion of these data. If there was strong evidence of skew in one group these data would have been included but would have been considered skewed.

Subgroup analysis and investigation of heterogeneity

Subgroup analyses compared potential sources of heterogeneity.

- Type of therapy: CBT, narrative therapy, supportive counselling, interpersonal therapy, EMDR
- Type of trauma: sexual abuse, civil or social violence, physical trauma, natural disasters

We used a Chi^2 test to test for subgroup differences.
It was also proposed that subgroup analysis based on whether therapies were individual, parent, family or group-based would be done but insufficient data were available.
We considered interpersonal versus non-interpersonal trauma as an additional source of heterogeneity for investigation in a post

hoc subgroup analysis, but insufficient information was provided in each study to be able to conduct this analysis.

Sensitivity analysis

We carried out sensitivity analyses based on allocation concealment and blinding of outcome measurement as these factors are most associated with a bias in effect size (Moher 1998). If any quasi-randomised trials had been identified these would have been considered to have a high risk of allocation bias.

We also carried out a sensitivity analysis to assess whether including data that may have been skewed had an effect on the analysis. Studies were considered skewed if they reported data for at least one group where the SD was more than half the mean.

We also conducted sensitivity analysis for loss to follow-up using best-case and worst-case analyses of the primary binary outcome, improvement. For the best-case analysis, participants lost to follow-up in the treatment group were considered to have improved while those lost to follow-up in the control group were considered not improved. In the worst-case analysis, participants lost to follow-up in the treatment group were considered not to have improved while those lost to follow-up in the control group were considered improved. Those studies which did not report loss to follow-up could not be included in this analysis.

Therefore the sensitivity analyses were as follows.

- Allocation concealment: low versus unclear risk (no high risk studies were identified)
- Blinding: low versus unclear versus high risk
- Skewed versus non-skewed data
- Best versus worst-case data

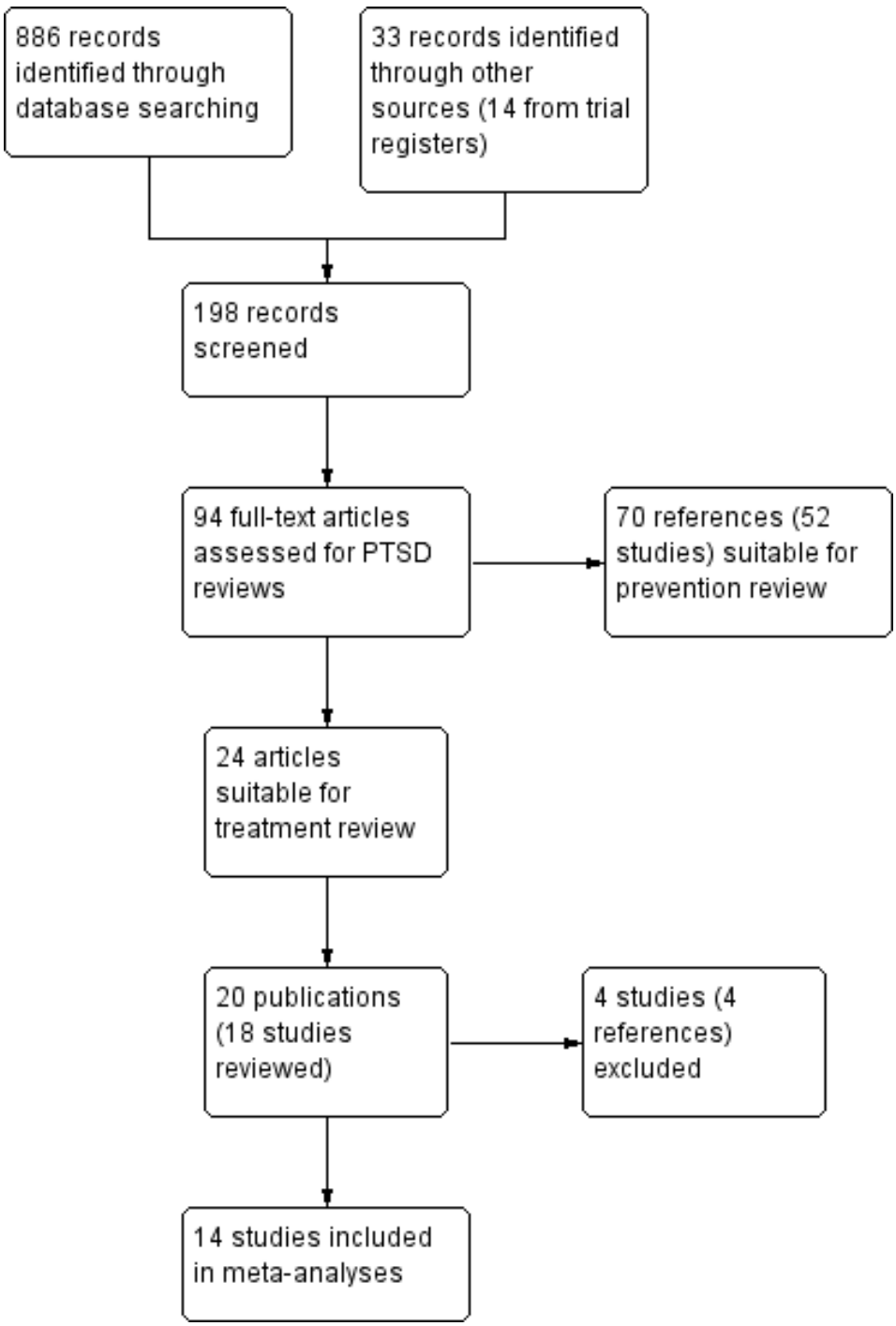
RESULTS

Description of studies

Results of the search

There were 18 randomised trials identified for review; 14 (20 publications) with 758 participants were included and four were excluded. No quasi-randomised trials were identified (Figure 1). A further 52 studies of children and adolescents exposed to trauma have been assessed for a companion Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents' (Berger 2007; Berger 2009; Berkowitz 2011; Berliner 1996; Bolton 2007; Brown 2003; Celano 1996; Chapman 2001; Chemtob 2002; Cohen 1997; Cohen 1998; Cohen 2005; Cohen 2007; Cooley-Strickland 2011; Cox 2010; Deblinger 1996; Deblinger 2001; Deblinger 2011; Dominguez 2001; Ehntholt 2005; Ensink 2004; Farkas 2010; Gelkopf 2009; Goenjian 1997; Jaberghaderi 2004; Jeffres 2004; Jordans 2010; Kassam-Adams 2011; Kataoka 2003; Kazak 2004; Kemp 2010; Layne 2008; Lieberman 2005; Lyshak-Stelzer 2007; McWhirter 2011; Pfeffer 2002; Raider 2008; Salloum 2008; Scheeringa 2011; Shechtman 2010; Shelby 1995; Shooshtary 2008; Stallard 2006; Stein 2003; Taussig 2010; Thabet 2005; Tol 2010; Trowell 2002; Wang 2011; Wolmer 2011a; Wolmer 2011b; Zehnder 2010). Data from Cohen 2011 were used in both reviews.

Figure 1. Study flow diagram.



Most included studies were carried out in the US (Ahrens 2002; Chemtob 2002a; Cohen 2004; Cohen 2011; Najavits 2006); two in Sri Lanka (Catani 2009; Schauer 2008) and one study each in Australia (King 2000), Germany (Ruf 2010), Israel (Gilboa-Schechtman 2010), Kosovo (Gordon 2008), Uganda (Ertl 2011), the UK (Smith 2007) and Sweden (Ahmad 2007).

Included studies

Participants

In all but two studies, all participants had to meet diagnostic criteria for PTSD. King 2000 was also included because the majority of participants (25/36) were diagnosed with PTSD and a subset of data from the 50 participants diagnosed with PTSD in Cohen 2011 was also used in this review.

The number of participants ranged from 24 (Smith 2007) to 203 (Cohen 2004). The majority of participants were female in all studies except Catani 2009, Ruf 2010, Smith 2007 and Ahrens 2002, which only included males.

In all but one study the age of participants ranged from 6 to 18 years, although Ahmad 2007, Gilboa-Schechtman 2010, Gordon 2008 and Najavits 2006 only included adolescents. Although the age of participants in Ertl 2011 ranged from 12 to 25 years, this study was included because their average age was 18 years.

The study populations included covered a range of trauma exposures. The types of trauma related to the PTSD were sexual abuse (Cohen 2004; King 2000), civil violence (Catani 2009; Ertl 2011; Schauer 2008; Ruf 2010), natural disaster (Catani 2009; Chemtob 2002a), exposure to domestic violence (Cohen 2011) or mixed traumas (Ahmad 2007; Gilboa-Schechtman 2010; Najavits 2006; Smith 2007), although the predominant trauma in the studies by Gilboa-Schechtman 2010 and Smith 2007 was a motor vehicle accident. The types of trauma participants were exposed to was not described in Ahrens 2002 and Gordon 2008.

Baseline symptom scores were measured using a range of measures. However, baseline symptom scores on the UCLA PTSD index of 36.5 to 43.3 were reported by Catani 2009, Chemtob 2002a and Ruf 2010. The Clinician-Administered PTSD Scale (CAPS) (Ertl 2011) and the CAPS for children and adolescents (CAPS-CA) (Schauer 2008; Smith 2007) baseline scores were between 54.7 and 71.2, and the Child PTSD Symptoms Scale scores (Ahrens 2002; Gilboa-Schechtman 2010; Smith 2007) were between 16.89 and 28.3 at baseline.

Most participants were clients of a trauma-related support service (Cohen 2004; Cohen 2011; King 2000; Ruf 2010, Smith 2007). In two studies participants were identified in refugee camps (Catani 2009; Ertl 2011) and two studies took place in schools in trauma-affected areas (Gordon 2008; Schauer 2008). Participants were incarcerated in a youth correctional facility in Ahrens 2002, attended a medical centre in Gilboa-Schechtman 2010, and a mental health clinic in Ahmad 2007. The setting of Chemtob 2002a and Najavits 2006 was not clear.

The major exclusion criteria were developmental disorder (Cohen 2004; Cohen 2011; Gilboa-Schechtman 2010; Smith 2007) or psychosis (Catani 2009; Cohen 2004; Cohen 2011; Ertl 2011; Najavits 2006; Ruf 2010). Substance abuse was also excluded in Cohen 2004 and Gilboa-Schechtman 2010. However, several studies did not report explicit exclusion criteria (Ahrens 2002; Chemtob 2002a; Gordon 2008; King 2000). Najavits 2006 specifically included adolescent girls with co-existing substance use disorder and Ahrens 2002 included incarcerated adolescent males.

Interventions

Most (11) included studies compared a psychological therapy to a control group. The interventions were delivered over four to 25 sessions of 45 minutes to two hours duration. Most were delivered on a weekly basis.

Three studies compared narrative therapy to control groups (Catani 2009; Ertl 2011; Ruf 2010; Schauer 2008), three studies compared CBT to controls (Ahrens 2002; King 2000; Smith 2007), two compared EMDR to controls (Ahmad 2007; Chemtob 2002a), and two studies compared other psychological therapies to controls (Gordon 2008; Najavits 2006). CBT was compared to supportive therapy in Cohen 2004 and Cohen 2011; narrative therapy was compared to supportive counselling in Ertl 2011 and a combination of meditation and relaxation in Catani 2009 and Schauer 2008; and exposure therapy was compared to interpersonal therapy in Gilboa-Schechtman 2010.

All studies with a control group used a waiting list control (Ahmad 2007; Ahrens 2002; Chemtob 2002a; Ertl 2011; Gordon 2008; King 2000; Ruf 2010; Smith 2007) except for Najavits 2006 which used treatment as usual as a control.

No study compared psychological therapies to pharmacological interventions either alone or as an adjunct to psychological therapy.

Outcomes

Data for the dichotomous outcomes of improvement and loss to follow-up and the continuous outcomes of PTSD, anxiety and depression symptoms, and scales for behaviour were extracted from the included studies.

Primary outcomes

1. Improvement

Improvement from a diagnosis of PTSD was reported by Catani 2009; Cohen 2004; Ertl 2011; Gilboa-Schechtman 2010; King 2000; Ruf 2010; Schauer 2008 and Smith 2007. Improvement was assessed using the Clinician-Administered PTSD Scale (CAPS; Ertl 2011) and the CAPS for children and adolescents (CAPS-CA; Schauer 2008; Smith 2007), the Anxiety Disorders Interview Schedule for children (ADIS; King 2000), the UCLA PTSD Index (Catani 2009; Ruf 2010) and the Kiddie Schedule for Affective Disorders and Schizophrenia for school-aged children - Present and Lifetime version (K-SADS-PL; Cohen 2004; Gilboa-Schechtman 2010).

2. PTSD symptoms

The most frequently used measures for PTSD symptoms were the UCLA PTSD Index (Catani 2009; Chemtob 2002a; Cohen 2011; Ruf 2010), the K-SADS-PL (Cohen 2004; Cohen 2011; Gilboa-Schechtman 2010), the CAPS (Ertl 2011) and CAPS-CA (Schauer 2008; Smith 2007), and Child PTSD Symptoms Scale (Ahrens 2002; Gilboa-Schechtman 2010; Smith 2007). Other studies used the ADIS (King 2000), Harvard Trauma Questionnaire (Gordon 2008), Impact of Events Scale (Ahrens 2002), Post traumatic Stress Symptom Scale for Children (Ahmad 2007), and Trauma Symptom Checklist for Children (Najavits 2006).

Secondary outcomes

3. Quality of life

No data were reported.

4. Anxiety

Anxiety was reported by Chemtob 2002a, Cohen 2004, Cohen 2011 and King 2000. The scales used to measure anxiety were the Revised Children's Manifest Anxiety Scale (Chemtob 2002a; King 2000), the State-trait Anxiety Inventory for Children (Cohen 2004) and the Screen for Child Anxiety Related Emotional Disorders (SCARED; Cohen 2011).

5. Depression

Ahrens 2002; Chemtob 2002a; Cohen 2004; Cohen 2011; Ertl 2011; Gilboa-Schechtman 2010; King 2000; Najavits 2006; Schauer 2008 and Smith 2007 reported depression. The Children's Depression Inventory was used by Chemtob 2002a; Cohen 2004; Cohen 2011; Deblinger 2011 and King 2000. Ahrens 2002 and Gilboa-Schechtman 2010 used the Beck Depression Inventory, Najavits 2006 the Adolescent Psychopathology Scale, Smith 2007 the Depression Self Rating Scale, Ertl 2011 the Mini-International Neuropsychiatric Interview (MINI), Schauer 2008 the MINI-KID, and Smith 2007 the Depression Self-rating Scale.

6. Behaviour

The Child Behaviour Checklist was used in all studies that reported behaviour as an outcome (Cohen 2004; Cohen 2004; Cohen 2011; King 2000).

7. Adverse events

No data were reported.

8. Loss to follow-up

Loss to follow-up, or data from which it could be calculated, was reported in all studies except Ahrens 2002.

9. Cost

No data were reported.

Data that could not be added to the meta-analysis

Because the SD for depression and PTSD re-experiencing scores in Cohen 2004 were larger than the mean, these data were not included in the meta-analyses.

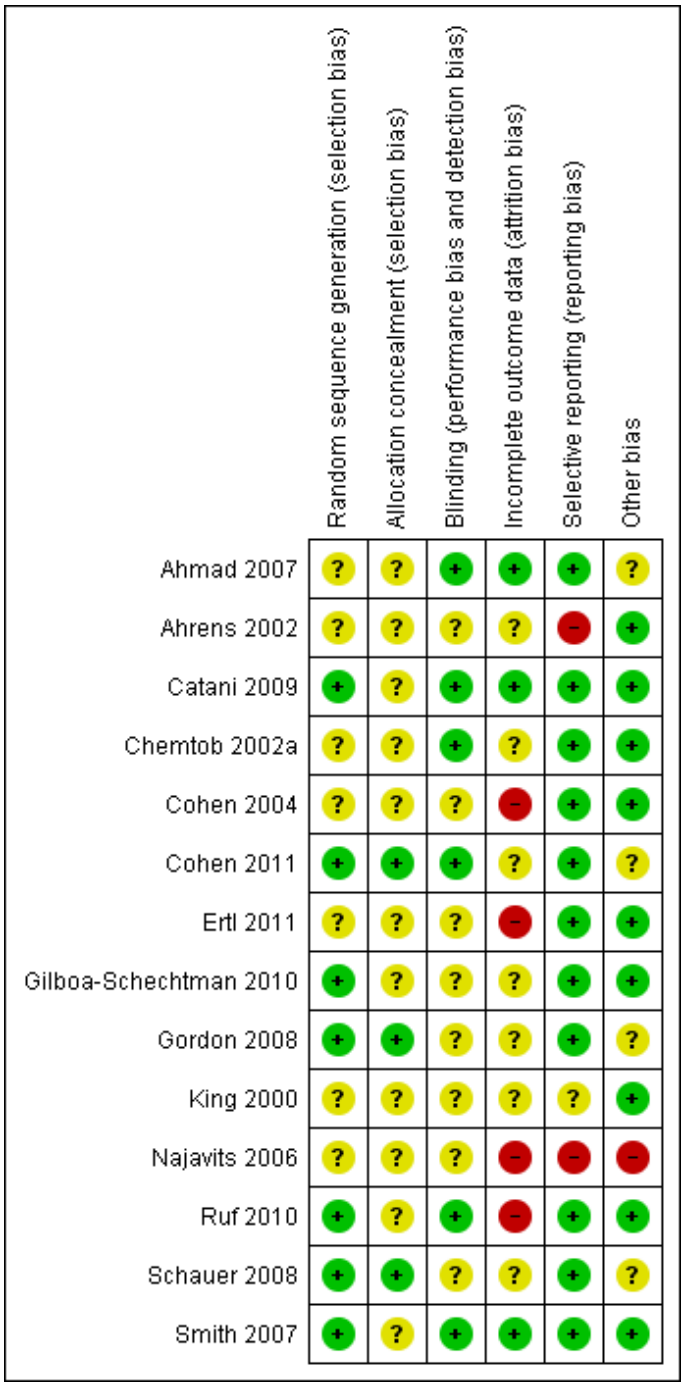
Excluded studies

Four studies were excluded. Allocation was not randomised in two studies (Lesmana 2009; March 1998), the average age of participants was 19 years in Schaal 2010, and Cohen 2007 compared CBT in combination with sertraline to CBT with placebo.

Risk of bias in included studies

See Figure 2.

Figure 2. 'Risk of bias' summary: review authors' judgements about each risk of bias item for each included study.



Allocation

We rated the generation of the randomisation sequence as a low risk of bias in Catani 2009, Gilboa-Schechtman 2010, Gordon 2008, Ruf 2010, Schauer 2008 and Smith 2007. We considered all other studies to have an unclear risk of bias because the randomisation sequence was not described. Because allocation concealment was described adequately in Cohen 2011, Gordon 2008 and Schauer 2008, we rated these as a low risk of bias due to allocation concealment. Allocation concealment was not described in the remaining studies which we therefore rated as having an unclear risk of bias.

Blinding

Blinded outcome assessment was described in Ahmad 2007, Catani 2009, Chemtob 2002a, Cohen 2011, Ruf 2010 and Smith 2007 which we therefore rated as having a low risk of detection bias. Because blinding of outcome measurement was not described in the remaining studies we rated these as having an unclear risk of detection bias.

Incomplete outcome data

The loss to follow-up was reported in all studies but Ahrens 2002 and for the subset of children diagnosed with PTSD in Cohen 2011 included in this review. Therefore we rated these studies as having an unclear risk of attrition bias. There was no loss to follow-up in Smith 2007, which we therefore rated as having a low risk of attrition bias. Ahmad 2007, Cohen 2011, Gilboa-Schechtman 2010 and King 2000 reported intention-to-treat (ITT) data. We rated Ahmad 2007 as having a low risk of attrition bias because ITT analyses were reported and there was a low loss to follow-up. We considered Gilboa-Schechtman 2010 and King 2000 to have an unclear risk even though ITT analyses were reported because there was a high loss to follow-up. Catani 2009, Cohen 2004 and Ertl 2011 also used ITT analyses but reported data for participants available at follow-up. We rated Catani 2009 as having a low risk of bias because the loss to follow-up was small, while we rated Cohen 2004 and Ertl 2011 as having a high risk because the loss to follow-up was high. The remaining studies also reported data for participants who completed assessment. We rated Gordon 2008, Ruf 2010 and Schauer 2008 as having an unclear risk of bias because the loss to follow-up was low but we rated Najavits 2006 as having a high risk of attrition bias because of the high loss to follow-up.

Selective reporting

Outcomes appear to have been completely reported in all studies except Najavits 2006 which did not report improvement or PTSD symptoms and King 2000 which did not report behaviour.

Other potential sources of bias

There were potential biases identified in Ahmad 2007, Cohen 2011, Gordon 2008, Najavits 2006 and Schauer 2008. There were more children of Swedish ethnicity in the EMDR group in Ahmad 2007. The data for a subset of children diagnosed with PTSD in Cohen 2011 were used for this review. It was not clear how the cut-off values for the PTSD domains were determined in the study by Gordon 2008. In Najavits 2006, the baseline levels of anorexia, loss of control, sexual concerns and sexual distress were higher in the control group. Also, although not statistically significant, the baseline trauma score was higher in the meditation/relaxation group (71.2) compared to the KIDNET group (63.2) in Schauer 2008.

Effects of interventions

The outcomes collected over these studies were: improvement of post-traumatic stress disorder (PTSD); PTSD symptoms (total and sub-scores for arousal, avoidance and intrusion); anxiety (total, state and trait); depression; behaviour (total, internalising and externalising); and loss to follow-up.
No studies reported psychosocial function or cost.

All psychological therapies versus controls

Primary outcomes

1. Improvement

Over all studies that compared a psychological therapy to a control group, there was a significantly smaller proportion of children and adolescents who were still diagnosed with PTSD at the end of the study compared to the control group in the short term (two studies, n = 49, odds ratio (OR) 8.64, 95% confidence interval (CI) 2.01 to 37.14, I^2 = 0%, Analysis 1.1) and medium term (two studies, n = 50, OR 9.46, 95% CI 2.46 to 36.32, I^2 = 57%, Analysis 1.1) but there was no significant difference in the long term (one study, n = 53, OR 1.84, 95% CI 0.60 to 5.65, Analysis 1.1).

2. PTSD symptoms

Scores for PTSD symptoms were also significantly lower in the psychological therapy group in the short term (six studies, n = 241, standardised mean difference (SMD) -1.05, 95% CI -1.52 to -0.58, I^2 = 62%, Analysis 1.2) and medium term (three studies, n = 115, SMD -0.58, 95% CI -0.97 to -0.18, I^2 = 42%, Analysis 1.2) but there was no significant difference in the long term (one study, n = 53, SMD -0.44, 95% CI -0.98 to 0.11, Analysis 1.2).

Secondary outcomes

3. Quality of life

No data were reported.

4. Anxiety

Anxiety scores were also significantly reduced in the short term (three studies, n = 91, SMD -0.57, 95% CI -1.00 to -0.13, I^2 = 0%, Analysis 1.3) but not the medium term (one study, n = 36, SMD -0.63, 95% CI -1.34 to 0.08, Analysis 1.3).

5. Depression

Depression was significantly lower in the psychological therapy-treated group over the five studies that reported this outcome in the short term (n = 156, SMD -0.74, 95% -1.11 to -0.36, I^2 = 21%, Analysis 1.4) but not the three studies that reported it in the medium term (n = 110, SMD 0.02, 95% -0.36 to 0.40, I^2 = 0%, Analysis 1.4) or the one study that reported long-term outcomes (n = 53, SMD 0.02, 95% -0.52 to 0.56, Analysis 1.4).

6. Behaviour

No data were reported.

7. Adverse events

No data were reported.

8. Loss to follow-up

There was no difference between psychological therapy and control groups in the loss to follow-up (short term: five studies, n = 208, OR 1.59, 95% CI 0.56 to 4.49, I^2 = 0%; medium term: three studies, n = 116, OR 1.54, 95% CI 0.47 to 5.04, I^2 = 0%; long term: one study, n = 57, OR 10.06, 95% CI 0.52 to 196.10, I^2 = 33%, Analysis 1.5).

9. Cost

No data were reported.

CBT versus controls

Primary outcomes

1. Improvement

There was significantly more improvement in the CBT groups over the two studies that reported this outcome in the short term (n = 49, OR 8.64, 95% CI 2.01 to 37.14, I^2 = 0%, Analysis 2.1) and one study (n = 25, OR 8.00, 95% CI 1.21 to 52.69) reporting medium-term data.

2. PTSD symptoms

There was also a significant decrease in PTSD scores in the short and medium term (short term: three studies, n = 98, SMD -1.34, 95% CI -1.79 to -0.89; medium term: one study, n = 36, SMD -0.73, 95% CI -1.44 to -0.01, I^2 = 0%, Analysis 2.2). The PTSD sub-scores were reported by one study with 36 participants. There was significant improvement in scores for medium-term avoidance (SMD -0.68, 95% CI -1.56 to -0.11, Analysis 2.3) and short-term hyperarousal (SMD -1.30, 95% CI -2.06 to -0.53, Analysis 2.4) and re-experiencing (SMD -0.72, 95% CI -1.44 to -0.01, Analysis 2.5).

Secondary outcomes

3. Anxiety

Anxiety scores were not significantly different in the two studies that compared CBT to controls in the short term or the one medium-term study (short term: two studies, n = 59, SMD -0.66, 95% CI -1.33 to 0.01, I^2 = 31%; medium term: one study, n = 36, SMD -0.63, 95% CI -1.34 to 0.08, Analysis 2.6).

4. Depression

Depression scores were significantly lower in the three studies that reported this outcome in the short term (n = 98, SMD -0.80, 95% CI -1.47 to -0.13, I^2 = 59%, Analysis 2.7) but not the one study that reported depression in the medium term (one study, n = 36, SMD -0.19, 95% CI -0.88 to 0.31, Analysis 2.7).

6. Behaviour

No data were reported.

7. Adverse events

No data were reported.

8. Loss to follow-up

There was no difference between CBT and control groups in the two studies which reported loss to follow-up (short term: two studies, n = 60, not estimable, Analysis 2.8).

9. Cost

No data were reported.

Narrative therapy versus controls

Primary outcomes

1. Improvement

There was a significant difference in improvement when narrative therapy was compared to a control in the medium term (one study, n = 25, OR 11.25, 95% CI 1.65 to 76.85, Analysis 3.1) but not the long term (one study, n = 53, OR 1.84, 95% CI 0.60 to 5.65, Analysis 3.1).

2. PTSD symptoms

There was a no difference between the narrative therapy and control groups in PTSD symptom scores (Analysis 3.2) at any follow-up interval. One study reported sub-scores for avoidance, hyperarousal and re-experiencing in the short term. Avoidance (n = 25, SMD -1.13, 95% CI -1.99 to -0.27, Analysis 3.3) and hyperarousal (n = 25, SMD -0.84, 95% CI -1.67 to -0.02, Analysis 3.4) scores were significantly lower in the narrative therapy group but there was no statistical difference in re-experiencing sub-scores (Analysis 3.5).

Secondary outcomes

3. Quality of life

No data were reported.

4. Anxiety

No data were reported.

5. Depression

There was no difference between groups in depression scores (short term: one study, n = 54, SMD 0.10, 95% CI -0.44 to 0.63; medium term: one study, n = 43, SMD 0.02, 95% CI -0.52 to 0.56, Analysis 3.6).

6. Behaviour

No data were reported.

7. Adverse events

No data were reported.

8. Loss to follow-up

There was no difference between groups in the loss to follow-up in the medium or long term (medium term: two studies, n = 83, OR 5.13, 95% CI 0.56 to 47.28, I^2 = 0%; long term: one study, n = 57, OR 10.06, 95% CI 0.52 to 196.10, Analysis 3.7).

9. Cost

No data were reported.

EMDR versus controls

Apart from the two studies which reported PTSD total scores, data for all comparisons of EMDR to a control came from one study.

Primary outcomes

1. Improvement

No data were reported.

2. PTSD symptoms

There was no significant difference between participants receiving EMDR compared to controls for PTSD total scores (short term: two studies, n = 65, SMD -0.61, 95% CI -1.96 to 0.74, I^2 = 85%, Analysis 4.1, or avoidance (short term: one study, n = 33, SMD -0.12, 95% CI -0.80 to 0.56, Analysis 4.2), and hyperarousal (short term: one study, n = 33, SMD 0.39, 95% CI -0.30 to 1.08, Analysis 4.3) sub-scores. However, re-experiencing sub-scores were significantly lower in the EMDR group (short term: n = 33, SMD -0.75, 95% CI -1.46 to -0.04, Analysis 4.4).

Secondary outcomes

3. Quality of life

No data were reported.

4. Anxiety

There was no statistical difference between EMDR and control groups in scores for anxiety (short term: one study, n = 32, SMD -0.45, 95% CI -1.15 to 0.26, Analysis 4.5).

5. Depression

Depression scores were not statistically different (short term: one study, n = 32, SMD -0.65, 95% CI -1.36 to 0.07, Analysis 4.6).

6. Behaviour

No data were reported.

7. Adverse events

No data were reported.

8. Loss to follow-up

There was no difference between groups in the loss to follow-up (short term: one study, n = 33, OR 3.00, 95% CI 0.11 to 79.13, Analysis 4.7).

9. Cost

No data were reported.

Other psychological therapies versus controls

Two studies compared other psychological therapies with a control but because these data could not be pooled all results were from one study only.

Primary outcomes

1. Improvement

No data were reported.

2. PTSD symptoms

The short-term PTSD total scores (n = 78, SMD -1.12, 95% CI -1.64 to -0.64, Analysis 5.1), frequency of medium-term avoidance (n = 78, OR 0.13, 95% CI 0.05 to 0.36, Analysis 5.2) and re-experiencing symptoms (n = 78, OR 0.19, 95% CI 0.07 to 0.54, Analysis 5.4) were significantly decreased in the other psychological therapy group. However, there was no significant difference in the frequency of hyperarousal symptoms (medium term: one study, n = 78, OR 0.54, 95% CI 0.19 to 1.52, Analysis 5.3).

Secondary outcomes

3. Quality of life

No data were reported.

4. Anxiety

No data were reported.

5. Depression

There was no significant difference between groups in depression scores (short term: one study, n = 26, SMD -0.63, 95% CI -1.43 to 0.16; medium term: one study, n = 20, SMD 0.13, 95% CI -0.75 to 1.01, Analysis 5.5).

6. Behaviour

No data were reported.

7. Adverse events

No data were reported.

8. Loss to follow-up

There was no significant difference in loss to follow-up (short term: two studies, n = 115, OR 1.38, 95% CI 0.35 to 5.52, I^2 = 0%; medium term: one study, n = 33, OR 0.95, 95% CI 0.23 to 3.38, Analysis 5.6).

9. Cost

No data were reported.

CBT versus supportive therapy

Two studies compared CBT to supportive therapy.

Primary outcomes

1. Improvement

The short-term improvement rate was significantly higher in the CBT group compared to the supportive therapy group (two studies, n = 208, OR 3.18, 95% CI 1.76 to 5.74, I^2 = 0%, Analysis 6.1).

2. PTSD symptoms

All data for PTSD symptom scores came from only one study. PTSD avoidance (n = 180, SMD -0.72, 95% CI -1.02 to -0.42, Analysis 6.2) and hyperarousal (n = 180, SMD -0.37, 95% CI -0.67 to -0.08, Analysis 6.3) scores in the short term; and re-experiencing scores in the short and medium term (n = 180, SMD -0.49, 95% CI -0.78 to -0.19; medium-term: n = 147, SMD -0.48, 95% CI -0.81 to -0.15, Analysis 6.4) were all significantly better in the CBT group.

Secondary outcomes

3. Quality of life

No data were reported.

4. Anxiety

There was no statistical difference between groups in anxiety-state scores in the one study that reported these data (short term: n = 183, SMD -0.25, 95% CI -0.54 to 0.04; medium term: n = 151, SMD -0.24, 95% CI -0.56 to 0.08; long term: n = 155, SMD -0.19, 95% CI -0.51 to 0.12, Analysis 6.5). Anxiety-trait scores were significantly lower in the short term (n = 183, SMD -0.37, 95% CI -0.66 to -0.07, Analysis 6.6) but not the medium (n = 150, SMD -0.22, 95% CI -0.54 to 0.11, Analysis 6.6) or long term (n = 155, SMD -0.28, 95% CI -0.59 to 0.04, Analysis 6.6).

5. Depression

Depression scores were significantly better in the CBT group in the one study that reported these data (short term: n = 183, SMD -0.40, 95% CI -0.69 to -0.11, Analysis 6.7).

6. Behaviour

There was a significant reduction in behaviour scores in the CBT group compared to the supportive therapy group in the short term (n = 179, SMD -0.38, 95% CI -0.67 to- 0.08, Analysis 6.8) in the one study that reported these data; however, there were no statistical differences between groups in the medium (n = 142, SMD -0.07, 95% CI -0.40 to 0.25, Analysis 6.8) or long term (n = 156, SMD -0.08, 95% CI -0.40 to 0.25, Analysis 6.8).

7. Adverse events

No data were reported.

8. Loss to follow-up

There was no difference in the one study which reported loss to follow-up (short term: n = 229, OR 1.07, 95% CI 0.57 to 2.00; medium term: n = 229, OR 0.69, 95% CI 0.40 to 1.19; long term: n = 229, OR 0.68, 95% CI 0.39 to 1.18, Analysis 6.9).

9. Cost

No data were reported.

Narrative therapy versus supportive counselling

One study compared narrative therapy to supportive counselling.

1. Improvement

There was no statistical difference between groups in improvement (short term: one study, n = 48, OR 1.95, 95% CI 0.60 to 6.29, Analysis 7.1).

2. PTSD symptoms

There was no statistical difference between groups in PTSD symptoms (medium term: one study, n = 50, SMD 0.05, 95% CI -0.50 to 0.61; long term: one study, n = 48, SMD -0.40, 95% CI -0.97 to 0.17, Analysis 7.2).

Secondary outcomes

3. Quality of life

No data were reported.

4. Anxiety

No data were reported.

5. Depression

There was no difference between the narrative therapy and supportive counselling groups in depression scores (Analysis 7.3).

6. Behaviour

No data were reported.

7. Adverse events

No data were reported.

8. Loss to follow-up

There was no statistical difference between groups in the one study which reported loss to follow-up (medium term: n = 57, OR 0.69, 95% CI 0.14 to 3.42; long term: n = 57, OR 0.74, 95% CI 0.18 to 3.08, Analysis 7.4).

9. Cost

No data were reported.

Narrative therapy versus other therapies (meditation/relaxation)

Primary outcomes

1. Improvement

There was no difference in the proportion of children and adolescents still diagnosed with PTSD in the short (one study, n = 31, OR 1.50, 95% CI 0.32 to 7.14, Analysis 8.1) or medium term (two studies, n = 76, OR 1.09, 95% CI 0.41 to 2.88, I^2 = 0%, Analysis 8.1) when narrative therapy was compared to meditation-relaxation.

2. PTSD symptoms

There was no difference in PTSD symptoms in the short (one study, n = 30, SMD -0.01, 95% CI -0.73 to 0.70, Analysis 8.2) or medium term (two studies, n = 76, SMD 0.06, 95% CI -0.39 to 0.51, I^2 = 0%, Analysis 8.2).

Secondary outcomes

3. Quality of life

No data were reported.

4. Anxiety

No data were reported.

5. Depression

No data were reported.

6. Behaviour

No data were reported.

7. Adverse events

No data were reported.

8. Loss to follow-up

There was no difference between therapies in the loss to follow-up (short term: one study, n = 31, not estimable; medium term: two studies, n = 78, OR 0.29, 95% CI 0.03 to 2.89, I^2 = 0%, Analysis 8.3).

9. Cost

No data were reported.

Exposure versus interpersonal therapy

One study compared exposure to interpersonal therapy.

Primary outcomes

1. Improvement

There was significantly more short and medium-term improvement in the exposure therapy group (short term: n = 30, OR 7.43, 95% CI 1.23 to 45.01; medium term: n = 27, OR 9.60, 95% CI 1.48 to 62.16, Analysis 9.1).

2. PTSD symptoms

There was no statistical difference in PTSD symptoms when exposure and interpersonal therapy groups were compared (short term: n = 38, SMD -0.48, 95% CI -1.12 to 0.17; medium term: n = 38, SMD -0.53, 95% CI -1.17 to 0.12; long term: n = 38, SMD -0.22, 95% CI -0.86 to 0.42, Analysis 9.2).

Secondary outcomes

3. Quality of life

No data were reported.

4. Anxiety

No data were reported.

5. Depression

There was no statistical difference between the exposure and interpersonal therapy groups in scores for depression (short term: n = 38, SMD -0.08, 95% CI -0.71 to 0.56; medium term: n = 38, SMD -0.19, 95% CI -0.83 to 0.44; long term: n = 38, SMD 0.02, 95% CI -0.62 to 0.65, Analysis 9.3).

6. Behaviour

No data were reported.

7. Adverse events

No data were reported.

8. Loss to follow-up

There was no statistical difference between groups in the loss to follow-up (short term: n = 38, OR 1.00, 95% CI 0.21 to 4.76: medium term: n = 38, OR 0.77, 95% CI 0.19 to 3.16; long term: one study, n = 38, OR 0.53, 95% CI 0.14 to 1.92, Analysis 9.4).

9. Cost

No data were reported.

Subgroup analyses

Type of therapy

We carried out subgroup analyses of the different psychological therapies compared to controls for the primary outcomes of improvement and PTSD symptoms. Improvement was reported in studies which had used CBT and narrative therapies. There was no difference between these subgroups (Chi^2 = 0.49, df = 1, P = 0.48, I^2 = 0%, Analysis 10.1). There was also no difference between CBT, narrative, EMDR and other psychological therapies subgroups for symptoms of PTSD (Chi^2 = 4.03, df = 3, P = 0.26, I^2 = 25.5%, Analysis 10.2).

Type of trauma

We compared the type of trauma (sexual abuse, civil or social violence, physical trauma, natural disaster) in a subgroup analyses. There was no significant difference between subgroups in improvement (Chi^2 = 0.88, df = 2, P = 0.65, I^2 = 0%, Analysis 11.1) or PTSD symptoms (Chi^2 = 3.36, df = 3, P = 0.24, I^2 = 10.6%, Analysis 11.2).

Sensitivity analyses

Allocation concealment

As most studies did not report allocation concealment a sensitivity analysis could only be conducted for PTSD symptoms where the one study at low risk of bias for allocation concealment was compared to studies where the risk was unclear. There was no difference between these two groups of studies (Chi^2 = 0.38, df = 1, P = 0.54, I^2 = 0%, Analysis 12.1).

Blinding

There was no difference between studies with a low, high or unclear risk of detection bias in improvement (Chi^2 = 4.36, df = 2, P = 0.11, I^2 = 54.1%, Analysis 13.1) or PTSD symptoms (Chi^2 = 0.01, df = 1, P = 0.91, I^2 = 0%, Analysis 13.2).

Skewed data

There was no difference between studies which reported skewed data and those that did not (Chi^2 = 0.22, df = 1, P = 0.84, I^2 = 0%, Analysis 14.1).

Intention-to-treat analysis

There was no difference between best and worst-case estimates of improvement when all psychological therapies were compare to a control (Chi^2 = 1.67, df = 1, P = 0.20, I^2 = 40.0%, Analysis 15.1).

Funnel plot

A funnel plot could not be produced because there were not enough studies reporting the primary outcome of PTSD symptoms or improvement.

DISCUSSION

Summary of main results

Overall, there is fair evidence for the role of psychological therapies in decreasing the number of children and adolescents who continue to be diagnosed with post-traumatic stress disorder (PTSD) and reducing the scores of PTSD symptoms for up to a month following treatment. In addition, there is some evidence that psychological therapies can decrease the symptoms of anxiety and depression in children and adolescents diagnosed with PTSD.

When each of the psychological therapies were compared to a control, the only therapy for which there was evidence of effectiveness

was cognitive behavioural therapy (CBT). There was greater improvement and decreased PTSD and depression scores in the CBT group compared to a control for up to a year following treatment. In addition, CBT was shown to be superior to supportive therapy.

Overall completeness and applicability of evidence

Although subgroup analyses showed that there was a significant difference between psychological therapies and CBT was the only therapy shown to be effective, there is not enough data to conclude whether one psychological therapy is more effective than another. Therefore these analyses can be considered hypothesis generating and warrant investigation in future trials. Also, there were no data which could provide information on the relative benefits of pharmacological and psychological therapies for the treatment of PTSD in children and adolescents.

There is little evidence to conclude that the benefits of psychological therapies last beyond a month after treatment. The majority of studies reported short-term outcomes and in those studies which did report longer follow-up, the loss to follow-up was markedly increased over time.

There were not enough data to make any conclusions about the effectiveness of psychological therapies with different types of trauma and no data that could allow us to differentiate between complex and non-complex trauma. The lack of any significant difference between the different types of PTSD may be because of the limited number of studies available for this review.

There were not enough data to be able to make any comparisons between individual, group and individual plus parent therapies.

None of the identified studies compared psychological therapies to pharmacological therapies or other forms of treatment for PTSD in children or adolescents.

Quality of the evidence

The evidence that psychological therapies are effective in the treatment of PTSD across a range of psychological therapies is limited by the fairly small number of identified studies, low participant numbers and short-term follow-up.

The findings of this review are also limited by the potential for methodological biases. Although no study was rated as a high risk for selection or detection bias, and a minority were rated as a high risk for attrition, reporting and other bias, most studies were rated as having an unclear risk of selection, detection and attrition bias. Therefore, the potential for a high risk remains in those studies where the methods were not adequately described for a decision to be made.

The quality of the evidence is also limited by the small number and generally small size of the identified studies. Therefore, a negative finding with many of these analyses may well be due to a lack of power.

There was evidence of substantial heterogeneity in the analyses of PTSD and depression symptom scores when psychological therapies were compared to controls. As per our protocol we explored potential sources of heterogeneity by performing subgroup analyses for 'type of therapy' and 'type of trauma'. However, there was no evidence that these subgroups could account for the heterogeneity in these outcomes. We also considered whether type of control may have introduced heterogeneity but again there was no evidence for this as all control groups in these analyses were waiting list controls.

Potential biases in the review process

A large proportion of the 'Risk of bias' ratings in this review were unclear because the methods were not clearly described. Therefore the possibility of a high risk of bias remains in many of these studies.

As none of the participants in the intervention versus control trials could be blinded to whether or not they were receiving an active treatment, it is possible that some of the apparent effect of these interventions may have been because participants knew they were receiving a treatment.

While not rated as a potential risk of bias there also seemed to be inconsistent reporting of PTSD total scores and sub-scores. Some studies also used measures which seemed limited in scale, and therefore to have a higher potential for skewed data, and may have been less sensitive to symptom change.

Agreements and disagreements with other studies or reviews

The finding of this review that psychological therapies are effective in the treatment of PTSD is in line with the findings of the narrative review by Taylor 2004 that psychological therapies are effective in the treatment of traumatic stress in children and adolescents. Although the psychological therapy for which there was the best evidence of effectiveness was CBT, there is little basis on which to conclude at this stage that one psychological therapy is more effective than the other in the treatment of PTSD in children and adolescents. This apparent lack of a clear difference between psychological therapies is similar to the results of meta-analyses of treatments for other psychological conditions (Churchill 2001; Dennis 2007; Gava 2007).

The finding that CBT appears to be effective in the treatment of PTSD is in line with the recommendation of the UK National Institute for Clinical Excellence (NICE) guidelines that children and young people with PTSD should be offered a course of trauma-focused CBT adapted appropriately to suit their age, circumstances and level of development (NICE 2005). In addi-

tion, two Cochrane reviews have reported evidence for the effectiveness of CBT in the treatment of PTSD (Bisson 2007) and acute traumatic stress symptoms (Roberts 2010) in adults. Bisson 2007 concluded that there was evidence that individual trauma-focused CBT and eye movement desensitisation and reprocessing (EMDR) was more effective in reducing PTSD symptoms than other non-trauma focused psychological therapies, while Roberts 2010 concluded that trauma-focused CBT was more effective for individuals with acute traumatic stress symptoms compared to waiting list and supportive counselling interventions.

AUTHORS' CONCLUSIONS

Implications for practice

There is fair evidence for the effectiveness of psychological therapies, particularly CBT, for the treatment of PTSD in children and adolescents. At this stage, there is no clear evidence for the effectiveness of one psychological therapy compared to others. There is also not enough evidence to conclude that children and adolescents with particular types of trauma are more or less likely to respond to psychological therapies than others.

Implications for research

To identify whether specific psychological therapies are more effective for the treatment of PTSD in children and adolescents, more trials comparing the various psychological therapies are required. In addition, trials which compare psychological therapies to pharmacological and other treatments are also needed. More details are required in future trials in regards to the types of trauma that preceded the diagnosis of PTSD and whether the traumas are single event or ongoing. More effort also needs to be given to increasing longer-term follow-up. Future studies should also aim to identify the most valid and reliable measures of PTSD symptoms and ensure that all scores, total and sub-scores are consistently reported.

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* *Indicates the major publication for the study*

CHARACTERISTICS OF STUDIES

Characteristics of included studies *[ordered by study ID]*

Ahmad 2007

Methods	Randomised trial of eye movement and desensitising and reprocessing (EMDR) versus waiting list control
Participants	*Included (n = 33)* Children aged 6 to 16 attending a child psychiatric outpatient clinic who met criteria for PTSD (DSM-IV diagnosis); at least 1 traumatic experience and grown up in at least one "socially exposed" condition, i.e. family member with criminality, substance abuse, chronic illness, handicap, mentally or physically unavailable caregiver Mean age: 10 years Female: 20 Swedish ethnicity: 19 Baseline symptom score: EMDR 35.5, waiting list 35.5 DSM-IV co-morbidity: depression 15, ADHD 10, oppositional defiant disorder 7, separation anxiety 6, conduct disorder 4, autism spectrum Most terrifying trauma: maltreatment 12, sexual abuse 7, motor vehicle accident 5, witnessing unnatural death 4, other 2 Time since event: < 1 year: 6, 1 to 2 years: 16, > 3 years: 11 *Excluded* Need for other types of treatment (e.g. CBT, play therapy, medication) or receiving social welfare service *Setting* Child psychiatric outpatient clinic, Sweden
Interventions	*EMDR (n = 17)* A manualised adult version adjusted for children. The child was asked to attend 8 weekly outpatient sessions of up to 45 minutes without the caregiver unless they requested them to be there. Eye movements were replaced by tapping when needed. The child was randomised to 1 of 2 therapists. The mean number of sessions attended was 5.9 *Waiting list control (n = 16)* Had to wait 2 months for treatment
Outcomes	*PTSD symptoms* Scale: Post-traumatic Stress Symptom Scale for Children (36 items) Scores: total, PTSD-related stress, PTSD non-related stress, avoidance, hyperarousal and re-experiencing sub-scores Rater: semi-structured interview with child and caregiver *When* Post-treatment
Notes	Loss to follow-up: 1/33

Risk of bias

Bias	Authors' judgement	Support for judgement

Ahmad 2007 (*Continued*)

Random sequence generation (selection bias)	Unclear risk	Not stated
Allocation concealment (selection bias)	Unclear risk	Therapists 'administered' randomisation, no further details provided
Blinding (performance bias and detection bias) All outcomes	Low risk	Evaluators were blind to treatment allocation
Incomplete outcome data (attrition bias) All outcomes	Low risk	Regression analysis was used to estimate data for the 1 participant lost to follow-up
Selective reporting (reporting bias)	Low risk	All outcomes appear to have been reported
Other bias	Unclear risk	Higher proportion of children of Swedish ethnicity in EMDR group

Ahrens 2002

Methods	Randomised trial of cognitive processing therapy versus waiting list control
Participants	*Included (n = 38)* Incarcerated adolescent males aged 15 to 18 years who met DSM-IV criteria for PTSD Mean age: 16.4 years Ethnicity: African American 10, Caucasian 23, Hispanic 2, Native American 2, other 1 Baseline symptom score: cognitive processing 16.89, waiting list 19.36 *Excluded* Not stated *Setting* Youth correctional facility in the US
Interventions	*Cognitive processing therapy (n = 19)* 8 weekly sessions of 60 minutes in exposure and cognitive restructuring. Sessions consisted of 2 educational sessions: PTSD symptoms, exercise distinguishing thoughts and feelings, examining thoughts associated with trauma, and antecedents, beliefs and consequences, 2 exposure sessions: participants shared narratives of the trauma and their thoughts and feelings, 2 sessions of challenging beliefs: taught to identify and challenge maladaptive beliefs and examined beliefs in safety, trust, power, esteem and intimacy *Waiting list control (n = 19)* *Therapists and supervision* Therapy was manualised and conducted by a psychologist and doctoral student
Outcomes	*PTSD symptoms* Scale: Impact of Events Scale (15 items) Scores: sub-scores for intrusion and avoidance Rater: self report Scale: Child PTSD Symptoms Scale (17 items)

Ahrens 2002 (*Continued*)

	Scores: 3 sub-scales were 'combined' Rater: self report *Depression* Scale: Beck Depression Inventory (21 items) Rater: self report *When* *4* weeks
Notes	Impact of Events data used for PTSD symptoms because the PTSD Symptom Scale data were skewed Loss to follow-up: not clear

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not reported
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Loss to follow-up not clear
Selective reporting (reporting bias)	High risk	PTSD subscales were not reported
Other bias	Low risk	No other apparent bias

Catani 2009

Methods	Narrative exposure therapy (KIDNET) versus meditation/relaxation
Participants	*Included (n = 31)* Children aged 8 to 14 years living in an area in northern-eastern Sri Lanka severely affected by the 2004 tsunami and civil war diagnosed with DSM-IV PTSD Mean age: 12 years Female: 14 Baseline symptom score: KIDNET 37.94, meditation/relaxation 36.58 *Excluded* None of the children met the exclusion criteria of mental retardation, neurological disorder or psychosis *Setting* A refugee camp in northern-eastern Sri Lanka within the first months after the tsunami

Interventions	*KIDNET (n = 16)* The counsellor assists the child to construct a detailed chronological account of his or her own biography. During the confrontation with aversive life events therapists ask for current and past emotional, physiological and cognitive and behavioural reactions. Particular attention was given to trauma experiences. Exposure to traumatic experiences was not terminated until there was a significant reduction in the fear reaction. In the last session the participant received a written report of his/her biography *Meditation-relaxation (n = 15)* The first session was psycho education followed by a thorough assessment of the child's problem and ending with a breathing exercise. Subsequent sessions focus on relaxation techniques including breathing, meditation and mantras *Both* Both treatments consisted of 6 x 60 to 90-minute sessions over 2 weeks *Therapists and supervision* Therapist and interviewers were recruited from a group of 6 female school teachers trained as counsellors to assist children with war-related trauma. Therapists were supervised by local trainers and therapy assessed for treatment adherence and quality
Outcomes	*Improvement* Scale: UCLA PTSD Index for DSM-IV diagnosis Rater: clinician interview *PTSD symptoms* Scale: UCLA PTSD Index *When* Post-treatment and 6-month follow-up
Notes	PTSD domain scores were reported graphically KIDNET post-treatment PTSD total scores were skewed Loss to follow-up: 1/31

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Random allocation by coin toss
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	Low risk	Outcome measurement was blinded
Incomplete outcome data (attrition bias) All outcomes	Low risk	ITT analysis was used with the last observation carried forward. However, as there was no difference in results the completer analysis was used for the 6-month follow-up data

Catani 2009 (*Continued*)

Selective reporting (reporting bias)	Low risk	All outcomes appear to have been reported
Other bias	Low risk	No other apparent bias

Chemtob 2002a

Methods	Randomised trial of eye movement desensitisation and reprocessing (EMDR) versus waiting list control
Participants	*Included (n = 32)* Children aged 6 to 12 who had undergone trauma from hurricane exposure 3.5 years previously, met DSM-IV criteria for disaster-related PTSD and had not responded to brief psychosocial counselling Mean age: 8.4 years Female: 22 Ethnicity: Hawaiian or part-Hawaiian 31.3%, Caucasian 18.8%, Japanese 12.5%, mixed 9.4% Baseline symptom score: EMDR 36.54, waiting list 39.60 *Excluded* Not stated *Setting* Hawaiian study
Interventions	*EMDR (17 completers)* Consisted of 1 diagnostic and 3 weekly sessions. Treatment encompassed worst memory, current reminders and future events. During sessions, participants were asked to visually track movement of the therapist's hand while concentrating on trauma related memories, thoughts and sensations *Waiting list control (15 completers)* *Therapists and supervision* Therapists were 4 doctoral level clinicians, with over 10 years experience with children, and had received 16 hours of EMDR training. Therapy was manualised and therapists received a minimum of 4 supervision sessions. Therapists also met weekly to review treatment fidelity and adherence
Outcomes	*PTSD symptoms* Scale: UCLA PTSD Reaction Index Rater: clinician-rated *Depression* Scale: Children's Depression Inventory (27 items) Rater: self report *Anxiety* Scale: Revised Children's Manifest Anxiety Scale (37 items) Rater: self report *When* Post-treatment and 6-month follow-up
Notes	Loss to follow-up: 2/34

Chemtob 2002a (*Continued*)

Risk of bias		
Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not reported
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	Low risk	Outcome measurement was blinded
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Completer analysis was reported but loss to follow-up was low
Selective reporting (reporting bias)	Low risk	All outcomes appear to have been reported
Other bias	Low risk	No other apparent bias

Cohen 2004

Methods	Randomised trial of trauma-focused CBT (TF-CBT) versus child-centred therapy (CCT)
Participants	*Included (n = 203)* Children aged 8 to 14 years who met at least 5 criteria for sexual abuse related DSM-IV PTSD; including at least 1 symptom in each of the PTSD clusters. 180 (89%) met the diagnostic criteria for PTSD. More than 90% had been exposed to multiple traumas Mean age: 10.8 years Female: 79% Ethnicity: white 60%, African American 28%, Hispanic 4%, biracial 7%, other 1% *Excluded* Children, or children with parents, who had an active psychotic disorder or substance use disorder which would significantly impair adaptive functioning. Children who were not fluent in English or had a documented developmental disorder were also excluded *Setting* 2 academically affiliated outpatient clinical treatment programmes for abused/traumatised children in the US
Interventions	*TF-CBT (n = 114)* The TF-CBT model included skills in expressing feelings, training in coping skills, recognising the relationships between thoughts, feelings and behaviours, gradual exposure, cognitive processing of the abuse experience, psycho education about child sexual abuse and body safety, and parent management skills. In 3 sessions, 30 minutes was used for a joint caretaker-child session *CCT (n = 115)* CCT is a child/parent-centred treatment model focused on establishing a trusting ther-

	apeutic relationship that is self affirming, empowering and validating for the parent and child. CCT aims to reverse the difficulties related to the violation of trust and disempowerment by establishing an empowering trusting relationship and by encouraging children and parents to direct the content and structure of their own treatment, thereby allowing them to choose when, how and whether to address aspects of the child's sexual abuse. Therapists provided active listening, reflection, accurate empathy, encouragement to talk about feelings and belief in the child's and parent's ability to develop positive coping strategies for abuse-related difficulties. Written psycho educational information about child sexual abuse was also provided *Both* Both interventions consisted of 12 weekly 45-minute sessions each for the caretaker and the child *Therapists and supervision* Therapists were psychologists and social workers. All therapists were trained over 3 days in both treatments and delivered both. Both treatments were manualised. Therapists received weekly supervision and fidelity was monitored
Outcomes	*Improvement* Scale: PTSD section of the Schedule for Affective Disorders and Schizophrenia for School age Children - Present and Lifetime version (K-SADS-PL) Rater: semi-structured interviews with parent and child *PTSD symptoms* Scale: K-SADS-PL Scores: avoidance, hyperarousal and re-experiencing sub-scores *Depression* Scale: CDI Rater: self report *Anxiety* Scale: State-trait Anxiety Inventory for Children Scores: state and trait scores Rater: self report *Behaviour* Scale: Child Behaviour Checklist Rater: parent report *When* Post-treatment, 6 and 12-month follow-up
Notes	Loss to follow-up: 49/229 Depression data at 6 and 12 months and 12-month re-experiencing data were skewed

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not reported
Allocation concealment (selection bias)	Unclear risk	Not reported

Cohen 2004 (*Continued*)

Blinding (performance bias and detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) All outcomes	High risk	ITT analysis was used to test for group differences but follow-up means and SDs were reported
Selective reporting (reporting bias)	Low risk	All outcomes appear to have been reported
Other bias	Low risk	No other apparent bias

Cohen 2011

Methods	Randomised trial of trauma-focused cognitive behaviour therapy (TF-CBT) versus child centred therapy (CCT)
Participants	*Included (n = 50)* Children of mothers attending a community women's health service in the US, aged 7 to 14 years with at least 5 interpersonal violence (IPV) related PTSD symptoms, including at least 1 symptom from each of the 3 clusters, who were fluent in English and had an English speaking mother who was a direct victim of IPV Mean age: 9.64 years Female: 63 Ethnicity: White 69, Black 41, Biracial 14 Only 14.5% no longer had contact with the perpetrator *Excluded* Significant development disorder; IQ < 80; serious psychotic symptoms in parent or child; living in a IPV shelter *Setting* A community women's centre for victims of interpersonal violence, US
Interventions	*TF-CBT (n = 32)* Develops a narrative of the child's experiences, correcting maladaptive cognitions, and mastery of trauma reminders. It included psycho education about trauma, developing individualised relaxation skills, expressing and modulating upsetting feelings, and cognitive coping skills. Some of the session time was given to joint child-parent sessions where the child was encouraged to discuss their IPV experience and safety plans *CCT (n = 18)* Is aimed at establishing an empowering and trusting relationship between the therapist and client by encouraging the child and parent to direct the content of their own treatment. The therapist provides active listening, reflection, accurate empathy, encouragement to talk about feelings and belief in the client's ability to develop positive coping strategies *Both* The child and parent each attended 8 x 45-minute individual therapy sessions. The same therapist saw the child and parent *Therapists and supervision*

Cohen 2011 (*Continued*)

	Three Masters-level trained social workers providing child therapy at the Women's Center and Shelter were trained in the TF-CBT model and distinctions between the TF-CBT and CCT models. They were supervised and adherence to therapy was checked with blinded rating of 25% of randomly selected sessions. A manual which differentiated CCT from TF-CBT was also available
Outcomes	*Improvement* Scale: Schedule for Affective Disorders and Schizophrenia for School age Children - Present and Lifetime version (K-SADS-PL) Rater: child and parent interview *When* Post-treatment
Notes	Most of the data in this study included participants who were not diagnosed with PTSD. These data will be included in the accompanying prevention review Loss to follow-up of those diagnosed with PTSD was not clear The K-SADS-PL data were used for PTSD symptoms

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Random assignment to treatment using computer-generated random number series. However, 24 received the same treatment as the randomised sibling
Allocation concealment (selection bias)	Low risk	Randomisation lists were locked in the therapists' offices
Blinding (performance bias and detection bias) All outcomes	Low risk	2 project co-ordinators blinded to treatment assignment were trained in the administration of the K-SADS-PL
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Loss to follow-up of those diagnosed with PTSD was not clear
Selective reporting (reporting bias)	Low risk	All outcomes appear to have been reported
Other bias	Unclear risk	Data came from a subset of children diagnosed with PTSD

Ertl 2011

Methods	Randomised trial of narrative exposure therapy versus academic catch-up with counselling versus waiting list control
Participants	*Included (n = 85)* Participants aged 12 to 25 years from 3 regions of Northern Uganda who had been former child soldiers and met PTSD diagnostic criteria. Participants with depression, substance abuse and suicidal ideation were included Mean age: 18 years Females: 47 Baseline symptom score: narrative therapy 67.03, academic catch-up 62.54, waiting list 63.61 *Excluded* 2 participants with psychotic symptoms *Setting* Participants' homes within internally displaced persons camps, Northern Uganda
Interventions	*Narrative exposure therapy (n = 29)* A biography of the participant's life history was composed to reconstruct fragmented memories of trauma and achieve habituation *Academic catch-up (n = 28)* Approximately half the time focused on helping the young person catch up on education they had missed while abducted. The rest of the time was spent discussing coping with symptoms and dealing with current problems *Both therapies* The first session always included psychoeducation on PTSD, its symptoms and consequences, and treatment rationale. Both interventions consisted of 8 individual sessions of 90 to 120 minutes 3 times per week *W aiting list control (n = 28)* Participants were not offered any psychosocial or therapeutic intervention unless they exhibited high levels of suicide ideation when a suicide intervention was provided (n = 10). Those still meeting criteria for PTSD after 12 months were offered narrative exposure therapy *Therapists and supervision* Both interventions were done by 14 intensively trained local lay counsellors. Treatment was supervised and adherence was monitored
Outcomes	*Improvement* Scale: Clinician Administered PTSD Scale (CAPS) Rater: clinician rating *PTSD symptoms* Scale: CAPS *Depression* Scale: Mini International Neuropsychiatric Interview (MINI) - Module A for major depression Rater: clinician rating *Adverse events* Suicide *When* 3, 6 and 12 months

Ertl 2011 (*Continued*)

Notes	Loss to follow-up: 9/85	
Risk of bias		
Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not reported
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) All outcomes	High risk	ITT analysis was used but was not reported
Selective reporting (reporting bias)	Low risk	All outcomes appear to have been reported
Other bias	Low risk	No other apparent bias

Gilboa-Schechtman 2010

Methods	Randomised trial of prolonged exposure therapy (PEA-A) or time-limited dynamic psychotherapy (TLDP-A)
Participants	*Included (n = 38)* Participants aged 12 to 18 years with a primary diagnosis of PTSD related to a single traumatic event, and fluent in Hebrew. Participants with a history of substance abuse or conduct disorder, or suicidal ideation were included Mean age: 14.05 years Female: 24 Trauma type: MVA 16, sexual assault 8, terrorist attack 5, non-sexual assault 2, other 7 Internalising disorders 19, externalising 5, both 6 Stable psychiatric medication 5 Baseline symptom score: 27.11 across all groups *Excluded* Organic brain damage, mental retardation, ongoing trauma threat, suicidal ideation posing imminent danger, current substance dependence, pending legal issues, ongoing psychological treatment, or initiation of psychotropic medication in the previous 6 weeks *Setting* Children's medical centre, Israel
Interventions	*Prolonged exposure therapy (n = 19)* Consisted of 3 modules: psychoeducation, exposure and treatment termination and relapse prevention over 12 to 15 weekly sessions of 60 to 90 minutes (mean 16.78 hours) . Therapists received 5 days training

Gilboa-Schechtman 2010 (*Continued*)

	Time-limited dynamic psychotherapy (n = 19) Is a non-directive, non-trauma focused, time-limited psychodynamic psychotherapy which aimed to change entrenched patterns of inter- and intra-personal relatedness. The sessions focused on building a working alliance, defining and working through the central issue over 15 to 18 sessions of 50 minutes (mean 16.90 hours). Therapists received 2 days training *Both* Both treatments included case management *Therapists and supervision* Treatments were manualised and provided by 11 Masters-level clinicians. Clinicians received weekly corrective supervision, and fidelity and adherence were checked
Outcomes	*Improvement* Scale: Schedule for Affective Disorders and Schizophrenia for School age Children - Present and Lifetime version (K-SADS-PL) Rater: semi-structured interviews with parent and child *PTSD symptoms* Scale: Child PTSD Symptoms Scale (17 items) Rater: self report Scores: total score *Depression* Scale: Beck Depression Inventory (21 items) Rater: self report *When* Post-treatment
Notes	Loss to follow-up: at end of treatment 8/38, at 6 months 11/38, at 17 months 17/38 Loss to follow-up was more than 50% in the TDLP group at 17 months

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Block randomisation was used
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	ITT analysis based on the last observation carried forward was reported but the loss to follow-up was high
Selective reporting (reporting bias)	Low risk	All outcomes appear to have been reported

Gilboa-Schechtman 2010 (*Continued*)

Other bias	Low risk	No other apparent bias

Gordon 2008

Methods	Randomised trial of mind body skills versus waiting list control
Participants	*Included (n = 82)* High School students in Kosovo aged 14 to 18 years who met criteria for PTSD after interview and screening using the Harvard Trauma Questionnaire Mean age: 16.3 years Female: 62 *Excluded* Not stated *Setting* High School in Kosovo
Interventions	*Mind Body Skills programme (n = 41)* 12 twice-weekly sessions of 2 hours over 6 weeks with approximately 10 students per group. Activities included guided imagery, relaxation techniques, active techniques to reduce stress, self expression through words, drawing, and movements and genograms to explore the emotional support in their families *W aiting list control (n = 41)* Received the intervention after the first group completed the initial programme *Therapists and supervision* The Mind Body Skills programme was taught by 4 of the school's teachers who had taken part in a 10-day intensive training course in 1999. Teachers were supervised by faculty psychologists and psychiatrists
Outcomes	*PTSD symptoms* Scale: Harvard Trauma Questionnaire (16 items) Scores: average item score and the prevalence of re-experiencing, avoidance and arousal determined by at least 3 of the re-experiencing and avoidance symptoms and 2 of the hyperarousal symptoms Rater: teacher interview with child *When* Post-treatment (control scores were not available for the 3-month follow-up)
Notes	Loss to follow-up: 4/82

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Participants were stratified according to gender and assigned using random numbers generated in Microsoft Excel

Gordon 2008 (*Continued*)

Allocation concealment (selection bias)	Low risk	Participants were randomly assigned by the research director
Blinding (performance bias and detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Completer analysis reported but loss to follow-up was low
Selective reporting (reporting bias)	Low risk	All outcomes appear to have been reported
Other bias	Unclear risk	Not clear how the cut-offs for the subscores of re-experiencing, avoidance and arousal were determined

King 2000

Methods	Randomised trial of child only CBT versus family CBT versus waiting list control
Participants	*Included (n = 36)* Children with validated contact sexual abuse who met diagnostic criteria for PTSD or severe stress reactions. Children and non-offending parents had to be English-speaking. 25 participants had a primary diagnosis of PTSD and 11 had several PTSD symptoms Mean age: 11.4 years Female: 69% Baseline symptom score: child CBT 13.33, family CBT 13.58, waiting list 12.83 *Excluded* Ongoing unsupervised contact with the perpetrator; severe intellectual disability, psychosis or suicidal behaviour; on antidepressant or anti-anxiety medication Setting: children's support centre, Australia
Interventions	*Child CBT (n = 12)* Consisted of 20 weekly sessions of 50 minutes. These included psychoeducation, coping skills, relaxation, graded exposure and relapse prevention *Family CBT (n = 12)* Mothers also attended 20 weekly sessions of 50 minutes in child behaviour management skills and parent-child communication *W aiting list (n = 12)* No contact for the 24-week waiting period *Therapists and supervision* Therapists were registered psychologists who received 15 to 20 hours of training in each therapy. All were rotated across both treatments. Treatments were manualised and supervised and assessed for adherence
Outcomes	*Improvement* Scale: child version of the Anxiety Disorders Interview Schedule (ADIS) Rater: interview with parent and child

King 2000 (*Continued*)

	PTSD symptoms Scale: ADIS Scores: total and avoidance, hyperarousal and re-experiencing sub-scores *Anxiety* Scale: Revised Children's Manifest Anxiety Scale (37 items) Rater: self report Depression Scale: Children's Depression Inventory (27 items) Rater: self report *Behaviour* Scale: Child Behaviour Check List (CBCL) Rater: mother rated *When* Post-treatment and 12-week follow-up
Notes	Loss to follow-up: 8/36 Data were pooled for the 2 CBT groups

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Not reported
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Baseline scores were used as follow-up scores for non completers
Selective reporting (reporting bias)	Unclear risk	CBCL outcomes were not reported
Other bias	Low risk	No other apparent bias

Najavits 2006

Methods	Randomised trial of seeking safety therapy versus treatment as usual
Participants	*Included (n = 33)* Adolescent girls who were outpatients with DSM-IV criteria for PTSD, substance use disorder and reported substance use within the previous 60 days. Most (31) had substance dependence. Mean age: 16.06 years Ethnicity: Caucasian 26, Asian/pacific islander 4, African American 1, Hispanic 1, mul-

	tiethnic 1 Trauma: sexual abuse 29, disaster/accident 27, physical abuse 24, crime 13 Mean age at first trauma: 8.75 years; mean age of PTSD onset 11.91 years *Excluded* Patients with bipolar disorder, psychotic disorder, were mandated to treatment, had characteristics that would interfere with treatment completion (mental retardation, homelessness, impending incarceration or life-threatening illness) *Setting* US study
Interventions	*Seeking safety therapy (n = 18)* A manualised psychotherapy for PTSD and substance use disorder consisting of 25 individual format sessions of 50 minutes over 3 months. SS is a coping skills therapy which targets current PTSD and substance used disorder. Therapy was manualised and was based on the principles of safety as priority, integrated treatment, focus on ideals, cognitive, behavioural, interpersonal domains, case management and attention to therapist processes *Treatment as usual (n = 15)* All participants in this group could any attend any treatments that were sought naturalistically *Therapists and supervision* Therapists were a psychiatrist or psychologist. Therapy was supervised and assessed for adherence
Outcomes	*PTSD symptoms* Scale: Trauma Symptom Checklist for Children (54 items) Scores: 6 subscales Rater: self report *Depression* Scale: Adolescent Psychopathology Scale Rater: self report *When* Post-treatment and 3-month follow-up
Notes	Loss to follow-up: 7/33 at end of treatment, 13/33 at follow-up

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not reported
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	Unclear risk	Not reported

Najavits 2006 (*Continued*)

Incomplete outcome data (attrition bias) All outcomes	High risk	Completer analysis reported
Selective reporting (reporting bias)	High risk	Other than sexual concerns and sexual distress, PTSD symptoms or improvement were not reported
Other bias	High risk	Scores for anorexia, loss of control, sexual concerns and sexual distress were higher in the in the TAU group

Ruf 2010

Methods	Randomised trial of KIDNET versus waiting list control
Participants	*Included (n = 26)* Traumatised refugee children and adolescents aged from 7 to 16 years diagnosed with PTSD according to DSM-IV criteria Mean age: 11 years Female: 12 21 were living in a refugee centre Trauma: violent attacks against the parent or other family members at home 19, witnessing attacks outside the home 13, accidents 9, living in a place of war 9, seeing dead bodies 9, traumatic medical treatments 7, the death of a beloved person 7, earthquakes 5, other natural disasters 3, sexual abuse 2 Baseline symptom score: KIDNET 43.3, waiting list 38.3 *Excluded* Acute psychotic symptoms but none of the children met this criterion *Setting* Research outpatient clinic for refugees, Germany, 2003-6
Interventions	*KIDNET (n = 13)* See Catani 2009 above for description of intervention. 8 sessions were provided on a weekly basis but this was also based on the therapist's impression so that participants attended between 7 and 9 sessions *W aiting list control (n = 13)* *Therapists and supervision* 8 clinical psychologists, all with experience treating traumatised survivors of war and violence carried out KIDNET. Interpreters were also used where required
Outcomes	*Improvement* Scale: UCLA PTSD Index Rater: interview with trained clinical psychologist *PTSD symptoms* Scale: UCLA PTSD Index Scores: total, and avoidance, hyperarousal and re-experiencing sub-scores *When* 6 months

Ruf 2010 (*Continued*)

Notes	Loss to follow-up: appears to be 1/26 The scale used to measure function was not validated No control data were available at 12 months	
Risk of bias		
Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Permuted block randomisation was used
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	Low risk	"These assessors were left blind about the group assignment"
Incomplete outcome data (attrition bias) All outcomes	High risk	Completer analysis reported
Selective reporting (reporting bias)	Low risk	All outcomes appear to have been reported
Other bias	Low risk	No other apparent bias

Schauer 2008

Methods	Cluster-randomised trial of KIDNET versus meditation/relaxation
Participants	*Included (n = 47)* War-affected children who suffered from severe PTSD and met DSM-IV criteria (CAPS-CA) for PTSD Mean age: 13.1 years Females: 29 They had experienced a mean of 6 traumatic events with exposure to war the most common (60%) and had a mean CAPS trauma score of 65.5 Baseline symptom score: KIDNET 63.2, meditation/relaxation 71.2 *Excluded* Not stated Setting: 6 primary schools in North-Eastern Sri Lanka, 2002-5
Interventions	*KIDNET (n = 25)* See Catani 2009 for description of intervention. There were 6 treatment sessions at times agreed between the counsellor and participant *Meditation/relaxation (n = 22)* Was a locally designed protocol comprised of multi-cultural meditation/relaxation exercises Children with moderate to high suicidality were monitored closely by a consultant psychiatrist. Some of these children received treatment in an outpatient setting

	Both therapies Both therapies were manualised school-based therapies provided over 6 treatment sessions of 60 to 90 minutes over 3 to 4 weeks. The first session consisted of psycho education in both groups *Therapists and supervision* Counsellors were teachers in the schools who had been trained as counsellors. Each counsellor had 2 to 4 children for therapy. Therapies were checked for adherence and counsellors were supervised
Outcomes	*Improvement* Scale: Clinician Administered PTSD Scale for Children and Adolescents (CAPS-CA) Rater: structured interview *PTSD symptoms* Scale: CAPS-CA *Depression* Scale: Mini International Neuropsychiatric Interview (MINI) - KID module A *When* 5 months
Notes	Loss to follow-up: 1/47 Depression data were not reported and could not be obtained

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Cluster-randomised controlled trial where the 6 schools were randomised to groups
Allocation concealment (selection bias)	Low risk	Allocation was based on the order of drawing sealed envelopes which contained a piece of paper with the school name
Blinding (performance bias and detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up data were reported but only 1 person was lost to follow-up
Selective reporting (reporting bias)	Low risk	All outcomes appear to have been reported
Other bias	Unclear risk	Although not statistically significant the CAPS trauma score was higher in the meditation/relaxation group (KIDNET 63.2, meditation/relaxation 71.2)

Smith 2007

Methods	Trauma-focused CBT (TF-CBT) versus waiting list control
Participants	*Included (n = 24)* Children and young people aged 8 to 18 years with a major presenting problem of DSM-IV PTSD relating to a single event trauma and fluent in English Mean age: 14 years Female: 12 Ethnicity: white 23, black 10, Asian 2, other/not stated 3 Trauma: motor vehicle accident 21, interpersonal violence 12, witnessing violence 4 Time since trauma: 2.3 to 71 months Baseline symptom score (CAPS-CA): TF-CBT 60.9, waiting list 54.7; baseline Child PTSD Symptoms Scale: TF-CBT 28.1, waiting list 28.3 *Excluded* Presence of organic brain damage, unconscious for more than 15 minutes during the trauma, significant learning difficulty, ongoing trauma-related threat, psychotropic medication begun within previous 3 months, currently receiving another psychological treatment *Setting* Specialist NHS trauma clinic for young people, UK
Interventions	*TF-CBT (n = 12)* This therapy was an adaption of the model of Ehlers and Clark (2000) for young people. It consisted of 10 weekly sessions with the child and joint parent-child sessions as necessary. Treatment components included psychoeducation, activity rescheduling/reclaiming life, imaginal reliving, cognitive restructuring, revisiting the trauma site and stimulus discrimination *W aiting list (n = 12)* Participants were given an appointment 10 weeks after randomisation *Therapists and supervision* CBT was manualised and delivered by psychologists with at least 10 years experience of working with traumatised children Therapists received monthly supervision
Outcomes	*Improvement* Scale: Clinician Administered PTSD Scale for Children and Adolescents (CAPS-CA) Rater: interview with doctoral level clinical psychologists *PTSD symptoms* Scale: Child PTSD Symptoms Scale Rater: self report Scale: Children's Revised Impact of Event Scale (CRIES) Rater: self report *Depression* Scale: Depression Self Rating Scale *When* Post-treatment (no control data available at 6 months follow-up)
Notes	Loss to follow-up: 0/24
Risk of bias	

Smith 2007 (*Continued*)

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Using a computer program randomisation was stratified by age, gender and symptom severity
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	Low risk	Participants were reassessed by "assessors who were blind to condition"
Incomplete outcome data (attrition bias) All outcomes	Low risk	100% follow-up
Selective reporting (reporting bias)	Low risk	All outcomes appear to have been reported
Other bias	Low risk	No other apparent bias

ADHD: attention deficit hyperactivity disorder
ADIS: Anxiety Disorders Interview Schedule
CAPS: Clinician Administered PTSD Scale
CAPS-CA: CAPS for children and adolescents
CBCL: Child Behaviour Check List
CBT: cognitive behavioural therapy
CCT: child-centred therapy
DSM-IV: Statistical Manual of Mental Disorders IV
EMDR: eye movement desensitisation and reprocessing
IPV: interpersonal violence
ITT: intention-to-treat
KIDNET: narrative exposure therapy
K-SADS-PL: Schedule for Affective Disorders and Schizophrenia for School age Children - Present and Lifetime version
MVA: motor vehicle accident
PTSD: post-traumatic stress disorder
SS: seeking safety (therapy)
TAU: treatment as usual
TDLP: time-limited dynamic psychotherapy
TF-CBT: trauma-focused CBT
UCLA: University of California at Los Angeles

Characteristics of excluded studies *[ordered by study ID]*

Study	Reason for exclusion
Berger 2007	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Berger 2009	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Berkowitz 2011	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Berliner 1996	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Bolton 2007	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Brown 2003	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Celano 1996	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Chapman 2001	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Chemtob 2002	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Cohen 1997	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Cohen 1998	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Cohen 2005	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Cohen 2007	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Cooley-Strickland 2011	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Cox 2010	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Deblinger 1996	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'

(*Continued*)

Deblinger 2001	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Deblinger 2011	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Dominguez 2001	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Ehntholt 2005	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Ensink 2004	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Farkas 2010	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Gelkopf 2009	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Goenjian 1997	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Jaberghaderi 2004	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Jeffres 2004	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Jordans 2010	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Kassam-Adams 2011	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Kataoka 2003	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Kazak 2004	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Kemp 2010	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Layne 2008	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Lesmana 2009	Not randomised, children were allowed to select groups "while not knowing which of the two groups they were choosing"

(*Continued*)

Lieberman 2005	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Lyshak-Stelzer 2007	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
March 1998	Not randomised
McWhirter 2011	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Pfeffer 2002	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Raider 2008	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Salloum 2008	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Schaal 2010	Average age of participants was 19 years
Scheeringa 2011	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Shechtman 2010	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Shelby 1995	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Shooshtary 2008	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Stallard 2006	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Stein 2003	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Taussig 2010	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Thabet 2005	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Tol 2010	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'

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Trowell 2002	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Wang 2011	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Wolmer 2011a	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Wolmer 2011b	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'
Zehnder 2010	Reviewed in Cochrane review 'Psychological therapies for the prevention of post-traumatic stress disorder in children and adolescents'

Characteristics of ongoing studies *[ordered by study ID]*

Bryant 2011

Trial name or title	Randomised controlled trial of cognitive behavior therapy and supportive counselling for reduction in post-traumatic stress disorder (PTSD) symptoms in Acehnese children
Methods	This study will randomly allocate children with PTSD to either cognitive behaviour therapy or supportive counselling
Participants	Children aged 8 to 12 years who have undergone exposure to trauma in Aceh and meet criteria for PTSD Excluded: suicidal intent, psychotic, substance-dependent
Interventions	Cognitive behavioural therapy or supportive counselling
Outcomes	
Starting date	March 2011
Contact information	Name: Professor Richard Bryant Address: School of Psychology, University of New South Wales, Anzac Parade, Kensington, Sydney, NSW, 2052 Country: Australia Tel: 61-2-93853640 Email: r.bryant@unsw.edu.au
Notes	Registered as not yet recruiting Email sent requesting any information 17 May 2012

Chemtob 2008

Trial name or title	Effectiveness of trauma-focused cognitive behavioral therapy in treating children with post-traumatic stress disorder
Methods	RCT of the effectiveness of trauma-focused cognitive behavioural (TF-CBT) versus treatment as usual (TAU) in treating children with PTSD in community clinics
Participants	Children aged 8 years to 18 years in community clinics who meet DSM-IV criteria for PTSD, are stable on medication for 1 month before study entry and English-speaking Exclusion criteria: active suicidality or peri-traumatic life circumstances (e.g. active current abuse), uncontrolled psychosis, severe mental retardation or severe brain damage, severe language comprehension barriers
Interventions	TF-CBT versus TAU
Outcomes	PTSD symptoms
Starting date	January 2007
Contact information	Claude Chemtob, Mount Sinai School of Medicine Email: claude.chemtob@mssm.edu
Notes	Currently registered as active Email sent requesting any information 17 May 2012

Foa 2009

Trial name or title	Treating adolescents with CSA related PTSD
Methods	This RCT will evaluate the comparative effectiveness of prolonged exposure therapy and supportive counselling in treating adolescents with PTSD that is related to childhood sexual abuse or assault
Participants	Adolescents with PTSD related to childhood sexual abuse or assault
Interventions	Prolonged exposure therapy for adolescents (PE-A) or client centered therapy (CCT)
Outcomes	PTSD symptoms, attitudes, attributions and perceptions, depression, behaviour, mood
Starting date	January 2007
Contact information	Sandy Capaldi, MA, MS 215-746-3327 sandraca@mail.med.upenn.edu Alissa B. Worly, BA 215-746-3334 aworly@mail.med.upenn.edu
Notes	Status not known Email sent requesting any information 17 May 2012

Goldbeck 2011

Trial name or title	Effectiveness of trauma-focused cognitive-behavioral therapy for children with post-traumatic stress disorder
Methods	Multi-site randomised controlled trial compares the effectiveness of trauma-focused cognitive-behavioural therapy (TF-CBT) in children with PTSD
Participants	Children aged 7 to 14 years who were exposed to traumatic events beyond the age of 3 years, at least 3 before assessment, a major mental health diagnosis of PTSD (score of at least 35 on the CAPS-CA) Excluded: psychosis, suicidality, major brain injury
Interventions	TF-CBT versus waiting list
Outcomes	PTSD symptoms, psychopathology, anxiety, depression, impairment, cognitions
Starting date	February 2012
Contact information	Lutz Goldbeck, Section for Psychotherapy Research and Behavioural Medicine, University of Ulm E-mail: lutz.goldbeck@uniklinik-ulm.de
Notes	Registered as not yet open Email sent requesting any information 17 May 2012

Kenardy 2010

Trial name or title	Protocol for a randomised controlled trial of risk screening and early intervention comparing child- and family-focused cognitive-behavioural therapy for PTSD in children following accidental injury
Methods	A RCT comparing the effectiveness of child-focused CBT, family-focused CBTand a waiting list control
Participants	Children experiencing PTSD following accidental injury
Interventions	Child-focused CBT and family-focused CBTas early interventions, and a waiting list control
Outcomes	PTSD diagnosis and symptoms, anxiety, depression, quality of life, behaviour
Starting date	February 2010
Contact information	Justin Kenardy Centre of National Research on Disability and Rehabilitation Medicine University of Queensland Herston QLD 4029 Australia j.kenardy@uq.edu.au
Notes	Study is expected to be completed at the end of 2012 Email sent requesting any information 17 May 2012

CAPS-CA: Clinician Administered PTSD Scale for children and adolescents

CBT: cognitive behavioural therapy
CSA: childhood sexual abuse
DSM-IV: Statistical Manual of Mental Disorders IV
PTSD: post-traumatic stress disorder
RCT: randomised controlled trial
TAU: treatment as usual
TF-CBT: trauma-focused CBT

DATA AND ANALYSES

Comparison 1. All psychological therapies versus control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Improvement	4		Odds Ratio (M-H, Random, 95% CI)	Subtotals only
1.1 Short-term	2	49	Odds Ratio (M-H, Random, 95% CI)	8.64 [2.01, 37.14]
1.2 Medium-term	2	50	Odds Ratio (M-H, Random, 95% CI)	9.46 [2.46, 36.32]
1.3 Long-term	1	53	Odds Ratio (M-H, Random, 95% CI)	1.84 [0.60, 5.65]
2 PTSD total	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 Short-term	6	241	Std. Mean Difference (IV, Random, 95% CI)	-1.05 [-1.52, -0.58]
2.2 Medium-term	3	115	Std. Mean Difference (IV, Random, 95% CI)	-0.58 [-0.97, -0.18]
2.3 Long-term	1	53	Std. Mean Difference (IV, Random, 95% CI)	-0.44 [-0.98, 0.11]
3 Anxiety	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 Short-term	3	91	Std. Mean Difference (IV, Random, 95% CI)	-0.57 [1.00, -0.13]
3.2 Medium-term	1	36	Std. Mean Difference (IV, Random, 95% CI)	-0.63 [-1.34, 0.08]
4 Depression	6		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 Short-term	5	156	Std. Mean Difference (IV, Random, 95% CI)	-0.74 [-1.11, -0.36]
4.2 Medium-term	3	110	Std. Mean Difference (IV, Random, 95% CI)	0.02 [-0.36, 0.40]
4.3 Long-term	1	53	Std. Mean Difference (IV, Random, 95% CI)	0.02 [-0.52, 0.56]
5 Loss to follow-up	7		Odds Ratio (M-H, Random, 95% CI)	Subtotals only
5.1 Short-term	5	208	Odds Ratio (M-H, Random, 95% CI)	1.59 [0.56, 4.49]
5.2 Medium-term	3	116	Odds Ratio (M-H, Random, 95% CI)	1.54 [0.47, 5.04]
5.3 Long-term	1	57	Odds Ratio (M-H, Random, 95% CI)	10.06 [0.52, 196.10]

Comparison 2. CBT versus control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Improvement	2		Odds Ratio (M-H, Random, 95% CI)	Subtotals only
1.1 Short-term	2	49	Odds Ratio (M-H, Random, 95% CI)	8.64 [2.01, 37.14]
1.2 Medium-term	1	25	Odds Ratio (M-H, Random, 95% CI)	8.00 [1.21, 52.69]
2 PTSD total	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 Short-term	3	98	Std. Mean Difference (IV, Random, 95% CI)	-1.34 [-1.79, -0.89]
2.2 Medium-term	1	36	Std. Mean Difference (IV, Random, 95% CI)	-0.73 [-1.44, -0.01]
3 PTSD avoidance	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
3.1 Short-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
3.2 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4 PTSD hyperarousal	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
4.1 Short-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4.2 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5 PTSD re-experiencing	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
5.1 Short-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5.2 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
6 Anxiety	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

6.1 Short-term	2	59	Std. Mean Difference (IV, Random, 95% CI)	-0.66 [-1.33, 0.01]
6.2 Medium-term	1	36	Std. Mean Difference (IV, Random, 95% CI)	-0.63 [-1.34, 0.08]
7 Depression	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
7.1 Short-term	3	98	Std. Mean Difference (IV, Random, 95% CI)	-0.80 [-1.47, -0.13]
7.2 Medium-term	1	36	Std. Mean Difference (IV, Random, 95% CI)	-0.19 [-0.88, 0.51]
8 Loss to follow-up	2		Odds Ratio (M-H, Random, 95% CI)	Totals not selected
8.1 Short-term	2		Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]

Comparison 3. Narrative versus control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Improvement	2		Odds Ratio (M-H, Random, 95% CI)	Totals not selected
1.1 Medium-term	1		Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
1.2 Long-term	1		Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
2 PTSD total	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 Medium-term	2	79	Std. Mean Difference (IV, Random, 95% CI)	-0.57 [-1.23, 0.09]
2.2 Long-term	1	53	Std. Mean Difference (IV, Random, 95% CI)	-0.44 [-0.98, 0.11]
3 PTSD avoidance	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
3.1 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4 PTSD hyperarousal	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
4.1 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5 PTSD re-experiencing	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
5.1 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
6 Depression	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
6.1 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
6.2 Long-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
7 Loss to follow-up	2		Odds Ratio (M-H, Random, 95% CI)	Subtotals only
7.1 Medium-term	2	83	Odds Ratio (M-H, Random, 95% CI)	5.13 [0.56, 47.28]
7.2 Long-term	1	57	Odds Ratio (M-H, Random, 95% CI)	10.06 [0.52, 196.10]

Comparison 4. EMDR versus control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 PTSD	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 Short-term	2	65	Std. Mean Difference (IV, Random, 95% CI)	-0.61 [-1.96, 0.74]
2 PTSD avoidance	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
2.1 Short-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
3 PTSD hyperarousal	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
3.1 Short-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4 PTSD re-experiencing	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
4.1 Short-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5 Anxiety	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
5.1 Short-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

6 Depression	1	Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
6.1 Short-term	1	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
7 Loss to follow-up	1	Odds Ratio (M-H, Random, 95% CI)	Totals not selected
7.1 Short-term	1	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]

Comparison 5. Other psychological therapies versus control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 PTSD total	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
1.1 Short-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
2 PTSD avoidance	1		Odds Ratio (M-H, Random, 95% CI)	Totals not selected
2.1 Medium-term	1		Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
3 PTSD hyperarousal	1		Odds Ratio (M-H, Random, 95% CI)	Totals not selected
3.1 Medium-term	1		Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
4 PTSD re-experiencing	1		Odds Ratio (M-H, Random, 95% CI)	Totals not selected
4.1 Medium-term	1		Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
5 Depression	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
5.1 Short-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5.2 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
6 Loss to follow-up	2		Odds Ratio (M-H, Random, 95% CI)	Subtotals only
6.1 Short-term	2	115	Odds Ratio (M-H, Random, 95% CI)	1.38 [0.35, 5.52]
6.2 Medium-term	1	33	Odds Ratio (M-H, Random, 95% CI)	0.95 [0.23, 3.88]

Comparison 6. CBT versus supportive counselling

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Improvement	2		Odds Ratio (M-H, Random, 95% CI)	Subtotals only
1.1 Short-term	2	208	Odds Ratio (M-H, Random, 95% CI)	3.18 [1.76, 5.74]
2 PTSD avoidance	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
2.1 Short-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
2.2 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
2.3 Long-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
3 PTSD hyperarousal	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
3.1 Short-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
3.2 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
3.3 Long-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4 PTSD re-experiencing	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
4.1 Short-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4.2 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5 Anxiety state	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
5.1 Short-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5.2 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5.3 Long-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

6 Anxiety trait	1	Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
6.1 Short-term	1	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
6.2 Medium-term	1	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
6.3 Long-term	1	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
7 Depression	1	Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
7.1 Short-term	1	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
8 Behaviour	1	Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
8.1 Short-term	1	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
8.2 Medium-term	1	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
8.3 Long-term	1	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
9 Loss to follow-up	1	Odds Ratio (M-H, Random, 95% CI)	Totals not selected
9.1 Short-term	1	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
9.2 Medium-term	1	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
9.3 Long-term	1	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]

Comparison 7. Narrative versus supportive counselling

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Improvement	1		Odds Ratio (M-H, Random, 95% CI)	Totals not selected
1.1 Long-term	1		Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
2 PTSD total	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
2.1 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
2.2 Long-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
3 Depression	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
3.1 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
3.2 Long-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4 Loss to follow-up	1		Odds Ratio (M-H, Random, 95% CI)	Totals not selected
4.1 Medium-term	1		Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
4.2 Long-term	1		Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]

Comparison 8. Narrative versus meditation/relaxation

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Improvement	2		Odds Ratio (M-H, Random, 95% CI)	Subtotals only
1.1 Short-term	1	31	Odds Ratio (M-H, Random, 95% CI)	1.5 [0.32, 7.14]
1.2 Medium-term	2	76	Odds Ratio (M-H, Random, 95% CI)	1.09 [0.41, 2.88]
2 PTSD total	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 Short-term	1	30	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.73, 0.70]
2.2 Medium-term	2	76	Std. Mean Difference (IV, Random, 95% CI)	0.06 [-0.39, 0.51]
3 Loss to follow-up	2		Odds Ratio (M-H, Random, 95% CI)	Subtotals only
3.1 Short-term	1	31	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
3.2 Medium-term	2	78	Odds Ratio (M-H, Random, 95% CI)	0.29 [0.03, 2.89]

Comparison 9. Exposure versus interpersonal therapy

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Improvement	1		Odds Ratio (M-H, Random, 95% CI)	Totals not selected
1.1 Short-term	1		Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
1.2 Medium-term	1		Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
2 PTSD total	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
2.1 Short-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
2.2 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
2.3 Long-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
3 Depression	1		Std. Mean Difference (IV, Random, 95% CI)	Totals not selected
3.1 Short-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
3.2 Medium-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
3.3 Long-term	1		Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4 Loss to follow-up	1		Odds Ratio (M-H, Random, 95% CI)	Totals not selected
4.1 Short-term	1		Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
4.2 Medium-term	1		Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
4.3 Long-term	1		Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]

Comparison 10. Sensitivity analysis: types of therapy

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Improvement	4		Odds Ratio (M-H, Random, 95% CI)	Subtotals only
1.1 CBT	2	49	Odds Ratio (M-H, Random, 95% CI)	8.64 [2.01, 37.14]
1.2 Narrative	2	78	Odds Ratio (M-H, Random, 95% CI)	3.82 [0.67, 21.80]
2 PTSD total	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 CBT	3	98	Std. Mean Difference (IV, Random, 95% CI)	-1.34 [-1.79, -0.89]
2.2 Narrative	2	79	Std. Mean Difference (IV, Random, 95% CI)	-0.57 [-1.23, 0.09]
2.3 EMDR	2	65	Std. Mean Difference (IV, Random, 95% CI)	-0.61 [-1.96, 0.74]
2.4 Other psychological therapies	1	78	Std. Mean Difference (IV, Random, 95% CI)	-1.12 [-1.60, -0.64]

Comparison 11. Sensitivity analysis: types of trauma

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Improvement	4		Odds Ratio (M-H, Random, 95% CI)	Subtotals only
1.1 Sexual abuse	1	25	Odds Ratio (M-H, Random, 95% CI)	6.0 [0.93, 38.63]
1.2 Civil/social violence	2	78	Odds Ratio (M-H, Random, 95% CI)	3.82 [0.67, 21.80]
1.3 Physical trauma	1	24	Odds Ratio (M-H, Random, 95% CI)	15.40 [1.47, 160.97]
2 PTSD total	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

2.1 Sexual abuse	1	36	Std. Mean Difference (IV, Random, 95% CI)	-1.05 [-1.79, -0.31]
2.2 Civil/social violence	3	157	Std. Mean Difference (IV, Random, 95% CI)	-0.79 [-1.35, -0.24]
2.3 Physical trauma	2	62	Std. Mean Difference (IV, Random, 95% CI)	-1.51 [-2.08, -0.94]
2.4 Natural disaster	1	32	Std. Mean Difference (IV, Random, 95% CI)	-1.31 [-2.08, -0.54]

Comparison 12. Sensitivity analysis: allocation concealment

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 PTSD total	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 Low risk	1	78	Std. Mean Difference (IV, Random, 95% CI)	-1.12 [-1.60, -0.64]
1.2 Unclear risk	7	242	Std. Mean Difference (IV, Random, 95% CI)	-0.90 [-1.38, -0.43]

Comparison 13. Sensitivity analysis: blinding

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Improvement	4		Odds Ratio (M-H, Random, 95% CI)	Subtotals only
1.1 Low risk	2	49	Odds Ratio (M-H, Random, 95% CI)	12.76 [2.89, 56.44]
1.2 Unclear risk	1	53	Odds Ratio (M-H, Random, 95% CI)	1.84 [0.60, 5.65]
1.3 High risk	1	25	Odds Ratio (M-H, Random, 95% CI)	6.0 [0.93, 38.63]
2 PTSD total	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 Low risk	4	114	Std. Mean Difference (IV, Random, 95% CI)	-0.91 [-1.65, -0.16]
2.2 Unclear risk	4	206	Std. Mean Difference (IV, Random, 95% CI)	-0.96 [-1.47, -0.46]

Comparison 14. Sensitivity analysis: skewed and non-skewed data

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 PTSD total	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 Non-skewed	4	206	Std. Mean Difference (IV, Random, 95% CI)	-0.96 [-1.47, -0.46]
1.2 Skewed	3	90	Std. Mean Difference (IV, Random, 95% CI)	-0.73 [-1.59, 0.14]

Comparison 15. ITT analysis

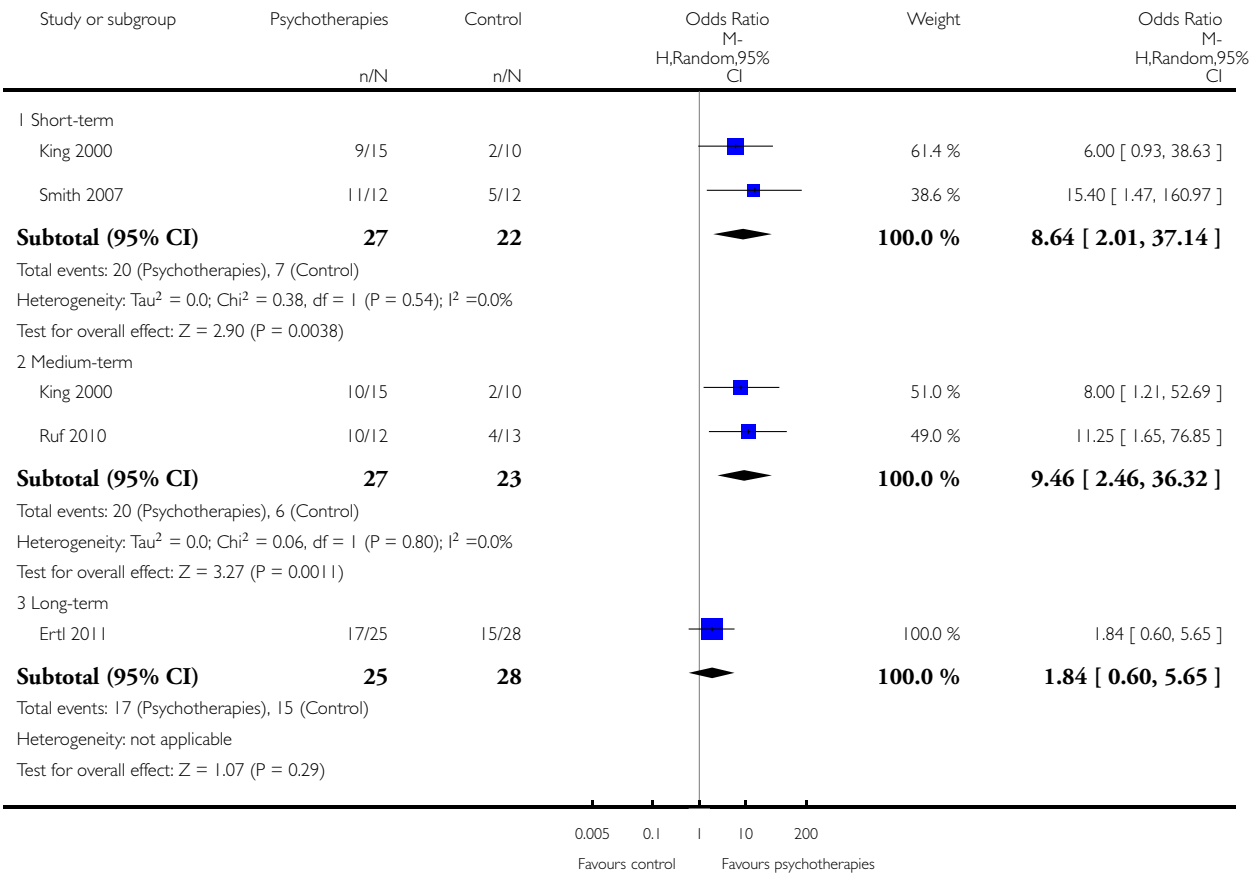
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Improvement	3		Odds Ratio (M-H, Random, 95% CI)	Subtotals only
1.1 Best-case	3	116	Odds Ratio (M-H, Random, 95% CI)	5.79 [1.66, 20.12]
1.2 Worst-case	3	116	Odds Ratio (M-H, Random, 95% CI)	2.02 [0.74, 5.50]

Analysis 1.1. Comparison 1 All psychological therapies versus control, Outcome 1 Improvement.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 1 All psychological therapies versus control

Outcome: 1 Improvement

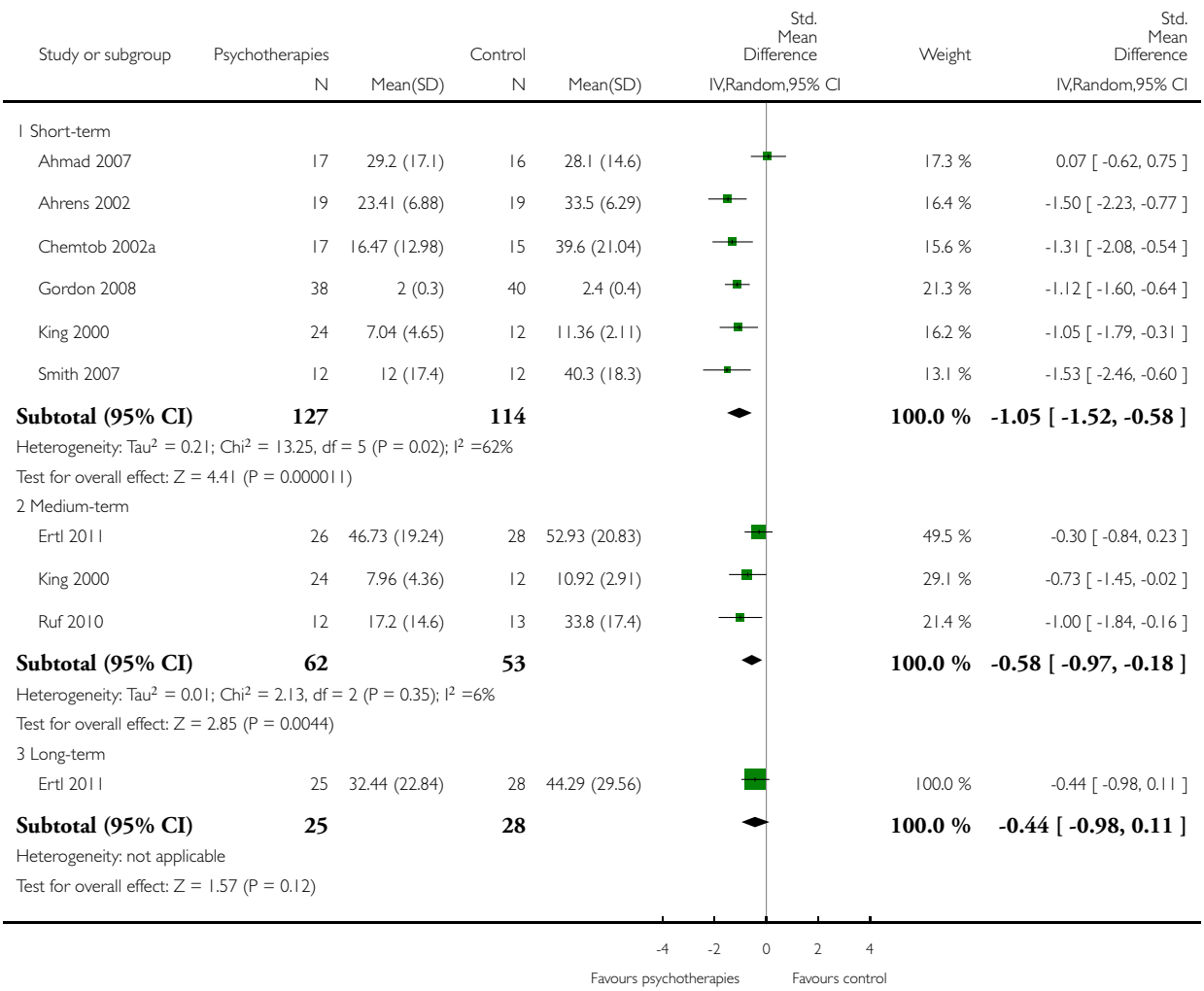


Analysis 1.2. Comparison 1 All psychological therapies versus control, Outcome 2 PTSD total.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 1 All psychological therapies versus control

Outcome: 2 PTSD total



Analysis 1.3. Comparison 1 All psychological therapies versus control, Outcome 3 Anxiety.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 1 All psychological therapies versus control

Outcome: 3 Anxiety

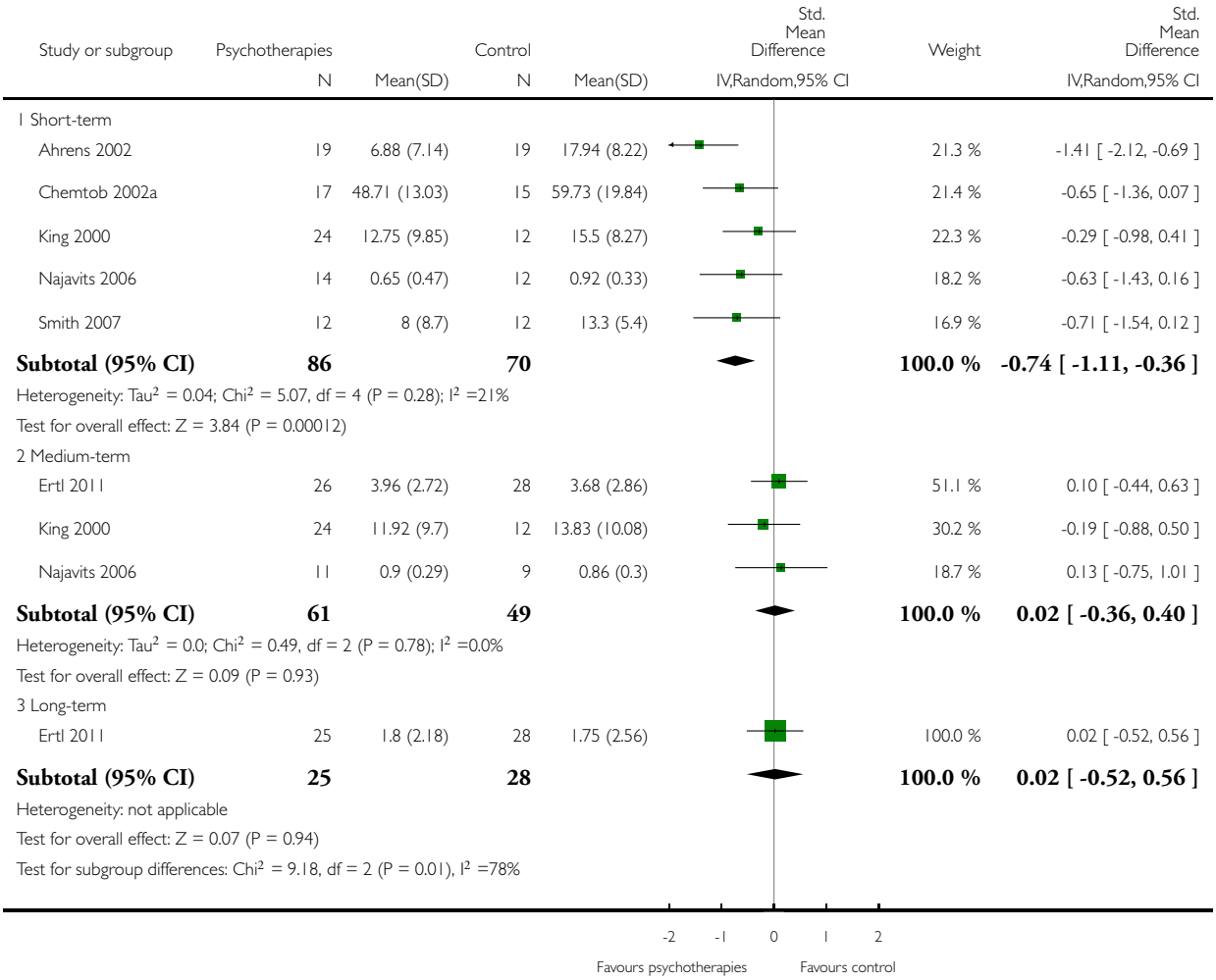
Study or subgroup	Psychotherapies N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 Short-term							
Chemtob 2002a	17	14.29 (8.26)	15	18.07 (8.17)		37.8 %	-0.45 [-1.15, 0.26]
King 2000	24	48.84 (17.14)	12	55.08 (15.04)		38.3 %	-0.37 [-1.07, 0.33]
Smith 2007	11	7.4 (9.2)	12	16.5 (7.3)		23.9 %	-1.06 [-1.95, -0.18]
Subtotal (95% CI)	**52**		**39**			**100.0 %**	**-0.57 [-1.00, -0.13]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 1.62$, df = 2 (P = 0.45); $I^2 = 0.0\%$							
Test for overall effect: Z = 2.56 (P = 0.010)							
2 Medium-term							
King 2000	24	45.67 (14.69)	12	55.08 (14.41)		100.0 %	-0.63 [-1.34, 0.08]
Subtotal (95% CI)	**24**		**12**			**100.0 %**	**-0.63 [-1.34, 0.08]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.74 (P = 0.082)							

Analysis 1.4. Comparison 1 All psychological therapies versus control, Outcome 4 Depression.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 1 All psychological therapies versus control

Outcome: 4 Depression

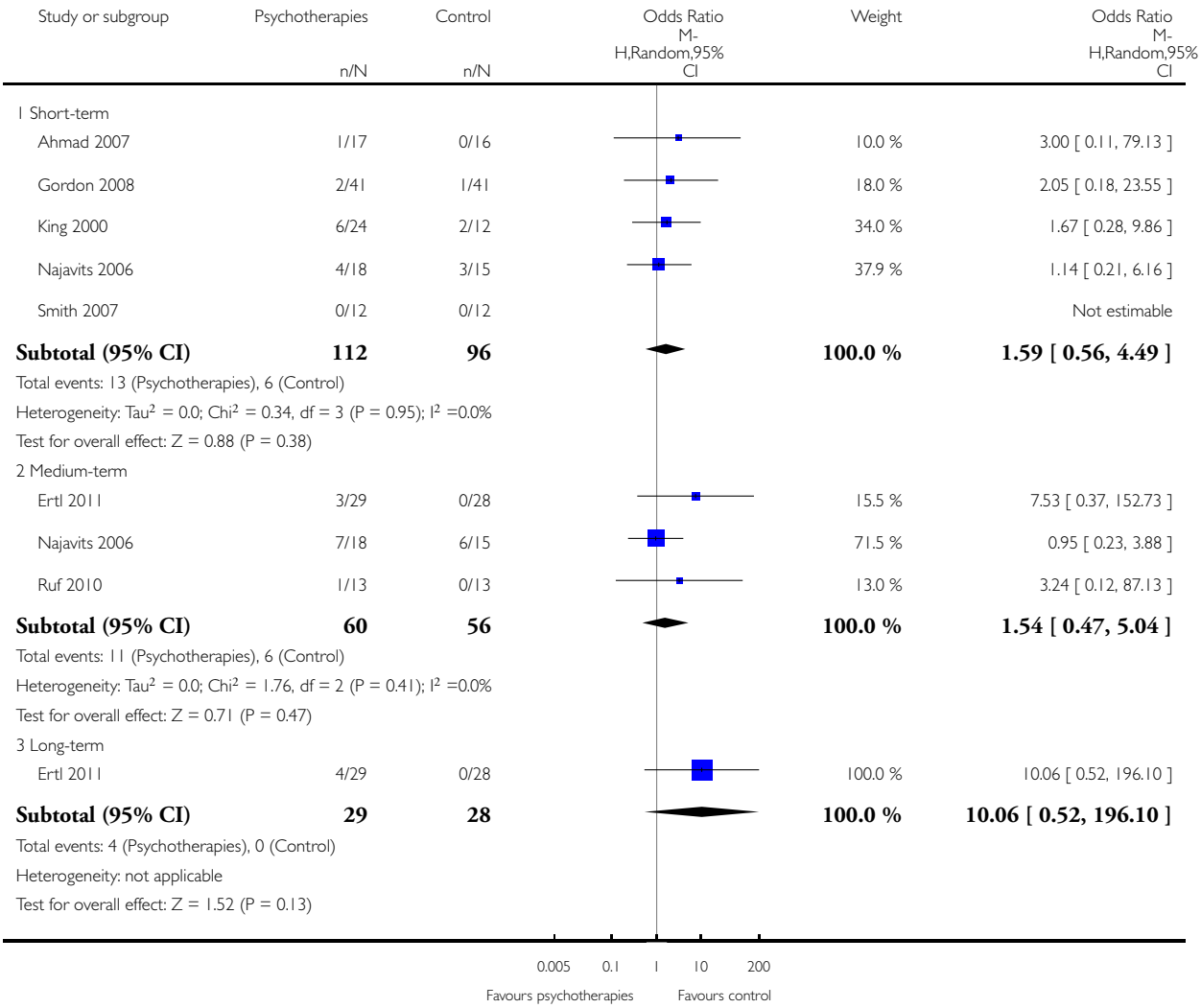


Analysis 1.5. Comparison 1 All psychological therapies versus control, Outcome 5 Loss to follow-up.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 1 All psychological therapies versus control

Outcome: 5 Loss to follow-up

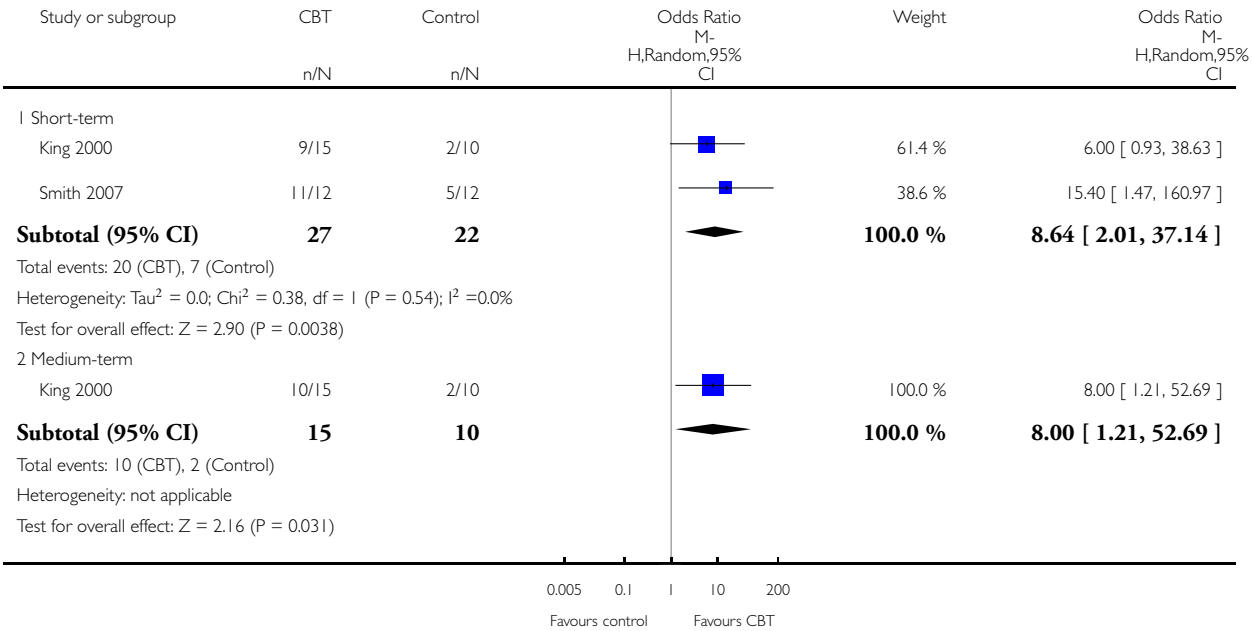


Analysis 2.1. Comparison 2 CBT versus control, Outcome 1 Improvement.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 2 CBT versus control

Outcome: 1 Improvement



Analysis 2.2. Comparison 2 CBT versus control, Outcome 2 PTSD total.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 2 CBT versus control

Outcome: 2 PTSD total

Study or subgroup	CBT N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 Short-term							
Ahrens 2002	19	23.41 (6.88)	19	33.5 (6.29)		38.7 %	-1.50 [-2.23, -0.77]
King 2000	24	7.04 (4.66)	12	11.36 (2.11)		37.6 %	-1.05 [-1.79, -0.31]
Smith 2007	12	12 (17.4)	12	40.3 (18.3)		23.8 %	-1.53 [-2.46, -0.60]
Subtotal (95% CI)	**55**		**43**			**100.0 %**	**-1.34 [-1.79, -0.89]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.93$, df = 2 (P = 0.63); I^2 =0.0%							
Test for overall effect: Z = 5.79 (P < 0.00001)							
2 Medium-term							
King 2000	24	7.96 (4.4)	12	10.92 (2.91)		100.0 %	-0.73 [-1.44, -0.01]
Subtotal (95% CI)	**24**		**12**			**100.0 %**	**-0.73 [-1.44, -0.01]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.99 (P = 0.046)							

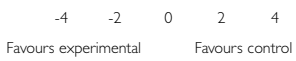
Analysis 2.3. Comparison 2 CBT versus control, Outcome 3 PTSD avoidance.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 2 CBT versus control

Outcome: 3 PTSD avoidance

Study or subgroup	CBT N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
King 2000	24	2.91 (2.02)	12	3.08 (1.24)		-0.09 [-0.79, 0.60]
2 Medium-term						
King 2000	24	3.46 (1.58)	12	4.83 (1.64)		-0.84 [-1.56, -0.11]



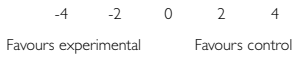
Analysis 2.4. Comparison 2 CBT versus control, Outcome 4 PTSD hyperarousal.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 2 CBT versus control

Outcome: 4 PTSD hyperarousal

Study or subgroup	CBT N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
King 2000	24	2.5 (1.31)	12	4.08 (0.9)		-1.30 [-2.06, -0.53]
2 Medium-term						
King 2000	24	2.71 (1.55)	12	3.58 (1.37)		-0.57 [-1.28, 0.14]



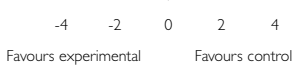
Analysis 2.5. Comparison 2 CBT versus control, Outcome 5 PTSD re-experiencing.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 2 CBT versus control

Outcome: 5 PTSD re-experiencing

Study or subgroup	CBT N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
King 2000	24	1.67 (1.65)	12	2.83 (1.4)		-0.72 [-1.44, -0.01]
2 Medium-term						
King 2000	24	1.79 (1.7)	12	2.16 (1.33)		-0.23 [-0.92, 0.47]

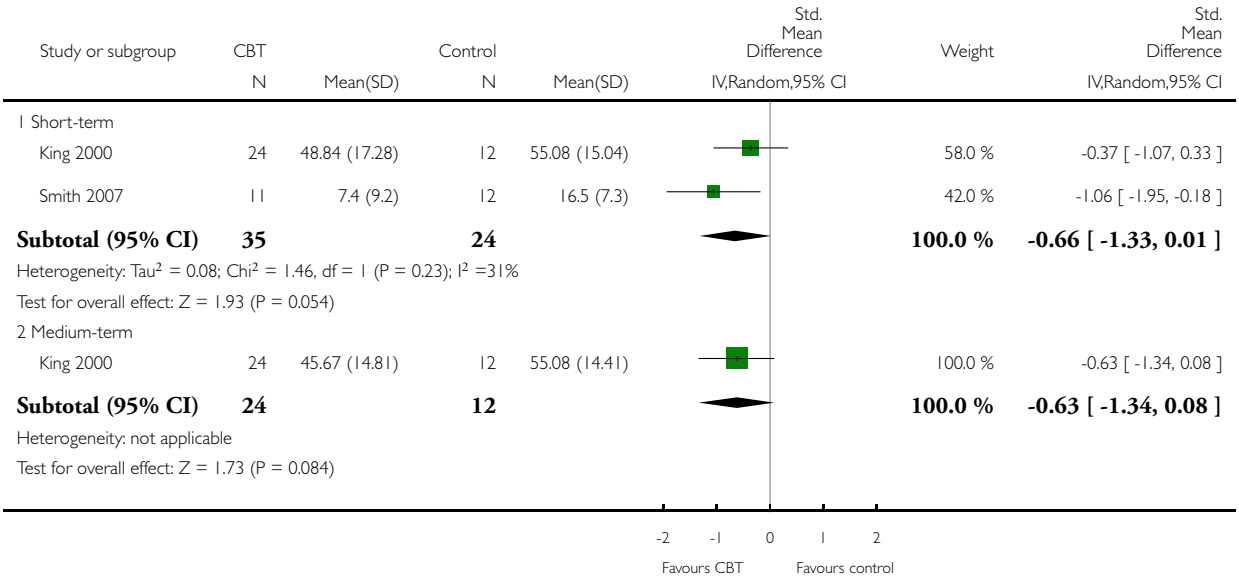


Analysis 2.6. Comparison 2 CBT versus control, Outcome 6 Anxiety.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 2 CBT versus control

Outcome: 6 Anxiety

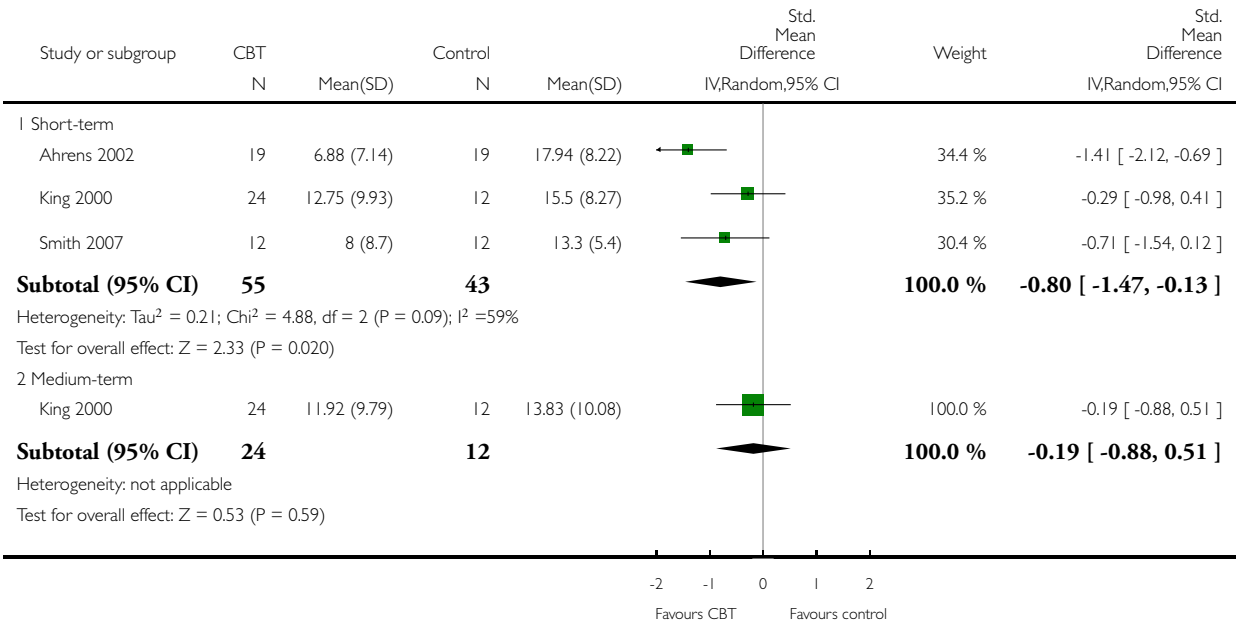


Analysis 2.7. Comparison 2 CBT versus control, Outcome 7 Depression.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 2 CBT versus control

Outcome: 7 Depression

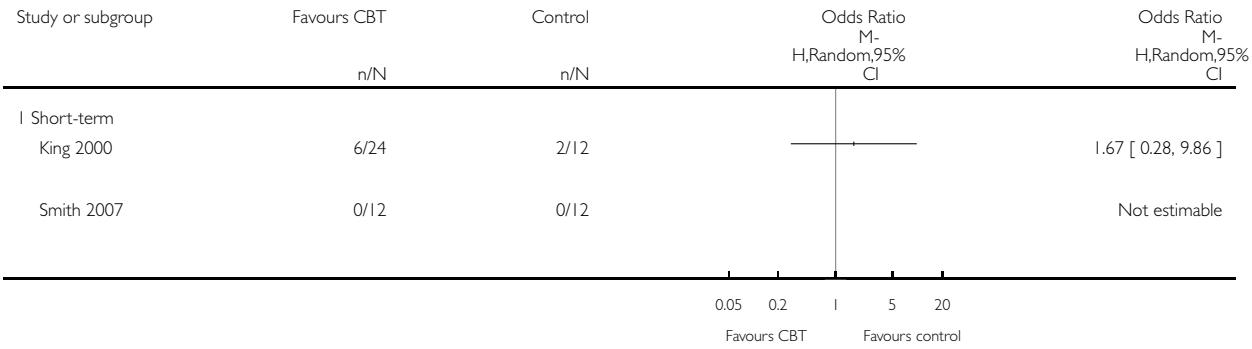


Analysis 2.8. Comparison 2 CBT versus control, Outcome 8 Loss to follow-up.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 2 CBT versus control

Outcome: 8 Loss to follow-up

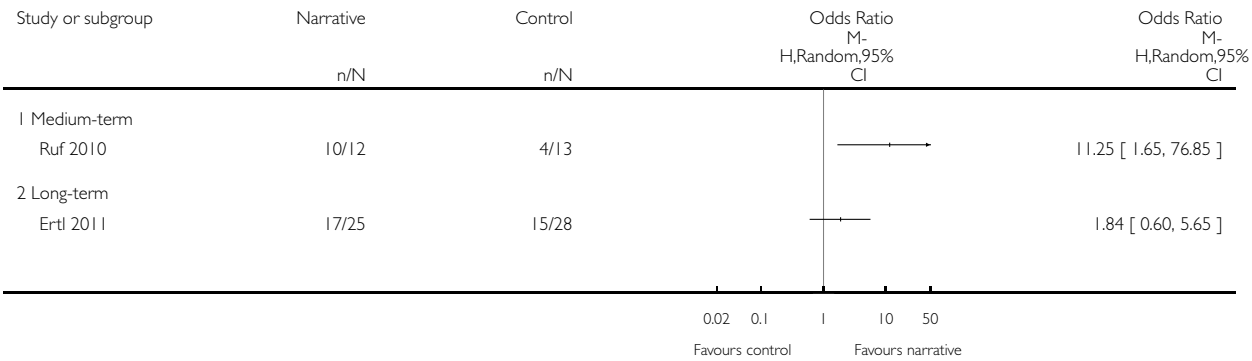


Analysis 3.1. Comparison 3 Narrative versus control, Outcome 1 Improvement.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 3 Narrative versus control

Outcome: 1 Improvement

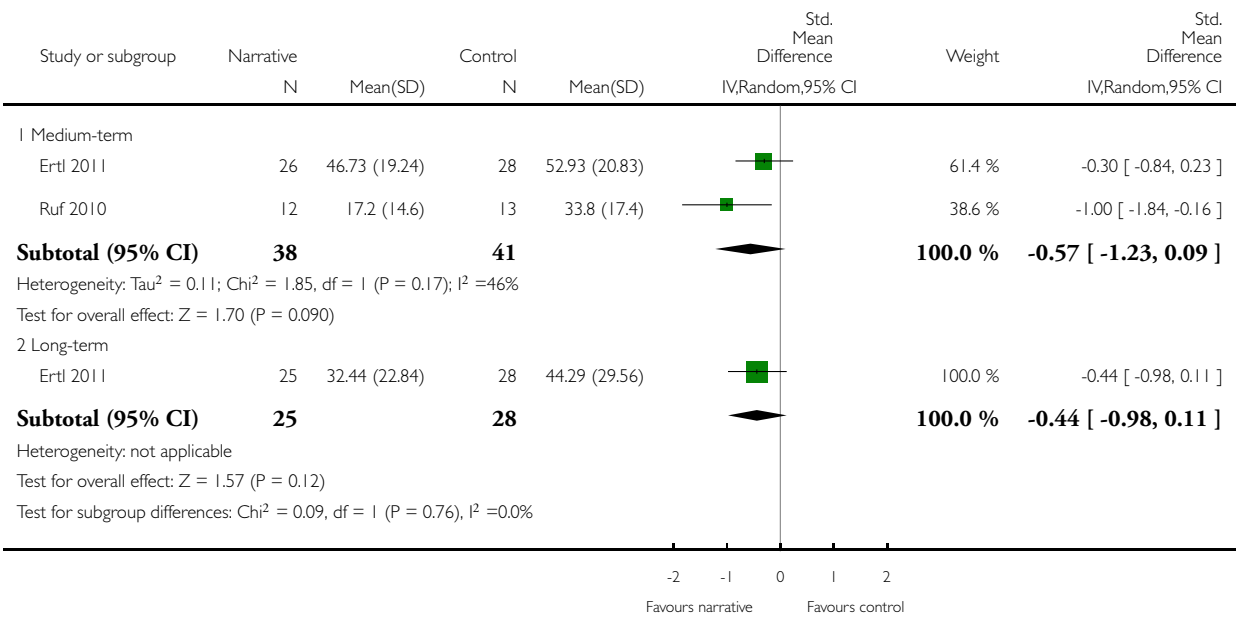


Analysis 3.2. Comparison 3 Narrative versus control, Outcome 2 PTSD total.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 3 Narrative versus control

Outcome: 2 PTSD total



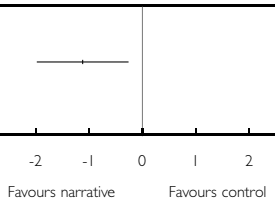
Analysis 3.3. Comparison 3 Narrative versus control, Outcome 3 PTSD avoidance.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 3 Narrative versus control

Outcome: 3 PTSD avoidance

Study or subgroup	Narrative N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Medium-term						
Ruf 2010	12	4.3 (4.3)	13	12.5 (8.8)		-1.13 [-1.99, -0.27]



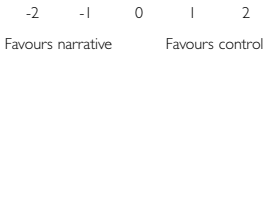
Analysis 3.4. Comparison 3 Narrative versus control, Outcome 4 PTSD hyperarousal.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 3 Narrative versus control

Outcome: 4 PTSD hyperarousal

Study or subgroup	Narrative N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Medium-term						
Ruf 2010	12	6.5 (5)	13	10.8 (4.9)		-0.84 [-1.67, -0.02]



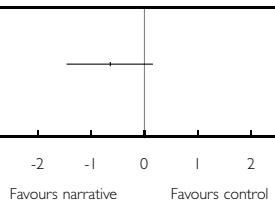
Analysis 3.5. Comparison 3 Narrative versus control, Outcome 5 PTSD re-experiencing.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 3 Narrative versus control

Outcome: 5 PTSD re-experiencing

Study or subgroup	Narrative N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Medium-term						
Ruf 2010	12	6.3 (5.9)	13	10.5 (6.5)		-0.65 [-1.46, 0.16]



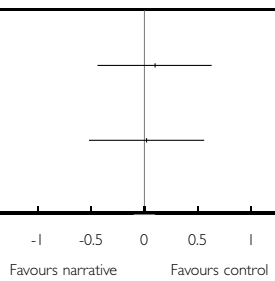
Analysis 3.6. Comparison 3 Narrative versus control, Outcome 6 Depression.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 3 Narrative versus control

Outcome: 6 Depression

Study or subgroup	Narrative N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Medium-term						
Ertl 2011	26	3.96 (2.72)	28	3.68 (2.86)		0.10 [-0.44, 0.63]
2 Long-term						
Ertl 2011	25	1.8 (2.18)	28	1.75 (2.56)		0.02 [-0.52, 0.56]

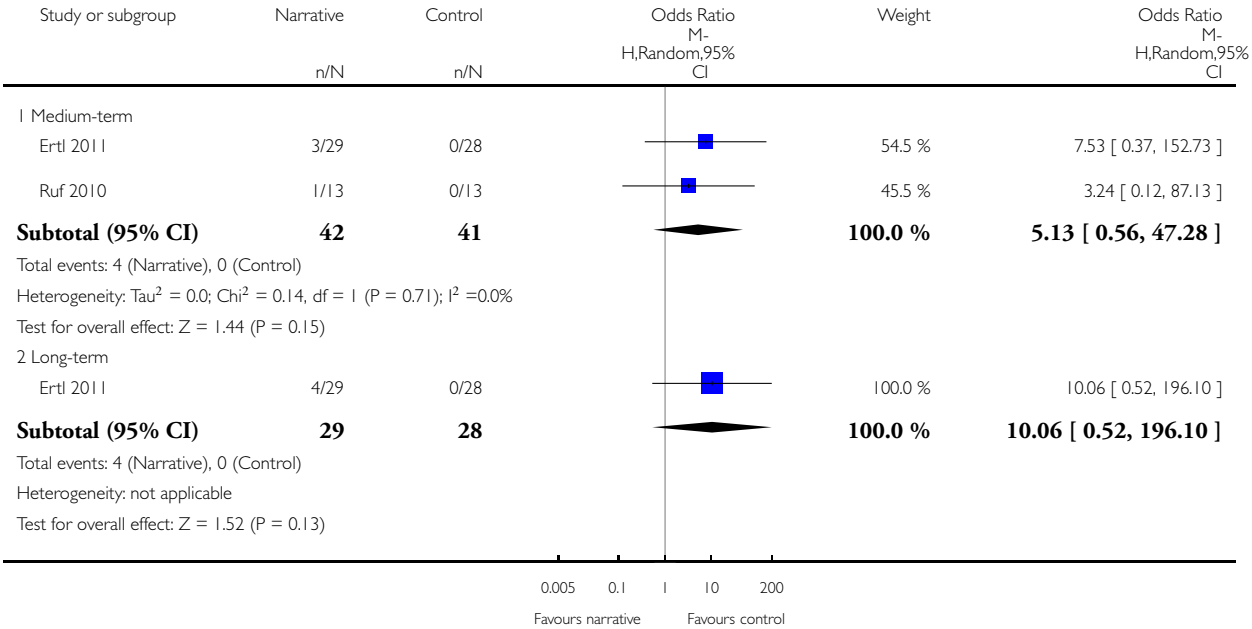


Analysis 3.7. Comparison 3 Narrative versus control, Outcome 7 Loss to follow-up.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 3 Narrative versus control

Outcome: 7 Loss to follow-up

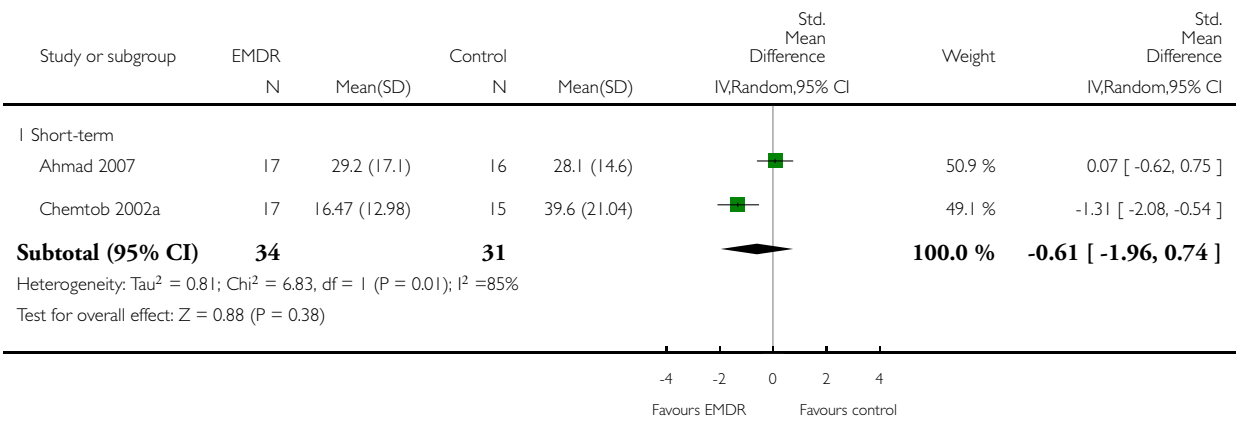


Analysis 4.1. Comparison 4 EMDR versus control, Outcome 1 PTSD.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 4 EMDR versus control

Outcome: 1 PTSD

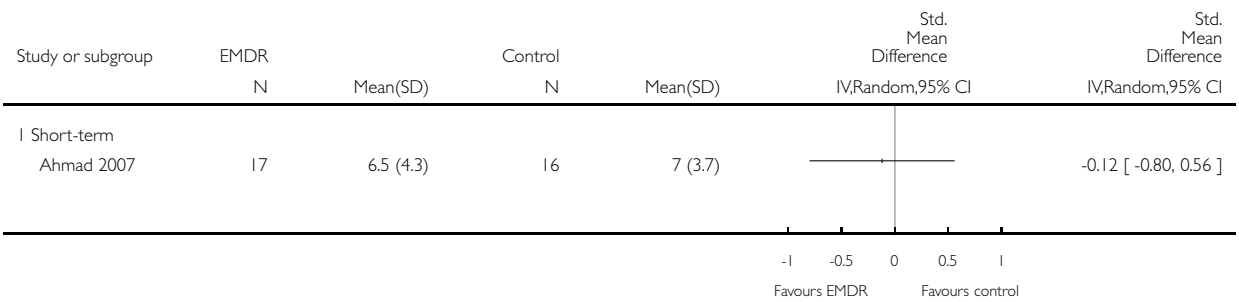


Analysis 4.2. Comparison 4 EMDR versus control, Outcome 2 PTSD avoidance.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 4 EMDR versus control

Outcome: 2 PTSD avoidance



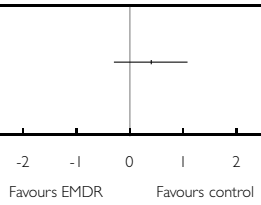
Analysis 4.3. Comparison 4 EMDR versus control, Outcome 3 PTSD hyperarousal.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 4 EMDR versus control

Outcome: 3 PTSD hyperarousal

Study or subgroup	EMDR N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
Ahmad 2007	17	7.2 (4.6)	16	5.4 (4.4)		0.39 [-0.30, 1.08]



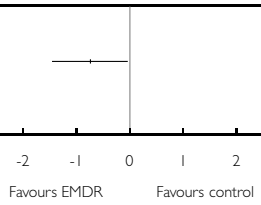
Analysis 4.4. Comparison 4 EMDR versus control, Outcome 4 PTSD re-experiencing.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 4 EMDR versus control

Outcome: 4 PTSD re-experiencing

Study or subgroup	EMDR N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
Ahmad 2007	17	3.9 (3.3)	16	7.3 (5.4)		-0.75 [-1.46, -0.04]



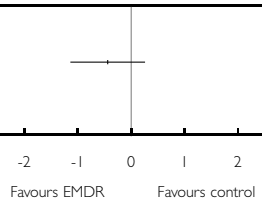
Analysis 4.5. Comparison 4 EMDR versus control, Outcome 5 Anxiety.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 4 EMDR versus control

Outcome: 5 Anxiety

Study or subgroup	EMDR N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
Chemtob 2002a	17	14.29 (8.26)	15	18.07 (8.17)		-0.45 [-1.15, 0.26]



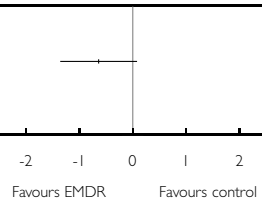
Analysis 4.6. Comparison 4 EMDR versus control, Outcome 6 Depression.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 4 EMDR versus control

Outcome: 6 Depression

Study or subgroup	EMDR N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
Chemtob 2002a	17	48.71 (13.03)	15	59.73 (19.84)		-0.65 [-1.36, 0.07]



Analysis 4.7. Comparison 4 EMDR versus control, Outcome 7 Loss to follow-up.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 4 EMDR versus control

Outcome: 7 Loss to follow-up

Study or subgroup	EMDR n/N	Control n/N	Odds Ratio M-H,Random,95% CI	Odds Ratio M-H,Random,95% CI
1 Short-term				
Ahmad 2007	1/17	0/16		3.00 [0.11, 79.13]

Analysis 5.1. Comparison 5 Other psychological therapies versus control, Outcome 1 PTSD total.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 5 Other psychological therapies versus control

Outcome: 1 PTSD total

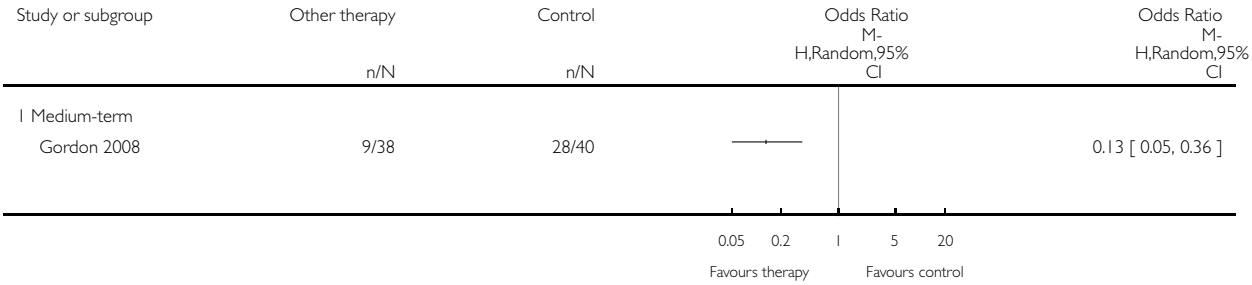
Study or subgroup	Other therapy N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
Gordon 2008	38	2 (0.3)	40	2.4 (0.4)		-1.12 [-1.60, -0.64]

Analysis 5.2. Comparison 5 Other psychological therapies versus control, Outcome 2 PTSD avoidance.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 5 Other psychological therapies versus control

Outcome: 2 PTSD avoidance

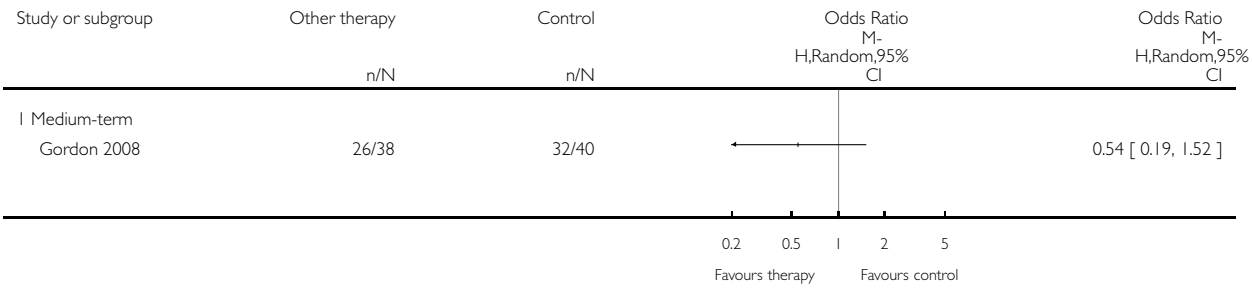


Analysis 5.3. Comparison 5 Other psychological therapies versus control, Outcome 3 PTSD hyperarousal.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 5 Other psychological therapies versus control

Outcome: 3 PTSD hyperarousal



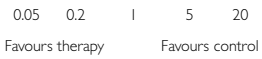
Analysis 5.4. Comparison 5 Other psychological therapies versus control, Outcome 4 PTSD re-experiencing.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 5 Other psychological therapies versus control

Outcome: 4 PTSD re-experiencing

Study or subgroup	Other therapy n/N	Control n/N	Odds Ratio M-H,Random,95% CI	Odds Ratio M-H,Random,95% CI
1 Medium-term				
Gordon 2008	18/38	33/40		0.19 [0.07, 0.54]



Analysis 5.5. Comparison 5 Other psychological therapies versus control, Outcome 5 Depression.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 5 Other psychological therapies versus control

Outcome: 5 Depression

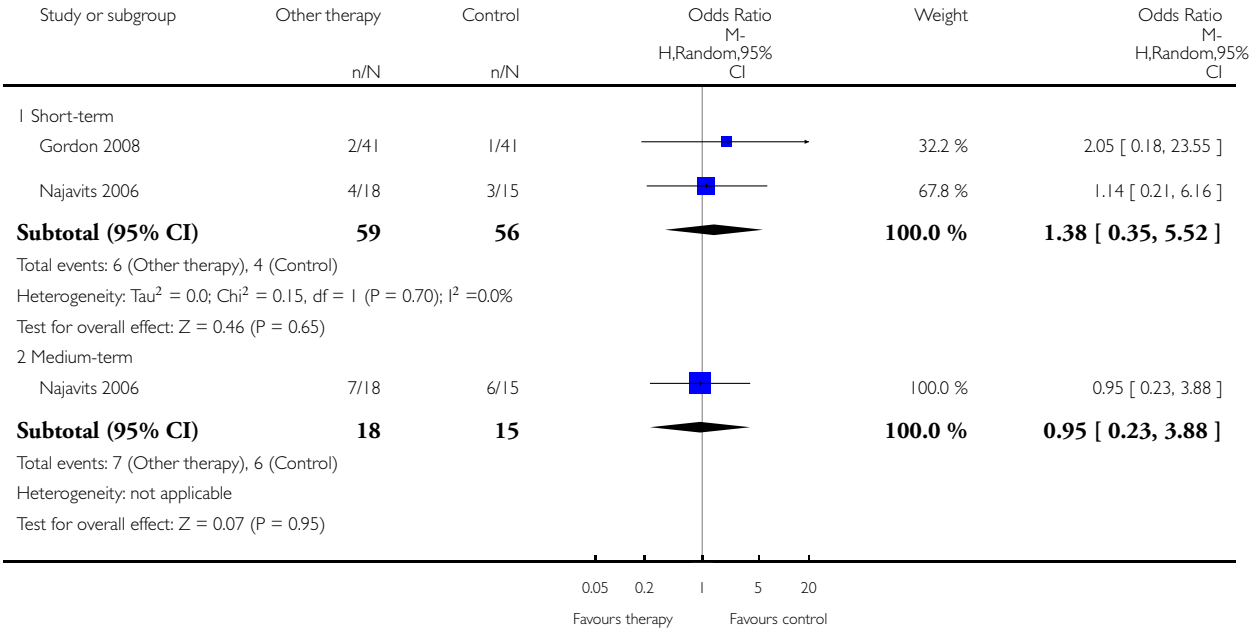
Study or subgroup	Other therapy N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
Najavits 2006	14	0.65 (0.47)	12	0.92 (0.33)		-0.63 [-1.43, 0.16]
2 Medium-term						
Najavits 2006	11	0.9 (0.29)	9	0.86 (0.3)		0.13 [-0.75, 1.01]

Analysis 5.6. Comparison 5 Other psychological therapies versus control, Outcome 6 Loss to follow-up.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 5 Other psychological therapies versus control

Outcome: 6 Loss to follow-up

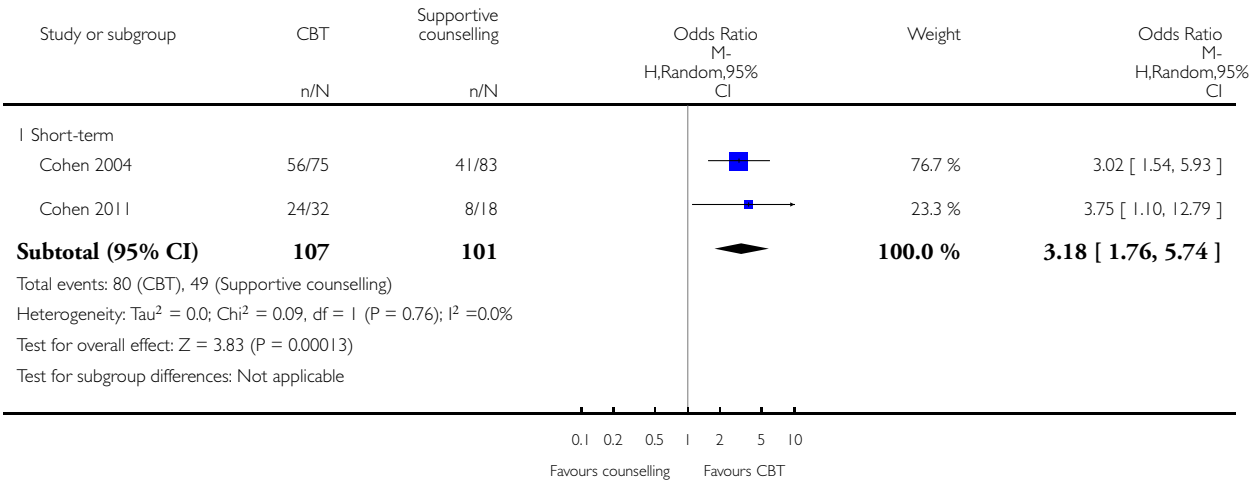


Analysis 6.1. Comparison 6 CBT versus supportive counselling, Outcome 1 Improvement.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 6 CBT versus supportive counselling

Outcome: 1 Improvement



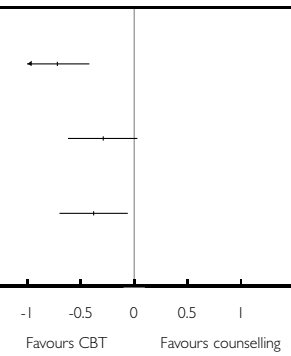
Analysis 6.2. Comparison 6 CBT versus supportive counselling, Outcome 2 PTSD avoidance.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 6 CBT versus supportive counselling

Outcome: 2 PTSD avoidance

Study or subgroup	CBT N	Mean(SD)	Supportive counselling N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
Cohen 2004	89	1.81 (1.36)	91	2.89 (1.62)		-0.72 [-1.02, -0.42]
2 Medium-term						
Cohen 2004	78	1.69 (1.5)	69	2.13 (1.48)		-0.29 [-0.62, 0.03]
3 Long-term						
Cohen 2004	80	1.41 (1.24)	73	1.93 (1.51)		-0.38 [-0.70, -0.06]



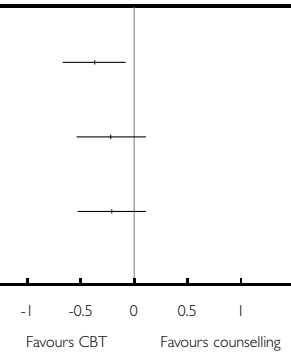
Analysis 6.3. Comparison 6 CBT versus supportive counselling, Outcome 3 PTSD hyperarousal.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 6 CBT versus supportive counselling

Outcome: 3 PTSD hyperarousal

Study or subgroup	CBT N	Mean(SD)	Supportive counselling N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
Cohen 2004	89	1.69 (1.28)	91	2.23 (1.59)		-0.37 [-0.67, -0.08]
2 Medium-term						
Cohen 2004	78	1.46 (1.32)	69	1.75 (1.33)		-0.22 [-0.54, 0.11]
3 Long-term						
Cohen 2004	80	1.11 (1.15)	73	1.36 (1.23)		-0.21 [-0.53, 0.11]



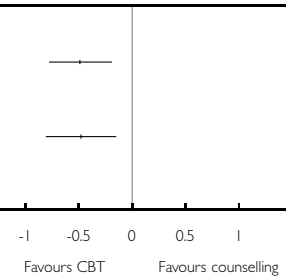
Analysis 6.4. Comparison 6 CBT versus supportive counselling, Outcome 4 PTSD re-experiencing.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 6 CBT versus supportive counselling

Outcome: 4 PTSD re-experiencing

Study or subgroup	CBT N	Mean(SD)	Supportive counselling N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
Cohen 2004	89	1.53 (1.39)	91	2.32 (1.81)		-0.49 [-0.78, -0.19]
2 Medium-term						
Cohen 2004	78	1.19 (1.33)	69	1.91 (1.66)		-0.48 [-0.81, -0.15]



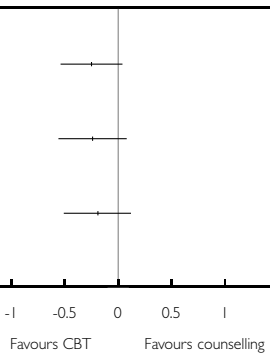
Analysis 6.5. Comparison 6 CBT versus supportive counselling, Outcome 5 Anxiety state.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 6 CBT versus supportive counselling

Outcome: 5 Anxiety state

Study or subgroup	CBT N	Mean(SD)	Supportive counselling N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
Cohen 2004	92	26.22 (5.1)	91	27.76 (6.94)		-0.25 [-0.54, 0.04]
2 Medium-term						
Cohen 2004	80	24.89 (4.62)	71	26.14 (5.8)		-0.24 [-0.56, 0.08]
3 Long-term						
Cohen 2004	82	25.44 (4.81)	73	26.55 (6.65)		-0.19 [-0.51, 0.12]



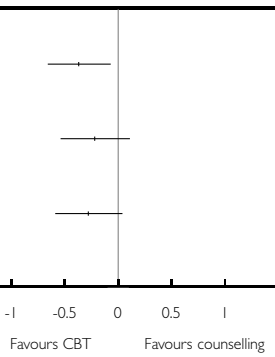
Analysis 6.6. Comparison 6 CBT versus supportive counselling, Outcome 6 Anxiety trait.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 6 CBT versus supportive counselling

Outcome: 6 Anxiety trait

Study or subgroup	CBT N	Mean(SD)	Supportive counselling N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
Cohen 2004	92	30.78 (7.2)	91	33.69 (8.57)		-0.37 [-0.66, -0.07]
2 Medium-term						
Cohen 2004	79	29.7 (7.2)	71	31.42 (8.67)		-0.22 [-0.54, 0.11]
3 Long-term						
Cohen 2004	82	28.61 (7.29)	73	30.74 (8.02)		-0.28 [-0.59, 0.04]



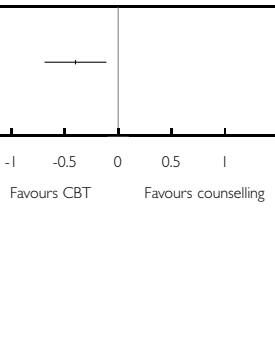
Analysis 6.7. Comparison 6 CBT versus supportive counselling, Outcome 7 Depression.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 6 CBT versus supportive counselling

Outcome: 7 Depression

Study or subgroup	CBT N	Mean(SD)	Supportive counselling N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
Cohen 2004	92	5.7 (5.47)	91	8.79 (9.37)		-0.40 [-0.69, -0.11]



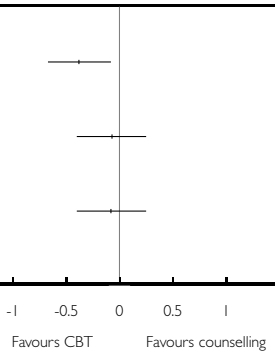
Analysis 6.8. Comparison 6 CBT versus supportive counselling, Outcome 8 Behaviour.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 6 CBT versus supportive counselling

Outcome: 8 Behaviour

Study or subgroup	CBT N	Mean(SD)	Supportive counselling N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
Cohen 2004	88	31.45 (21.75)	91	40.79 (27.09)		-0.38 [-0.67, -0.08]
2 Medium-term						
Cohen 2004	75	32.44 (27.05)	67	34.58 (30)		-0.07 [-0.40, 0.25]
3 Long-term						
Cohen 2004	78	29.17 (24.7)	68	31.13 (24.88)		-0.08 [-0.40, 0.25]

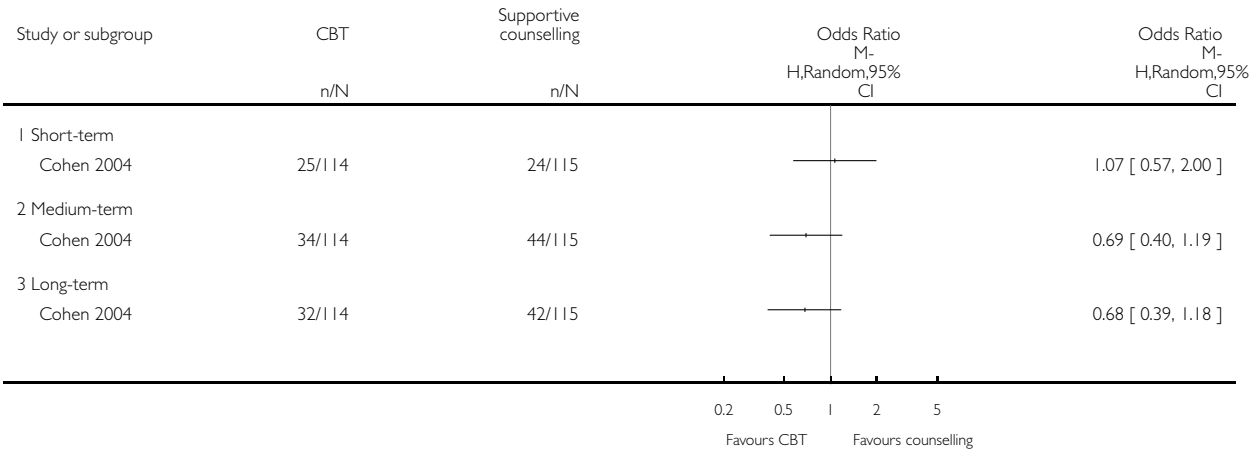


Analysis 6.9. Comparison 6 CBT versus supportive counselling, Outcome 9 Loss to follow-up.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 6 CBT versus supportive counselling

Outcome: 9 Loss to follow-up

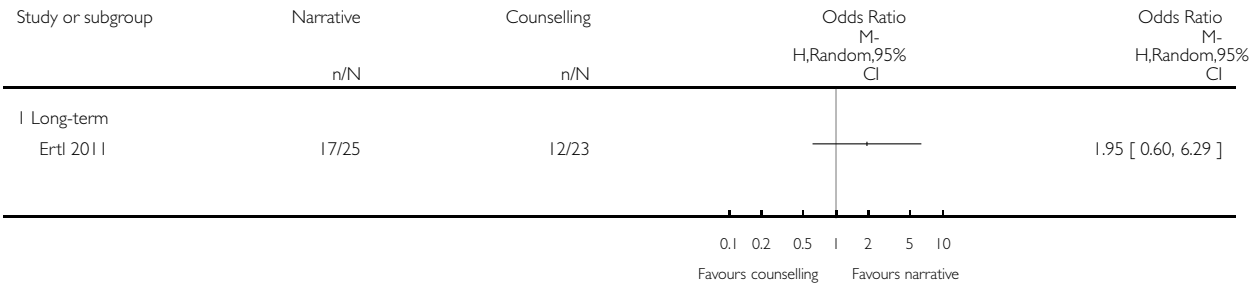


Analysis 7.1. Comparison 7 Narrative versus supportive counselling, Outcome 1 Improvement.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 7 Narrative versus supportive counselling

Outcome: 1 Improvement



Analysis 7.2. Comparison 7 Narrative versus supportive counselling, Outcome 2 PTSD total.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 7 Narrative versus supportive counselling

Outcome: 2 PTSD total

Study or subgroup	Narrative N	Mean(SD)	Counselling N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Medium-term						
Ertl 2011	26	46.73 (19.24)	24	45.67 (21.53)		0.05 [-0.50, 0.61]
2 Long-term						
Ertl 2011	25	32.44 (22.84)	23	43.22 (30.01)		-0.40 [-0.97, 0.17]

Analysis 7.3. Comparison 7 Narrative versus supportive counselling, Outcome 3 Depression.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 7 Narrative versus supportive counselling

Outcome: 3 Depression

Study or subgroup	Narrative N	Mean(SD)	Counselling N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Medium-term						
Ertl 2011	26	3.96 (2.72)	24	3.21 (2.86)		0.26 [-0.29, 0.82]
2 Long-term						
Ertl 2011	25	1.8 (2.18)	23	2.22 (2.95)		-0.16 [-0.73, 0.41]

Analysis 7.4. Comparison 7 Narrative versus supportive counselling, Outcome 4 Loss to follow-up.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 7 Narrative versus supportive counselling

Outcome: 4 Loss to follow-up

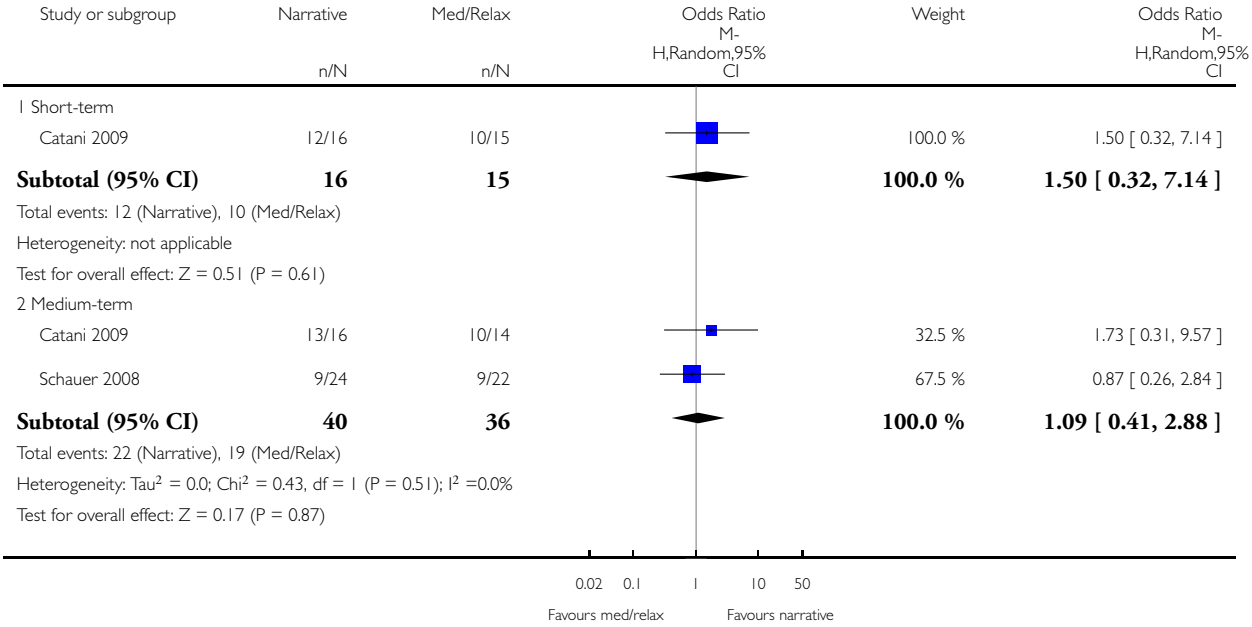
Study or subgroup	Narrative n/N	Counselling n/N	Odds Ratio M-H,Random,95% CI	Odds Ratio M-H,Random,95% CI
1 Medium-term				
Ertl 2011	3/29	4/28		0.69 [0.14, 3.42]
2 Long-term				
Ertl 2011	4/29	5/28		0.74 [0.18, 3.08]

Analysis 8.1. Comparison 8 Narrative versus meditation/relaxation, Outcome 1 Improvement.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 8 Narrative versus meditation/relaxation

Outcome: 1 Improvement

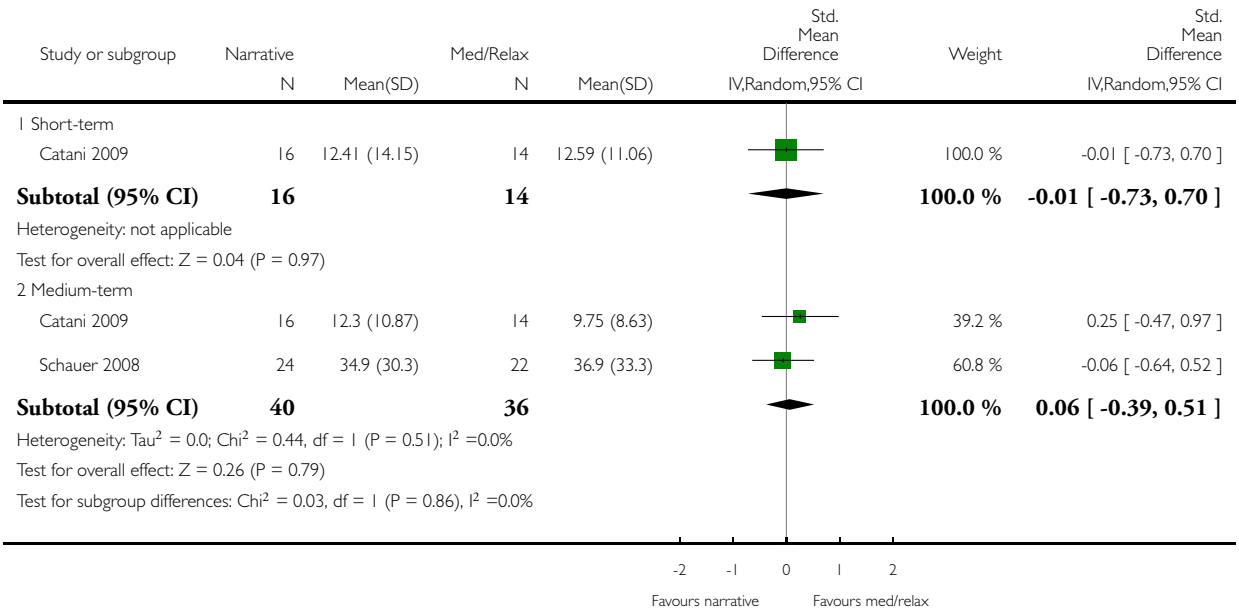


Analysis 8.2. Comparison 8 Narrative versus meditation/relaxation, Outcome 2 PTSD total.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 8 Narrative versus meditation/relaxation

Outcome: 2 PTSD total

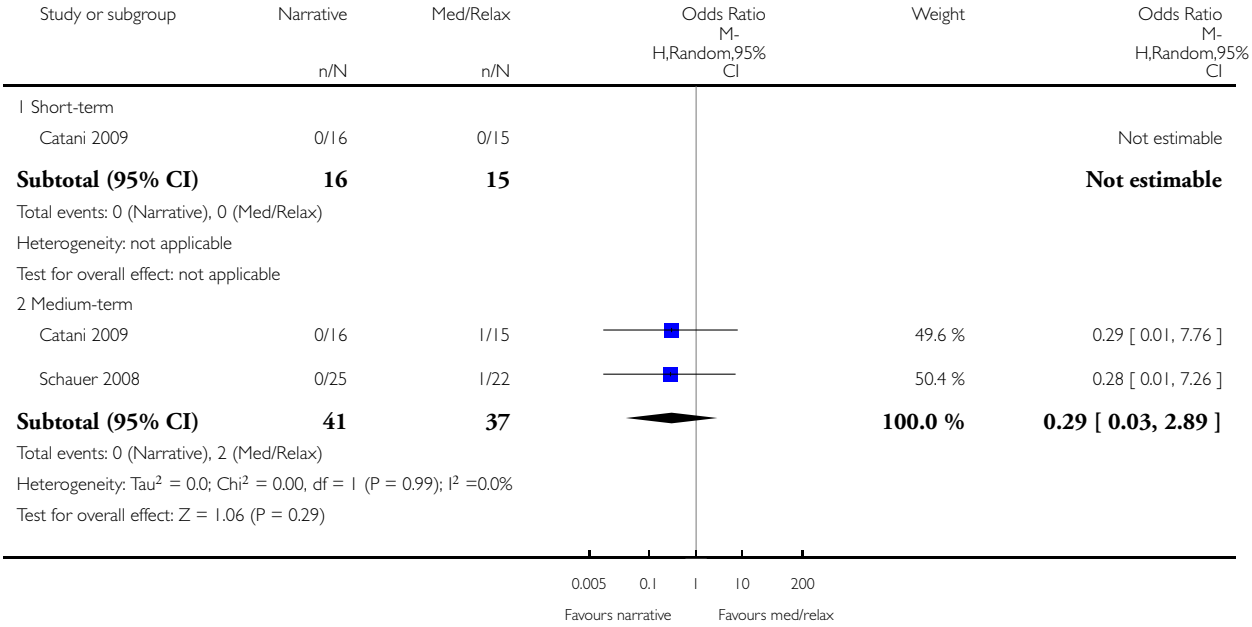


Analysis 8.3. Comparison 8 Narrative versus meditation/relaxation, Outcome 3 Loss to follow-up.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 8 Narrative versus meditation/relaxation

Outcome: 3 Loss to follow-up



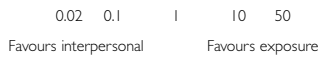
Analysis 9.1. Comparison 9 Exposure versus interpersonal therapy, Outcome 1 Improvement.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 9 Exposure versus interpersonal therapy

Outcome: 1 Improvement

Study or subgroup	Exposure n/N	Interpersonal n/N	Odds Ratio M-H,Random,95% CI	Odds Ratio M-H,Random,95% CI
1 Short-term				
Gilboa-Schechtman 2010	13/15	7/15		7.43 [1.23, 45.01]
2 Medium-term				
Gilboa-Schechtman 2010	12/14	5/13		9.60 [1.48, 62.16]



Analysis 9.2. Comparison 9 Exposure versus interpersonal therapy, Outcome 2 PTSD total.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 9 Exposure versus interpersonal therapy

Outcome: 2 PTSD total

Study or subgroup	Exposure N	Mean(SD)	Interpersonal N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
Gilboa-Schechtman 2010	19	9 (12.41)	19	15.05 (12.39)		-0.48 [-1.12, 0.17]
2 Medium-term						
Gilboa-Schechtman 2010	19	8.84 (12.39)	19	15.63 (12.92)		-0.53 [-1.17, 0.12]
3 Long-term						
Gilboa-Schechtman 2010	19	11.21 (13.39)	19	14.21 (13.37)		-0.22 [-0.86, 0.42]

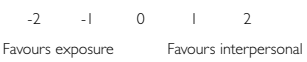
Analysis 9.3. Comparison 9 Exposure versus interpersonal therapy, Outcome 3 Depression.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 9 Exposure versus interpersonal therapy

Outcome: 3 Depression

Study or subgroup	Exposure N	Mean(SD)	Interpersonal N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Std. Mean Difference IV,Random,95% CI
1 Short-term						
Gilboa-Schechtman 2010	19	7 (9.08)	19	7.74 (9.84)		-0.08 [-0.71, 0.56]
2 Medium-term						
Gilboa-Schechtman 2010	19	6.53 (9.15)	19	8.21 (7.82)		-0.19 [-0.83, 0.44]
3 Long-term						
Gilboa-Schechtman 2010	19	8.05 (9.66)	19	7.89 (7.3)		0.02 [-0.62, 0.65]



Analysis 9.4. Comparison 9 Exposure versus interpersonal therapy, Outcome 4 Loss to follow-up.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 9 Exposure versus interpersonal therapy

Outcome: 4 Loss to follow-up

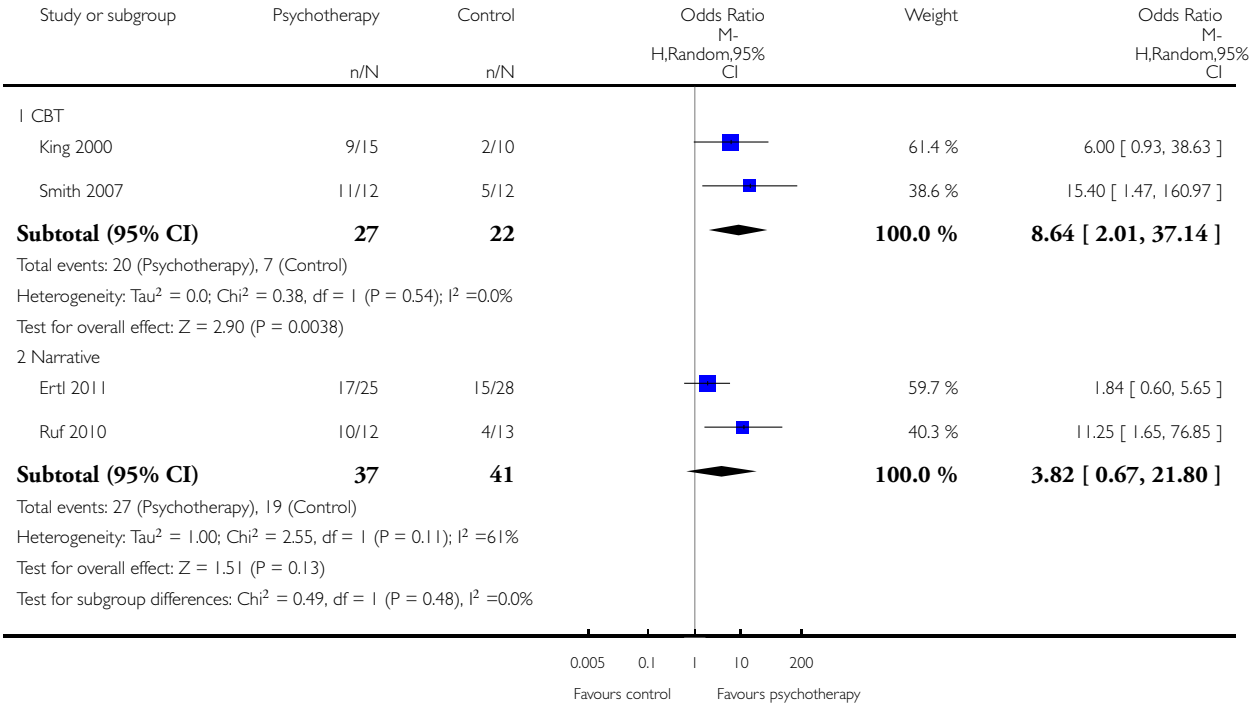
Study or subgroup	Exposure n/N	Interpersonal n/N	Odds Ratio M-H,Random,95% CI	Odds Ratio M-H,Random,95% CI
1 Short-term				
Gilboa-Schechtman 2010	4/19	4/19		1.00 [0.21, 4.76]
2 Medium-term				
Gilboa-Schechtman 2010	5/19	6/19		0.77 [0.19, 3.16]
3 Long-term				
Gilboa-Schechtman 2010	7/19	10/19		0.53 [0.14, 1.92]

Analysis 10.1. Comparison 10 Sensitivity analysis: types of therapy, Outcome 1 Improvement.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 10 Sensitivity analysis: types of therapy

Outcome: 1 Improvement

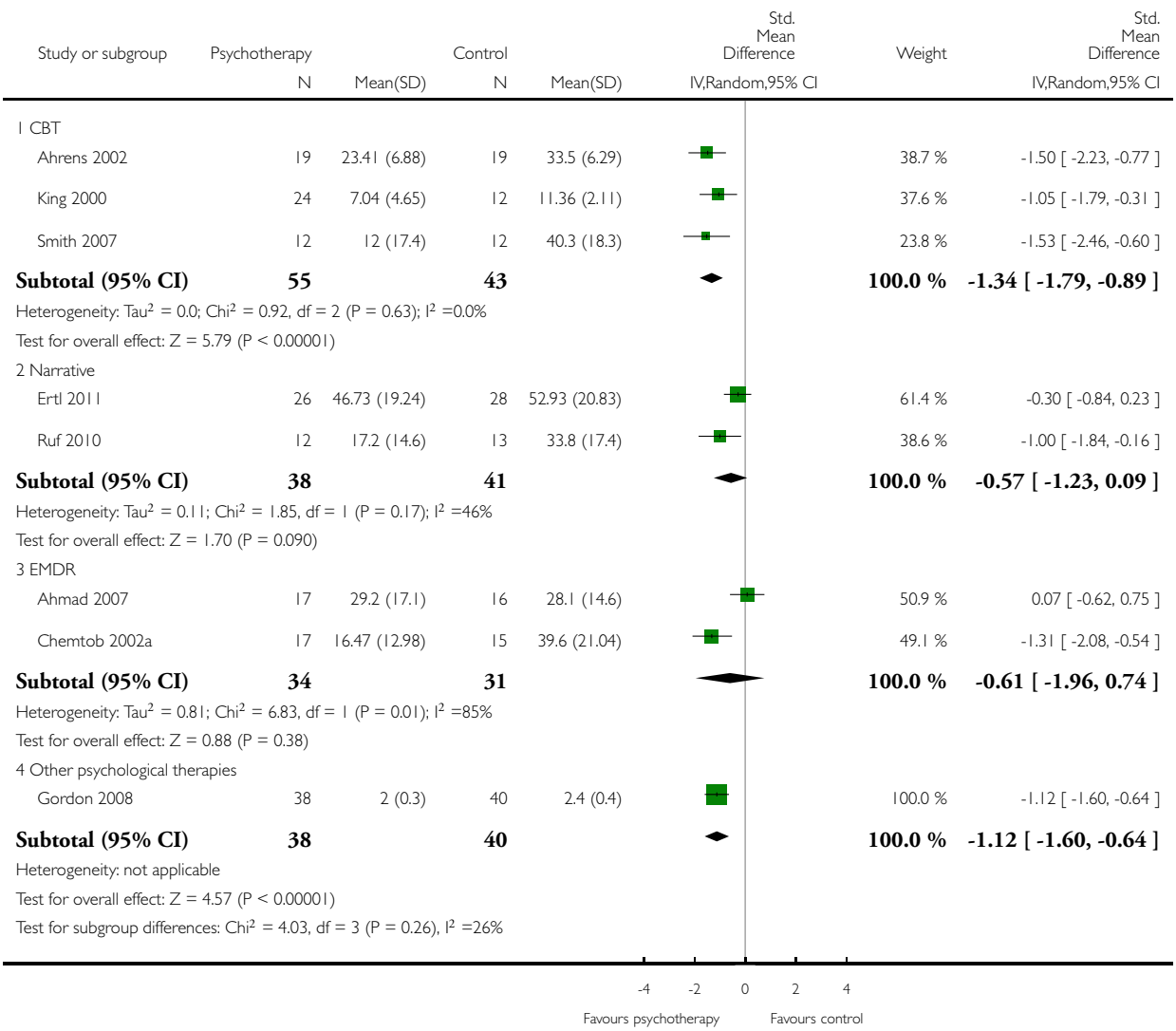


Analysis 10.2. Comparison 10 Sensitivity analysis: types of therapy, Outcome 2 PTSD total.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 10 Sensitivity analysis: types of therapy

Outcome: 2 PTSD total

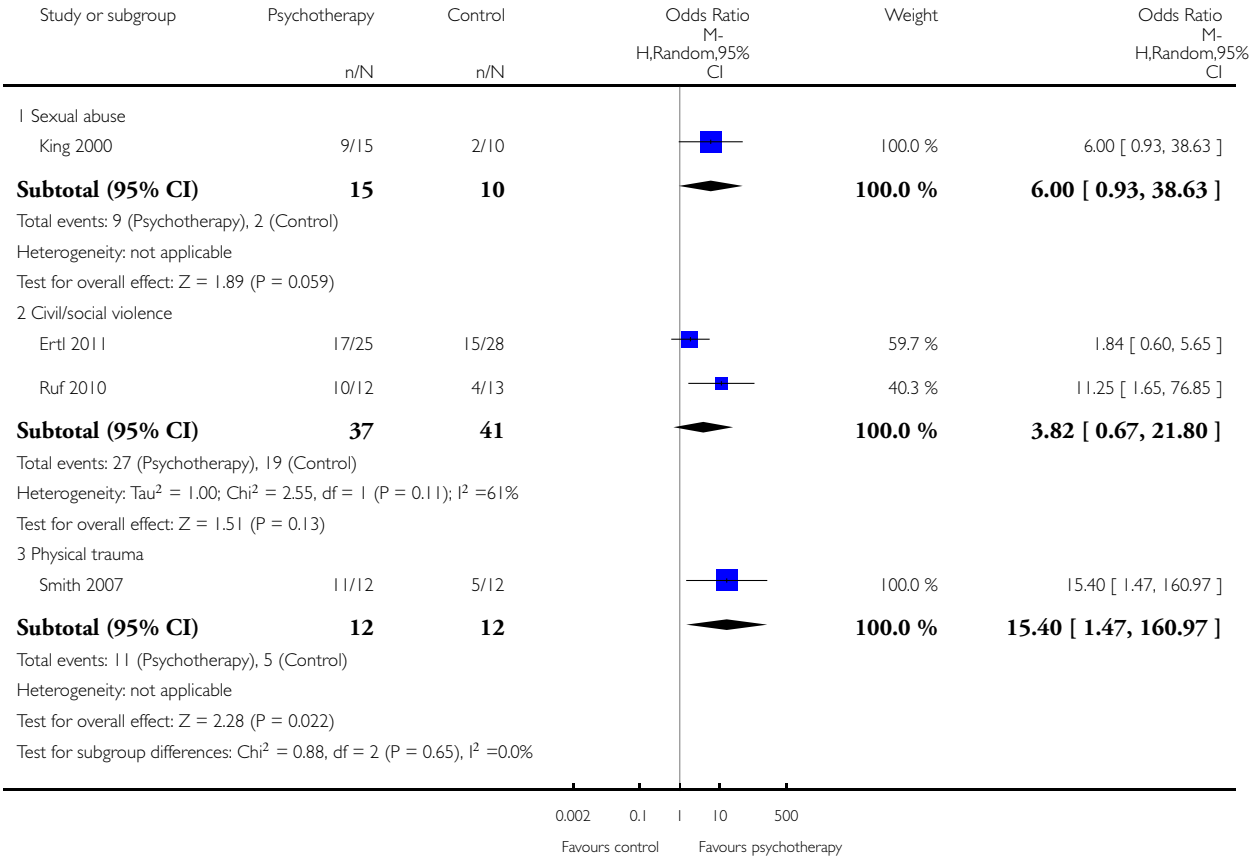


Analysis 11.1. Comparison 11 Sensitivity analysis: types of trauma, Outcome 1 Improvement.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 11 Sensitivity analysis: types of trauma

Outcome: 1 Improvement

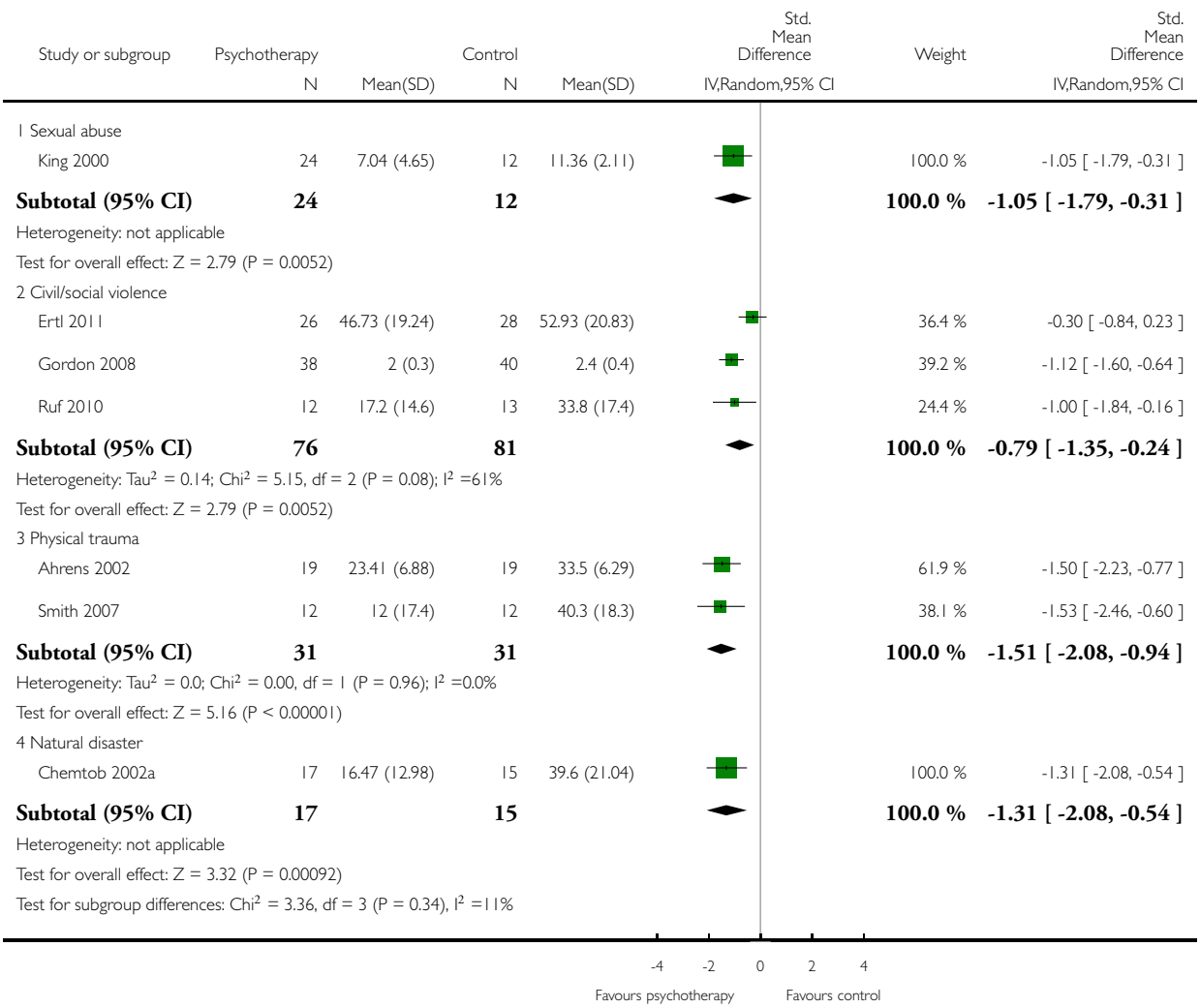


Analysis 11.2. Comparison 11 Sensitivity analysis: types of trauma, Outcome 2 PTSD total.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 11 Sensitivity analysis: types of trauma

Outcome: 2 PTSD total

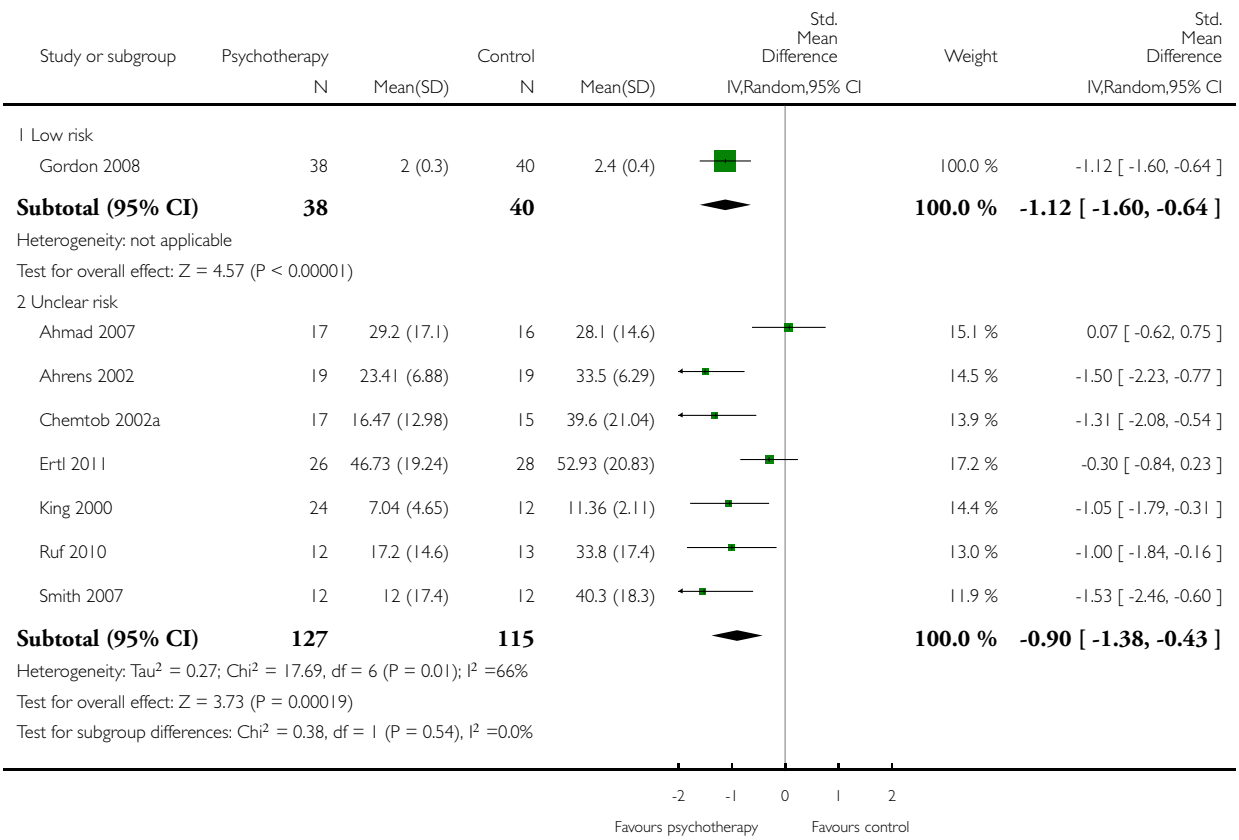


Analysis 12.1. Comparison 12 Sensitivity analysis: allocation concealment, Outcome 1 PTSD total.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 12 Sensitivity analysis: allocation concealment

Outcome: 1 PTSD total

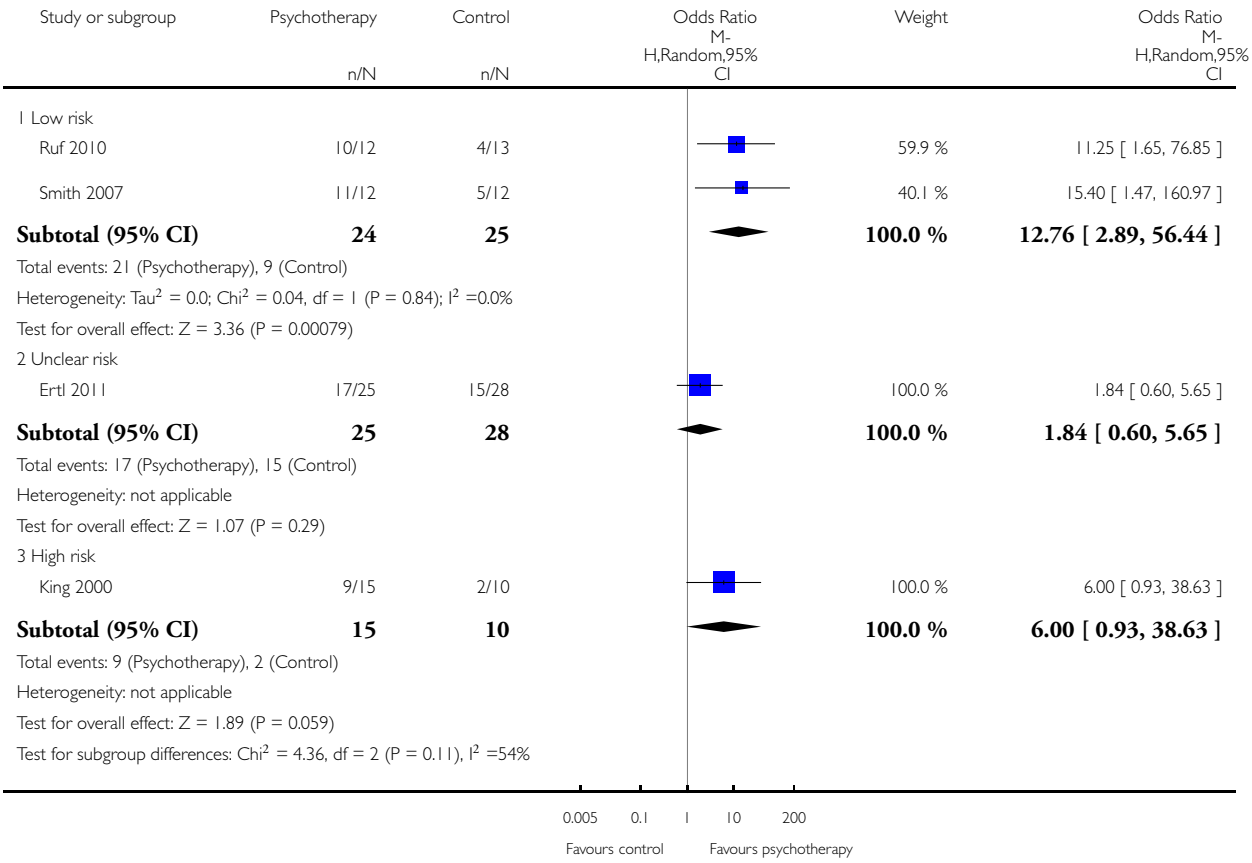


Analysis 13.1. Comparison 13 Sensitivity analysis: blinding, Outcome 1 Improvement.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 13 Sensitivity analysis: blinding

Outcome: 1 Improvement

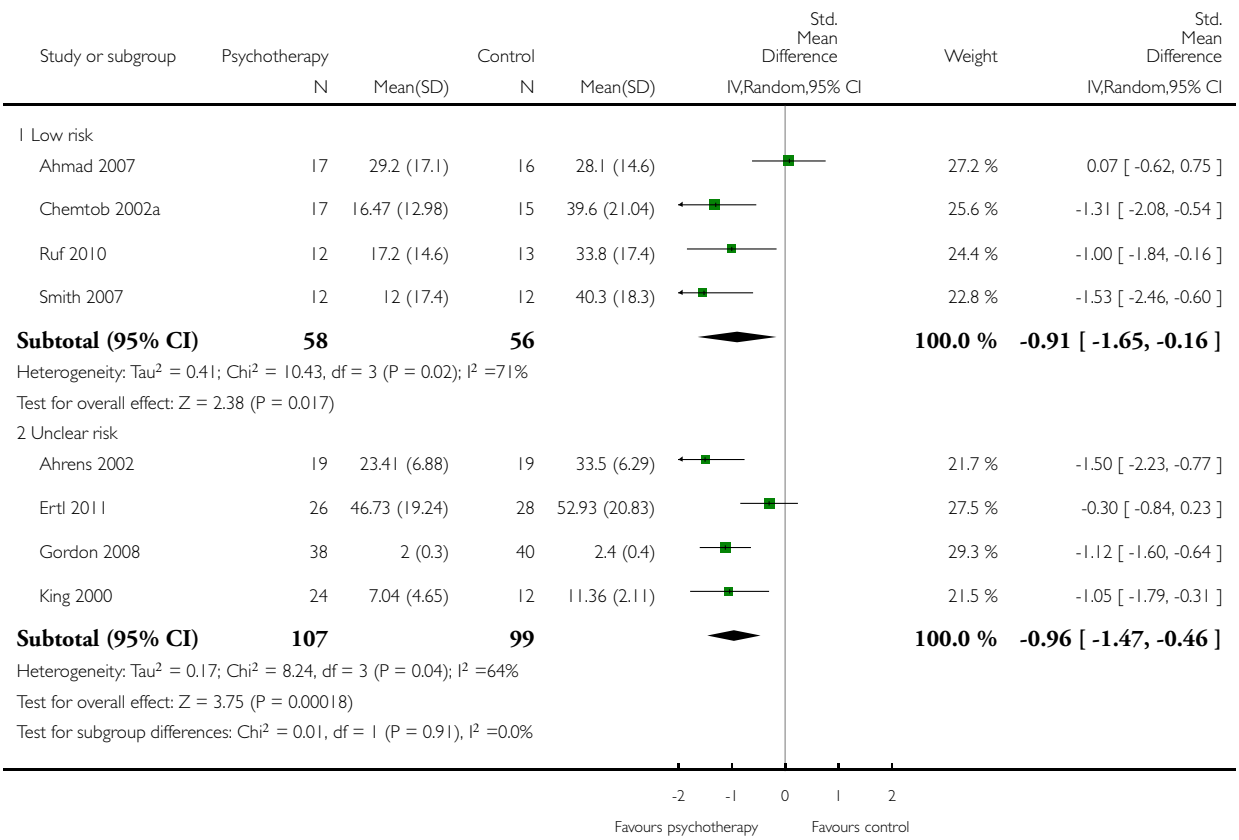


Analysis 13.2. Comparison 13 Sensitivity analysis: blinding, Outcome 2 PTSD total.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 13 Sensitivity analysis: blinding

Outcome: 2 PTSD total

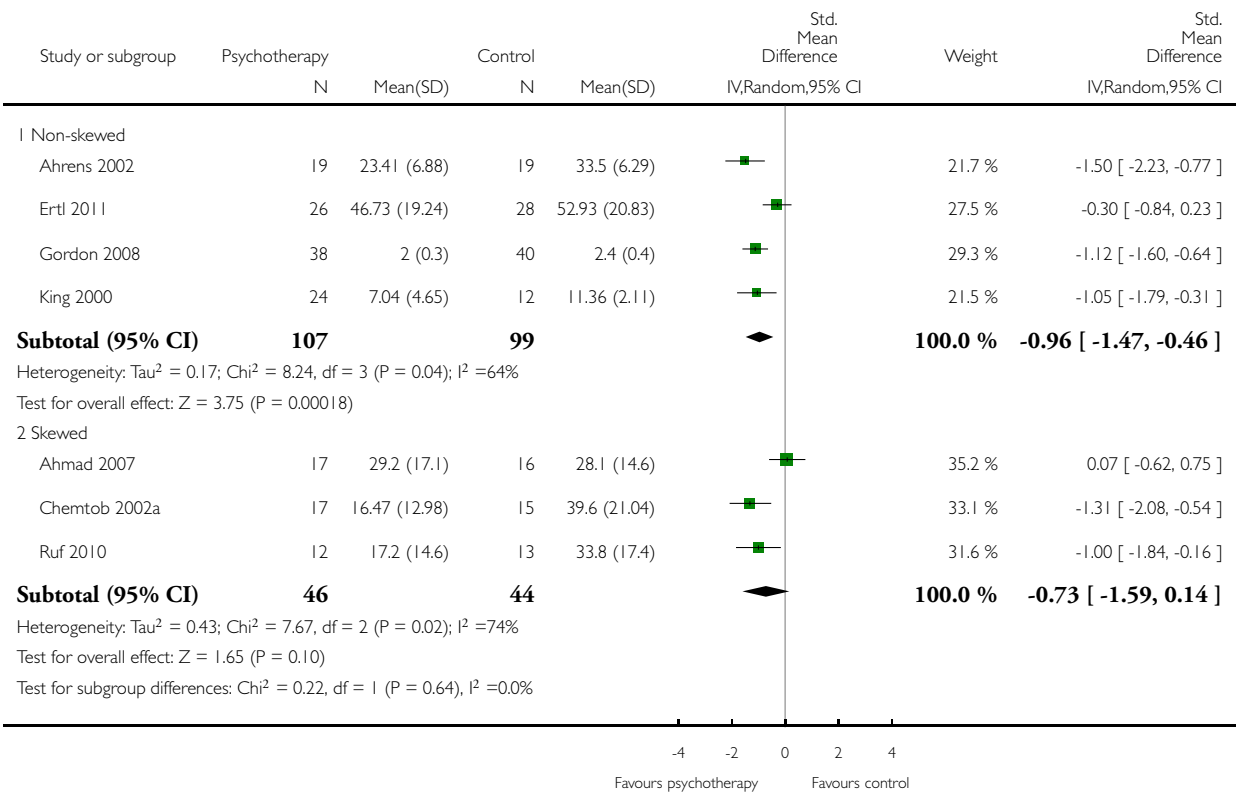


Analysis 14.1. Comparison 14 Sensitivity analysis: skewed and non-skewed data, Outcome 1 PTSD total.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 14 Sensitivity analysis: skewed and non-skewed data

Outcome: 1 PTSD total

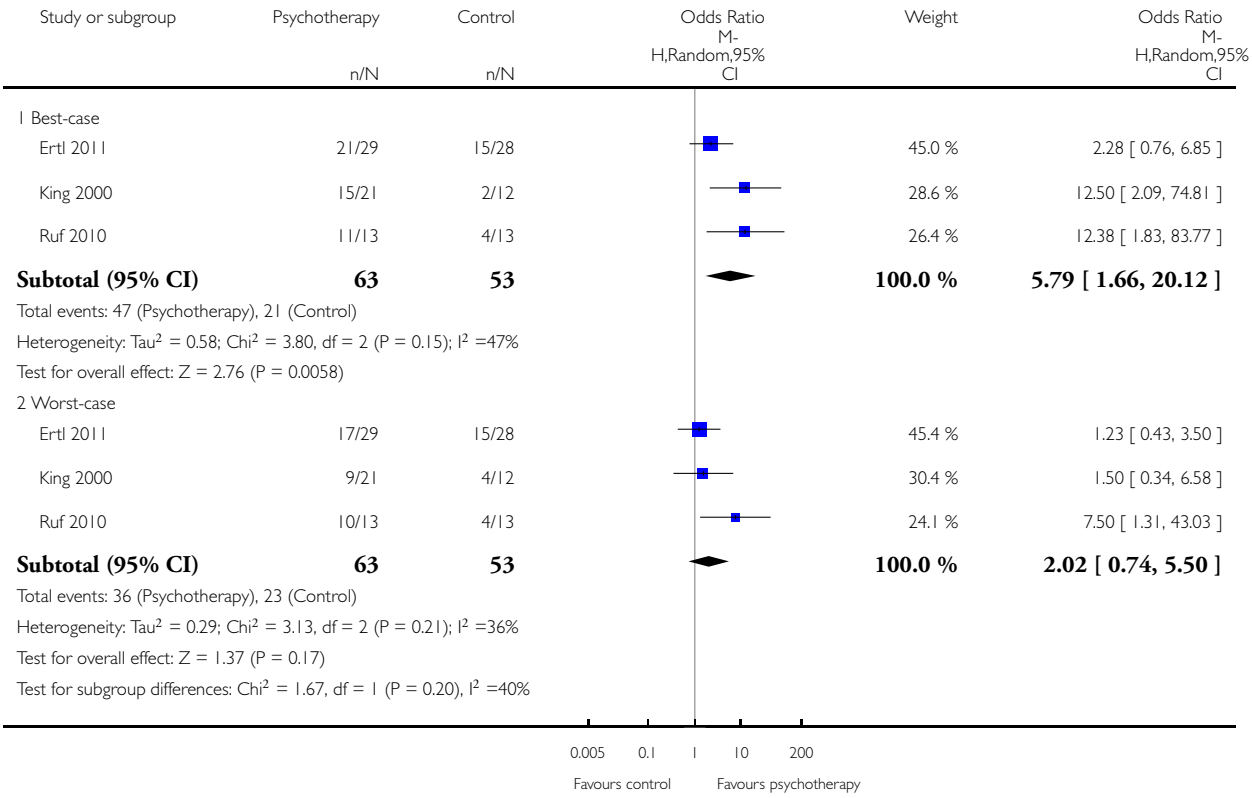


Analysis 15.1. Comparison 15 ITT analysis, Outcome 1 Improvement.

Review: Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents

Comparison: 15 ITT analysis

Outcome: 1 Improvement



HISTORY

Protocol first published: Issue 3, 2007

Review first published: Issue 12, 2012

Date	Event	Description
2 November 2008	Amended	Protocol converted to new review format.

CONTRIBUTIONS OF AUTHORS

Donna Gillies - co-ordinating review, study selection, data extraction, data entry and analysis, writing review.

Fiona Taylor - study selection, data extraction and review critique.

Carl Gray - data extraction and review critique.

Louise O'Brien - data extraction and review critique.

Natalie D'Abrew - data extraction.

DECLARATIONS OF INTEREST

None known.

SOURCES OF SUPPORT

Internal sources

- Sydney West Area Health Service, Australia.
- The University of Western Sydney, Australia.

External sources

- No sources of support supplied

DIFFERENCES BETWEEN PROTOCOL AND REVIEW

Quality criteria

We stated in the protocol our intention to collect information for the following quality criteria. These were collected but the headings for the quality criteria have now been updated in line with the quality criteria headings in the 'Risk of bias' table.

1. Adequate allocation concealment and sequence generation
2. Clear inclusion and exclusion criteria
3. No potential confounding variables
4. Intention-to-treat analysis used
5. < 25% lost to follow-up
6. Blinded outcome assessment

Skewed data

In the protocol, it was stated that "if the standard deviation multiplied by two was greater than the mean it will not be added to the meta-analysis". However, based on statistical advice this was thought to be overly stringent. Therefore, we have included these data (and carried out a sensitivity analyses as described above) but excluded data where the standard deviation was greater than the mean.

Meta-analytic model

In the protocol for this review, it was stated that meta-analysis of binary and continuous would be calculated using a fixed-effect model but if there was significant heterogeneity, a random-effects model was to be used. However, during the editorial process, the editors concluded that it was preferable to use random-effects throughout.

Categorisation of psychological therapies

It became apparent to us during the review process that some of the psychological therapies described in included studies were not based on any clear theoretical domain, we made the decision to include these under the heading of 'Other psychological therapies'.

INDEX TERMS

Medical Subject Headings (MeSH)

Cognitive Therapy; Psychotherapy [*methods]; Randomized Controlled Trials as Topic; Stress Disorders, Post-Traumatic [psychology; *therapy]

MeSH check words

Adolescent; Child; Child, Preschool; Female; Humans; Male