Psychological and educational interventions for preventing depression in children and adolescents (Review)

Merry SN, Hetrick SE, Cox GR, Brudevold-Iversen T, Bir JJ, McDowell H

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[Intervention Review]

Psychological and educational interventions for preventing depression in children and adolescents

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ABSTRACT

Background

Depression is common in young people, has a marked negative impact and is associated with self-harm and suicide. Preventing its onset would be an important advance in public health.

Objectives

To determine whether psychological or educational interventions, or both, are effective in preventing the onset of depressive disorder in children and adolescents.

Search methods

The Cochrane Depression, Anxiety and Neurosis Review Group's trials registers (CCDANCTR) were searched at the editorial base in July 2010. Update searches of MEDLINE, EMBASE, PsycINFO and ERIC were conducted by the authors in September 2009. Conference abstracts, reference lists of included studies and reviews were searched and experts in the field contacted.

Selection criteria

Randomised controlled trials of psychological or educational prevention programmes, or both, compared with placebo, any comparison intervention, or no intervention for young people aged 5 to 19 years-old, who did not currently meet diagnostic criteria for depression or who were below the clinical range on standardised, validated, and reliable rating scales of depression, or both, were included.

Data collection and analysis

Two authors independently assessed studies for inclusion and rated their quality. Sample sizes were adjusted to take account of cluster designs and multiple comparisons. We contacted study authors for additional information where needed.

Main results

Fifty-three studies including 14,406 participants were included in the analysis. There were only six studies with clear allocation concealment, participants and assessors were mostly not blind to the intervention or blinding was unclear so that the overall risk of bias was moderately high. Sixteen studies including 3240 participants reported outcomes on depressive diagnosis. The risk of having a depressive disorder post-intervention was reduced immediately compared with no intervention (15 studies; 3115 participants risk difference (RD) -0.09; 95% confidence interval (CI) -0.14 to -0.05; $P < 0.0003$), at three to nine months (14 studies; 1842 participants; RD -0.11; 95% CI -0.16 to -0.06) and at 12 months (10 studies; 1750 participants; RD -0.06; 95% CI -0.11 to -0.01). There was no evidence for continued efficacy at 24 months (eight studies; 2084 participant; RD -0.01; 95% CI -0.04 to 0.03) but limited evidence of efficacy at 36 months (two studies; 464 participants; RD -0.10; 95% CI -0.19 to -0.02). There was significant heterogeneity in all these findings. There was no evidence of efficacy in the few studies that compared intervention with placebo or attention controls.

Authors' conclusions

There is some evidence from this review that targeted and universal depression prevention programmes may prevent the onset of depressive disorders compared with no intervention. However, allocation concealment is unclear in most studies, and there is heterogeneity in the findings. The persistence of findings suggests that this is real and not a placebo effect.

PLAIN LANGUAGE SUMMARY

Psychological and educational interventions for preventing depression in children and adolescents

Depressive disorder is common and has a major impact on the functioning of young people. The aim of this review was to assess the effectiveness of programmes designed to prevent its onset.

We found that, compared with no intervention, psychological depression prevention programmes were effective in preventing depression with a number of studies showing a decrease in episodes of depressive illness over a year. There were some problems with the way the studies were done but despite this the results are encouraging. We found data to support both targeted and universal programmes, which is important as universal programmes are likely to be easier to implement. We recommend that further research be undertaken to identify the most effective programmes and to test these in the real world.

BACKGROUND

Description of the condition

Depression is a common problem in young people. Overall prevalence rates, measured from point prevalence up to 12 month period prevalence, from a large meta-analysis were estimated at 2.8% for children under the age of 13 and 5.6% for young people aged 13 to 18 years (Costello 2006). Rates rise steeply in adolescence (Feehan 1993; Feehan 1994; Fergusson 1993; Fergusson 2001). By the age of 19, between a fifth and a quarter of young people have suffered from a depressive disorder (Lewinsohn 1993; Lewinsohn 1998). Depression in young people is associated with poor academic performance, social dysfunction, substance abuse, and attempted and completed suicide (Birmaher 1996; Birmaher 1996a; Brent 1986; Brent 2002; Fleming 1993; Rao 1995; Rhode 1994). The Global Burden of Disease study, initiated in 1992 at

the request of the World Bank and supported by the World Health Organization ranked depressive disorder fourth in the estimate of disease burden, ahead of ischaemic heart disease, cerebrovascular disease and tuberculosis (Murray 1997). The authors predicted depression would be second in the cause of disability by the year 2020 (Ustun 1999; Murray 1997a) and in 2002 their predictions proved to be correct, with depressive disorders ranked second in developed countries, and first in developing countries with low mortality (Mathers 2004). Because of this there has been interest in the development of programmes aimed at preventing the onset of depression, with a number of studies being published in the last two decades.

Description of the intervention

Prevention can be universal, where the intervention is implemented for a designated population regardless of risk, or targeted to a population at high risk for the disorder. Targeted interventions can be further classified into selective interventions which focus on populations with a risk factor for disorder e.g. family history, and indicated interventions which focus on populations with symptoms or signs suggestive of incipient disorder. Some selective interventions target risk factors for depression, such as trauma, to prevent long-term sequelae. The primary target may not be depression, although the effect on depression may have been measured along with other outcomes. Early intervention may be considered prevention or treatment. The Institute of Medicine Report (Mrazek 1994) and the updated report (O'Connell 2009) recommends that prevention is defined as those interventions that occur prior to the onset of a clinically diagnosed disorder.

There are many psychological treatments for depression, that include psychodynamic, humanistic and cognitive behavioural strategies. The most robust evidence exists for two particular psychological interventions: cognitive behavioural therapy and interpersonal therapy. There is evidence that both are effective treatments for depression and that they may reduce relapse, hence the potential for depression prevention.

The depression prevention interventions are often delivered in a group setting, both to reduce cost and because a group may reinforce effectiveness by providing positive peer experiences. Both group and individual interventions usually take place on a weekly basis and typically last for 10 to 15 sessions.

Family-based programmes are based on the premise that family members can influence one another's well-being and have a significant effect on the outcomes of interventions (Carr 2006). Family-based interventions often include the cognitive strategies outlined above. Implementation within the family system is thought to result in a more robust outcome as family discord is a risk factor for depression.

There is evidence supporting the importance of the school environment for young people's well-being (Carr 2006). Young people spend a significant amount of time in school, and disseminating a programme within a school or classroom is likely to be cost-effective as many young people can be taught at the same time.

In this review we have included both psychological and educational approaches to preventing depression. The key differentiating point is that educational interventions simply provide information about depression, through lectures or fact sheets, whereas psychological interventions attempt to change how people think, using a variety of different strategies.

How the intervention might work

The aetiology of depressive disorder is complex and includes biological, psychological and social factors (Davidson 2002; Cicchetti 1998; Goodyer 2000; McCauley 2001; Lewinsohn 1994). While it is clear that a single approach will not reduce all depressive disor-

ders, some psychological theories propose that individual factors create a predisposition to developing depressive disorders, and alternatively may provide a model for promoting resilience in the face of stress. These theories have led to the development of effective treatments for depressive disorder in young people and are often used to provide a theoretical basis for the development of prevention programmes.

Beck developed cognitive behavioural therapy based on his cognitive model of depression (Beck 1976). He proposed that individuals prone to depression have cognitive distortions which result in a negative view of themselves, the world and the future. In cognitive behavioural therapy (CBT), people learn to monitor and evaluate their thoughts, identify different levels of mood in themselves, recognise thoughts and behaviours that have contributed to this mood, and learn how to address these. The associated concepts of "attributional style" (Abramson 1978) and "learned helplessness" (Petersen 1993; Seligman 1979) have also contributed to components of CBT. Those with a pessimistic attributional style see negative events as a stable and enduring part of themselves, while positive events are seen as transient occurrences in which they have played no part. Learned helplessness is a phenomenon of withdrawal and depression that follows a failure to control aversive events. Both are associated with a sense of helplessness and hopelessness, which leads to passivity in the face of challenges and contributes to low mood (McCauley 2001). People who are prone to depression are then less likely to take an active approach to dealing with difficulties. Cognitive behavioural therapy usually includes a component of effective problem-solving. Cognitive behavioural therapy can alleviate symptoms of depression in children and adolescents (Harrington 1998; Reinecke 1998) and can prevent relapse (Paykel 1999) although long-term results in studies in children and adolescents have contradictory findings (Fonagy 2005). Interpersonal conflict, difficulty with role transitions and experiences of loss are all well known as risk factors in the development of depressive disorder in young people (Birmaher 1996; Lewinsohn 1994; McCauley 2001;). Interpersonal therapy (IPT) addresses some of these components and there is evidence of efficacy in treatment of teenage depression (Bolton 2003; Mufson 1996; Mufson 2004).

Why it is important to do this review

Since the last review was published in 2004 (Merry 2004b) a large number of studies have been conducted, and others are underway. Because of the cost of depression to society, and its relationship to suicide attempts and completed suicide, this is an important public health issue. Previous reviews have shown that targeted programmes are potentially effective in preventing depression for young people, with more mixed results from universal programmes (Brunwasser 2009; Horowitz 2006; Merry 2007; Merry 2007a). Governments are keen to take action to address the problem. However, there is the potential for such programmes to

be implemented in the absence of evidence of effectiveness. It is timely to re-evaluate the evidence currently available for the effectiveness of depression prevention programmes.

OBJECTIVES

To determine whether psychological or educational interventions, or both, are effective in preventing the onset of depressive disorders in children and adolescents including:

1. Universal interventions; and
2. Targeted interventions aimed at young people at risk of developing a depressive disorder (identified through elevated depressive symptoms or presence of known risk factors).

METHODS

Criteria for considering studies for this review

Types of studies

Randomised controlled trials (RCTs), including cluster RCTs were included.

Types of participants

Studies were included if the subjects were children and adolescents (aged 5 to 19 years) who did not currently meet the criteria for a clinical diagnosis of depressive illness, although they may have had sub-clinical symptoms of depression. Studies that included participants with a history of depression were included if the intervention was aimed at prevention of depression in a non-clinical setting, and where the participants were not being currently treated for depression.

Studies were excluded if they lacked a clear definition of participants, were on children and adolescents who met DSM-IV-TR ([American Psychiatric Association 2000](#)) or ICD-10 ([World Health Organization 2007](#)) criteria for depressive disorder or fell into the clinical range on standardised, validated, and reliable rating scales of depression at the start of the study, or both, or there was no adequate assessment of participants.

Types of interventions

Studies on depression prevention were included if they compared the efficacy of educational or psychological interventions with the efficacy of placebo, any comparison intervention, or no intervention in children and adolescents. As recommended in the Institute

of Medicine Report ([Mrazek 1994](#); [O'Connell 2009](#)), prevention was classified as those interventions that occurred prior to the initial onset of a clinically diagnosable disorder and included interventions for individuals who had elevated symptoms of disorder but who did not currently meet the criteria for a clinical disorder. Studies with participants who had previously met diagnostic criteria for depressive disorder, but did not currently meet those criteria and had had no treatment for disorder were included. Although this is not a purist definition of prevention, in fact the majority of studies have not rigorously assessed whether or not participants had a history of depressive disorder, while some of the best designed studies we identified did do this. It was illogical to exclude these studies, given that the participants in the other studies are likely to have also included young people with past episodes of depressive disorder that have been unrecognised and untreated.

We included studies that targeted a risk factor for depressive disorder as long as outcomes included depressive symptoms or diagnosis of depressive disorder, or both, even if they were not the primary outcome variable (e.g. interventions to reduce the effect of trauma, where post-traumatic stress disorder was the primary outcome variable).

Secondary and tertiary interventions, including relapse prevention, and pharmacological interventions for depression were excluded.

In this review we have included both psychological and educational prevention programmes. We have defined psychological interventions broadly as those that target psychological processes thought to be involved in the development of depression and educational interventions are those that provide education about depression, its causes and what could be done about it in a broad sense, for example lifestyle interventions such as advice to take Omega-3 oil. However, the two can overlap, especially when psychological interventions include some psycho-education. Early studies have investigated purely educational programmes but these were largely ineffective and the emphasis since the last review has been on psychological interventions. The main modality employed by investigators was based on cognitive behavioural therapy, but some used other approaches such as play therapy.

The way interventions are delivered varies. In this review most interventions are delivered in groups, but in this review we have some studies investigating the use of computers to deliver interventions.

Types of outcome measures

Dichotomous outcome measures included structured clinical interviews, yielding diagnosis of depressive disorder using measures such as the Kiddie Schedule for Affective Disorders Scale (K-SADS) ([Kaufman 1997](#)). Other outcome measures used a pre-designated cut-off point on a continuous measure likely to be correlated with presence of a depressive disorder, such as the Reynolds Adolescent Depression Scale ([Reynolds 1986](#)) and rating scales

providing continuous measures of depressive symptoms such as the Children's Depression Inventory (CDI) (Kovacs 1992).

Primary outcomes

Our primary outcomes were:

- prevalence of depressive disorder in the intervention group compared with the control group post-intervention and at follow-up, measured on either a validated measure of depressive disorder, or above a cut-off on a validated, reliable, continuous measure of depression indicating 'caseness'; and
- depressive symptoms in the intervention group compared with the control group post-intervention and at follow-up.

The measurement tools included:

1. A recognised diagnostic system such as DSM-IV-TR (American Psychiatric Association 2000) or ICD-10 (World Health Organization 2007);
2. Standardised, validated, and reliable depression rating scales suitable for children and adolescents. Where more than one outcome measure was used, the highest quality outcome measure was entered into the analyses. For this we used a hierarchy based on psychometric properties and appropriateness for use with children and adolescents, following the method described by Hazell 2002, see Appendix 5.

Outcomes are organised by follow-up time points, including post intervention, shorter term follow-up, which we defined as 3 to 9 months, and longer term follow-up including 12 months, 24 and 36 months.

Secondary outcomes

Given the size of the review and variability of the data, other secondary outcomes (such as general/social adjustment, academic functioning, cognitive style, anxiety and suicidal ideation) were not included in the update of the review.

Search methods for identification of studies

CCDAN's Specialised Register (CCDANCTR)

The Cochrane Depression, Anxiety and Neurosis Review 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 27,500 reports of trials in depression, anxiety and neurosis. Approximately 60% 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) (<http://apps.who.int/trialsearch/>), 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. The Cochrane Depression, Anxiety and Neurosis Group trials registers were searched (to July 2010) using the following updated search strategy:

CCDANCTR-Studies Register

Diagnosis =(depress* or dysthymi*) and
Age Group=(child* or adolescen* or unclear or "not stated") and
Free-Text= (prevent* or "early intervention*" or risk or at-risk or vulnerab* or (health and promot*) or "health literacy" or educat* or psychoeducat* or training or "life skill*" or school* or classroom* or internet* or divorce* or death or bereave*)

CCDANCTR-References Register

Title/Abstract= (depression or depressive or dysthymi* or "depressed mood" or "mental health") and
Free-text= (adolesc* or preadolesc* or pre-adolesc* or child* or boys or girls or juvenil* or minors or pre-school or preschool or paediatric* or pediatric* or pubescen* or puberty or school* or high-school or teen* or young or youth* or (student* and (college or universit*)) or undergraduate*) and
Free-text= (prevent* or "early intervention*" or risk or at-risk or vulnerab* or (health and promot*) or "health literacy" or educat* or psychoeducat* or training or "life skill*" or school* or classroom* or internet* or divorce* or death or bereave*)

2. The original search of MEDLINE, EMBASE, PsycINFO and ERIC was in 2005. The original search terms for all databases have been updated (September 2009), (see Appendix 1; Appendix 2; Appendix 3; Appendix 4) and searches of these databases were updated at this time.

Because the CCDAN registers now include regular searches of all these databases, we did not undertake any further searches of these databases in July 2010.

Searching other resources

1. The reference lists of articles and other reviews retrieved in the search were searched;
2. Conference abstracts, 1994, 1996, and 1998-2001, for the American Academy of Child and Adolescent Psychiatry were searched;

3. Personal communication: in order to ensure that as many as possible RCTs were identified, the authors of the included studies were consulted to find out if they knew of any published or unpublished RCTs in the area, which had not yet been identified.

Data collection and analysis

Selection of studies

The selection of trials for inclusion in the update of the review was performed independently by at least two of the review authors. Where a title or abstract appeared to describe a trial eligible for inclusion, we obtained the full article and inspected it to assess relevance to this review based on the inclusion criteria. Any discrepancies between the two reviewers were resolved by a third review author.

Data extraction and management

Data were independently extracted by four of the review authors (SM, JB, GC or TB) and discrepancies were resolved by SH. To ensure accurate data entry, the data were double-checked after entry for analysis. The following details were extracted from the included trials and the information is presented in the [Characteristics of included studies](#):

Methods

1. Study Design i.e. RCT or cluster RCT;
2. Whether a power calculation was done;
3. The source of subjects e.g. school;
4. Whether there was representative sample recruitment;
5. Whether diagnostic criteria or clear inclusion criteria were used.

Characteristics of the study participants

1. Age and sex of participants;
2. Methods used to define and diagnose study participants;
3. Other inclusion criteria, e.g. those with a high risk factor;
4. Exclusion criteria;
5. Country.

Interventions used

1. Location of intervention programme e.g. school or community;
2. Focus of intervention, i.e. Targeted or Universal;

3. Description of intervention, including type e.g. CBT, educational; duration and intensity, whether it was manualised and who delivered the intervention;

4. Type of placebo/control/comparison, e.g. wait-list, no intervention, placebo.

Measures

1. Assessment instruments;
2. Assessment intervals.

Outcomes

1. Diagnosis of depressive disorder;
2. Depressive symptoms.

When aspects of methodology were unclear, or when the data were in a form unsuitable for meta-analysis and trials appeared to meet the eligibility criteria, additional information was sought from the principal author. We have indicated in the notes section of the [Characteristics of included studies](#) if an author supplied additional data.

Assessment of risk of bias in included studies

For the original version of this review, we assessed methodological quality using the quality rating scale devised by Moncrieff and colleagues ([Moncrieff 2006](#)). All studies were scored independently by two of the authors and those scoring 30 or more were deemed 'high' quality, those scoring 23 or more were deemed 'adequate'. A sensitivity analysis was undertaken including only those studies that scored in the 'high' or 'adequate' quality range.

For the current update (2011), we updated our methods to conform to the current version of the Cochrane Handbook ([Higgins 2008a](#)) and more specifically, the 'Risk of Bias' tool it recommends ([Higgins 2008b](#)). We examined each study for randomised sequence generation method, allocation concealment, blinding of participants and assessors, the methods of addressing incomplete outcome data, potential selective reporting, and any other possible bias that might affect the outcome of the study.

All assessments of the quality of trials were performed independently by two review authors (SM and HM) for previous versions of this review and by one of SM, JB, GC, TB, or HM for the current version of this review. Any discrepancies were resolved by SH.

A description of the assessment of risk of bias is in Risk of Bias Tables in the [Characteristics of included studies](#).

Measures of treatment effect

Depressive diagnosis

Where possible, we extracted the number of participants meeting criteria for clinically significant depressive disorder at follow-up on standardised questionnaires yielding diagnoses, such as K-SADS. In some studies, investigators used pre-determined cut-off points to identify participants likely to have, or have had clinically significant depressive symptoms. In some cases, dichotomous data were derived from percentages provided by the authors. These data were pooled using a Risk Difference (RD) with a 95% confidence interval (CI). We have used the risk difference as we consider that this is the most relevant measure for this analysis. The primary question is whether the onset of episodes of depressive disorder is lower after intervention than after a control condition. If an intervention is successful, then the absolute number of participants developing depressive disorder following an intervention will be lower than those developing depressive disorder in the control group. The risk difference is easy to interpret and can be converted to 'number needed to treat' which is meaningful when considering whether or not depression prevention is likely to be an effective public health intervention.

Where studies had multiple comparison arms, the participant numbers and dichotomous data for the control group were divided by the number of arms to which the control was compared (See [Chaplin a2006](#); [Gillham a1995](#); [Stice a2008](#); [Wolchik a2000](#)).

Continuous data

For continuous outcomes, we pooled the means and standard deviations and analysed them using the standardised mean difference with a 95% CI. When multiple outcome measures were described in a single study, for the purposes of pooling results, the single 'best available' outcome measure was chosen for each study, according to the method outlined by [Hazell 2002](#). The effect sizes were calculated using this best available outcome. Again, where studies had multiple comparison arms, the population of the control group was divided by the number of arms to which the control was compared (See [Chaplin a2006](#); [Gillham a1995](#); [Gillham a2007](#); [Horowitz a2007](#); [Pattison a2001](#); [Shatte a1997](#); [Sheffield a2006](#); [Stice a2006](#); [Stice a2008](#); [Wolchik a2000](#)).

Unit of analysis issues

When studies used a clustered randomisation method, and where this was not reported, we contacted trial authors and asked them for the interclass correlation (ICC) for the sample. If we were unable to obtain this information from the authors, an ICC estimate of 0.02 was used, as this was the average of the ICCs obtained from the other studies included in the analysis. We then adjusted the study population numbers to take into account the effect of the clustering.

As described above for dichotomous and continuous data, where a study had more than one intervention arm compared with a single control group, data from each arm were compared independently

with the control, which was divided by the number of comparisons so that double counting of data did not occur. For instance, [Stice 2006](#) compared five interventions arms with a wait-list control. In this case, the study was divided into five comparisons. Each active intervention was compared with the control, and the number of participants in the control was divided by five for each of these comparisons.

In the references, studies with multiple arms are identified by a letter before the year of publication (e.g., b2007). Letters after the year of publication (e.g., 2007b) indicate a separate study.

Dealing with missing data

Where data were missing, we requested these from the trial authors by letter or email, or both.

We used ITT analysis where it is was reported (and whether or not ITT analysis was done is reported in the Risk of Bias tables). For continuous data, missing data is most often dealt with using LOCF forward; we used data as provided by trial authors.

Assessment of heterogeneity

We assessed heterogeneity both by inspecting the scatter in the data points and the overlap in their CIs and, more formally, by checking the results of the I^2 analysis.

We used the following guide to interpretation of the I^2 statistic:

- 0% to 40%: heterogeneity is unlikely to be important;
- 30% to 60%: indicates moderate heterogeneity*;
- 50% to 90%: indicates substantial heterogeneity*;
- 75% to 100%: indicates considerable heterogeneity*.

We took into account (i) magnitude and direction of effects and (ii) strength of evidence for heterogeneity (e.g. the P value from the χ^2 , or a CI for I^2).

Assessment of reporting biases

We assessed reports of studies to see whether trial authors reported the outcome(s) specified in the aim of their studies.

We assessed publication bias by inspecting funnel plots for the main outcomes of the review.

Data synthesis

We carried out the statistical analysis in accordance with the guidelines in the Cochrane Reviewers Handbook ([Higgins 2008a](#); [Higgins 2008b](#)). We used the random effects model to pool data.

Subgroup analysis and investigation of heterogeneity

We analysed trials separately based on one main pre-specified subgroup: targeted or universal interventions. We also undertook the following additional subgroups:

- a. male or female; and
- b. high risk or low risk at entry to study based on depression scores;
- c. control condition (Treatment as usual (TAU)/waiting list/attention placebo).

Originally, we planned to compare educational and psychological interventions; however, there were too few studies with an educational intervention to make this a worthwhile comparison.

Sensitivity analysis

We checked the robustness of the results by conducting a sensitivity analysis based on allocation concealment; on presence or absence of previous depressive disorder; and on whether the depressive disorder had been diagnosed using standardised measure of diagnosis, or if it had been determined using a cut-off on a continuous measure of symptoms.

Timeline

We will carry out a new search for RCTs and update the review when it is likely that new trials have been published that may change the conclusions of the review.

RESULTS

Description of studies

See: [Characteristics of included studies](#); [Characteristics of excluded studies](#); [Characteristics of ongoing studies](#).

Results of the search

There were 1201 articles retrieved from the updated searches. Three review authors (SH, GC, TB) read the titles and abstracts of all those articles retrieved and 931 were excluded on this basis with 270 retained for inspection of full article text for eligibility. These were inspected by three independent review authors (SH, GC, TB) with discrepancies resolved by a fourth review author (SM). A total of 202 studies (some of which included duplicates) were excluded and the reasons for exclusion are described in the [Characteristics of excluded studies](#). A total of 68 studies were eligible for inclusion in the update.

Included studies

Sixty-eight studies were eligible for inclusion. Two papers retrieved ([Cardemil 2002](#); [Clarke 1993](#)) reported two trials each and these separate studies are denoted by a letter that follows the year of publication of the paper ([Cardemil 2002a](#); [Cardemil 2002b](#); [Clarke 1993a](#); [Clarke 1993b](#)). We obtained data suitable for pooling in

the meta-analysis from 63 trials, either from the published paper or from trial authors (overall we contacted 63 authors for more data and got additional data from 26 authors). Twenty studies were cluster RCTs, and involved randomising participants in blocks, such as at the level of school, or class ([Bond 2004](#); [Calear 2009](#); [Gillham a2007](#); [Horowitz a2007](#); [Hyun 2005](#); [Kraag 2009](#); [Lamb 1998](#); [Lowry-Webster 2001](#); [Mason 2007](#); [Petersen 1997](#); [Pössel 2004](#); [Pössel 2008](#); [Rivet 2005](#); [Rooney 2006](#); [Sheffield a2006](#); [Spence 2003](#); [Stice a2006](#); [Stice a2008](#); [Vuori 2008](#); [Yu 2002](#)). Fifty-eight of the studies were of psychological interventions, three of educational interventions, and seven of psycho-educational interventions.

When describing the characteristics of studies below, the total numbers often exceed 68 as many of the studies that were included contained multiple intervention arms. This is discussed in the [Unit of analysis issues](#) section and more information about which trials included multiple intervention arms is provided in the 'Design' subsection below.

Design

There were eight studies with two intervention arms ([Chaplin 2006](#); [Gillham 1995](#); [Gillham 2007](#); [Horowitz 2007](#); [King a1990](#); [Pattison 2001](#); [Shatte 1997](#) [Wolchik 2000](#)), two studies had three interventions arms ([Sheffield 2006](#); [Stice, 2008](#)) and one study had five intervention arms ([Stice 2006](#)). These intervention arms are denoted by a letter that precedes the year of publication for that paper.

Thirty-one studies were of universal prevention programmes ([Bond 2004](#); [Calear 2009](#); [Cardemil 2002a](#); [Cardemil 2002b](#); [Chaplin 2006](#); [Clarke 1993a](#); [Clarke 1993b](#); [Gillham 2007](#); [Hains 1990](#); [Hains 1992](#); [Hains 1994](#); [Horowitz 2007](#); [Kraag 2009](#); [Lock 2003](#); [Lowry-Webster 2001](#); [Mason 2007](#); [Merry 2004](#); [Pattison 2001](#); [Pössel 2004](#); [Pössel 2008](#); [Quayle 2001](#); [Rivet 2005](#); [Roberts 2010](#); [Rooney 2006](#); [Sawyer 2010](#); [Shatte 1997](#); [Spence 2003](#); [Stoppelbein 2003](#); [Vuori 2008](#)).

Thirty-nine studies were of prevention programmes implemented to targeted populations based on risk ([Arnarson 2009](#); [Balle 2009](#); [Barnet 2007](#); [Berger 2008](#); [Berry 2009](#); [Cabiya 2008](#); [Castellanos 2006](#); [Clarke 1995](#); [Clarke 2001](#); [Compas 2009](#); [Cowell 2009](#); [Garber 2009](#); [Gillham 1995](#); [Gillham, Hamilton 2006a](#); [Gillham, Reivich 2006b](#); [Hyun 2005](#); [King a1990](#); [Kumakech 2009](#); [Lamb 1998](#); [Layne 2008](#); [McLaughlin 2007](#); [Petersen 1997](#); [Palermo 2009](#); [Puskar 2003](#); [Raider 2008](#); [Roberts 2003](#); [Schmiege 2006](#); [Seligman 1999](#); [Seligman 2007](#); [Shen 2002](#); [Simpson 2008](#); [Stice 2006](#); [Stice, 2008](#); [Tol 2008](#); [Wolchik 2000](#); [Young 2006](#); [Yu 2002](#); [Zehnder 2010](#)).

Risk was defined in different studies as:

- having elevated depression scores ([Arnarson 2009](#); [Clarke 1995](#); [Gillham 1995a](#); [Gillham, Hamilton 2006a](#); [Gillham, Reivich 2006b](#); [Lamb 1998](#); [Petersen 1997](#); [Puskar 2003](#); [Roberts 2003](#); [Seligman 2007](#); [Sheffield 2006](#); [Simpson 2008](#);

Stice 2006; Stice, 2008; Young 2006; Yu 2002);

- having a parent with current depression (Compas 2009);
- having elevated depressive symptoms and a parent with a history of depression (Clarke 2001; Garber 2009);
- having elevated depressive symptoms and reporting poor family relationships or perceived family conflict (Roberts 2003; Yu 2002);
- having parents who were separated or divorced, or both (Wolchik 2000);
- scoring in the bottom quartile of the Attributional Style Questionnaire (i.e. pessimistic) (Seligman 1999);
- scoring in the 80th percentile on the Children's Anxiety Sensitivity Scale (Balle 2009);
- scoring 1 SD above the school mean on any of four personality risk subscales of the Substance Use Risk Profile Scale (SURPS) (Castellanos 2006);
- being bullied at school (Berry 2009);
- being in a shelter for runaway youth (Hyun 2005);
- being in residential care (Raider 2008);
- a diagnosis of a disruptive disorder (Cabiya 2008);
- having experienced trauma, poor family relationships and having elevated depression symptoms (Layne 2008);
- having experienced a natural disaster such as an earthquake or tsunami (Berger 2008; Shen 2002);
- having elevated scores on symptom checklists assessing violent events, PTSD and anxiety (Tol 2008);
- having a parent pass away within the past two years in one study (Schmiege 2006);
- being 24 weeks pregnant as an adolescent (Barnet 2007);
- being the child of a Mexican immigrant woman (Cowell 2009);
- displaying aggressive behaviour (King a1990); and
- being involved in a Road Traffic Accident (RTA) (Zehnder 2010).

In one trial Sheffield 2006, one arm was of a prevention programme implemented for a universal population (Sheffield a2006), one arm was implemented for a targeted population (Sheffield b2006) and one arm was implemented for both a universal and targeted population (Sheffield c2006).

While their programmes were implemented universally, eight authors (Cardemil 2002; Hains 1994; Roberts 2003; Roberts 2010; Sawyer 2010; Shatte 1997; Sheffield 2006; Spence 2003) analysed data based on high and low risk or depression symptoms according to depression scores at the start of the study.

Sample sizes

Sample sizes varied from 21 participants (Hains 1994) to 6634 participants (Sawyer 2010).

Setting

Studies were conducted in a number of countries including:

- thirty-five studies in North America (Barnet 2007; Cardemil 2002; Chaplin 2006; Clarke 1993; Clarke 1995; Clarke 2001; Compas 2009; Garber 2009; Gillham 1995; Gillham, Hamilton 2006a; Gillham, Reivich 2006b; Gillham 2007; Hains 1990; Hains 1992; Hains 1994; Horowitz 2007; King a1990; Lamb 1998; Mason 2007; Petersen 1997; Puskar 2003; Raider 2008; Schmiege 2006; Seligman 1999; Seligman 2007; Shatte 1997; Stice 2006; Stice, 2008; Stoppelbein 2003; Wolchik 2000; Young 2006);
- thirteen studies in Australia (Berry 2009; Bond 2004; Calear 2009; Lock 2003; Lowry-Webster 2001; Quayle 2001; Roberts 2003; Roberts 2010; Rooney 2006; Sawyer 2010; Sheffield 2006; Spence 2003);
- Canada (Simpson 2008);
- UK (Castellanos 2006);
- Spain (Balle 2009);
- Germany (Pössel 2004; Pössel 2008);
- Switzerland (Zehnder 2010);
- The Netherlands (Kraag 2009);
- Iceland (Arnarson 2009);
- Bosnia (Layne 2008);
- China (Yu 2002);
- South Korea (Hyun 2005);
- Taiwan (Shen 2002);
- Indonesia (Tol 2008);
- Mauritius (Rivet 2005);
- Puerto Rico (Cabiya 2008);
- Sri Lanka (Berger 2008);
- Uganda (Kumakech 2009); and
- New Zealand (Merry 2004).

Participants

The age of participants ranged from 4.7 years through to 19 years. Most studies involved participants of European extraction, described as 'American', 'Caucasian', 'Australian', 'Australian born' or 'New Zealand European'. Other ethnicities included African American, 'Latino' or 'Hispanic', 'Asian', Asian-American, Native American, Dutch, Maori, Pacific Island, Creole, Chinese and 'Other' or 'Self identified ethnic group'.

Ethnicity was not reported in eighteen studies (Arnarson 2009; Balle 2009; Calear 2009; Gillham 1995; Hyun 2005; King a1990; Layne 2008; Lock 2003; Lowry-Webster 2001; Pattison 2001; Pössel 2004; Pössel 2008; Quayle 2001; Rooney 2006; Sawyer 2010; Tol 2008; Vuori 2008; Zehnder 2010).

Interventions

Prevention programmes were diverse and varied in those targeted, the components they included, and the focus of those components. Most programmes included some components of Cognitive Behavioral Therapy (CBT). Others included a focus on self-efficacy, stress reduction, trauma or optimism. Some programmes were gender-specific and some focused on family members. Many were school-based, while others were online or based in primary care settings. Many were group-based programmes.

There were a number of specific prevention programmes. Eleven of the studies utilised programmes developed at the University of Pennsylvania such as the original PENN Prevention Programme, the PENN Resiliency Programme, the PENN Optimism and Life Skills Programme and the Penn Resilience Program for Children and Adolescent (PRP-CA) combined with a parent component (Cardemil 2002; Chaplin 2006; Gillham 1995; Gillham, Hamilton 2006a; Gillham, Reivich 2006b; Gillham 2007; Pattison 2001; Quayle 2001; Roberts 2003; Shatte 1997; Yu 2002). One study implemented the computer-based, self-directed MoodGYM programme (Calear 2009) and another a web-based management of adolescent pain (WEB-AP) (Palermo 2009). Other prevention programmes included the Resourceful Adolescent Program (RAP-Kiwi) (Merry 2004), the Coping with Stress Course (Clarke 1995; Clarke 2001; Garber 2009) Teaching Kids to Cope (Puskar 2003), The Stress Inoculation Model (Hains 1994), Problem Solving for Life (Spence 2003), the Gatehouse Project (Bond 2004), Learn Young, Learn Fair (Kraag 2009), the FRIENDS Program (Balle 2009; Lock 2003; Lowry-Webster 2001;), LISA-T (Pössel 2004), LARS and LISA programmes (Pössel 2008), ERASE Stress Sri Lanka (Berger 2008); The Confident Kids programme (Berry 2009), a culturally adapted version of the Coping Power Program (Cabiya 2008), the Mexican American Problem Solving Program (MAPS) (Cowell 2009), the Wisconsin Early Intervention (WEI) program (King a1990), the Abecedarian Program (McLaughlin 2007), The Aussie Optimism Program (Roberts 2010) and Beyondblue (Sawyer 2010).

Others were not so formally described but stated that they were based on cognitive therapy (Arnarson 2009; Burton 2007; Castellanos 2006; Compas 2009; Lamb 1998; Seligman 1999; Clarke 1993a; Clarke 2001). One was primarily a peer support programme (Kumakech 2009), another implemented play therapy (Shen 2002) and one utilised brief trauma therapy and PTSD psycho-education (Zehnder 2010).

The well-known Abecedarian study, in which an intervention was provided to vulnerable families, followed the children to the age of 21 and measured depression as an outcome (McLaughlin 2007). Those with early treatment had reduced depressive symptoms but data were not in a form that allowed inclusion in this review.

Of the studies with educational interventions, one included three 50-minute manualised lectures delivered by health education teachers (Clarke 1993a), while the Working Towards Life programme (Vuori 2008) was a manualised 15 hour workshop held

over four to five days, and delivered by counsellors in basic education or from vocational institutes. One study presented manualised psycho-educational material delivered by psychologists or clinically trained graduate students (Petersen 1997).

Various types of comparison conditions were used. Twenty studies compared the prevention programme with a "no intervention" or assessment only condition (Bond 2004; Cardemil 2002a; Cardemil 2002b; Castellanos 2006; Cowell 2009; King b1990; Gillham, Reivich 2006b; Gillham 2007; Hyun 2005; Lamb 1998; Lock 2003; Petersen 1997; Seligman 1999; Seligman 2007; Spence 2003; Stice a2008; Stice b2008; Stice c2008; Yu 2002). Thirteen studies compared the intervention to a "usual class" condition (Chaplin 2006; Clarke 1993a; Clarke 1993b; Garber 2009; Horowitz 2007; Pössel 2004; Pössel 2008; Rivet 2005; Roberts 2003; Roberts 2010; Rooney 2006; Sheffield 2006; Vuori 2008). Sixteen studies used a wait-list condition as the comparison (Calear 2009; Gillham 1995; Hains 1990; Hains 1992; Hains 1994; Kraag 2009; Lowry-Webster 2001; Quayle 2001; Raider 2008; Stice 2006; Tol 2008). Ten studies used a "usual care" or "Treatment as Usual (TAU)" condition (Arnarson 2009; Balle 2009; Barnett 2007; Berger 2008; Berry 2009; Cabiya 2008; Clarke 1995; Clarke 2001; Gillham, Hamilton 2006a; Mason 2007; McLaughlin 2007; Palermo 2009; Puskar 2003; Young 2006; Zehnder 2010), six used an attention or placebo condition (King a1990; Layne 2008; Merry 2004; Pattison 2001; Shatte 1997; Simpson 2008), and three used a self-study programme comparison (Compas 2009; Schmiede 2006; Wolchik 2000). One study compared the prevention intervention programme with a control group who received didactic lectures on general topics in Psychology (Stoppelbein 2003).

The number of sessions ranged from three (Clarke 1993b) to 30 (Sawyer 2010), and were of varying length. The majority of studies (41 in total) comprised eight to 12 sessions, ten studies comprised more than 14 sessions (Arnarson 2009; Clarke 1995; Clarke 2001; Garber 2009; Hains 1994; King a1990; Kraag 2009; Layne 2008; Petersen 1997; Sheffield c2006; Tol 2008) and twelve studies less than eight sessions (Balle 2009; Castellanos 2006; Clarke 1993a; Clarke 1993b; Hains 1990; Hains 1992; Sheffield a2006; Vuori 2008; Calear 2009; Mason 2007; Stice a2008; Zehnder 2010).

Most programmes were manualised or provided clear written guidelines, although there were nine studies in which this was unclear (Hains 1990; Hains 1992; Hyun 2005; Kumakech 2009; Lamb 1998; Petersen 1997; Puskar 2003; Shen 2002; Zehnder 2010).

The programmes were delivered by clinicians, (graduate level students of psychology, psychiatric nurses, school counsellors or psychologists) in forty studies (Arnarson 2009; Balle 2009; Berry 2009; Cardemil 2002a; Cardemil 2002b; Cabiya 2008; Castellanos 2006; Clarke 1995; Clarke 2001; Compas 2009; Garber 2009; Gillham a1995; Gillham, Hamilton 2006a; Gillham, Reivich 2006b; Gillham 2007; Hains 1990; Hains 1992; Hains 1994; Horowitz a2007; Horowitz b2007; Hyun 2005;

Lamb 1998; Layne 2008; Lock 2003; Petersen 1997; Puskar 2003; Pössel 2004; Pössel 2008; Quayle 2001; Roberts 2003; Rooney 2006; Schmiede 2006; Seligman 1999; Seligman 2007; Shatte 1997; Stice 2006; Stice, 2008; Wolchik 2000; Young 2006; Zehnder 2010), by teachers in 10 studies (Bond 2004; Clarke 1993a; Clarke 1993b; Kraag 2009; Lowry-Webster 2001; Merry 2004; Rivet 2005; Sheffield 2006; Shen 2002; Spence 2003; Yu 2002), by trained facilitators in seven studies (Barnet 2007; King a1990; Mason 2007; Pattison 2001; Raider 2008; Stoppelbein 2003; Tol 2008), and by teachers and counsellors in two studies (Chaplin 2006; Vuori 2008). Two studies were computerised and delivered via a web-based programme (Palermo 2009) one of which was also with the support of teachers (Calear 2009). One study did not give details on programme facilitators (Simpson 2008).

Placebos/attention controls

The placebos used included:

- group sessions of the same duration and format as the intervention, specifically designed to provide attention and fun but to exclude elements thought to be active in the intervention (Merry 2004, Simpson 2008);
- an attention control group focusing on an environmental problem (Pattison a2001; Pattison b2001);
- parent/teacher consultation only (compared with consultation plus a social skills group) (King a1990);
- classroom-based psycho-education regarding common distress reactions, coping skills to manage trauma and loss reminders, relaxation training, skills to self-regulate emotions and behaviour, social support skills, and problem-solving skills (Layne 2008).

Outcomes

Times for follow-up varied. Nine studies limited their follow up to immediate post-intervention (Berger 2008; Hyun 2005; King a1990; Kumakech 2009; Lamb 1998; Raider 2008; Sawyer 2010; Shen 2002; Simpson 2008), 35 studies reported short-term outcomes up to nine months (Arnarson 2009; Balle 2009; Berry 2009; Bond 2004; Cabiya 2008; Calear 2009; Cardemil 2002a; Cardemil 2002b; Castellanos 2006; Clarke 1993a; Clarke 1993b; Cowell 2009; Garber 2009; Hains 1990; Hains 1992; Hains 1994; Horowitz 2007; Kraag 2009; Layne 2008; Palermo 2009; Pattison 2001; Pössel 2004; Pössel 2008; Quayle 2001; Rivet 2005; Seligman 2007; Stice 2006; Stice, 2008; Stoppelbein 2003; Tol 2008; Wolchik 2000; Young 2006; Yu 2002; Zehnder 2010) and 21 studies reported a longer term outcome of 10 to 36 months (Barnet 2007; Chaplin 2006; Clarke 1995; Clarke 2001; Compas

2009; Gillham a1995; Gillham, Hamilton 2006a; Gillham, Reivich 2006b; Gillham 2007; Lock 2003; Lowry-Webster 2001; Merry 2004; Petersen 1997; Puskar 2003; Roberts 2003; Roberts 2010; Rooney 2006; Schmiede 2006; Seligman 1999; Shatte 1997; Sheffield 2006 Vuori 2008). Two studies have reported outcomes longer than 36 months (Mason 2007; Spence 2003). The study by McLaughlin 2007 involved a follow up at age 21, for a programme that was delivered in infant years.

For a full description of each study, see the [Characteristics of included studies](#) section.

Excluded studies

Overall, 168 studies were excluded from the review. The reasons for exclusion for each study are included in the [Characteristics of excluded studies](#) section.

The seminal study by Jaycox and co-workers (Jaycox 1994) and the follow-up reports were not included. This study is widely quoted and work from this group has inspired many of the studies in this review so it is worth considering it in some detail. Originally designed as a five year prospective study, three versions of a depression prevention programme, one with a cognitive focus, one with a social problem-solving focus, and one which was a combination of the two, were combined and compared with a no-intervention control group. Recruitment to the study had the potential for large and uncontrolled bias. This study did not randomise participants to intervention and control conditions. Subjects were a high risk group of 69 children who were recruited after screening from a group of 174 children whose parents responded to a letter describing the study. The letter had been sent to parents of approximately 900 children from one school district. The control group consisted of 50 at-risk students out of 88 recruited from a different school district with a pool of approximately 700 children, and a further 24 "wait-list" children. The follow-up to two and three years is reported by Gillham (Gillham 1995a; Gillham 1999) and compares the two recruited groups but does not include the wait-list controls. While the results of this study show significant reduction in depression with effects persisting to two years the results must be interpreted in light of the methodological shortcomings and could not be included within the meta-analysis despite the fact that this work set the scene for the large number of subsequent studies.

Risk of bias in included studies

For the complete risk of bias for each study, please see the risk of bias section in the [Characteristics of included studies](#). See [Figure 1](#) for an overview of the risk of bias assessment.

Figure 1. Risk of bias graph: Review authors' judgements about each risk of bias item presented as percentages across all included studies.

Allocation

Allocation concealment was not reported in most studies but was clearly done in twelve studies (Berry 2009; Calcar 2009; Clarke 2001; Compas 2009; Garber 2009; Kumakech 2009; Layne 2008; Merry 2004; Palermo 2009; Sawyer 2010; Sheffield 2006; Zehnder 2010) and clearly not done in eleven studies (Chaplin 2006; Gillham, Reivich 2006b; Gillham 2007; Horowitz 2007; Kraag 2009; Lock 2003; Mason 2007; Roberts 2003; Shatte 1997; Stoppelbein 2003; Wolchik 2000; Young 2006).

Blinding

Subjects were clearly blinded in two studies (Merry 2004; Simpson 2008). Blinding of subjects was not done or not reported in the remainder of studies, although the nature of the interventions often makes blinding difficult or impossible.

Blinding of assessors was undertaken in sixteen studies (Berger 2008; Clarke 1993a; Clarke 1993b; Compas 2009; Horowitz 2007; Horowitz 2007; King 1990; Kraag 2009; Layne 2008; Merry 2004; Roberts 2010; Seligman 1999; Seligman 2007; Simpson 2008; Young 2006; Zehnder 2010), was clearly not undertaken in twelve studies (Calcar 2009; Clarke 2001; Gillham 1995; Gillham, Hamilton 2006a; Gillham, Reivich 2006b; Pössel 2008; Raider 2008; Rivet 2005; Schmiede 2006; Stice 2006; Tol 2008; Vuori 2008), and was not reported in the remainder of the studies.

Incomplete outcome data

An intention-to-treat analysis was undertaken in 32 studies (Arnason 2009; Barnet 2007; Berger 2008; Berry 2009; Bond 2004; Calcar 2009; Clarke 1995; Clarke 2001; Castellanos 2006; Cowell 2009; Garber 2009; Gillham, Hamilton 2006a; Gillham, Reivich 2006b; Hains 1994; Horowitz 2007; Kraag 2009; Lock 2003; Mason 2007; Merry 2004; Palermo 2009; Puskar 2003; Pössel 2004; Pössel 2008; Rivet 2005; Sawyer 2010; Shatte 1997; Simpson 2008; Stice, 2008; Tol 2008; Vuori 2008; Wolchik 2000; Young 2006), was not undertaken in eight studies (Lamb 1998; Layne 2008; Lowry-Webster 2001; Gillham 2007; Raider 2008; Rooney 2006; Schmiede 2006; Seligman 2007) and was unclear or not reported in the remainder of studies. In most cases the investigators used the LOCF forward approach for continuous data.

Selective reporting

We assessed whether there was biased reporting by considering whether authors reported results for the outcomes they had pre-specified, in the groups that they pre-specified. We believe that in most cases trial authors either reported in the write up of their trial, or provided us with the data required for the outcomes in this review (and where dichotomous data on depressive disorder are not provided is likely due to the fact that this outcome, particularly in older trials, was less likely to be measured given the time, cost and expertise required). However, we have taken a conservative approach and the risk of bias as been rated as unclear in the majority of trials as we did not have access to trial protocols to double check what trial authors intended to measure when the trial was designed compared with what was actually reported in trial reports. The majority of authors reported outcome data for

the outcomes they specified as the aim of their study. However, Cabiya did not report means and standard deviations for outcome measures split by group membership; they were only presented split by sex (Cabiya 2008), Castellanos and Cowell did not provide overall participant numbers in each group (Castellanos 2006; Cowell 2009), Compas did not provide standard deviations alongside mean scores (Compas 2009) and King did not report depressive symptom scores for School B split by group (King 1990). In addition, Gillham did not report rates of depressive diagnosis for the whole sample, but only by subgroup (Gillham 2007), Raider did not report depressive symptoms (Raider 2008), Lamb only reported results in graphs and data could not be meaningfully derived from these (Lamb 1998), and Vuori reported results of their analysis but not the data from which they were derived (Vuori 2008). It should be noted that there are data missing from our overall analysis of symptoms because Hains only report the data by risk group (Hains 1994). As this was reported to be a pre-specified aim, we have not rated this trial as suffering from reporting bias. Similarly there are data missing from our overall analysis of symptoms because Schmiede only reported data by sex, but again this was reported to be a prespecified aim (Schmiede 2006).

Other potential sources of bias

Adherence to the prevention programme was checked and reported in nineteen studies (Berger 2008; Caelear 2009; Cabiya 2008; Chaplin 2006; Compas 2009; Cowell 2009; Garber 2009; Mason 2007; Palermo 2009; Pössel 2004; Pössel 2008; Puskar 2003; Raider 2008; Roberts 2003; Roberts 2010; Sawyer 2010;

Stice, 2008; Tol 2008; Wolchik 2000) and not checked in one study (Arnarson 2009). Implementation integrity was not reported or not measured in the remainder of the studies.

In 20 studies, authors were involved in the design or development of the intervention program being implemented in the study itself (Berger 2008; Cabiya 2008; Cardemil 2002a; Cardemil 2002b; Castellanos 2006; Compas 2009; Cowell 2009; Gillham, Hamilton 2006a; Gillham, Reivich 2006b; McLaughlin 2007; Merry 2004; Palermo 2009; Pössel 2004; Pössel 2008; Roberts 2010; Rooney 2006; Sawyer 2010; Seligman 1999; Stice 2006; Wolchik 2000).

Effects of interventions

I. Diagnosis of depressive disorder

There were 16 studies included in the meta-analyses and 18 intervention arms (N=3240).

I.1 Compared with no intervention

- there was evidence that the risk of having a depressive disorder post-intervention was reduced (15 studies; 17 intervention arms; N=3115; (RD -0.09; 95% CI -0.14 to -0.05) Figure 2).

**Figure 2. Forest plot of comparison: Intervention versus no intervention, post-intervention; outcome: I.I
Depressive disorder**

○ $\tau^2 = 0.00$; $\chi^2 = 44.32$, $df = 17$ ($P < 0.0003$); $I^2 = 62\%$;

- the efficacy of an intervention was still evident at 3 to 9 months (14 studies; 19 intervention arms; $N = 1842$; $RD = -0.11$; 95% CI -0.16 to -0.06) [Figure 3](#) and 12 months (10 studies; 11 intervention arms; $N = 1750$; $RD = -0.06$; 95% CI -0.11 to -0.01) [Figure 4](#).

Figure 3. Forest plot of comparison: I Intervention versus no intervention, three to nine months follow-up; outcome: 3.1 Depressive disorder

Figure 4. Forest plot of comparison: Intervention versus no intervention, 12 months follow-up; outcome: 5.1 Depressive disorder (by population).

○ Three to 9 months: $\tau^2 = 0.01$; $\chi^2 = 50.82$, $df = 18$ ($P < 0.0001$); $I^2 = 65\%$;

○ Twelve months: $\tau^2 = 0.00$; $\chi^2 = 25.61$, $df = 10$ ($P = 0.004$); $I^2 = 61\%$.

● by 24 months there was no evidence for continued efficacy (eight studies; $N = 2084$; (RD -0.01; 95% CI -0.04 to 0.03))

○ $\tau^2 = 0.00$; $\chi^2 = 5.66$, $df = 7$ ($P = 0.58$); $I^2 = 0\%$;

● however, at 36 months, the two studies that measured depressive diagnosis showed evidence for their efficacy (2 studies, $N = 464$; (RD -0.10; 95% CI -0.19 to -0.02)).

1.2 Compared with placebo

● there was no evidence that an intervention was more effective than a placebo-controlled group post-intervention (one study ($N = 125$); (RD -0.07; 95% CI -0.19 to 0.04));

● there were no studies that compared an intervention with a placebo control group with 3 to 9, 12 or 24 month outcome measurement and reported depressive diagnosis.

2. Depression scores (self-reported)

There were 55 studies included in the meta-analyses and 69 intervention arms, for a total of 112 comparisons ($N = 14,406$).

Fifty studies ($N = 13,799$) compared an intervention with no intervention and five studies ($N = 607$) compared an intervention with a placebo control group (one study included both a no intervention as well as a placebo-control arm).

2.1 Compared with no intervention

● there was evidence that an intervention was effective in improving depression symptoms post-intervention (50 Studies; 63 intervention arms; $N = 13,799$; (SMD -0.20; 95% CI -0.26 to -0.14); [Figure 5](#))

Figure 5. Forest plot of comparison: Intervention versus no intervention, post-intervention; outcome: I.5 Depression scores.

- $\text{Tau}^2=0.03$; $\text{Chi}^2=140.26$, $\text{df}=62$ ($P<0.00001$); $I^2=56\%$
- the effect of receiving an intervention remained evident at 3 to 9 months follow-up (31 studies; 43 intervention arms; $N=6999$; (SMD -0.18; 95% CI -0.25 to -0.12) (SMD -0.16; 95% CI -0.23 to -0.10); [Figure 6](#)) and 12 months (19 studies; 24 intervention arms; $N=6463$; (SMD -0.09; 95% CI -0.17 to -0.01) (SMD -0.10; 95% CI -0.18 to -0.02) [Figure 7](#))

Figure 6. Forest plot of comparison: Intervention versus no intervention, three to nine months follow-up; outcome: 3.5 Depression scores.

Figure 7. Forest plot of comparison: Intervention versus no intervention, 12 months follow-up; outcome: 5.5 Depression scores.

○ Three to 9 months: $\tau^2 = 0.01$; $\chi^2 = 62.10$, $df = 42$ ($P = 0.02$); $I^2 = 32\%$

○ Twelve months: $\tau^2 = 0.01$; $\chi^2 = 39.90$, $df = 23$ ($P = 0.02$); $I^2 = 42\%$

● there was no strong evidence for the efficacy of an intervention 24 months follow-up (12 studies; 13 intervention arms; $N = 3220$; (SMD -0.02; 95% CI -0.09 to 0.05) or 36 month follow-up (five studies; 6 intervention arms; $N = 1203$

(SMD -0.09; 95% CI -0.21 to 0.02)).

2.2 Compared with placebo

● there was no evidence that an intervention was effective in improving depression symptoms:

○ post-intervention compared with a placebo control (five studies; six intervention arms; $N = 607$; (SMD -0.05; 95% CI -0.21 to 0.11); [Figure 8](#)).

Figure 8. Forest plot of comparison: Intervention versus placebo, post-intervention; outcome: 2.5 Depression scores.

- No significant heterogeneity
- at 3 to 9 months (three studies; $N = 437$; (SMD 0.07; 95% CI -0.12 to 0.26)).
- No significant heterogeneity
- at 12 months (one study; $N = 295$; (SMD -0.07; 95% CI -0.30 to 0.16))
- or at 24 months (one study; $N = 263$; (SMD -0.05; 95% CI -0.29 to 0.19)) and no studies that measured this outcome at 36 months.

3. Sensitivity analyses

3.1 Allocation concealment

We carried out a sensitivity analysis to check the effect of excluding studies where allocation concealment had not been done or where this was unclear. When these studies (the majority of studies in the review) were excluded the results for depressive diagnosis remained significant at post-intervention and at 12 month follow-up. Likewise the results showing reduction in depressive symptoms post-intervention remained significant; however, at 12 months follow-up the reduction in depressive symptoms was no longer significant when those studies with an unclear or no rating for allocation concealment were excluded. It should be noted that few studies reported allocation concealment or ensured that this had been done (Berry 2009; Clarke 2001; Cascar 2009; Compas 2009; Garber 2009; Kumakech 2009; Layne 2008; Merry 2004; Palermo 2009; Sawyer 2010; Sheffield 2006; Zehnder 2010). In

particular, for depressive disorder diagnosis, only Clarke 2001 remained in the analysis, a study which showed strong evidence of an effect of intervention over no intervention.

3.2 Past history of a psychiatric diagnosis

Sensitivity analysis was undertaken to assess the effect of including studies with participants who had had a past episode of depressive disorder. Seven studies assessed this (Arnanson 2009; Clarke 1995; Clarke 2001; Compas 2009; Garber 2009; Roberts 2003; Seligman 1999; Young 2006), but only one excluded participants with a past history of depressive disorder (Arnanson 2009).

We carried out a subgroup analysis and removed the studies that included participants with a past history of mental health problems (whether this was depression or not was not always clear from the description). The reduction in depressive diagnoses immediately after intervention remained significant after removing these studies. At three to nine months the effect for targeted interventions was reduced but bordered on significance (RD -0.03 CI -0.07, 0.00 $P = 0.07$). The effect for universal interventions remained (RD -0.13 CI -0.20, -0.05 $P < 0.00001$). At 12 months removing these studies meant that the difference in depressive diagnoses between groups was no longer significant. At 24 and 36 months there were very few studies in the analyses and a sensitivity analysis was not carried out at these time points.

3.3 Proxy measure of diagnosis of depressive diagnosis

We carried out a sensitivity analysis to assess the effect of removing studies that did not measure depressive diagnosis directly but used

a cut-off on a rating scale as a proxy measure. Results remained significant overall at post-intervention and at three to nine months follow-up but not at 12 months.

3.4 Publication Bias

The extensive searching, and the ongoing contact with a large number of the trial authors in this field, has helped to reduce the possibility of publication bias. However, funnel plots were in-

spected for the main outcomes of depressive diagnosis and depressive disorder for the comparison intervention versus no intervention post-intervention and there was evidence that smaller negative studies were missing [Figure 9](#); [Figure 10](#). This is also true of these outcomes at three to nine months and 12 months. Very few studies report longer term follow-up. There were too few studies in the comparison intervention versus placebo for funnel plots to be valid.

Figure 9. Funnel plot of comparison: I Psychological/educational intervention versus no intervention/wait-list/usual care, outcome: I.1 Depressive disorder (by population).

Figure 10. Funnel plot of comparison: I Psychological/educational intervention versus no intervention/wait-list/usual care, outcome: I.5 Depression scores (by population).

Heterogeneity subgroup analyses

Because it was anticipated that there would be heterogeneity in the trials identified for inclusion, subgroup analysis to deal with this was planned at the outset. Hence, the subgroup analyses were conducted by population (targeted vs universal), intervention (educational vs psychological), sex (male vs female) and risk status (high vs low risk at outset).

A. Subgroup analysis: targeted vs universal programmes

A.1 Diagnosis of depressive disorder

A.1.1 Targeted interventions

A.1.1.1 Compared with no intervention

- targeted interventions reduced depressive diagnoses post-intervention (six studies; seven intervention arms; N=890; (RD -0.07; 95% CI -0.12 to -0.02) [Figure 2](#)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=11.78$, $\text{df}=6$ ($P=0.07$); $I^2=49\%$
- the efficacy was still evident at three to nine months follow-up (seven studies; 10 intervention arms; N= 1306; (RD -0.06; 95% CI -0.10 to -0.03) [Figure 3](#)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=10.78$, $\text{df}=9$ ($P=0.29$); $I^2=17\%$
- by 12 month follow-up there was still evidence of efficacy (three studies; N=239; (RD -0.14; 95% CI -0.24 to -0.04); [Figure 4](#)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=0.77$, $\text{df}=2$ ($P=0.68$); $I^2=0\%$
- however, by 24 months follow-up there was no strong evidence of efficacy (two studies; N= 313; (RD -0.01; 95% CI -0.10 to 0.09)).
- there was no strong evidence of efficacy at 36 months (one study; n=125 (RD -0.08; 95% CI -0.21 to 0.05)).

A.1.1.2 Compared with placebo

There was one study included in this analysis as follows:

- there was no strong evidence that a targeted intervention was effective (RD -0.07; 95% CI -0.19 to 0.04).

A.1.2 Universal interventions

A.1.2.1 Compared with no intervention

- universal interventions reduced depressive diagnoses post-intervention (nine studies; 11 intervention arms; N=2225; (RD -0.12; 95% CI -0.20 to -0.05); [Figure 2](#)).
 - $\text{Tau}^2=0.01$; $\text{Chi}^2=34.63$, $\text{df}=10$ ($P=0.0001$); $I^2=71\%$
- the efficacy of universal interventions remained at three to nine months follow-up (seven studies; nine intervention arms; N=536; (RD -0.19; 95% CI -0.33 to -0.05); [Figure 3](#)).
 - $\text{Tau}^2=0.03$; $\text{Chi}^2=43.34$, $\text{df}=8$ ($P<0.00001$); $I^2=82\%$
- there was no strong evidence that universal interventions had an effect at 12 months follow-up (seven studies; eight intervention arms; N=2044; (RD -0.04; 95% CI -0.09 to 0.02)), however, the CI includes potentially important effects:
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=17.67$, $\text{df}=7$ ($P=0.01$); $I^2=60\%$
- no strong evidence that universal interventions had an effect at 24 months (six studies; N=1771; (RD -0.01; 95% CI -0.05 to 0.03)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=5.58$, $\text{df}=5$ ($P=0.35$); $I^2=10\%$
- however, at 36 months follow-up there was evidence from one study (N=239) that universal interventions had an effect (RD -0.12; 95% CI -0.22 to -0.01).

A.1.2.2 Compared with placebo

- universal interventions post-intervention: there were no studies comparing a universal intervention with a placebo control that measured this outcome.

A.2 Depression scores

A.2.1 Targeted interventions

A.2.1.1 Compared with no intervention:

- there was evidence of the efficacy of targeted interventions post-intervention (25 studies; 32 intervention arms; N=4174; (SMD -0.31; 95% CI -0.41 to -0.21); [Figure 5](#)).
 - $\text{Tau}^2=0.04$; $\text{Chi}^2=64.93$, $\text{df}=31$ ($P=0.0003$); $I^2=52\%$
- the efficacy of the interventions was still evident at three to nine months (17 studies; 24 intervention arms; N= 3146; (SMD -0.22; 95% CI -0.32 to -0.12); [Figure 6](#)) and at 12 months (eight studies; N=1351; (RD -0.14; 95% CI -0.24 to -0.04); [Figure 7](#)).

- Three to nine months: $\text{Tau}^2=0.02$; $\text{Chi}^2=37.03$, $\text{df}=23$ ($P=0.03$); $I^2=38\%$
- Twelve months: $\text{Tau}^2=0.02$; $\text{Chi}^2=11.44$, $\text{df}=7$ ($P=0.12$); $I^2=39\%$
- there was no strong evidence of the efficacy of interventions at 24 months (SMD 0.03; 95% CI -0.13 to 0.19).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=0.96$, $\text{df}=3$ ($P=0.81$); $I^2=0\%$
- at 36 months follow-up there was evidence of the efficacy of the interventions (two studies; N= 301; (SMD -0.24; 95% CI -0.47 to -0.02)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=0.32$, $\text{df}=1$ ($P=0.57$); $I^2=0\%$

A.2.1.2 Compared with placebo:

There was no strong evidence of the efficacy of targeted interventions post-intervention (two studies), at three to nine months (one study) with no studies where follow-up was conducted at 12, 24, or 36 months.

A.2.2 Universal interventions

A.2.2.1 Compared with no intervention:

- universal interventions reduced depression post-intervention (25 studies; 31 intervention arms; N =9625; (SMD -0.10; 95% CI -0.16 to -0.04); [Figure 5](#)).
 - $\text{Tau}^2=0.01$; $\text{Chi}^2=46.13$, $\text{df}=30$ ($P=0.03$); $I^2=35\%$
- the efficacy of the interventions was still evident at three to nine months (14 studies, 19 intervention arms; N=3853; (SMD -0.09; 95% CI -0.17 to -0.02); [Figure 6](#)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=20.38$, $\text{df}=18$ ($P=0.31$); $I^2=12\%$
- while there was no strong evidence of the efficacy of the interventions at 12 months, the CI includes potentially important effects (12 studies; 16 intervention arms, N=5112; (SMD -0.05; 95% CI -0.14 to 0.03); [Figure 7](#)).
 - $\text{Tau}^2=0.01$; $\text{Chi}^2=23.94$, $\text{df}=15$ ($P=0.07$); $I^2=37\%$
- there was no strong evidence of the efficacy of the interventions at 24 months or 36 months

A.2.2.2 Compared with placebo:

There was no evidence of the efficacy of universal interventions post-intervention (two studies; three intervention arms), at three to nine months (one study), at 12 months (two studies; three intervention arms) or at 24 months (one study), with no studies where follow-up was conducted at 36 months. This subgroup analysis did not substantially improve the statistical heterogeneity for depressive diagnosis post-intervention or at three to nine months follow-up. At 12 months follow-up the

heterogeneity is improved for the targeted interventions but not the universal interventions. For depressive symptoms, the heterogeneity is not improved for the targeted group but is improved for the universal group, at three to nine months the heterogeneity is worse for the targeted group and the same for the universal group and is unchanged for both groups at 12 months follow-up.

B. Subgroup analysis: educational vs psychological programmes

The same studies reported above were included in this subgroup analysis. All were psychological interventions. Data from educational programmes were separated into data for boys and girls (Clarke 1993a) or was in a form that could not be used (McLaughlin 2007; Petersen 1997; Vuori 2008;).

C. Subgroup analysis: efficacy for male vs female

C.1 Depressive disorder

C.1.1 Girls

C.1.1.1 Compared with no intervention

- there was evidence of the efficacy of the intervention for girls post-intervention (12 studies; 13 intervention arms; N= 1880; (RD -0.06; 95% CI -0.10 to -0.01)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=22.56$, $\text{df}=12$ ($P=0.03$); $I^2=47\%$
- the effect of the intervention was still evident for females at three to nine months (10 studies; 11 intervention arms; N= 800 (RD -0.04; 95% CI -0.08 to 0.00)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=11.84$, $\text{df}=10$ ($P=0.30$); $I^2=16\%$
- at 12 months, the effect of the intervention is no longer evident (five studies; N=1100 (RD -0.02; 95% CI -0.09 to 0.04)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=4.86$, $\text{df}=4$ ($P=0.30$); $I^2=18\%$
- at 24 months there is no evidence of the efficacy of the intervention (four studies; N=994; (RD -0.00; 95% CI -0.05 to 0.04)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=1.91$, $\text{df}=3$ ($P=0.59$); $I^2=0\%$

C.1.1.2 Compared with placebo

There were no studies that compared an intervention with a placebo and measured depressive diagnoses as an outcome.

C.1.2 Boys

C.1.2.1 Compared with no intervention

- there was evidence of the efficacy of the intervention for boys post-intervention (11 studies; 12 intervention arms; N= 1789; (RD -0.05; 95% CI -0.08 to -0.02)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=3.34$, $\text{df}=11$ ($P=0.99$); $I^2=0\%$
- at three to nine months, the effect of the intervention is no longer evident (nine studies; 10 intervention arms; N=770 (RD -0.03; 95% CI -0.08 to 0.01)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=7.39$, $\text{df}=9$ ($P=0.60$); $I^2=0\%$
- at 12 months there is no evidence of the efficacy of the intervention (five studies; (RD 0.02; 95% CI -0.02 to 0.05)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=3.99$, $\text{df}=4$ ($P=0.41$); $I^2=0\%$
- at 24 months there is no evidence of the efficacy of the intervention (four studies; (RD -0.01; 95% CI -0.04 to 0.03)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=2.39$, $\text{df}=3$ ($P=0.50$); $I^2=0\%$

C.1.2.2 Compared with placebo

There were no studies that compared an intervention with a placebo and measured depressive diagnoses as an outcome.

C.2 Depression scores

C.2.1 Girls

C.2.1.1 Compared with no intervention

- there was evidence of the efficacy of the intervention for girls post-intervention (30 studies; 37 intervention arms; N= 6989 (SMD -0.05; 95% CI -0.21 to 0.11)).
 - $\text{Tau}^2=0.19$; $\text{Chi}^2=319.00$, $\text{df}=36$ ($P<0.00001$); $I^2=89\%$
- the efficacy of the intervention was no longer evident at three to nine months (20 studies (SMD 0.09; 95% CI -0.13 to 0.31)), 12 months (12 studies; (SMD -0.05; 95% CI -0.17 to 0.06)), 24 months (8 studies; (SMD 0.18; 95% CI -0.17 to 0.53)) or 36 months (2 studies; (SMD -0.09; 95% CI -0.30 to 0.12)).
 - Three to nine months: $\text{Tau}^2=0.29$; $\text{Chi}^2=251.81$, $\text{df}=26$ ($P=<0.00001$); $I^2=90\%$,
 - Twelve months: $\text{Tau}^2=0.01$; $\text{Chi}^2=22.28$, $\text{df}=15$ ($P=0.10$); $I^2=33\%$,
 - Twenty-four months: $\text{Tau}^2=0.20$; $\text{Chi}^2=65.83$, $\text{df}=7$ ($P=<0.00001$); $I^2=89\%$,

- Thirty-six months: $\text{Tau}^2=0.00$; $\text{Chi}^2=1.15$, $\text{df}=1$ ($P=0.28$); $I^2=13\%$

There is no ready explanation for the very high heterogeneity and inconsistent results for girls.

C.2.1.2 Compared with placebo

There was only one study that included a placebo comparison (Schmieg 2006) and this did not show efficacy of the intervention for girls (SMD -0.10; 95% CI -0.48 to 0.27) post-intervention or at 12 months follow-up.

C.2.2 Boys

C.2.2.1 Compared with no intervention

- there was evidence of the efficacy of the intervention for boys post-intervention (31 studies; 37 intervention arms: (SMD -0.15; 95% CI -0.24 to -0.06)).
 - $\text{Tau}^2=0.03$; $\text{Chi}^2=72.23$, $\text{df}=36$ ($P=0.0003$); $I^2=50\%$
- the efficacy of the intervention was still evident at three to nine months (20 studies; (SMD -0.19; 95% CI -0.27 to -0.12)).
 - Three to nine months: $\text{Tau}^2=0.00$; $\text{Chi}^2=22.58$, $\text{df}=25$ ($P=0.60$); $I^2=0\%$
- there was no strong evidence of the efficacy of the intervention at 12 months (11 studies; (SMD -0.20; 95% CI -0.28 to -0.13)), 24 months (8 studies; (SMD -0.05; 95% CI -0.15 to 0.05)) or 36 months (2 studies; (SMD -0.03; 95% CI -0.23 to 0.17)).
 - Twelve months: $\text{Tau}^2=0.02$; $\text{Chi}^2=21.54$, $\text{df}=13$ ($P=0.06$); $I^2=40\%$,
 - Twenty-four months: $\text{Tau}^2=0.00$; $\text{Chi}^2=4.42$, $\text{df}=7$ ($P=0.73$); $I^2=0\%$,
 - Thirty-six months: $\text{Tau}^2=0.00$; $\text{Chi}^2=0.06$, $\text{df}=1$ ($P=0.81$); $I^2=0\%$

C.2.2.2 Compared with placebo

There was only one study that included a placebo comparison (Schmieg 2006) and this did not show efficacy of the intervention for boys (SMD -0.00; 95% CI -0.36 to 0.35) post-intervention or at 12 months follow-up.

This subgroup analysis did improve the statistical heterogeneity for depressive diagnosis at all time points, particularly for boys. The improvement in heterogeneity for the outcome depressive symptoms was less impressive, improving it a little post-intervention, improving it substantially for boys at three to nine months but not at all for girls and having little impact at the 12 month follow-up point.

D. Subgroup analysis: high risk vs low risk in universal programmes

There were no studies that compared an intervention to a placebo in this subgroup analysis.

D.1 Depressive disorder

D.1.1 High risk group

D.1.1.1 Compared with no intervention

- immediately post-intervention, there was evidence of the efficacy of an intervention in a high risk group (two studies; (RD -0.15; 95% CI -0.27 to -0.02)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=0.45$, $\text{df}=1$ ($P=0.50$); $I^2=0\%$
- at three to nine month follow-up, evidence for the efficacy of the intervention remained (four studies; six intervention arms; (RD -0.06; 95% CI -0.11 to -0.00)).
 - $\text{Tau}^2=0.00$; $\text{Chi}^2=3.24$, $\text{df}=5$ ($P=0.66$); $I^2=0\%$
- there was no strong evidence for the efficacy of the intervention at 12 months (three studies; (RD 0.01; 95% CI -0.06 to 0.08)) or at 24 months (three studies; (RD -0.10; 95% CI -0.21 to 0.01)).
 - Twelve months: $\text{Tau}^2=0.00$; $\text{Chi}^2=1.09$, $\text{df}=2$ ($P=0.58$); $I^2=0\%$;
 - Twenty-four months: $\text{Tau}^2=0.00$; $\text{Chi}^2=0.90$, $\text{df}=2$ ($P=0.64$); $I^2=0\%$
- there were no data available for 36 month follow-up.

D.1.2 Low risk group

D.1.2.1 Compared with no intervention

- there was no strong evidence of the efficacy of an intervention in a low risk group post-intervention (two studies; (RD 0.00; 95% CI -0.07 to 0.07)), at three to nine months follow-up (three studies; (RD -0.04; 95% CI -0.15 to 0.07)), 12 months (two studies; (RD 0.00; 95% CI -0.08 to 0.08)) or 24 months follow-up (three studies; (RD 0.02; 95% CI -0.05 to 0.09)).
 - Post-intervention: $\text{Tau}^2=0.01$; $\text{Chi}^2=6.97$, $\text{df}=3$ ($P=0.07$); $I^2=57\%$
 - Three to nine months: $\text{Tau}^2=0.00$; $\text{Chi}^2=4.22$, $\text{df}=2$ ($P=0.12$); $I^2=53\%$
 - Twelve months: $\text{Tau}^2=0.00$; $\text{Chi}^2=0.00$, $\text{df}=1$ ($P=1.00$); $I^2=0\%$

- Twenty-four months: $\text{Tau}^2=0.00$; $\text{Chi}^2=0.95$, $\text{df}=2$ ($P=0.62$); $I^2=0\%$

- there were no data available for 36 month follow-up.

D.2 Depression scores

D.2.1 High risk group

D.2.1.1 Compared with no intervention

- immediately post-intervention, there was evidence of the efficacy of an intervention in a high risk group (11 studies; 14 intervention arms; $N=1979$; (SMD -0.16; 95% CI -0.29 to -0.03)).

- $\text{Tau}^2=0.01$; $\text{Chi}^2=17.35$, $\text{df}=13$ ($P=0.18$); $I^2=25\%$
- there was no strong evidence for the efficacy of the intervention at three to nine months (six studies; nine intervention arms; $N=668$ (SMD 0.03; 95% CI -0.15 to 0.22)), 12 months (five studies; eight intervention arms; $N=541$; (SMD 0.02; 95% CI -0.17 to 0.20)), 24 months (four studies; $N=308$ (SMD 0.08; 95% CI -0.36 to 0.51)) or 36 months (one study; (SMD -0.10; 95% CI -0.41 to 0.20)).
 - Three to nine months; $\text{Tau}^2=0.01$; $\text{Chi}^2=9.16$, $\text{df}=8$ ($P=0.33$); $I^2=13\%$;
 - Twelve months; $\text{Tau}^2=0.00$; $\text{Chi}^2=6.12$, $\text{df}=6$ ($P=0.41$); $I^2=2\%$;
 - Twenty-four months; $\text{Tau}^2=0.11$; $\text{Chi}^2=7.26$, $\text{df}=3$ ($P=0.06$); $I^2=59\%$;

D.2.2 Low risk group

D.2.2.1 Compared with no intervention

- immediately post-intervention, there was evidence of the efficacy of an intervention in a low risk group (11 studies; 14 intervention arms; $N=3965$; (SMD -0.10; 95% CI -0.21 to -0.00)).

- $\text{Tau}^2=0.01$; $\text{Chi}^2=21.00$, $\text{df}=13$ ($P=0.07$); $I^2=38\%$
- there was no strong evidence of the efficacy of the intervention at three to nine months (six studies; nine intervention arms; (SMD -0.07; 95% CI -0.20 to 0.06)), 12 months (five studies; eight intervention arms; (SMD -0.00; 95% CI -0.12 to 0.11)), 24 months follow-up (four studies; (SMD -0.07; 95% CI -0.21 to 0.06)) or 36 months (one study; (SMD 0.01; 95% CI -0.20 to 0.22)).

- Three to nine months: $\text{Tau}^2=0.01$; $\text{Chi}^2=12.17$, $\text{df}=8$ ($P=0.14$); $I^2=34\%$;

- Twelve months: $\text{Tau}^2=0.00$; $\text{Chi}^2=4.84$, $\text{df}=6$ ($P=0.56$); $I^2=0\%$;

- Twenty-four months: $\text{Tau}^2=0.00$; $\text{Chi}^2=1.51$, $\text{df}=3$ ($P=0.68$); $I^2=0\%$

This subgroup analysis did improve the statistical heterogeneity for depressive diagnosis at all time points, particularly for the high risk group. The improvement in heterogeneity for the outcome depressive symptoms was substantial for the high risk group, but there was no real improvement in heterogeneity in the low risk group until the 12 month follow-up point.

Subgroup analysis by population (targeted vs universal) did not substantially improve heterogeneity. While the subgroup analysis by sex and risk group did appear to improve heterogeneity, far fewer studies were included in these subgroups as little data were provided by sex or risk status.

DISCUSSION

Summary of main results

This meta-analysis shows that both targeted and universal depression prevention programmes are likely to be effective in reducing incidence of depressive disorder. Since the publication of our last review the number of studies eligible for inclusion in the review has more than doubled. There has been an increase in the number of studies reporting depressive diagnosis measured on standardised clinical interviews as well as a proxy measure of depressive disorder using a designated cut-off on a standardised rating scale. The meta-analysis shows that, compared with no intervention, depression prevention programmes reduce clinically significant depressive episodes and depression scores post-intervention and at three to nine month follow-up in both targeted and universal interventions, and in targeted programmes at 12 month follow-up. The results at 24 and 26 months are inconsistent and there are few studies so it is difficult to make any conclusions about efficacy at these time points.

As we found in the first review, few studies have been done comparing intervention with placebo or attention control. At the time of the last meta-analysis (Merry 2004b) we were concerned at the lack of placebo/attention control studies. The question now is whether the mounting evidence of efficacy on interventions compared with no intervention is sufficient to outweigh these concerns. The importance of considering the placebo effect in trials of psychotherapy is well argued by Shapiro and Shapiro (Shapiro 1997) and is particularly important in studies of depression where it is recognised that the placebo effect is high. In the previous review there were only two studies that incorporated an active comparison condition or a placebo and these did not show efficacy.

We found four studies for this analysis and these did not show a significant difference at 12 months although only [Merry 2004](#) was adequately powered to show a difference. Merry et al reported a significant change in their paper ([Merry 2004](#)). The difference between the study report and the finding in the meta-analysis reflects a different statistical method. In this meta-analysis, because of the data available in most studies, we had to use post-intervention means rather than change scores and we should not take into account change over multiple time points.

In this update, the studies comparing intervention with no intervention show efficacy at follow-up to three to nine months (and most studies in this group followed up for at least six months) and at 12 months, at least for targeted programmes. A long-term effect, including a reduction of depressive disorder makes a placebo response much less likely.

The effect sizes are small. However, as in the previous meta-analysis, in those studies where data are available on reduction of onset of depressive disorder, the overall risk difference after intervention translates to 'numbers needed to treat' (NNT) of 11 (CI 7 to 20). In a prevention programme, these results are very encouraging. Reduction in diagnosis of depression is shown for both targeted interventions with NNT of 14 and universal interventions where the risk difference translates to NNT of eight. Interestingly, these short-term effects are greater for universal than for targeted interventions. This short-term effect is still present at three to nine month follow-up with NNT for psychological interventions of six (CI 6 to 17). The most effective study reported to date is the targeted programme by Clarke ([Clarke 2001](#)) where the initial effect size of -0.46 is associated with an initial risk difference of -0.22 and NNT five. Effects in this study persisted to twelve months with an effect size of -0.53, risk difference of -0.17 and NNT is six. This has now been replicated by Garber et al with NNT of nine (CI 5 to 100). The design of the studies done by Clarke and replicated by Garber and colleagues were of a high quality but raised an intriguing problem. As part of their robust measurement they collected data on lifetime diagnoses of psychiatric diagnoses. Garber and colleagues found that 87 to 88% of participants had had a depressive episode before the intervention. Although the focus was on a combination of selective and indicated prevention, the fact that so many young people had already had an episode of depressive disorder meant that prevention had effectively been combined with relapse prevention. Other studies measured and found past psychiatric diagnoses. When we conducted a post-hoc analysis and removed studies in which it was clear that there were past psychiatric diagnoses (although the nature of these was not always clear in the descriptions) the effect of the interventions was reduced. This may also be the case in other studies where previous depressive disorder has not been measured. This means that some of the studies are clearly relapse prevention studies, and others might be. This may not be of practical relevance in the real world where the majority of young people with depression do not receive intervention.

The magnitude of the decrease in depressive disorders is surprisingly high in some studies, and perhaps reflects an oversensitive measure of depressive disorder; however, the period prevalence of depressive disorder does rise steeply in mid-adolescence ([Fergusson 1993](#); [Fergusson 2001](#)) so that this finding is not impossible.

The issue of taking interventions to scale is important. For example the two stage screening used by Clarke et al ([Clarke 2001](#)) and again by Garber et al ([Garber 2009](#)) would be difficult to implement in a community and would miss most of those at risk because many parents with depressive disorder do not access treatment and because universal interventions may impact on a larger number of cases (Rose's maxim, [Rose 1992](#)). It is likely that strategies used to prevent relapse would also be effective in preventing onset of disorder. It would be worth testing the effectiveness of efficacious programmes in a format that could be rolled out practically as a public health intervention and with a longer follow-up.

One of the limitations of this review is the lack of categorisation of the psychotherapies included, although in fact most of the interventions were based on cognitive behavioural therapy strategies. When this review is next updated we intend to categorise the psychotherapies as follows: Behavioural; Cognitive Behavioural; Humanistic; Psychodynamic; Interpersonal, cognitive analytic and other integrative therapies; Mindfulness-based 'third wave' cognitive and behavioural.

Overall completeness and applicability of evidence

There were few educational programmes in the review. This may reflect the focus of the review on depression and depressive disorders. The educational programmes that have been reported show little efficacy; however, they have been short in duration compared with the psychological interventions. The review includes one study of an intervention designed to impact on school climate, the Gatehouse project ([Bond 2004](#)). Disappointingly and surprisingly this had no impact on depression although reduction in substance use was reported.

Generally data on the studies was clearly reported or authors were happy to provide us with extra data, or both.

There is no evidence of a differential effect of the interventions on boys and girls. As to be expected programmes were more effective for those at high risk than those at low risk.

Quality of the evidence

There are some fundamental issues that limit the confidence in the findings from these studies. First, allocation concealment is unclear or not used in the majority of studies and most participants and assessors were not blind to the treatment groups.

Secondly, although there is an increase in the number of studies which include depressive diagnoses, and nearly all of these use

validated measures of diagnoses, most studies measure changes in depression scores only. It is the presence of a depressive disorder that has been most robustly linked to disability and cost [Murray 1997a](#) and it is the prevention of depressive disorder with its resulting morbidity and mortality that is critical.

Finally, the lack of placebo or attention comparison groups makes it harder to ensure that the findings are not the result of the attention and expectation of effect that is associated with being in a trial. The reduction in depressive symptoms in studies with no intervention comparison groups is not replicated in studies that utilise a placebo group, although there are few studies using placebo and most of these are underpowered to show a difference. We have considered whether the lack of placebo controls is important given the consistency of findings and the duration of effect. The changes post-intervention could clearly be a placebo effect. However, the effects persist to six to nine months and to 12 months making a placebo effect less likely, especially as nearly all the interventions are completed in 12 weeks or less. The high degree of heterogeneity is of concern.

Potential biases in the review process

Several of the authors are involved in studies on adolescent depression prevention (SM, HM, and JB), one of which was included in the current review ([Merry 2004](#)), and another which will be included in future reviews. However, the structure of the review, with multiple authors and reviewers, has ensured that this has not resulted in biased reporting or reviewing of other studies.

Agreements and disagreements with other studies or reviews

The update of this review, with the inclusion of a large number of additional trials, has led to findings that are more hopeful than previous meta-analyses and systematic reviews. Previous reviewers have concluded that, although there was evidence suggesting depression prevention programmes may be effective, this evidence was not robust, and in particular only a couple of studies showed reduction in the development of depressive disorder ([Merry 2004b](#) [Merry 2007a](#); [Horowitz 2006](#); [Gladstone 2009](#); [Spence 2007](#)). In these reviews, while there was evidence that the intervention led to short term reduction in symptoms, there was concern that this reduction was not convincingly sustained at follow-up, with authors suggesting the need for more research to confirm efficacy ([Merry 2004b](#); [Horowitz 2006](#)). Others suggested that the interventions really constituted treatment ([Horowitz 2006](#)) and, more sceptically, some suggested that a placebo effect could not be ruled out ([Merry 2004b](#)). In this review we have found evidence of reduction in depressive disorder and of longer term reduction in depressive symptoms, so that evidence of depression prevention is more compelling, and a sustained effect makes a placebo effect less

likely. Rather than suggesting more studies to “prove the concept”, as has been the tenor of previous reviews, we are of the opinion that identification of the more promising programmes, and research to confirm effectiveness in formats suitable for roll-out is now the priority.

A number of reviewers comment on the larger effect size with targeted intervention rather than universal intervention [Horowitz 2006](#); [Gladstone 2009](#); [Stice 2009](#). Because the reviews of targeted interventions include indicated interventions where young people are recruited because of elevated symptoms, a larger effect size is to be expected. It is also harder to power universal studies to show effect. In this meta-analysis we have evidence that both universal and targeted interventions are effective. This is an important finding. It has been argued in one review that there is little to support the use of universal school-based depression prevention programmes [Spence 2007](#). While we agree that school programmes have not been effective to date, our analysis suggests that universal interventions do have ongoing effects, despite the challenges in powering studies to demonstrate this. Schools remain one of the most promising sites for delivery of programmes, and universal roll-out has much to offer.

Two recent meta-analyses reported a reduction in depressive diagnoses at follow-up ([Stice 2009](#); [Cuijpers 2008](#)). In these meta-analyses, the search strategy and inclusion criteria are different. One included quasi-randomised trials, their age range was up to the age of 22 and they included only studies in which depression was the primary outcome of interest ([Stice 2009](#)). Our analysis includes only randomised controlled trials and our age range is narrower. The other meta-analysis includes studies on adults as well as children and adolescents, and includes only trials in which depressive disorder was an outcome measure ([Cuijpers 2008](#)). Our meta-analysis focuses only on children and adolescents but our findings are in line with these meta-analyses and like us, these authors conclude that there is evidence of reduction in depressive diagnosis. We have found evidence that both universal and targeted prevention programmes are effective, in contrast to the analysis by Cuijpers and colleagues. In their analysis the number of universal interventions was small.

Brunwasser has done a meta-analysis on the Penn Resiliency Programs ([Brunwasser 2009](#)). In this meta-analysis all studies on Penn programmes were included and the analysis was not limited to randomised controlled trials; however, a subgroup analysis was undertaken using only randomised controlled trials. The effect sizes of the interventions and the calculated NNT were of similar magnitude to our findings except that the effects were greater at 12 months than for the earlier time-points. While the overall analysis showed a significant effect, this effect was non-significant after removing the non-randomised trials, which included the study by Jaycox et al ([Jaycox 1994b](#)) which had a number of shortcomings, discussed above. The findings in this meta-analysis are limited to change in depression scores as diagnosis of depression was not assessed in the majority of these studies.

It has been suggested the depression prevention is more effective in girls than boys (Stice 2009). Our results showed that the magnitude of effect is similar in boys and girls.

This meta-analysis has used an extensive search strategy resulting in more studies than uncovered by other recent reviews and includes only randomised controlled trials and includes far more studies than all other previous reviews. Our analyses have taken into account the cluster randomised design employed in many of the studies and ours is the only one that tries to take into account the placebo/attention effect. Other studies have done more extensive analyses of mediators and moderators (Horowitz 2006; Stice 2009).

AUTHORS' CONCLUSIONS

Implications for practice

We now have data that support the efficacy of depression prevention programmes in reducing the incidence of depression and symptoms of depression to 12-month follow-up. The lack of placebo or attention controls, lack of allocation concealment and heterogeneity in findings remain a concern but the accumulating evidence of effect at follow-up goes some way towards alleviating these concerns. Some of the studies in this review include participants with a past history of depressive episodes so may be more properly considered relapse prevention rather than primary prevention. This is probably not of practical importance, given that the majority of young people with depressive disorder do not receive any intervention and are likely to benefit from the interventions. A real world reduction in depressive diagnosis, be it primary prevention or relapse prevention, would be a worthwhile achievement.

Although there is still more evidence to support targeted interventions, there is now some evidence of effect for universal programmes. The magnitude of effect is similar for both interventions, and in both high and low risk groups in universal interventions. Given the practical difficulties inherent in implementing a targeted programme, pursuing the implementation of universal depression prevention programmes is warranted. In prevention programmes it is often the asymptomatic group that yield

more cases than the sub-syndromal group (Rose 1992). The majority of universal programmes, and many of the targeted ones, were delivered at schools. Although there are some practical issues around adding anything extra into busy school timetables, schools are probably the sites of choice if we are to roll-out prevention programmes successfully.

Implications for research

The cost of depressive illness is high and an effective depression prevention programme is likely to be worth implementing. This updated review provides encouraging evidence of efficacy. A number of programmes have been developed and some may be more effective than others. A comparison of programmes to assess their relative efficacy, and trials to test effectiveness of the more promising programmes, rather than efficacy, is now the priority. Future studies should test efficacy against a credible alternative to address the gap that remains concerning possible placebo effect. It is important to address the issue of past history of depressive disorder as these young people may show a differential response to depression prevention. In future research it will be important to measure not only reduction in depression, but also function, and the ongoing impact into the medium and long term.

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** Indicates the major publication for the study*

CHARACTERISTICS OF STUDIES

Characteristics of included studies [ordered by study ID]

Arnarson 2009

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes	
Participants	Description: Targeted sample. Mean age: Not reported. Age range: 14 to 15 years Sex: Male= 82; Female= 89 Source: Six secondary schools. Location: Iceland. Inclusion criteria: 75th to 90th percentile on the CDI or >75th percentile on the negative composite of the CASQ. Student and parent consent. Exclusion criteria: >90th percentile on the CDI or at interview identified as having a previous or current MDD, dysthymic or other psychiatric disorder	
Interventions	Intervention: Psychological. Type: School-based prevention programme, including student manuals, handouts, posters, videos and a relaxation tape. Duration: 11 weeks No of sessions: 14 Group Size: Six to eight Manualised: Yes. Training: Intensive training, regular phone supervision and formal bi-weekly supervision. Most also had prior pilot study experience implementing the programme. Delivered by: School psychologists Comparison: No intervention. Type:Treatment As Usual (TAU) assessment only. Student permitted to seek treatment elsewhere at any time. Assessment points: Pre-test, post-test, six months	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depression: Child Assessment Scale (CAS), A-Life.	
Notes	The author was contacted for additional data, which was provided	
Risk of bias		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“90...were randomised assigned to a treatment-as-usual (TAU) control condition and 81 were randomly assigned to the inter-

Arnarson 2009 (Continued)

		vention program. Participants within each school were randomly assigned each year to groups" (p. 579)
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Low risk	"All interviewers were uninformed as to the intervention condition of participants at all interviews" (p. 580)
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow up assessment point: Six months No. approached=1920 No. agreed to participate= 252 No. randomised= 171 No. started trial= 171 No. dropped out during intervention= 22 No. dropped out during follow-up= 35 Intent-to-treat analysis: Yes. "Students that were not available for post-test and follow-up were treated as censored observations" (p. 582)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	High risk	"No adherence or competence ratings were made, but we recognise the need for such measures in generalization studies" (p. 580)

Balle 2009

Methods	RCT Power calculation:No. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted sample. Mean age: Not reported. Age range: 11 to 17 years Sex: Not reported. Source:Schools selected by convenience. Location: Spain.

Balle 2009 (Continued)

	Inclusion criteria: A score in the 80th percentile of the Children AS index adapted in Catalan (Childhood Anxiety Sensitivity Index; Fullana 2003) Exclusion criteria:Mental disorders as specified by DSM-IV criteria. Report excluding participants on the basis of anxiety disorder, attention deficit/hyperactivity disorder, bulimia and dysthymic disorder	
Interventions	Intervention: Psychological Type: Based on the FRIENDS programme; psycho-educational and cognitive-behavioural procedures. Duration: Not specified. No of sessions: Six Group Size: 10 to 12 per group. Manualised: Yes Training: No information on training provided. Delivered by: One final year psychology degree student and one PhD student supervised by a senior PhD psychologist Comparison: No intervention. Type:Wait-list control. Assessment points: Pre-intervention, post-intervention and six month follow-up	
Outcomes	Outcome measures described clearly or use of validated instruments:Yes Depression:Children’s Depression Inventory (CDI; Kovacs 1992). Other outcomes: anxiety severity measured using the CASI; anxiety symptomology measured using the SCAS	
Notes		
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“participants entered the trial and were randomly allocated to one of two conditions” (p. 74)
Allocation concealment (selection bias)	Unclear risk	No information
Blinding (performance bias and detection bias) Subjects	High risk	“Participants from the intervention and WLC groups attended the same classroom. Therefore verbal transmission and/or modelling, from those attending the prevention program, to peers in the WLC, could have taken place....” (p. 82)
Blinding (performance bias and detection bias) Assessors	High risk	“Therapists were the same ones that conducted the assessments” (p. 76)

Balle 2009 (Continued)

Incomplete outcome data (attrition bias) All outcomes	High risk	Follow-up assessment points: post-intervention, 6 month follow-up. No. approached= 613 No. agreed to participate=105 No. randomised=145 No. started trial=145 No. dropped out during intervention= 4 No. dropped out during follow-up= 18 Intent-to-treat analysis: Authors only present data for participants who attended all 3 assessments and did not implement an ITT analysis
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Implementation integrity	High risk	“Apart from attendance control to the sessions in the PG, no other kind of assessment to evaluate the adherence to the program was conducted” (p. 77)

Barnet 2007

Methods	RCT Power calculation: No. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted sample. Mean age: 16.9 years (SD=1.4) Intervention: 16.4 years (SD=1.4) Control: 16.6 years (SD=1.4) Age range: 12 to 18 years. Sex: Males=nil; Female=84 (100%). 91% African American adolescents. Inclusion Criteria: 1. Adolescents between the ages of 12-18 years whose pregnancies were of least 24 weeks gestation. 2. Informed consent from the participants and their parents and guardians. Exclusion Criteria: No parental consent.
Interventions	Intervention: Psychological/Educational. Type: Home visits. Duration: Started in the first trimester and occurred bi-weekly for the first year of the child's life and monthly until the child's second birthday. No of sessions: 10. Group Size: 15 adolescents biweekly and 10 monthly. Manualised: Yes. Training: Home visitors received two days of initial training in the use of the curriculum

Barnet 2007 (Continued)

	<p>followed by ongoing training in depression, contraception, substance abuse and domestic violence.</p> <p>Delivered by: African American women who were recruited from communities served by the programme. Home visitors had high school degrees and experience related to health care, child development or social work.</p> <p>Comparison</p> <p>Type: Usual care.</p> <p>Assessment points: Pre-test, one year, two years.</p>
Outcomes	<p>Outcome measures described clearly or use of validated instruments: Yes</p> <p>Depressive symptoms: Center for Epidemiological Studies-Depression (CES-D; Radloff 1977).</p> <p>Parenting attitudes and beliefs: Bavolek's Adult-Adolescent Parenting Inventory (AAPI)</p>
Notes	<p>Focuses mainly on adolescent parents (rather than just adolescents) and home visits</p> <p>Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed</p>

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Randomisation method not identified and Adult-Adolescent Parenting Inventory (AAPI) scores significantly higher in the home-visited group at baseline measurement
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	High risk	Participants would know to which condition they had been assigned
Blinding (performance bias and detection bias) Assessors	Unclear risk	"Research staff blinded to the adolescents' group assignment conducted structured baseline interviews" (p. 226) Unclear if follow-up research staff were blinded to adolescents' group allocation
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: 12 months, 24 months. No. approached=122 No. agreed to participate=90 No. randomised=84 No. started trial=84 No. dropped out during intervention=22 No. dropped out during follow-up=21 Intent-to-treat analysis: Yes

Barnet 2007 (Continued)

Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	<p>“Among the home-visited group, adolescents received fewer curriculum sessions than intended; 39% in this group completed fewer than 75% of planned sessions” (p. 228)</p> <p>Each group leader completed the Program Integrity Checklist.</p>

Berger 2008

Methods	<p>RCT</p> <p>Power calculation: No.</p> <p>Source of subjects described: Yes.</p> <p>Representative sample recruitment: Yes.</p> <p>Use of diagnostic criteria (or clear specification of inclusion criteria): Yes</p>
Participants	<p>Description: Universal sample.</p> <p>Mean age: Not reported.</p> <p>Age range: 9-14 years.</p> <p>Sex: Male= 87; Female= 79</p> <p>Source: Children from a school in a small Sri Lankan town that had suffered a direct hit from a tsunami.</p> <p>Location: Sri-Lanka.</p> <p>Inclusion criteria: None stated.</p> <p>Exclusion criteria: None stated.</p>
Interventions	<p>Intervention: Psychological.</p> <p>Type: ERASE Stress Sri Lanka (ES-SL): provides psycho-educational material, CBT skills, meditative practices and bio-energetic exercises, art therapy and narrative techniques.</p> <p>Duration: Not stated.</p> <p>No of sessions: 12</p> <p>Group Size: 12 to 16.</p> <p>Manualised: Yes.</p> <p>Training: Yes. Teachers received three days of eight hour training sessions.</p> <p>Delivered by: Teachers</p> <p>Comparison: No intervention.</p> <p>Type: Wait-list control who participated in religious classes as usual.</p> <p>Assessment points: Pre-test, post-test.</p>
Outcomes	<p>Outcome measures described clearly or use of validated instruments: Yes</p> <p>Depression: Beck Depression Inventory (BDI; Beck 1961).</p>
Notes	

<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	(Quasi-randomisation) "...the randomization procedure was done by coin tossing and choosing 1 class for each age group" (p. 365)
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	High risk	"In order to elicit motivation, we promised to give them a certificate of treatment completion..." (p. 365)
Blinding (performance bias and detection bias) Assessors	Low risk	"Local trained volunteers blinded to the experimental condition administered questionnaires about 1 week before and 3 months after the 12 training sessions" (p. 365)
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: post-intervention only. No. approached= 182 No. agreed to participate= 166 No. randomised= 166 No. started trial= 166 No dropped out during intervention= 166 Intent-to-treat analysis: No missing data.
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	High risk	Authors involved in the development of the original programme
Implementation integrity	Low risk	"During the first two sessions of the intervention, all teachers in the active group participated in two 3-hour supervisory sessions delivered by trainers and assisted by two local mental health professionals to insure reliability of application of the protocol and to overcome potential problems. Adherence to protocol was monitored during these sessions..." (p. 366)

Berry 2009

Methods	RCT Power calculation: No. Source of subjects described: Yes. Representative sample recruitment: Boys only, from a Catholic school. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes	
Participants	Description: Targeted sample. Mean age (SD): 13.04 years (0.79). Age range: 12 to 15 years Sex: All male. Source: Secondary Catholic Schools in the local archdiocese. Location: Australia Inclusion criteria: Male, an anxiety score of at least 1 SD above the population mean on any subscale of the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher 1997), and an experience of being bullied within the last month, rated as definitely disabling or disturbing on the Bullying Incidence Scale (BIS). Exclusion criteria: A serious mental disorder requiring treatment, an intellectual disability according to parent or school report	
Interventions	Intervention: Psychological. Type: Confident Kids Program: cognitive-behavioural based anxiety management strategies including psycho-educational session and education about bullying. Duration: Eight weeks No of sessions: Eight (60 minutes, one per week) Group Size: Not stated. Manualised: Yes. Training: Provided, however, no specific information regarding content of training outlined. Delivered by: Intern clinical psychologists trained in the programme and supervised by a senior clinical psychologist. Comparison: No-intervention. Type: Wait-list. Assessment points: Pre-intervention, post-intervention, three months	
Outcomes	Outcome measures described clearly or use of validated instruments: Depression: Centre for Epidemiologic Studies Depression Scale (CESD) Additional measures: Screen for Child Anxiety Related Emotional Disorders (SCARED) , The self-presentation profile for Children and Adolescents (SPPC and SPPA) and the Bullying Incidence Scale (BIS)	
Notes		
Risk of bias		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	“Groups were then randomly assigned to the intervention (n=22) or wait-list (n=24) condition using a pre-determined com-

Berry 2009 (Continued)

		puter-generated sequence" (p. 377)
Allocation concealment (selection bias)	Low risk	"...using a pre-determined computer generated sequence" (p. 377)
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	High risk	"Assessors were blind to group assignment, except at follow-up assessment" (p. 377)
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: three months. No. approached= Not stated. No. agreed to participate= 54 No. randomised= 54 No. started trial= 54 No. dropped out during intervention= nil No. dropped out during follow-up= nil Intent-to-treat analysis: "No adolescents dropped out from the intervention condition or from the wait-list condition over the wait-list duration" (p. 378)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Implementation integrity	High risk	"Apart from attendance control to the sessions in the PG, no other kind of assessment to evaluate the adherence to the program was conducted" (p. 77)

Bond 2004

Methods	RCT (Cluster) Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Written parental consent
Participants	Description: Universal sample. Mean age: 14 years. Age range: 13 to 14. Sex: Male=1252; Female=1426. Location: Melbourne, Australia Inclusion criteria: Written parental consent. Exclusion criteria: Not reported

Bond 2004 (Continued)

Interventions	Intervention: Psychological/Educational. Type: The Gatehouse Project. Duration: 10 weeks. No of sessions: Not reported. Group Size: Not reported. Manualised: Teaching resources were distributed to students. Training: An initial six hour intensive program of professional development for teachers followed by weekly school-based professional development for curriculum implementation and development of a positive classroom environment. Delivered by: Teachers. Comparison: No intervention. Type: No treatment condition group. Assessment points: Baseline (Wave 1) Wave 2 Wave 3 Wave 4 Follow-up: Three months Six months.	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Anxiety/depressive symptoms: Clinical Interview Schedule-Revised (CIS-R; Lewis 1990) . Social relation: Interview Schedule for Social Interaction. School engagement: The School Engagement Scale. Substance abuse: Survey developed by Centre for Adolescent Health	
Notes	The author was contacted for additional data, which was provided Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	“A cluster randomised controlled design was used for the allocation of secondary education districts to intervention or control status....Using simple random sampling, 12 schools were selected from the ”intervention“ districts and 12 from the ”control“ districts. Eight country schools were randomly drawn from four regional districts” (p. 998) Randomisation method not explicitly identified, but adequate according to standards even though the small number of schools

Bond 2004 (Continued)

		may have resulted in groups differing substantially simply by chance
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: 12 and 24 months No. approached=3623 No. agreed to participate=2678 No. randomised=2678 No. started trial=2678 (Intervention=1335; Control=1343) No dropped out during intervention=3%, 8% and 10% across three waves No. dropped out during follow-up: 8% at 12 months and 10% at 24 months Intent-to-treat analysis: Yes. “Absent students were surveyed at school at a later date or by telephone (6%). Telephone interviews were also completed with students who had left the project schools (4% for the subsequent waves of data collection”
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	“Information on implementation and process were collected throughout the study period” (p. 998) “One school did not teach the curriculum material in the first year of the project” (p. 1000)

Cabiya 2008

Methods	RCT Power calculation: No. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes	
Participants	Description: Targeted sample. Mean age (SD): 10.13 years (0.86) Age range: 8 to 13 years. Sex: Male=57; Female=29 Source: Students attending public schools in San Juan. Location: Puerto Rico. Inclusion criteria: A DSM-IV diagnosis of a disruptive disorder (ADHD, ODD or CD) . Exclusion criteria: None stated.	
Interventions	Intervention: Psychological. Type: Culturally adapted version of the 'Coping Power Program'. Cognitive behavioural intervention for children with disruptive disorders and depressed mood. Duration: Not reported. No of sessions: 12 (60 minutes per session) Group Size: Not specified. Manualised: Yes. Training: Yes. Weekly supervision was held for the programme facilitators. Delivered by: Doctoral clinical psychology students. Comparison: No intervention. Type: Wait-list control. Assessment points: Pre-intervention, post-intervention, six month follow-up	
Outcomes	Outcome measures described clearly or use of validated instruments: Depression: Child Depression Inventory (CDI). Additional measures: Bauermeister School behavior Inventory (BSBI)	
Notes		
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“The children that fulfilled the inclusion criteria were then randomly assigned in equal numbers of both sexes to the intervention or to a waiting list groups” (p. 196)
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.

Cabiya 2008 (Continued)

Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	High risk	Follow-up assessment points: six month follow-up. No. approached= 608 No. agreed to participate= 278 No. randomised= Intervention: 174, Control: 104 No. started trial= 278 No. dropped out during intervention= Intervention: 4, Control: 70 No. dropped out during follow-up= Intervention: 84 Control: N/A Intent-to-treat analysis performed: No ITT analysis presented. Data for follow up only presented for those that completed all three assessments
Selective reporting (reporting bias)	High risk	Do not report overall group mean and SDs for outcome measures. Only report split by sex
Other bias	High risk	First author of the paper also developed the intervention. Large attrition rate for control group
Implementation integrity	Low risk	"The projects director conducted weekly meetings for the supervision of sessions according to the treatment manual. A plan to deal with ambiguities, which did arise, clearly defined "do's" and "dont's" in various situations, was developed and implemented to guarantee treatment fidelity. Specific situations that lead to deviations from the treatment plan were discussed in supervision...specific steps were taken to guarantee that all aspects of the treatment manual were implemented" (p. 197)

Calear 2009

Methods	<p>RCT (Cluster).</p> <p>Power calculation: Yes.</p> <p>Source of subjects described: Yes.</p> <p>Representative sample recruitment: Yes.</p> <p>Use of diagnostic criteria (or clear specification of inclusion criteria): Yes</p>
Participants	<p>Description: Universal sample.</p> <p>Mean age:</p> <p>Intervention=14.5 years</p> <p>Control= 14.2 years</p> <p>Age range: 14 to 17 years</p> <p>Sex:</p> <p>Intervention: Males=36.9%; Female=63.1%</p> <p>Control: Males=48.5%; Female=51.5%</p> <p>Source: 32 schools across Australia</p> <p>Location: Australia</p> <p>Inclusion criteria: Student and parent consent</p> <p>Exclusion criteria: None reported.</p>
Interventions	<p>Intervention: Psychological.</p> <p>Type: MoodGYM. Self-directed cognitive behavioural computer-based programme.</p> <p>Duration: Five weeks</p> <p>No of sessions: Five. Each session between 20 and 40 minutes.</p> <p>Group Size: Not applicable.</p> <p>Manualised: Yes.</p> <p>Training: No specific training. Teachers received a manual outlining how to implement the programme and questionnaires.</p> <p>Delivered by: Computer. Teachers on hand to answer questions during the completion of each module</p> <p>Comparison: No intervention.</p> <p>Type: Wait-list control condition.</p> <p>Assessment points:</p> <p>Pre-test</p> <p>Post-test</p> <p>12 months</p> <p>24 months</p>
Outcomes	<p>Outcome measures described clearly or use of validated instruments: Yes</p> <p>Depressive symptoms: Centre for Epidemiological Studies Depression Scale (CES-D; Radloff 1977).</p> <p>Anxiety: Revised Children's Manifest Anxiety Scale (RCMAS).</p>
Notes	<p>The author was contacted for additional data, which was not provided in time for this review</p> <p>Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed</p>
<i>Risk of bias</i>	

Callear 2009 (Continued)

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"An independent statistician randomly allocated schools within each stratum to the intervention or wait-list control condition using a computerized random number generator" (p. 1023)
Allocation concealment (selection bias)	Low risk	"The identity of schools was concealed from the statistician during this process" (p. 1023)
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	High risk	
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow up assessment point: 6 months No. approached=2967 No. agreed to participate=1477 No. randomised= 1477 No. started trial= 1384 No. dropped out during intervention=195 No. dropped out during follow-up=284 Intent-to-treat analysis: Yes. "Universal outcomes were assessed using an intention-to-treat approach" (p. 1025)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information
Implementation integrity	Low risk	"The MoodGYM program automatically records the commencement and completion of each module and the number of CBT exercises completed in the program" (p. 1023)

Cardemil 2002a

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): No
Participants	Description: Universal Latino sample. Mean age: Intervention: 11.5. Control: 11.19. Age range: Not reported. Sex: Intervention: Male=42%; Female=58%. Control: Male=67%; Female=33%. Source: Low income primary school. Location: North Philadelphia, USA. Inclusion criteria: Student and parent consent. Exclusion criteria: Not reported.
Interventions	Intervention: Psychological. Type: Penn Resiliency Program. Duration: 90 minutes. No of sessions: 12; One per week. Group Size: 10 participants. Manualised: Yes. Training: 20 hours. Delivered by: Masters level graduate students. Comparison: No intervention. Type: No treatment condition group. Assessment points: Pre-test Post-test Follow-up: Three months Six months.
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Children's Depression Inventory (CDI). Explanatory Style: The Children's Attributional Style Questionnaire (CASQ). Negative thoughts: The Automatic Thoughts Questionnaire. Hopelessness: The Hopelessness Scale (H-Scale). Self-esteem: The Perceived Competence Scale/What I am Like (WIAL)
Notes	Study 1 presents data from the Latino sample from School 1. The author was contacted for additional data, which was provided Data requested: December 2002. Moncrieff Rating: Adequate.

Cardemil 2002a (Continued)

<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information on sequence generation method.
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	High risk	Participants would have known if they had been allocated to the PRP or control group (no treatment)
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment points: Three and six months. No. approached=75 No. agreed to participate=65 No. randomised=65 No. started trial=49 No. dropped out during intervention=5 No. dropped out during follow-up: Three months=2 Six months=3 Intent-to treat-analysis: Not reported. "A total of 88% of the children in the prevention program and 81% of the children in the control condition completed the 6-month questionnaire assessment...there were no significant differences between the prevention and control children who left the study" (p. 9) No indication that incomplete outcome data was addressed.
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	High risk	The second and third authors (Reivich and Seligman) were contributing authors of the original PRP
Implementation integrity	Unclear risk	Bi-weekly supervision and sessions audio taped. Group leaders also followed a "flexible" manual

Cardemil 2002b

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): No
Participants	Description: Universal African American sample. Mean age: Intervention: 10.93. Control: 10.95. Age range: Not reported. Sex: Intervention: Male=51%; Female=49%. Control: Male=56%; Female=62%. Source: Low income primary school. Location: North Philadelphia, USA. Inclusion criteria: Student and parent consent. Exclusion criteria: Not reported.
Interventions	Intervention: Psychological. Type: Penn Resiliency Program. Duration: 90 minutes No of sessions: 12. One per week. Group Size: 10 participants. Manualised: Yes. Training: 20 hours. Delivered by: The first Author. Comparison: No intervention. Type: No treatment condition group. Assessment points: Pre- Post- Follow-up: Three months Six months
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Children's Depression Inventory (CDI). Explanatory style: The Children's Attributional Style Questionnaire (CASQ). Negative thoughts: The Automatic Thoughts Questionnaire. Hopelessness: The Hopelessness Scale (H-Scale). Self-esteem: The Perceived Competence Scale/What I am Like (WIAL)
Notes	Study 2 presents data from African American Sample. The author was contacted for additional data, which was provided Data requested: December 2002. Moncrieff Rating: Adequate.

Cardemil 2002b (Continued)

<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information about sequence generation method.
Allocation concealment (selection bias)	Unclear risk	Unclear
Blinding (performance bias and detection bias) Subjects	High risk	Participants would have known if they had been allocated to the intervention or control (no treatment) group
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment points: Three and six months. No. approached=819 No. agreed to participate=106 No. randomised=106 No. started trial=103 No. dropped out during intervention: Not reported. No. dropped out during follow-up: Three months=2 Six months=3 Intent-to-treat analysis: Not reported. "87% of the children in the prevention program and 74% of the children in the control condition completed the 6-month questionnaire assessment. There were no significant differences on any of the pre-intervention measures between the children who left the study and those who stayed" (p. 16) No information on how incomplete data was addressed.
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	High risk	The second and third authors (Reivich and Seligman) were contributing authors of the original PRP
Implementation integrity	Unclear risk	Bi-weekly supervision. Sessions audio taped. "Flexible" manual

Castellanos 2006

Methods	RCT Power calculation:No. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes	
Participants	Description:Targeted sample. Mean age: 14 years Age range: 13 to 16 years. Sex: Male= 35.7%; Female= 64.3% Source: Secondary schools in London, UK. Location: UK Inclusion criteria: Score of 1 SD above the school mean on any of four personality risk subscales of the Substance Use Risk Profile Scale (SURPS). Exclusion criteria: None stated.	
Interventions	Intervention: Psychological Type: Education about personality variable and problematic coping behaviours, motivational exercises and cognitive behavioural coping skills training. Duration: Not stated. No of sessions: 2 (90 minutes each) Group Size: 2 to 9 Manualised: Yes Training: Not reported. Delivered by: Qualified youth workers or counsellors and a Masters level research assistant Comparison: No intervention. Type: No intervention. Assessment points: Pre-intervention, post-intervention, six month follow-up	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depression: Depression subscale from the Brief Symptom Inventory (BSI) Additional measures: The substance Use Risk Profile Scale (SURPS), The revised Panic Attack Questionnaire (PAQ-R) and the Reckless Behaviour Questionnaire (RBQ)	
Notes		
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"In total, the intervention phase of the study involved...of whom 224 were randomly assigned to participate in the relevant personality targeted intervention, and 199 to participate in the no-intervention control groups" (p. 647)
Allocation concealment (selection bias)	Unclear risk	No information.

Castellanos 2006 (Continued)

Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	High risk	However, only self-report measures were used.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: Six month follow-up. No. approached= 2776 No. agreed to participate= 423 No. randomised= 423 No. started trial= 423 No dropped out during intervention= Not stated. No. dropped out during follow-up= Not stated. Intent-to-treat analysis: "Intent to treat (ITT) analyses were conducted on all those assigned to treatment, including those who did not complete treatment and who were not available for assessment at follow-up" (p. 647)
Selective reporting (reporting bias)	High risk	Total numbers not reported for each group.
Other bias	High risk	Second author developed the programme.
Implementation integrity	Unclear risk	No information.

Chaplin a2006

Methods	RCT Power calculation: effect size of 0.63 (with a one-tailed alpha and a power of 0.80) Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal sample. Mean age: 12.6 years (SD=0.89). Age range: 11 to 14 years. Sex: Male=105; Female=103. Source: Two suburban middle schools. Location: Suburban school district, Northeastern USA. Inclusion criteria: Student consent. Exclusion criteria: Not reported.

Chaplin a2006 (Continued)

Interventions	Intervention: Psychological. Type: Penn Resiliency Program. Duration: 90 minute sessions once per week. No of sessions: 12. Group size: 9-14 students. Manualised: Yes. Training: 1 week. Delivered by: School personnel (teachers, guidance counsellors) or research assistants Comparison: No intervention. Type: Usual class. Assessment points: Pre-test Post-test. Follow-up: Twelve months. Three months.	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depression: Children’s Depression Inventory (CDI). Hopelessness: Hopelessness Scale for Children (HSC). Explanatory style for negative events: Children’s Attributional Style Questionnaire (CASQ)	
Notes	The author was contacted for additional data, which was provided High attrition rates at 12 month follow-up, so no data reported (but described). Intervention attendance not used for 2 of 8 groups (one girls group and one co-ed) because of incomplete data a2006: Girls PRP vs Control b2006: Co-ed PRP vs Control The control population was divided by the number of comparison arms in the study (two)	
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	“The sample was stratified by grade, sex, and depressive symptom level and then randomly was assigned to condition using a computer-generated random numbers table” (p. 114)
Allocation concealment (selection bias)	High risk	Not used.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.

Chaplin a2006 (Continued)

Blinking (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment point: 12 months. No. approached=1500 No. agreed to participate=273 No. randomised=273 No. started trial=234 No dropped out during intervention: 26 No. dropped out during follow-up:143 Intent-to-treat analysis: Not applicable Comment: Although stating that 12-month follow-up data would only be described, results were in fact reported, despite high attrition rates
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information
Implementation integrity	Low risk	“All leaders received a week-long training by developers of PRP. Leaders followed a detailed manual and received one hour of supervision by developers of PRP once every other week during the intervention phase. Supervisors listened to portions of session audio recordings and provided leaders with immediate feedback on lapses in treatment protocol” (p. 115)

Chaplin b2006

Methods	See Chaplin a2006	
Participants		
Interventions		
Outcomes		
Notes	a2006: Girls PRP vs Control b2006: Co-ed PRP vs Control	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement

Chaplin b2006 (Continued)

Random sequence generation (selection bias)	Low risk	See Chaplin a2006
Allocation concealment (selection bias)	High risk	See Chaplin a2006
Blinding (performance bias and detection bias) Subjects	Unclear risk	See Chaplin a2006
Blinding (performance bias and detection bias) Assessors	Unclear risk	See Chaplin a2006
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	See Chaplin a2006
Selective reporting (reporting bias)	Unclear risk	See Chaplin a2006
Other bias	Unclear risk	See Chaplin a2006
Implementation integrity	Low risk	See Chaplin a2006

Clarke 1993a

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal sample. Mean age: Treatment: 15.40 (SD=0.61). Control: 15.29 (SD=0.59). Age range: ninth and tenth grade students. Sex: Treatment: Male= 57.8%; Female=42.2% Control: Male=57.9%; Female=42.1% Source: Two Suburban high schools and one middle school. Location: USA. Inclusion criteria: Student consent. Exclusion criteria: Not reported.
Interventions	Intervention: Educational. Type: Primary prevention health class sessions which consisted of three structured lectures and two 20 minute videotapes covering the symptoms, causes and treatments of depression. Duration: 50 minute classes.

Clarke 1993a (Continued)

	No of sessions: 3. Group size: Not reported. Manualised: Yes. Training: 2 hours. Delivered by: Health class teachers. Comparison: No intervention. Type: Usual health class curriculum. Assessment points: Pre-test Post-test. Follow-up: Three months.	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depression: Centre for Epidemiological Studies-Depression Scale (CES-D; Radloff 1977).	
Notes	The author was contacted for additional data, which was not provided Moncrieff Rating: Adequate. Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed	
Risk of bias		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“classrooms rather than individual subjects were randomly assigned to experimental conditions” (p. 188)
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	High risk	No information, but unlikely, as students were aware of the study being conducted and probably talked about the content of lessons
Blinding (performance bias and detection bias) Assessors	Low risk	Self-report measure used. “all questionnaires were coded to protect confidentiality, and school personnel retained the master list linking names with numbers. However, only research staff had access to the questionnaire scores associated with each subject number” (p. 187)
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment point: Three months. No. approached= 622

Clarke 1993a (Continued)

		No. agreed to participate=622 No. randomised=622 No. started trial=622 No. dropped out during intervention=54 No. dropped out during follow-up=54 Intent-to-treat analysis: Unclear
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	No information.

Clarke 1993b

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal sample. Mean age: Treatment =15.40 (SD=0.61). Control =15.29 (SD=0.59). Age range: ninth and tenth grade students. Sex: Treatment: Male=57.8%; Female=42.2% Control: Male=57.9%; Female=42.1% Source: Two suburban high schools and one middle school. Location: USA. Inclusion criteria: Student consent. Exclusion criteria: Not reported.
Interventions	Intervention: Psychological. Type: Behavioral skill training intervention for depression. Duration: Three 50 minute primary prevention health class sessions. No of sessions: 3. Group Size: Not reported. Manualised: Yes. Training: 2 hours. Delivered by: Health class teachers. Comparison: No intervention. Type: Usual health class curriculum. Assessment points: Pre-test Post-test

Clarke 1993b (Continued)

	Follow-up: Three months	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depression: Centre for Epidemiological Studies-Depression Scale (CES-D; Radloff 1977).	
Notes	The author was contacted for additional data, which was not provided Moncrieff Rating: Adequate. Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information.
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Low risk	Self-report measure used “all questionnaires were coded to protect confidentiality, and school personnel retained the master list linking names with numbers. However, only research staff had access to the questionnaire scores associated with each subject number” (p. 187)
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment point: Three months. No. approached=622 No. agreed to participate=622 No. randomised=622 No. started trial=622 No. dropped out during intervention=54 No. dropped out during follow-up=54 Intent-to-treat analysis: Unclear.
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.

Clarke 1993b (Continued)

Implementation integrity	Unclear risk	Teachers were assessed on a 10-item compliance scale (p. 194)
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Clarke 1995

Methods	Study design: RCT Power calculation: No. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted sample. Mean age: 15.3 yrs (0.07) Sex: Male=30%; Female=70% Age range: Not reported. Source: Three suburban high schools. Location: USA. Inclusion Criteria: Elevated depressive symptoms on CES-D with a score of ≥ 24 ; adolescents who did not meet DSM-III-R criteria for depression. Exclusion criteria: Current DSM-III R affective disorder.
Interventions	Intervention: Psychological. Type: Coping with Stress Course. Duration: 45 minute group session offered after school. No. of sessions: Three sessions per week for 5 weeks. Group Size: Not reported. Manualised: Yes. Training: 40 hours. Delivered by: School psychologists and counsellors who had a minimum of a masters degree and previous experience in conducting psycho-educational groups with adolescents Comparison: No intervention. Type: Usual care condition. Adolescents were free to continue with any pre-existing intervention or to seek any new assistance during the study period Assessment points: Pre-test Post-test Follow-up: Six months Twelve months
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive disorder, symptomatology and psychosocial constructs: CES-D, Hamilton Depression Rating Scale (HAM-D), and The Global Assessment of Functioning Scale (GAF)

Clarke 1995 (Continued)

Notes	Well described but only 222 out of 471 took part in second stage screening. Of those who completed second stage screening 150 of 172 agreed to take part The author was contacted for additional data, which was provided Moncrieff Rating: High.	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information “adolescents with no current major depression and/or dysthymia were randomized to either the active, group cognitive intervention or .. control condition” (p. 313)
Allocation concealment (selection bias)	Unclear risk	Unclear
Blinding (performance bias and detection bias) Subjects	High risk	Participants would likely know to which condition they had been assigned
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow up assessment points: 6 and 12 months No. approached= 172 No. agreed to participate=150 No. randomised= 150 No. started trial: Intervention=55 Control=70 Total=125 No. dropped out during intervention=25 No. dropped out during follow-up: 6 months=30 12 months=40 Intent-to-treat analysis: Yes
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information
Implementation integrity	Low risk	Sessions were audio taped to evaluate compliance with intervention protocol. Protocol adherence was 93.9% (5.2%).Implementation integrity (p. 316)

Clarke 2001

Methods	<p>RCT</p> <p>Power calculation: Not reported.</p> <p>Source of subjects described: Yes.</p> <p>Representative sample recruitment: Yes.</p> <p>Use of diagnostic criteria (or clear specification of inclusion criteria): Yes</p>
Participants	<p>Description:</p> <p>Targeted sample.</p> <p>Mean age:</p> <p>Intervention= 14.4 (1.4).</p> <p>Controls=14.75 (1.5).</p> <p>Age range: 13 to 18 years.</p> <p>Sex:</p> <p>Intervention: Male=21; Female=24</p> <p>Control: Males=17; Females=32</p> <p>Source: Offspring of patients with parents who had been treated for depressive illness within a health maintenance organisation (HMO).</p> <p>Location: HMO clinic offices. USA.</p> <p>Inclusion criteria: At-risk offspring of adults treated for depression in a HMO. Participants did not meet DSM-III-R criteria for criteria for depressive symptoms, affective/mood disorders.</p> <p>Exclusion Criteria: Low-severity depression group with no significant depression symptoms and no history of depressive disorder</p>
Interventions	<p>Intervention: Psychological.</p> <p>Type: Abbreviated version of the Adolescent Coping with Stress Course.</p> <p>Duration: 1 hour sessions.</p> <p>No of sessions: 15 sessions.</p> <p>Group size: 6 to 10. Manualised: Yes.</p> <p>Delivered by: A therapist with a masters degree.</p> <p>Training: Therapist trained in the approach.</p> <p>Comparison: No intervention.</p> <p>Type: Usual HMO care.</p> <p>Assessment points:</p> <p>Pre-test</p> <p>Post-test</p> <p>Follow-up:</p> <p>Twelve months</p> <p>Twenty-four months</p>
Outcomes	<p>Outcome measures described clearly or use of validated instruments: Yes</p> <p>Depression: CES-D, K-SADS-E, 14 item version of the Hamilton Depression Rating Scale (HAM-D), Global Assessment of Functioning (GAF) and Achenbach Child Behavior Check List (CBCL)</p>
Notes	<p>The author was contacted for additional data, which was provided</p> <p>Moncrieff Rating:</p> <p>High.</p>

<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"Qualifying subsyndromal youth were randomized to conditions using a blocked procedure...Group assignment was preprinted using a computer program and sealed in sequentially numbered envelopes, which were opened in sequential order by the project coordinator" (p. 1129)
Allocation concealment (selection bias)	Low risk	Central allocation.
Blinding (performance bias and detection bias) Subjects	High risk	Likely that participants would have know what condition they were randomised to
Blinding (performance bias and detection bias) Assessors	Low risk	"Assessors were unaware of the experimental condition of interviewed subjects" (p. 1128)
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow up assessment points: 12 and 24 months Number approached=3374 No. agreed to participate=94 No. randomised=94 No. started trial= 94 No. dropped out during intervention=4 No. dropped out during follow-up: 12 months=9 24 months=16 Intent-to-treat analysis: Yes.
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	Sessions were audio taped and two or three sessions were randomly selected from each group and rated by a senior supervisor on a 10 item fidelity scale. Mean therapist compliance was 95.9% (3.9%) across 15 rated sessions (p. 1129)

Compas 2009

Methods	RCT Power calculation: No. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes	
Participants	Description: Targeted sample. Mean age (SD): Intervention=11.61 years (2.06) Control=11.23 (1.90) Age range: 9 to 15 years. Sex: Male= 85 ; Female= 70 Source: Community sample derived from mental health clinics/practices, family and general medical practices, and media outlets. Location: USA Inclusion criteria: Children whose parents have current depression, or have previously experienced depression. Exclusion criteria: Parent with a history of bipolar I disorder or schizophrenia, children who met the DSM-IV criteria for conduct disorder or substance/alcohol abuse or dependence	
Interventions	Intervention: Psychological. Type: Family group intervention based on CBT Duration: 6 months. No of sessions: 12 (8 weekly sessions and 4 monthly sessions) Group Size: Up to four families in each group. Manualised: Yes. Training:Yes; Facilitators were trained by reading the manual, listening to audiotapes of a pilot intervention, role playing and discussion of the sessions. Delivered by: Doctoral level students in clinical psychology and social workers. Comparison: Other intervention. Type: Written information self-study condition Assessment points: Pre-intervention, post-intervention and 12 months	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depression: Centre for Epidemiologic Studies-Depression Scale (CES-D; Radloff 1977) . Other outcomes:Child Behaviour Checklist (CBCL).	
Notes	Measured and reported previous and current depressive symptoms at baseline: 87% of children in the intervention and 77% in the control group did not have a prior history of MDD	
Risk of bias		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	“The order of randomization was determined by a random-number generator” (p. 1012)

Compas 2009 (Continued)

Allocation concealment (selection bias)	Low risk	"...the assignment order was kept in a series of sealed envelopes that were opened by research assistants who were blind to assignment until the envelopes were opened for each family" (p. 1012)
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Low risk	"Doctoral candidates in clinical psychology, who were blind to condition, conducted the structured diagnostic interviews after receiving extensive training" (p. 1010)
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment points: 12 month follow-up. No. approached= 574 families. No. agreed to participate= 309 families. No. randomised=155 children No. started trial= 155 children No dropped out during intervention= Unclear (consort diagram details families retained rather than children) Intent-to-treat analysis: "To determine whether missing data occurred at random, we classified participants on the basis of patterns of missing data, and we compared participants in analyses of variance on baseline demographic and clinical measures. Patterns of missing data did not differ between families assigned to the family group intervention condition versus the written information condition" - Unclear how missing data was analysed
Selective reporting (reporting bias)	High risk	Standard deviations not reported for CES-D outcome.
Other bias	High risk	First author of the paper also developed the intervention.
Implementation integrity	Low risk	"Five individuals not involved in the delivery of the intervention were trained to code for presence versus absence of each content area...intervention sessions were audio recorded and 23% were randomly selected for fidelity coding...reliability across coders was calculated for 31% of the ses-

Compas 2009 (Continued)

		sions that were coded and yielded 91% agreement" (p. 1012)
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Cowell 2009

Methods	RCT Power calculation: Yes. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted sample. Mean age: 10.4 years Age range: Fourth to fifth grade. Sex: Not reported. Source: Elementary schools in Chicago. Location: USA. Inclusion criteria: Mexican immigrant women and their fourth and fifth grade children. Exclusion criteria: None stated.
Interventions	Intervention: Psychological. Type: Mexican American Problem Solving Program (MAPS): problem solving steps based on STOP, THINK and ACT. Duration: Not stated. No of sessions: 10 Group Size: Four to five. Manualised: Yes. Training: Not stated. Delivered by: Nurses who received standardised training for the intervention. Comparison: No intervention. Type: Data collection home visits only Assessment points: Pre-intervention, post-intervention, five months
Outcomes	Outcome measures described clearly or use of validated instruments: Depression: Children's Depression Inventory (CDI; Kovacs 1992).
Notes	

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"Randomization took place at the school level to eliminate the intervention contamination across participants within schools..." (p. 3)
Allocation concealment (selection bias)	Unclear risk	No information.

Cowell 2009 (Continued)

Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	High risk	However, only self report measures used.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: Five month follow-up. No. approached= 10 schools (number of children not stated). No. agreed to participate= 302 mother-child dyads No. randomised= 302 mother-child dyads No. started trial=302 mother-child dyads No. dropped out during intervention= Unclear No. dropped out during follow up= 248 dyads retained at follow-up (54 drop-outs during intervention and follow-up) Intent-to-treat analysis: "Intention to treat was the analytic design" (p. 8)
Selective reporting (reporting bias)	High risk	Numbers for groups not reported.
Other bias	High risk	First three authors developed the programme (adaptation of another programme)
Implementation integrity	Low risk	"Intervention fidelity was assessed for children's classes by frequent contact (every one to two weeks or as needed) with the nurses by the project manager and the use of the self report check list verifying the delivery of scripted classes applying the STOP, THINK and ACT steps" (p. 7)

Garber 2009

Methods	RCT Power calculation: Yes. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
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Participants	<p>Description: Targeted sample</p> <p>Mean age: 14.8 years</p> <p>Age range: 13 to 17 years.</p> <p>Sex: Male=131; Female=185</p> <p>Source: Vanderbilt University, University of Pittsburg, Kaiser Permanente Center for Health Research and Judge Baker Children's Centre/Hospital.</p> <p>Location: Tennessee, Pennsylvania, Oregon and Massachusetts.</p> <p>Inclusion criteria: At least one parent or caregiver had either a) experienced either a major depressive episode during the past three years; b) three or more major depressive episodes; or c) three or more cumulative years in a major depressive or dysthymic episode within the adolescents lifetime. Adolescents between the ages of 13 and 17 with a score of 20 or higher on the CES-D, and/or a prior DSM-IV classified depressive disorder but in complete remission for the prior two months.</p> <p>Exclusion Criteria: Biological parent diagnosed with either bipolar I or schizophrenia. Adolescents with a current diagnosis of a depressive disorder, those receiving a therapeutic dose of anti-depression medication or had received more than 8 sessions of CBT for depression</p>	
Interventions	<p>Intervention: Psychological.</p> <p>Type: Cognitive Behavioural (CB) prevention programme. Adaption of the 'Coping with stress' (Clarke 1995; Clarke 2001).</p> <p>Duration: 90 minutes per session.</p> <p>No of sessions: Eight weekly for three months and six monthly.</p> <p>Manualised: Not reported.</p> <p>Delivered by: A therapist with at least a masters degree in a mental health field.</p> <p>Training: Trained and supervised by an experienced clinician, but length of training not reported</p> <p>Comparison: No intervention</p> <p>Type: Usual Care. Youth were permitted to initiate or continue non-study mental health care services</p> <p>Assessment points: Pre-test, after three months acute intervention and at nine months after continuation phase</p>	
Outcomes	<p>Outcome measures described clearly or use of validated instruments: Yes</p> <p>Depressive Episode: Longitudinal Interval Follow-up Evaluation, Depression Symptom Rating (DSR) scale</p> <p>Depressive symptoms: Children's Depression Rating Scale-Revised (CDRS-R), Center for Epidemiological Studies Depression Scale (CES-D; Radloff 1977).</p>	
Notes	<p>Participants often disclosed their treatment allocation to the assessor. As a result Independent Evaluators blind to group assignment were also used</p> <p>The author was contacted for additional data, which was provided</p>	
Risk of bias		
Bias	Authors' judgement	Support for judgement

Garber 2009 (Continued)

Random sequence generation (selection bias)	Low risk	"Adolescents were randomized using the Begg and Iglewicz modification of the El-fron biased coin toss" (p. 2217)
Allocation concealment (selection bias)	Low risk	"Participants were randomized centrally at the Pittsburgh site by a computer program" (p. 2217)
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: Pre-test, post-test, six months Number approached=316 No. agreed to participate=316 No. randomised=316 No. started trial=316 No. dropped out during intervention=4 No. dropped out during follow-up:3 Intent-to-treat analysis: Yes
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Low risk	"All intervention sessions were digitally audio-recorded. An early and a late session were randomly selected from each group...and rated by a senior supervisor using a 9-item fidelity scale. Therapist compliance rating scores ranged from 88.1% to 95.8%" (p. 2218)

Gillham a1995

Methods	RCT Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted sample Mean age: 11.60 (Control); 11.36 (Prevention) Age range: Fifth to sixth grade (age range not reported)

	Sex: Intervention: Male=50.7; Female=49.3% Control: Male=56%; Female=44% Source: Elementary schools. Location: Philadelphia, Pennsylvania Inclusion criteria: summed z scores of ≤ 0.50 (CDI and CPQ). Children with lower scores were invited in descending order as room permitted. Exclusion Criteria: Not reported	
Interventions	Intervention: Psychological. Type: Cognitive and social problem-solving group depression prevention Child-Only: Duration: 1.5 hours No of sessions: 12 Manualised: Not reported Delivered by: One of the first three authors Training: Not reported Comparison: Wait-list control Assessment points: Pre-test, post-test, and every six months over two-year follow-up	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Cognitions/Mood: Children's Depression Inventory; Child's Perception Questionnaire; Reynolds Depression Scales (RCDS and RADS); Children's Attributional Style Questionnaire	
Notes	a1995b: Child-only vs Control b1995b: Child-and-parent vs Control Dichotomous data for the control population was divided by the number of comparison arms in the study (two), as was the control population for both continuous and dichotomous data	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"Children at 5 elementary schools were assigned to the prevention group, while children at the remaining 2 elementary schools in the district were assigned to the wait list control group. The choice of which schools formed the prevention group and which formed the wait-list control group was random" (p. 7) "Control families had significantly higher income than prevention families and mothers of children in the control group had significantly higher levels of education than mothers of children in the prevention group. There was also a significant differ-

Gillham a1995 (Continued)

		ence in children's grade level (p. 8) Comment: may indicate selection bias.
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	High risk	
Blinding (performance bias and detection bias) Assessors	High risk	Teachers were not informed of condition assignment, but may have been aware anyway
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment points: Pre-test, post-test, and every six months over two-year follow-up No. approached=750 No. agreed to participate= 143 No. randomised= 143 (Control: 24; Prevention: 69) No. started trial= 143 No. dropped out during intervention= not reported No. dropped out during follow-up=19 Intent-to-treat-analysis: Not reported.
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	No information.

Gillham a2007

Methods	RCT Power calculation: Yes. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal. Mean age: 12.3 years. Age range: Sixth eighth grade. Sex: Male=377 (54%); Female=321 (46%). Inclusion Criteria: 1. Parental consent. 2. Students who scored <13 on the CDI and those who scored higher than 13 on the CDI were negative for major depression on the DICA-R. Exclusion Criteria: Students who were positive for major depression on the DICA-R

Interventions	Intervention: Psychological. Type: 1. Penn Resiliency Program (PRP)-teaches cognitive-behavioral and social problem-solving skills. 2. PEP-group intervention focusing on stressors associated with adolescent depression - more discussion oriented. Duration: 90 minutes per session over 12 weeks. No of sessions: 12. Group Size: 6 to 14. Manualised: Yes. Training: 30 hour training workshop. Delivered by: School teachers, school counsellors and graduate students in school psychology, education and clinical psychology (not affiliated with the research team) and the research team. Comparison: No intervention. Type: Control group participating in assessments only. Assessment points: Pre-, post-, 6, 12, 18, 24, 30 and 36 months	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Children's Depression Inventory (CDI). Clinical symptoms: Children's Depression Rating Scale-Revised (CDRS-R)	
Notes	a2007: PRP vs Control b2007: PEP vs Control Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed. The control population was divided by the number of comparison arms in the study (two) prior to conducting ICC calculations	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"Within cohort and school, we stratified children by grade, sex, and baseline CDI score (on the basis of a median split) and then used a computer-generated random numbers sequence to randomly assign participants to one of three study conditions" (p 10)
Allocation concealment (selection bias)	High risk	Not used
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.

Gillham a2007 (Continued)

Incomplete outcome data (attrition bias) All outcomes	High risk	Follow-up assessment points: 6, 12, 18, 24, 30 and 36 months. No. approached=4000 No. agreed to participate=718 No. randomised=697 Intervention 1: PRP=232; Intervention 2: PEP=231; Control=234. No. started trial= as above No. dropped out during intervention=60 Intervention 1: PRP=20; Intervention 2: PEP=21; Control=19 No. dropped out during follow-up at three years=334 Intervention 1: PRP=103; Intervention 2: PEP=96; Control=104 Intent-to-treat analysis: No Page 12: Thirty-seven children (16%) assigned to PRP and 35 (15%) assigned to PEP did not attend any sessions. Of these, 27 in each condition completed at least one follow-up assessment, and their data were included in the analyses
Selective reporting (reporting bias)	High risk	Selective reporting for diagnosis
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	Intervention sessions were audio recorded (p. 11) Four lesson plans were selected (because they contained key content and included early, middle and later sessions) from each group for intervention adherence coding. However, group leaders for three PRP and two PEP groups forgot to tape sessions or experienced equipment malfunctions, and so did not record their sessions

Gillham b1995

Methods	See Gillham a1995
Participants	
Interventions	
Outcomes	

Gillham b1995 (Continued)

Notes	a1995b: Child-only vs Control b1995b: Child-and-parent vs Control	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	See Gillham a1995
Allocation concealment (selection bias)	Unclear risk	See Gillham a1995
Blinding (performance bias and detection bias) Subjects	High risk	See Gillham a1995
Blinding (performance bias and detection bias) Assessors	High risk	See Gillham a1995
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	See Gillham a1995
Selective reporting (reporting bias)	Unclear risk	See Gillham a1995
Other bias	Unclear risk	See Gillham a1995
Implementation integrity	Unclear risk	See Gillham a1995

Gillham b2007

Methods	See Gillham a2007	
Participants		
Interventions		
Outcomes		
Notes	a2007: PRP vs Control b2007: PEP vs Control	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	See Gillham a2007

Gillham b2007 (Continued)

Allocation concealment (selection bias)	High risk	See Gillham a2007
Blinding (performance bias and detection bias) Subjects	Unclear risk	See Gillham a2007
Blinding (performance bias and detection bias) Assessors	Unclear risk	See Gillham a2007
Incomplete outcome data (attrition bias) All outcomes	High risk	See Gillham a2007
Selective reporting (reporting bias)	High risk	See Gillham a2007
Other bias	Unclear risk	See Gillham a2007
Implementation integrity	Unclear risk	See Gillham a2007

Gillham, Hamilton 2006a

Methods	RCT Power calculation: Yes. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted sample. Mean age: Not reported. Age range: 11 to 12 years. Sex: Male=127; Female=144. Source: Two clinics (primary care setting). Location: Sacramento, USA. Inclusion criteria: Elevated depression scores on CDI. Males with CDI scores greater than 9 and females with CDI scores greater than 7. Exclusion Criteria: Gillham in press stated that children who scored above 12 on the CDI were excluded if they were experiencing a depressive disorder
Interventions	Intervention: Psychological. Type: Penn Resiliency Program. Duration: 90 minutes per session. No of sessions: 12 Manualised: Yes. Delivered by: Child psychologists, child social worker, mental health clinician at Kaiser Permanente. All had between 21 and 24 years of experience conducting therapy with

Gillham, Hamilton 2006a (Continued)

	youth. Training: Three day training. Comparison: No intervention. Type: Usual care. Assessment points: Pre-test Post-test Follow-up: Six months, 12 months and 24 months	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Children’s Depression Inventory. Explanatory style: Children’s Attributional Style Questionnaire	
Notes	Effects evaluated based on intent-to-treat analyses.	
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“There were significant between-site differences in demographic characteristics” (p. 207) “Within each site, participants were randomized to PRP or usual care. Randomization was stratified by high versus low CDI and by sex using a computer generated random number sequence. Participants were overmatched on a 3:1 basis to intervention assignment in the 2-week periods immediately preceding the start of an intervention group if fewer than 10 youths had been assigned to that group” (p. 207) Comment: possible selection bias.
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	High risk	
Blinding (performance bias and detection bias) Assessors	High risk	
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: Six months. No. approached=6000 No. agreed to participate=864 No. randomised=271 (127 boys, 144 girls;

Gillham, Hamilton 2006a (Continued)

		147 PRP, 124 Usual Care) No. started trial=271 No. dropped out during intervention=41 No. dropped out during follow-up: Six months=35 Intent-to-treat analysis: Yes
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	High risk	Second author affiliated with Kaiser Permanente Medical Group, a private, for-profit corporation. The trial was also run at one of the corporation's branches and by its employees
Implementation integrity	Unclear risk	Ongoing supervision for group facilitators - bi-weekly during first groups and once per month afterwards "Eleven PRP groups were...audio-recorded...four PRP lessons were selected from each group and coded for adherence to the intervention protocol by trained research assistants using the intervention integrity rating system created by PRP's developers" (p. 207) "On average, group leaders covered 81% (range = 50 to 100%) of PRP content for each lesson assessed. Average intervention integrity scores were calculated for each group. Group scores ranged from 64% to 95%" (p. 207)

Gillham, Reivich 2006b

Methods	RCT Power calculation: Yes. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted. Mean age: Not reported. Age range: 8 to 12 years. Sex: Male=48; Female=26. Inclusion Criteria: Participants had the highest levels of depressive and anxiety symptoms based on the combined baseline CDI and RCMAS Z-scores. Exclusion Criteria: None stated

Interventions	Intervention: Psychological. Type: Penn Resiliency Program for Children and Adolescent (PRP-CA) plus a parent component. Duration: 90 minute sessions over 8 weeks. No of sessions: 8. Group Size: 10 to 12. Manualised: Yes. Training: Training from senior members of the research team. Delivered by: Research assistants with undergraduate degrees in psychology and senior member of the research team who had a doctorate in psychology and is one of the developers of the programme. Comparison: Type: Control condition, no intervention. Assessment points: Pre-, post-, six months, 12 months.	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Children’s Depression Inventory (CDI). Anxiety: Children’s Manifest Anxiety Scale-Revised (RCMAS). Externalising problems: Youth Self Report (YSR).	
Notes	The author was contacted for additional data, which was provided	
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information “The 44 families who participated in the intervention phase of the project were randomly assigned to one of two study conditions” (p. 330)
Allocation concealment (selection bias)	High risk	Not used
Blinding (performance bias and detection bias) Subjects	High risk	
Blinding (performance bias and detection bias) Assessors	High risk	
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: Six months and 12 months. No. approached=470 No. agreed to participate=74 No. randomised=44 (Intervention=22; Control=22) No. started trial=44 (Intervention=22;

Gillham, Reivich 2006b (Continued)

		Control=22) No dropped out during intervention=4 (Intervention=2; Control=2) No. dropped out during follow-up=9 (Intervention=3; Control=6) Intent-to-treat analysis: Yes (p. 336)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	High risk	Sessions run by members of the research team. "The fourth facilitator was a senior member of the research team.. and is one of the developers of the intervention" (p. 334)
Implementation integrity	Unclear risk	Sessions run by members of the research team so it is likely they abided to protocol Clinical depression and anxiety not assessed at baseline (p. 343)

Hains 1990

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: No. Participation was voluntary. Use of diagnostic criteria (or clear specification of inclusion criteria): No
Participants	Description: Universal sample. Participants volunteered to participate Mean age: Not reported. Age range: 16 to 17 years. Sex: Male=21; Female=nil. Source: High school (college preparatory) for boys. Location: Mid West USA. Inclusion criteria: Volunteered and returned signed consent form. Exclusion criteria: Not reported.
Interventions	Intervention: Psychological. Type: Stress-inoculation training. Duration: 30 to 40 minutes per session. No. of sessions: 4. Group size: 9. Delivered by: The authors. Training: Not reported. Manualised: Not reported. Comparison: Control group. Type: Wait-list. Assessment points:

Hains 1990 (Continued)

	Pre-test Post-test Ten week follow-up	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depression-Beck Depression Inventory (BDI; Beck 1961). Self reports of cognition. Anxiety: State-Trait Anxiety Index (STAI), Anger: Anger Inventory. Self-esteem: Coopersmith Self-Esteem Inventory (CSE).	
Notes	Control group received intervention after post-test. The author was contacted for additional data, which was not provided	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“youths were randomly assigned to either the experimental group that received training or a waiting list control group” (p. 80) comment: randomisation method not explained
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment point: Post-test. No. approached=30 No. agreed to participate=21 No. randomised=24 No. started trial=24 No. dropped out during intervention=4 No. dropped out during follow-up: Nil Intent-to-treat analysis: Not reported.
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	Participants were instructed to complete a self-monitoring sheet

Hains 1992

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: No. Volunteers recruited. Use of diagnostic criteria (or clear specification of inclusion criteria): No	
Participants	Description: Universal sample. Mean age: Not reported. Age range:15 to 16 years. Sex: Male=25; Females=nil. Source: High school (college preparatory) for boys. Location: Mid West USA. Inclusion criteria: Volunteers who returned signed consent forms. Exclusion criteria: Not reported.	
Interventions	Intervention: Psychological. Type: A cognitive intervention program and anxiety management training. Duration: 40 minutes per session. No. of sessions: Four. Three group sessions and one individual session. Group size: Nine for the cognitive intervention and eight for the anxiety management group. Delivered by: Authors and assisted by two graduate counselling students. Training: Not reported. Manualised: Not reported. Comparison: Control group. Type: Wait-list Delivered by: N/A Assessment points: Pre-test Post-test	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depression-Reynolds Adolescent Depression Scale (RADDS). Anxiety: State-Trait Anxiety Index (STAI). Anger: State-Trait Anger Expression Inventory (STAXI). Self-Esteem: Coopersmith Self-Esteem Inventory (CSE). Anxious Self Statements Questionnaire	
Notes	Two intervention groups. The author was contacted for additional data, which was not provided	
Risk of bias		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“youths were randomly assigned” (p. 601). comment: No information about allocation method.

Hains 1992 (Continued)

Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment point: 11 weeks. No. approached=30 No. agreed to participate=25 No. randomised=25 No. started trial=25 No. dropped out during intervention=Nil No. dropped out during follow-up: Nil Intent-to-treat analysis: Not reported.
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	Each participant completed a self-monitoring sheet.

Hains 1994

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: No. volunteers recruited. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal sample. Participants approached in a Midwestern city suburban high school Mean age: Not reported. Age range: Ninth to twelfth graders Sex: Male=5; Females=16. Inclusion criteria: Volunteers who returned signed student and parent consent forms. Exclusion criteria: Did not volunteer or return signed consent forms
Interventions	Intervention: Psychological. Type: The Stress Inoculation Model. Duration: Eight days No. of sessions: 13 with a combination of group and individual sessions. Group size: Not reported.

Hains 1994 (Continued)

	<p>Delivered by: PhD level Psychologists and a counselling psychology doctorate student. Training: Not reported. Manualised: Yes. Comparison: No intervention. Type: Wait-list Delivered by: Masters level counselling student. Assessment points: Pre-test Post-test</p>
Outcomes	<p>Outcome measures described clearly or use of validated instruments: Yes Depression: Reynolds Adolescent Depression Scale (RADs). Anxiety: State-Trait Anxiety Inventory (STAI). Anger: State-Trait Anger Expression Inventory (STAXI). Adolescent stress: Adolescent Perceived Events Scale (APES). Physical health: Student reports. Academic function: School reports.</p>
Notes	<p>Control group participants were given intervention after post-test assessment. Therefore two month follow-up scores cannot be compared with the intervention group scores Moncrieff Rating: Inadequate. The author was contacted for additional data, which was not provided</p>

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"youths were randomly assigned" (p. 221).
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Low risk	<p>Follow up assessment point: Two months No drop-outs. No. approached=25 to 30 No. agreed to participate=21 No. randomised= 21 No. started trial= 21 No. dropped out during intervention=0</p>

Hains 1994 (Continued)

		No. dropped out during follow-up= 0 No. crossed over=0
Selective reporting (reporting bias)	Unclear risk	While not clear, the rationale suggests that the aim was to look at results by risk group Note: in terms of the review, the way they have reported does mean the meta-analysis is missing data (i.e. only reported by risk not total)
Other bias	Unclear risk	No information.
Implementation integrity	Low risk	Participants completed monitoring sheets after each session. Therapists discussed sessions at meetings

Horowitz a2007

Methods	RCT (Cluster) Power calculation: Yes (effect size of 0.16, at 0.80 with an alpha level of 0.05) Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal. Mean age: 14.43 years. Age range: Not reported. Sex: Male= Number not reported (46%); Female= Number not reported (54%). Inclusion Criteria: Parental consent. Exclusion Criteria: No parental consent.
Interventions	Intervention: Cognitive Behavioural-Coping with Stress Course and Interpersonal Psychotherapy-Adolescent Skills Training Program (IPT-AST). Type: Psychological /Educational. Duration: 90 minutes. No of sessions: 8. Group Size: 8 to 15. Manualised: Yes for both interventions. Training: Group leaders had prior therapy training. Leaders also participated in training workshops prior to study. Delivered by: Group Leaders: Masters level clinical psychology graduate students or recent clinical psychology PhDs. Co-leaders: clinical graduate honours students Comparison: Type: No Intervention Control, Usual health class Assessment points: Pre-test Post-test Follow-up: Six months

Horowitz a2007 (Continued)

Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Children's Depression Inventory (CDI) and Center for Epidemiological Studies-Depression Scale (CES-D;). Sociotropy and achievement orientation: Sociotropy Achievement Scale for Children (SASC). Attriutional style: Children's Attributional Style Questionnaire revised (CASQ-R). Coping: The Coping to Problems Experienced Inventory (COPE). Quality of relationships: Conflict Behavior Questionnaire (CBQ)	
Notes	Developed from 2006 thesis a2007: Cognitive-behavioral vs Control b2007: IPT-AST vs Control Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed. The control population was divided by the number of comparison arms in the study (two) prior to conducting ICC calculations	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"A random number list was used...to assign participants to the cognitive-behavior program...the interpersonal psychotherapy-adolescent skills training...or the assessment-only control condition" (p. 695) Comment: Unclear how list was generated "Within class periods, participants were randomly assigned to condition unless there were fewer than 15 students participating. This occurred for only two classes...for these two classes, randomization was done at the class level rather than at the individual level" (p. 695)
Allocation concealment (selection bias)	High risk	Not used
Blinding (performance bias and detection bias) Subjects	High risk	"Participants and group leaders were aware of group assignment" (p. 695)
Blinding (performance bias and detection bias) Assessors	Low risk	"those conducting the assessments did not know to which condition students had been assigned" (p. 695)
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment point: Six months. No. approached=600 No. agreed to participate=380 No. randomised=380

Horowitz a2007 (Continued)

		<p>Intervention 1=112 Intervention 2=99 Control=169 No. started trial=380 No. dropped out during intervention=5 No. dropped out during follow-up=66 Intent-to-treat analysis: Yes. “Several different methods have been recommended for examining the outcome given missing data...None of these analyses yielded significant differences at follow-up on any index of depressive symptoms” (p. 699)</p>
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	<p>“To ensure treatment integrity, (a) detailed treatment manuals were used for both CB and IPT-AST, (b) group leaders and co-leaders participated in training workshops before beginning the study, and (c) throughout the intervention, weekly supervision meetings were held with clinical experts in the modality leaders provided... The schools did not permit taping of the group sessions” (p. 698) “another limitation (of the study) was that independent observations of therapists were not completed, so absolute fidelity to intervention protocols cannot be assured” (p. 704)</p>

Horowitz b2007

Methods	See Horowitz a2007
Participants	
Interventions	
Outcomes	
Notes	<p>a2007: Cognitive-behavioral vs Control b2007: IPT-AST vs Control</p>
<i>Risk of bias</i>	

Horowitz b2007 (Continued)

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	See Horowitz a2007
Allocation concealment (selection bias)	High risk	See Horowitz a2007
Blinding (performance bias and detection bias) Subjects	High risk	See Horowitz a2007
Blinding (performance bias and detection bias) Assessors	Low risk	See Horowitz a2007
Incomplete outcome data (attrition bias) All outcomes	Low risk	See Horowitz a2007
Selective reporting (reporting bias)	Unclear risk	See Horowitz a2007
Other bias	Unclear risk	See Horowitz a2007
Implementation integrity	Unclear risk	See Horowitz a2007

Hyun 2005

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: No. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted sample. Mean age: 15.5 Age range: Not reported. Sex: Male=32; Female=Nil Source: Shelter for runaway and homeless youth. Location: Seoul, South Korea. Inclusion criteria: Participant consent, runaway adolescent status, residence in shelter, male. Exclusion Criteria: Psychiatric disorders.
Interventions	Intervention: Psychological. Type: Cognitive-behavioral program. Duration: Eight weeks. No.of sessions: 8. Group size:

Hyun 2005 (Continued)

	Intervention=14 Control=13 Manualised: Not reported. Training: Not reported. Delivered by: Investigator who is a psychiatric nursing professor Comparison: Control . Type: Control group who received intervention after the completion of the study Assessment points: Pre- and post-test.	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depression: Beck Depression Inventory. Self efficacy: Self-Efficacy Scale. Self esteem: Self-Esteem Inventory.	
Notes	The author was contacted for additional data, which was not provided Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“Research participants were randomly assigned to the experimental group or the control group” (p. 162) randomisation method not outlined
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow up assessment point: Post-test No. approached=32 No. agreed to participate=32 No. randomised=32 No. started trial=32 No. dropped out during intervention: 5 Intent-to-treat analysis: Not reported.
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Treatment sessions performed by one of the study investigators (p. 162)

Hyun 2005 (Continued)

Implementation integrity	Unclear risk	No information.
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King a1990

Methods	RCT Power calculation: No. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes	
Participants	Description:Targeted sample. Mean age: Ranged between eight years two months and eight years three months Age range: Kindergarten to fourth grade. Sex: School A: Male=44; Female=34 School B: Male=33; Female=16 Source: Two rural Wisconsin elementary schools. Location: USA Inclusion criteria: Two referral methods. First, using the AML (Cown et al 1973), children in the top 20% for problem behaviours (aggressive, moody, shy, withdrawn). Second, consultation with teacher and Wisconsin Early Intervention (WEI) co-ordinator, discussion of behaviours paralessing AMI Exclusion criteria: None stated.	
Interventions	Intervention: Psycho-educational. Type: WEI. Social development programme teaching social skills. Duration:24 weeks No of sessions: 24 Group Size:Four to five. Manualised: Yes. Training: 45 hours of training was required. Delivered by: Over 55 paraprofessionals recruited from the community. Comparison: Partial service. Type: Teachers and parents provided with general information, brainstorming intervention ideas in keeping with child-specific goals and developing behavioural contracts. Assessment points: Pre-test, post-test.	
Outcomes	Outcome measures described clearly or use of validated instruments: Depression:Children’s Depression Rating Scale-Revised (CDRS-R) Additional outcomes: The Teacher-Child rating Scale (T-CRS), the Child Behaviour Checklist (CBC), the Aide-Child Rating scale	
Notes		
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement

King a1990 (Continued)

Random sequence generation (selection bias)	Unclear risk	“Participating children were randomly assigned to intervention conditions nested within schools” (p. 169)
Allocation concealment (selection bias)	Unclear risk	No information
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information
Blinding (performance bias and detection bias) Assessors	Low risk	“The primary interviewer was a research assistant...completely blind to experimental conditions. The second interviewer...was kept as blind as possible to experimental conditions” (p. 170)
Incomplete outcome data (attrition bias) All outcomes	High risk	Only presented analysis on School A for students with both pre-and post-CDRS-R assessments Follow-up assessment point: post-intervention only. No. approached= Not stated. No. agreed to participate= 135 No. randomised= 135 No. started trial= 135 No dropped out during intervention=Not reported. No. dropped out during follow-up= N/A No. crossed over= N/A Intent-to-treat analysis: No information
Selective reporting (reporting bias)	High risk	CDRS-R scores for School B partial service not presented
Other bias	Unclear risk	No information
Implementation integrity	Unclear risk	No information

King b1990

Methods	
Participants	
Interventions	Intervention:Partial consultation. Type: Teachers and parents provided with general information, brainstorming intervention ideas in keeping with child-specific goals and developing behavioural contracts Control: No service

King b1990 (Continued)

Outcomes		
Notes		
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	See King a1990
Allocation concealment (selection bias)	Unclear risk	See King a1990
Blinding (performance bias and detection bias) Subjects	Unclear risk	See King a1990
Blinding (performance bias and detection bias) Assessors	Low risk	See King a1990
Incomplete outcome data (attrition bias) All outcomes	High risk	See King a1990
Selective reporting (reporting bias)	High risk	See King a1990
Other bias	Unclear risk	See King a1990
Implementation integrity	Unclear risk	See King a1990

Kraag 2009

Methods	RCT (Cluster) Power calculation: Yes. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Not reported
Participants	Description: Universal sample. Mean age: 10.3 years. Age range: Not reported. Sex: Male= 50.1%; Female= 49.9% Source: Fifth and sixth grade children from 52 Elementary Schools. Location: The Netherlands. Inclusion criteria: Parental Consent. Exclusion criteria: None reported. Previous history of depression: Not measured.

Kraag 2009 (Continued)

Interventions	Intervention: Psychological. Type: Learn Young, Learn Fair. Duration: Eight weeks. No of sessions: Eight weekly one-hour sessions, five weekly one-hour booster sessions. Group Size: Not reported. Manualised: Yes. Training: Compulsory instructional training course for teachers consisting of two three-hour sessions which took place prior to, and half way through, the intervention. Delivered by: School Teachers Comparison: No intervention. Type: Wait-list control. Assessment points: Pre-test Post-test Nine month follow-up	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Short Depression Inventory for Children (SDIC) Anxiety: Spielberger’s State-Trait Anxiety Inventory for Children (STAIC) Stress: Maastricht University Stress Instrument for children Coping: Social Problem Solving Inventory (SPSI).	
Notes	Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed	
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“Schools randomly assigned to either a control or an intervention group” (p. 1187)
Allocation concealment (selection bias)	High risk	A delayed intervention design was employed (p. 1187).
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Low risk	“The (Maastricht University) students that administered the questionnaires were blind to group allocation” (p. 1186)
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment point: Nine months No. approached= 180 elementary schools (total number of children not reported) No. agreed to participate= 1645 No. randomised= 1645

Kraag 2009 (Continued)

		No. started trial= 1437 No. dropped out during intervention= 21 No. dropped out during follow-up= 32 Intent-to-treat analysis: Yes. “All children with baseline data and parental consent were included in the mixed regression analyses without inputting a missing post-test or follow-up” (p. 1188)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Low risk	“More than 95% of the homework assignments were implemented and teachers followed the manual (95%)” (p. 1190)

Kumakech 2009

Methods	Cluster RCT Power calculation: No. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted sample. Mean age: Intervention=11.9 Control=11.7 Age range: 10 to 15 years Sex: Male= 148; Female= 150 Source: AIDS orphans from primary schools. Location: Uganda Inclusion criteria: Children who had lost one or both parents to AIDS. Exclusion criteria: Non-AIDS orphan status.
Interventions	Intervention: Psychological Type: Peer group support intervention, using participatory psychosocial approaches. Duration: 10 weeks. No of sessions: 10 (60 minutes once a week) Group Size: Not stated. Manualised: Unclear. Training: Teachers were trained by the first author and had weekly supervision with the researcher and a counsellor. Delivered by: Teachers. Comparison: No intervention. Type: The control condition students did not attend the after-school intervention classes. Assessment points: Pre-test, post-test.

Kumakech 2009 (Continued)

Outcomes	Outcome measures described clearly or use of validated instruments: Depression: The depression subscale of the Beck Youth Inventories (BYI)	
Notes		
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	“The technique of randomization involved assigning numbers from 1 to 20 to the schools on separate pieces of paper...one paper was picked from the box without replacement and assigned to the intervention group. The procedure was repeated until 10 schools were assigned to the intervention arm” (p. 1040)
Allocation concealment (selection bias)	Low risk	“The papers were folded and put into an enclosed box. The papers were mixed thoroughly...” (p. 1040)
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information
Incomplete outcome data (attrition bias) All outcomes	High risk	Follow up assessment point: Post-intervention. No. approached= 392 No. agreed to participate= 326 No. randomised= 326 No. started trial= 326 No. dropped out during intervention= 28 No. dropped out during follow-up= N/A ITT analysis: Not performed.
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information
Implementation integrity	Unclear risk	No information

Lamb 1998

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes	
Participants	Description: Targeted sample. Mean age: 15.8 years. Age range: 14 to 19 years. Sex: Male=18 (43.9%); Female=23 (56.1%). Source: Rural high school Location: Not reported. Inclusion criteria: Students who scored in the moderate-high range for depressive symptoms (a score of 66 or above) on the Reynolds Adolescent Depression Scale (RADS) and student and parent consent. Exclusion criteria: Not reported.	
Interventions	Intervention: Psychological. Type: Cognitive skills training. Duration: Eight weeks. No.of sessions: Not reported. Group size: 10 to 12 students. Manualised: Not reported. Training: Not reported. Delivered by: PhD psychiatric mental health nurse. Comparison: No intervention. Type: Control group. Description of group not reported. Assessment points:Pre-test, post-test	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptomatology: Reynolds Adolescent Depression Scale (RADS). Life Events: The Life Events Checklist (LEC). Coping styles: Jalowiec Coping Scale (JES).	
Notes	The author was contacted for additional data, which was not provided No usable data at the time of analysis. Moncrieff Rating: Inadequate.	
Risk of bias		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“Those who scored in the moderate to high range for depressive symptoms on the Reynolds Adolescent Depression Scale (RADS) were randomized into control (n = 18) or intervention (n = 23) groups”

Lamb 1998 (Continued)

Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	High risk	Follow up assessment point: Post-test No. approached=222 No. agreed to participate=46 No. randomised=46 No. started trial: Total=46 Treatment=27 Control=19. No. dropped out during intervention: Total=5 Treatment=4 Control=1 Intent-to-treat analysis: No.
Selective reporting (reporting bias)	High risk	Data presented in graphs only
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	No information.

Layne 2008

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Unclear Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted sample. Mean age: Intervention=15.9 years; Comparison=16.0 years. Age range: 13 to 19 years. Sex: Intervention: Male=34%; Female=66% (sex not reported for 2 participants) Comparison: Male=34%; Female=66% Source: 10 secondary schools from a region predominantly populated with Bosnian-speaking ethnic Muslims. Location: Bosnia. Inclusion criteria: Significant trauma exposure before, during, and/or after war; signif-

Layne 2008 (Continued)

	<p>icant current distress, especially severe, persisting symptoms of PTSD, depression, or traumatic grief, significant functional impairment, including family or peer relationships and school performance.</p> <p>Exclusion criteria: Students who showed signs of psychosis, were of imminent threat to themselves or others, unable to attend group sessions or judged not to be appropriate for group sessions due to disruptive behavioural or substance abuse problems.</p>	
Interventions	<p>Intervention: Psychological.</p> <p>Type: Psycho-education, skills intervention and trauma and grief focused group treatment (TCGT).</p> <p>Duration: 60 to 90 minute sessions</p> <p>No of sessions:17 to 20 weekly sessions, over six months</p> <p>Group Size: 6 to 10 participants.</p> <p>Manualised: Yes.</p> <p>Training: Four two-day training seminars implemented by the authors and mental health professionals. Group supervisions also led every two to four weeks.</p> <p>Delivered by: School counsellors.</p> <p>Comparison: Psychological.</p> <p>Type: Psycho-education and skills intervention. “The control group received a ‘tier 1 intervention’”. This contained modules I and IV of the treatment manual, and broadly consisted of; psycho-education of common distress reactions, coping skills to manage trauma and loss reminders, relaxation training, skills to self-regulate emotions and behaviour, social support skills and problem solving skills.</p> <p>Assessment points:</p> <p>Pre-test</p> <p>Post-test</p> <p>Four month follow-up</p>	
Outcomes	<p>Outcome measures described clearly or use of validated instruments: Yes</p> <p>Depressive Symptoms: Depression Self-Rating Scale (DSRS).</p> <p>PTSD symptoms: Post-traumatic Stress Disorder Reaction Index (RI)</p> <p>Maladaptive grief reactions: UCLA Grief Inventory.</p>	
Notes	<p>The author was contacted for additional data, which was not provided</p>	
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	“Randomly assigned to either the treatment or comparison condition at their school by the participating school counsellors (who randomly drew names of program-eligible students out of a box)” (p. 1051)
Allocation concealment (selection bias)	Low risk	Central allocation

Layne 2008 (Continued)

Blinding (performance bias and detection bias) Subjects	High risk	“Neither the counsellors, nor the participating students were blinded to students’ experimental condition” (p. 1051)
Blinding (performance bias and detection bias) Assessors	Low risk	No blinding, however outcome measures were all self-report instruments
Incomplete outcome data (attrition bias) All outcomes	High risk	Follow up assessment point: Four months No. approached= 1279 No. agreed to participate= 201 No. randomised= 159 No. started trial= 159 No. dropped out during intervention= 15 No. dropped out during follow-up= 17 Intent-to-treat analysis: No. Approximately 50% of students at 4 month follow-up were retained from pre-test
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Low risk	“Counsellors prepared for supervision meetings by creating detailed notes...were then reviewed in detail at the meeting, followed by consultation on adhering to the protocol and training in specific skills with which to implement it” (p. 1053)

Lock 2003

Methods	RCT Power calculation: No. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal. Mean age: Not reported. Age range: 9 to 16 years. Sex: Male=366 (49.7%); Female=371 (50.3%). Inclusion Criteria: Parental written consent. Exclusion Criteria: No parental consent.
Interventions	Intervention: Psychological. Type: FRIENDS. Duration: 70 minute sessions

Lock 2003 (Continued)

	No of sessions: 10. Group Size: 10 to 12. Manualised: Yes. Training: Group leaders attended one day teacher-training workshops. Delivered by: Clinical masters trained psychologists, doctoral candidates and teachers assisted by clinically trained psychology postgraduate students. Comparison Type: Monitoring control condition Assessment points: Pre-, post-, 12 months, 24 months, 36 months	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Children’s Depression Inventory (CDI). Anxiety: Children’s Manifest Anxiety Scale-Revised (RCMAS); The Spence Child Anxiety Scale (SCAS). Coping: Coping Scale for Children and Youth. Clinical diagnosis: Anxiety Disorder Interview Schedule for Children-IV (ADIS-C-IV)	
Notes	The author was contacted for additional data, which was provided Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed	
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Schools randomly assigned, but method not reported (Barrett 2006; p. 405)
Allocation concealment (selection bias)	High risk	Not used.
Blinding (performance bias and detection bias) Subjects	High risk	“All parents of students in the intervention schools in grade 6 and grade 9 were sent a letter, including a consent form, outlining that their child, along with the rest of their class, had been invited to participate in a group to help build their emotional resilience, coping skills and problem-solving abilities” (p. 186)
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: 12 months, 24 months, 36 months. No. approached=977 No. agreed to participate=977 No. randomised=977 No. started trial=977

Lock 2003 (Continued)

		No. dropped out during intervention=Not reported No. dropped out during follow-up=95 No. in final analysis=737(Subjects=442; Controls=295) Intent-to-treat analysis: No. Cases with missing data at post-test or follow-up were excluded from the analyses
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	Program Integrity Checklist completed by each group facilitator - not clear how this was verified

Lowry-Webster 2001

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal sample. Mean age: Not reported. Age range: 10 to 13 years. Sex: Intervention: Male=198; Female=234 Control: Male=82; Female=80 Source: Seven Catholic schools. Location: Brisbane, Australia. Inclusion criteria: Parent and student consent. Exclusion criteria: Not reported.
Interventions	Intervention: Psychological. Type: FRIENDS for children. A Cognitive-behavioral programme. Duration: No.of sessions: 10. Group size: Not reported. Manualised: Yes. Training: Yes. Delivered by: Teachers. Comparison: No intervention. Type: Wait-list. Assessment points:Pre-test, post-test Follow-up:12 months

Outcomes	Outcome measures described clearly or use of validated instruments: Yes Anxiety: Spence’s Children’s Anxiety Scale (SCAS). Revised Children’s Manifest Anxiety Scale (RCMAS). Depression: Children’s Depression Inventory (CDI). Depression diagnosis: Anxiety Disorders Interview Schedule for Children (ADIS-C) Social functioning: The Child Behaviour Checklist-Revised (CBCL-R)	
Notes	The author was contacted for additional data, which was not provided Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed	
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“Children and their parents were allocated to the intervention or waiting-list condition on the basis of their school...Schools matched for size, sociodemographics, and socioeconomics were randomly allocated to conditions” (p. 41). No other information
Allocation concealment (selection bias)	Unclear risk	Unclear
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	High risk	Follow up assessment point: 12 months No. approached=not stated No. agreed to participate=594 No. randomised=594 No. started trial: Total=594 No. dropped out during intervention: Total= not reported. No. dropped out during follow-up: Reports 21% attrition rate with no numbers given per group Intent-to-treat analysis: No.
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.

Lowry-Webster 2001 (Continued)

Implementation integrity	Low risk	Facilitators attended regular meetings and sessions were videotaped
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Mason 2007

Methods	RCT Power calculation: No. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal sample. Mean age: 11.35 yrs. Age range: 8 to 14 years. Sex: Male=Not reported; Female=Not reported. Inclusion Criteria: 1. Families who had sixth grade students enrolled in rural schools. 2. Schools had school lunch eligibility and community size population of less than 8,500. Exclusion Criteria: Not reported.
Interventions	Intervention: Psychological. Type: Preparing for the Drug Free Years (PDFY). A family competency training programme based on a social development model. Duration: Two hours over five weeks. No of sessions: Five (four of the five sessions involved parents only). One session (peer resistance skill session) included both parents and children. Group Size: 10 families (average of 16 individuals per session and 25 when adolescents were included). Manualised: Yes. Training: Yes. Group leaders received two training sessions. Delivered by: Fundamental programme content was delivered via videotape and the skills training components were delivered by two group leaders per group. Selection of group leaders was based on those who had the strongest interpersonal and group facilitation skills. Comparison: Type: Minimal contact control condition. Assessment points: Pre-, post-, 12 months, two years, four years, six years
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Child behaviour Checklist-Youth Self Report (CBCL-YSR); Polysubstance use: self report.
Notes	Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed

Risk of bias

Bias	Authors' judgement	Support for judgement
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Mason 2007 (Continued)

Random sequence generation (selection bias)	Unclear risk	“Assignment of the 33 schools was guided by a randomized block design. Schools were blocked on school size and on the proportion of lower income students. Within blocks, 11 schools each were randomly assigned to one of three experimental conditions” (p. 544) Comment: randomisation method not explained
Allocation concealment (selection bias)	High risk	Not used
Blinding (performance bias and detection bias) Subjects	High risk	“Participating families were not aware of the condition (intervention or control) to which their child’s school had been assigned until after pretesting” (p. 544)
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: 7th grade (21 months), 8th grade (33 months), 10th grade (51 months), 12th grade (75 months) . No. approached=883 No. agreed to participate=429 No. randomised=429 Intervention=221 Control=208 No. started trial=429 Intervention=221 Control=208 No. dropped out during intervention=66 No. dropped out during follow-up=52 Intent-to-Treat Analysis: Yes
Selective reporting (reporting bias)	High risk	No data reported - had to obtain data from authors
Other bias	Unclear risk	No information.
Implementation integrity	Low risk	“Fidelity observations conducted by trained observers demonstrated that group leaders covered all of the key program concepts” (p. 546)

McLaughlin 2007

Methods	RCT Power calculation: Unclear due to longitudinal follow-up. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted sample. Mean age at start of intervention: 4.4 years. Age at follow up: 21 years. Age range: Infancy to age five. Sex: Not stated. Source: Families from the low income area of Chapel Hill, North Carolina. Location: USA. Inclusion criteria: Low socioeconomic status (SES) based on the High Risk Index of sociodemographic characteristics, free of conditions associated with developmental delays or mental retardation Exclusion criteria: None stated.
Interventions	Intervention: Educational. Type: Abecedarian Programme. High quality educational childcare including cognitive and fine motor development, social and self-help skills, language and gross motor skills. Duration: Five years. No of sessions: Not stated. Group Size: N/A Manualised: No. Training: Not stated. Delivered by: Teachers. Comparison: No intervention. Type: Range of usual care conditions including parental care and other child care programs available in low socioeconomic areas. Assessment points:
Outcomes	Outcome measures described clearly or use of validated instruments: Depression: Brief Symptom Inventory (BSI).
Notes	Some participants were above BSI T-score cut-off points at the time of assessment

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"Fifty seven of the infants were randomly assigned to the treated group" (p. 749)
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.

McLaughlin 2007 (Continued)

Blinding (performance bias and detection bias) Assessors	High risk	Self-report measures used.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	No information.
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	High risk	Authors developed the programme.
Implementation integrity	Unclear risk	No information.

Merry 2004

Methods	RCT Power calculation: Yes. Reported Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal sample. Mean age: 14.2 Age range: 13 to 14 years. Sex: Male=176; Female=188 Source: Two high schools. Location: Auckland, New Zealand. Inclusion criteria: Parent and student consent. Could speak English. Exclusion criteria: Significant levels of depressive symptoms on outcome measures
Interventions	Intervention: Psychological. Type: Resourceful Adolescent Program (RAP-Kiwi). A cognitive-behavioral programme. Duration: 11 weeks in one school and five to six weeks in another school. No.of sessions: 11. Group size: Intervention=192 Control=172 Manualised: Yes. Training: Yes. Delivered by: Teachers. Comparison: Placebo Intervention Program. Type: Placebo Program. Assessment points: Pre-test Post-test Six months Twelve months

Merry 2004 (Continued)

	Eighteen months	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depression: Beck Depression Inventory (BDI; Beck 1961) and Reynolds Adolescent Depression Scale (RADS).	
Notes	The author was contacted for additional data, which was provided	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	“Participating students were given a study number. A research assistant who did not know the pupils used these numbers and randomization tables to assign students to RAP-Kiwi or placebo groups” (p. 540)
Allocation concealment (selection bias)	Low risk	central allocation of group assignment
Blinding (performance bias and detection bias) Subjects	Low risk	“Participants were blind to which intervention they received. To check the effectiveness of the blinding, students were asked whether they thought they were in the active or the comparison program at the end of the study” (p. 541)
Blinding (performance bias and detection bias) Assessors	High risk	“The teachers who ran the program were not blind” (p. 541)
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: 6, 12 and 18 months. No. approached=540 No. agreed to participate=392 No. randomised=392 No. started trial: Total=392 No. dropped out during intervention: Total=33 No. dropped out during follow-up:212 Intent-to-treat analysis: Yes “Some students were absent for one or more administrations of the depression rating scales” (p. 541) Comment: Unclear what was done about this - were they students who were lost to follow-up, or was some of their data used?

Merry 2004 (Continued)

Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	High risk	Investigators involved in the development of the programme in New Zealand
Implementation integrity	Unclear risk	<p>“The Australian team who developed the program trained our research team. We then trained teachers from the two schools over 2.5 days. Teachers running the placebo program were trained separately. When running the programs, all teachers completed a weekly integrity checklist and met a research team member weekly to ensure compliance” (p. 540)</p> <p>Comment: No information on extent of the implementation integrity</p>

Palermo 2009

Methods	<p>RCT</p> <p>Power calculation: Yes.</p> <p>Source of subjects described: Yes.</p> <p>Representative sample recruitment: Yes.</p> <p>Use of diagnostic criteria (or clear specification of inclusion criteria): Yes</p>
Participants	<p>Description: Targeted sample.</p> <p>Mean age (SD): 14.8 years (2.0)</p> <p>Age range: 11 to 17 years.</p> <p>Sex: Male=13; Female=35</p> <p>Source: Children presenting to a paediatric pain clinic.</p> <p>Location: USA</p> <p>Inclusion criteria: Chronic ideopathic pain present over the past three months, pain occurring once a week and interfering with at least one area of the child's functioning.</p> <p>Exclusion criteria: A serious co-morbid chronic condition (e.g. diabetes, cancer), non-English speaking, already receiving CBT for chronic pain</p>
Interventions	<p>Intervention: Psychological</p> <p>Type: Web-based Management of Adolescent Pain (Web-MAP). Analogue of face-to-face CBT.</p> <p>Duration: Eight weeks.</p> <p>No of sessions: Eight (four child and four parent modules plus one hour of therapist time).</p> <p>Group Size: Individual.</p> <p>Manualised: Yes.</p> <p>Training: N/A</p> <p>Delivered by: Web-based.</p> <p>Comparison: No intervention.</p> <p>Type: Wait-list plus usual medical care.</p>

Palermo 2009 (Continued)

	Assessment points:Pre-test, post-test.	
Outcomes	Outcome measures described clearly or use of validated instruments: Depression:The Revised Child Anxiety and Depression Scale (RCADS)	
Notes		
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	”An online random number generator was used to produce blocked randomization“ (p. 206)
Allocation concealment (selection bias)	Low risk	Group assignments were identified by ID number in sealed envelopes during the 24-month recruiting period. Following completion of all pre-treatment assessments, a research co-ordinator opened the sealed envelope to reveal the group assignment” (p. 206)
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	High risk	Self-report measures used only.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment point: Post-intervention only. No. approached=88 No. agreed to participate=48 No. randomised= 48 No. started trial=48 No. dropped out during intervention=2 Intent-to-treat analysis: “Intent-to-treat analysis was used, and therefore the effective numbers of cases analysed for the primary and secondary outcome analyses were 26 for the internet treatment group and 22 for the wait-list control group” (p. 206)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Low risk	Authors developed the programme.

Palermo 2009 (Continued)

Implementation integrity	Low risk	“Children completed a mean of 7.11 (SD=1.86) modules, with 20 of 26 children (77%) completing all 8 modules” (p. 211)
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Pattison a2001

Methods	<p>RCT</p> <p>Power calculation: Not reported.</p> <p>Source of subjects described: Yes.</p> <p>Representative sample recruitment: Yes.</p> <p>Use of diagnostic criteria (or clear specification of inclusion criteria): No</p>	
Participants	<p>Description: Universal Sample.</p> <p>Mean age: 10.44 (SD=0.69).</p> <p>Age range: 9 to 12yrs.</p> <p>Sex: Male=48%; Female=52%.</p> <p>Source: High school.</p> <p>Location: Adelaide, Australia.</p> <p>Inclusion Criteria: Parental consent.</p> <p>Exclusion criteria: Not reported.</p>	
Interventions	<p>Intervention: Psychological.</p> <p>Type:</p> <ol style="list-style-type: none"> 1. Normal PENN Prevention Programme. 2. Reversed PENN Prevention Programme. <p>Duration: Two hours per session</p> <p>No. of sessions: 11.</p> <p>Group size: 16.</p> <p>Manualised: Yes.</p> <p>Training: By authors of the PENN Program 18 months prior to the implementation of study and with experience with implementation on five previous occasions.</p> <p>Delivered by: Trained facilitators.</p> <p>Comparison:</p> <p>Type: Two types.</p> <ol style="list-style-type: none"> 1. Attention control group. 2. Non-intervention control group with no active participation but completed questionnaires. <p>Duration: Type 1: Two hour sessions per week.</p> <p>No. of sessions: 11</p> <p>Integrity: Not reported</p> <p>Manualised: Not reported.</p> <p>Training: Not reported.</p> <p>Delivered by: First author and teacher-librarian.</p> <p>Assessment points:</p> <p>Pre-test</p> <p>Midpoint (five weeks)</p> <p>Post- (11 weeks)</p> <p>Follow-up:</p>	

Pattison a2001 (Continued)

	Eight months	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Children’s Depression Inventory (CDI). Anxiety: The Trait Scale of the Spielberger State-Trait Anxiety Inventory for Children (STAIC). Cognitive style: The Cognitive Triad Inventory for Children (CTI-C). Social Skills: The Matson Evaluation of Social Skills with Youngsters (MESSY)	
Notes	Two intervention groups. Two comparison groups. Both control group sample sizes were divided by the number of comparison arms in the study (two) Data requested: November 2002. Response: December 2002. Author no longer has access to data. Moncrieff Rating: Inadequate. a2001: PRP Group vs Control b2001: Reversed PRP Group vs Control c2001: PRP Group vs Placebo d2001: Reversed PRP Group vs Placebo	
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No Information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No Information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No Information.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment point: Eight months. No. approached=150 No. agreed to participate=74 No. randomised= 66 No. started trial=66 No. dropped out during intervention=2 No. dropped out during follow-up=14 Intent-to-treat analysis: Not reported.
Selective reporting (reporting bias)	Unclear risk	Protocol not available

Pattison a2001 (Continued)

Other bias	Unclear risk	No Information.
Implementation integrity	Unclear risk	No Information.

Pattison b2001

Methods	See Pattison a2001
Participants	
Interventions	
Outcomes	
Notes	a2001: PRP Group vs Control b2001: Reversed PRP Group vs Control c2001: PRP Group vs Placebo d2001: Reversed PRP Group vs Placebo

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	See Pattison a2001
Allocation concealment (selection bias)	Unclear risk	See Pattison a2001
Blinding (performance bias and detection bias) Subjects	Unclear risk	See Pattison a2001
Blinding (performance bias and detection bias) Assessors	Unclear risk	See Pattison a2001
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	See Pattison a2001
Selective reporting (reporting bias)	Unclear risk	See Pattison a2001
Other bias	Unclear risk	See Pattison a2001
Implementation integrity	Unclear risk	See Pattison a2001

Petersen 1997

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes	
Participants	Description: Targeted sample. Mean age: Not reported. Age range: Cohort 1=Grades six to eight. Cohort 2=Grades seven to nine. Sex: Breakdown not reported. Source: Two middle schools and one junior school. Location: USA. Inclusion criteria: High risk of depressive symptoms determined by two assessments of students in sixth and seventh grades who were in the lower third of the distribution in the fall of both sixth and seventh grades Exclusion criteria: Not reported.	
Interventions	Intervention: Psycho-educational. Type: Penn State Adolescent Study. Duration: 40 minutes. No of sessions: 16. Group size: Not reported. Manualised: Not reported. Training: Clinical training. Delivered by: Clinically trained graduate students or psychologists Comparison: No intervention. Type: Control group. Assessment points:Pre-test 1, pre-test 2, pre-test 3, post-test Follow-up: 6 and 12 months	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depression-Diagnostic Interview Schedule for Children (DISC). Depressive symptoms-Children's Depression Inventory (CDI) and the Achenbach Youth Self-Report (YSR). Depressive affect-Emotional Tone Scale of the Master and Coping Scale of the Self Image Questionnaire for Young Adolescents (SIQYA). Coping-SIQYA and the Seiffe-Krenke Coping Questionnaire.	
Notes	The author was contacted for additional data, which was not provided No usable data obtained at the time of analysis. Moncrieff Rating: Inadequate.	
Risk of bias		
Bias	Authors' judgement	Support for judgement

Petersen 1997 (Continued)

Random sequence generation (selection bias)	Unclear risk	No information.
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow up assessment points: 6 and 12 months No. approached=335 No. agreed to participate=335 No. randomised=335 No. started trial=320 No. dropped out during intervention=16. (some students were inadvertently dropped from the mailing list following the intervention and wasn't discovered until Time 5 data collection for Cohort 2). No. dropped out during follow-up: 6 months=36 12 months=5 Intent-to-treat analysis: Not reported "Instead of examining attrition, we investigated bias in missing data. We found no significant bias in missing data for any independent variable or on any of the dependent variables studied thus far" Comment: Unclear as to how missing data was statistically addressed
Selective reporting (reporting bias)	Unclear risk	No information.
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	No information.

Puskar 2003

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes	
Participants	Description: Targeted sample. Mean age:16 years. Age range: 14.1 to 18.3. Sex: Male=16; Females=73. Source: Four rural high schools. Location: South Western region of Pennsylvania, USA. Inclusion criteria: At least 13 years of age, live in a rural area (population density=2500 to 7000), score at least 60 on the Reynolds Adolescent Depression Scale (RADS), no history of death of a family member or friend in the past year. Exclusion criteria: Not reported.	
Interventions	Intervention: Psychological. Type: Teaching Kids to Cope (TKC) Program. Duration: 45 minute sessions No of sessions: 10 Group size: Not reported. Manualised: Not reported. Training: Not reported. Delivered by: Masters level nurses with psychiatric mental health experience including group therapy and adolescent work Comparison: No intervention. Type: Usual care. Assessment points: Pre-test, post-test Follow-up: 6, 9, and 12 month booster session	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depression: RADS. Coping: Coping Response Inventory.	
Notes	The author was contacted for additional data, which was provided	
Risk of bias		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	“subjects were randomized to either control or intervention with equal allocation using permuted block randomization within school sites” (p. 74)
Allocation concealment (selection bias)	Unclear risk	No information.

Puskar 2003 (Continued)

Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: 6 and 12 months. Booster session at 9 months. No. approached=107 No. agreed to participate=89 No. randomised=89 No. started trial=89 No. dropped out during intervention=7 No. dropped out during follow-up:11 Intent-to-Treat Analysis: Yes
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Investigators involved in the development of the programme
Implementation integrity	Low risk	“To ensure integrity of the intervention, all sessions were audiotaped and an expert group therapy consultant reviewed a random sample of approximately one third of the sessions. Adherence to the protocol as well as appropriate group therapy interventions were validated” (p. 74)

Pössel 2004

Methods	RCT Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): No
Participants	Description: Universal sample. Mean age: Intervention 13.82; Control 14.18 years. Age range: Not reported. Sex: Intervention: Male=113; Female=87 Control: Male=68; Female=79. Source: Middle schools. Location: Tübingen, Germany. Inclusion criteria: Parental consent. Exclusion criteria: Not reported.

Pössel 2004 (Continued)

Interventions	Intervention: Psychological. Type: LISA-T Duration: 1.5 hours No of sessions: 10. Group size: 8 to 24. Manualised: Yes. Training: Each trainer went through the programme as a participant. Studied manual and materials and procedures and resolved any unclear points with first author. Delivered by: Psychologists (masters degree equivalent) and graduate students experienced in working with adolescents Comparison: No intervention. Type: Usual care. Assessment points: Pre-test, post-test. Follow-up: Three and six months	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depression: Center for Epidemiologic Studies Depression Scale (CES-D). Dysfunctional Thoughts: The Automatic Thoughts Questionnaire (ATQ). Social Support: The Questionnaire of Social Support (FESU). Automatic Thoughts Questionnaire-Revised (ATQ-R) Daily Hassles and Daily Uplifts (HASSUP) General self efficacy- General Self Efficacy Scale (GSE) Positive and Negative Life Events: The Breman Youths Event List (BJL) Acceptance of prevention programme: The Evaluation Questionnaire	
Notes	Data used were the LOCF data from the author. Note that the number of participants (347) supplied by author do not seem to reflect the five students who did not have parental consent for involvement The author was contacted for additional data, which was provided Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“within the schools, classes were to be randomly assigned to the training group or control group” (p. 1005) Comment: No information on randomization method
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.

Pössel 2004 (Continued)

Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: Three and six months. No. approached=Not reported. No. agreed to participate=347 No. randomised=347 No. started trial=342 No. dropped out during intervention=18 reported in 2004 paper, 39 reported in 2005 paper, 38 reported in 2006 paper No. dropped out during follow-up: unclear if above numbers of drop-outs were during intervention or follow-up Intent-to-treat analysis: Apparently “individual data were included as long as students did not miss more than two dates of measurement” (p. 1005)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	High risk	Authors developed the programme.
Implementation integrity	Low risk	“Before the training, each trainer went through the programme as a participant. Trainers studied the manual and all materials and procedures and resolved any unclear points with the first author. During the intervention, all trainers were seen weekly to present video recordings of each session. Recordings were also rated by independent clinicians to ensure that trainers adhered to the manual” (p. 1006)

Pössel 2008

Methods	RCT. Power calculation: Yes. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal. Mean age: Intervention=13.73 years (0.63) Control=13.63 years (0.58)

Pössel 2008 (Continued)

	Age range: Not reported. Sex: Male=161 (53%); Female=140 (47%). Inclusion Criteria: Parental consent. Exclusion Criteria: No parental consent.	
Interventions	Intervention: Psychological. Type: LARS and LISA-based on the social information processing model of social competence. Methods used are derived from cognitive-behavioural therapy. This programme is an improvement of a previous intervention (LISA-T) used as this programme includes a motivational component. Duration: 1.5 hours per session over 10 weeks. No of sessions: 10 Group Size: Not reported. Manualised: Yes. Training: Trainers trained as participants, and studied the manual and materials and clarified any issues with Pössel. Also led a group as co-trainer with an experienced trainer. Delivered by: Masters level psychologists or graduate students experienced in working with adolescents. Comparison: No intervention. Type: Usual care. Assessment points: Pre-test, post-test Follow-up: Six months.	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: The Self-Report Questionnaire-Depression. Anxiety: The Self-Report Questionnaire-Anxiety. Strengths and Difficulties: The Strengths and Difficulty Questionnaire (SFQ)	
Notes	The author was contacted for additional data, which was provided Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“within the schools, the classes were randomly assigned to the intervention and control groups. Both intervention and control conditions were recruited in each school, so that one class was randomly assigned to one condition and the other class was automatically assigned to the other” (p. 108)
Allocation concealment (selection bias)	Unclear risk	No information.

Pössel 2008 (Continued)

Blinding (performance bias and detection bias) Subjects	High risk	“with this design adolescents and teachers knew about the assignment of the students to the intervention or the nonintervention control group” (p. 109)
Blinding (performance bias and detection bias) Assessors	High risk	No, but self-report measures used.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow up assessment point: Six months No. approached=Not reported No. agreed to participate=301 No. randomised=301 Subjects=163 (M=91 F=72) Controls=138 (M=70 F=68) No. started trial= as above. No. dropped out during intervention=30 Subjects=17 Controls=13 No. dropped out during follow-up=Not reported No. crossed over: N/A Intent to Treat Analysis: Yes
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	High risk	Authors developed the programme.
Implementation integrity	Low risk	“Special training was provided for all trainers in three steps. First, each future trainer went through the program as a participant. Second, the trainers studied the manual and all materials and procedures, and they resolved unclear points with Patrick Pössel. Finally, they led a group as co-trainer together with a more experienced trainer. Furthermore, supervision was provided for all trainers with the help of video recordings of each session and a 1.5-hr weekly meeting with Patrick Pössel. These recordings were also used to ensure that trainers adhered to the LARS and LISA manual” (p. 109)

Quayle 2001

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal sample. Mean age: Not reported. Age range: 11 to 12 yrs. Sex: Male=nil; Female=47 Source: Private girls school Location: Suburb of Perth, Australia. Inclusion criteria: Parental and student consent. Exclusion criteria: Not reported.
Interventions	Intervention: Psychological Type: The Optimism Program adapted from the Penn Prevention Program. Duration: 40 minutes per session No of sessions: 8 Group size: 12. Manualised: Yes. Training: 30 hrs Delivered by: Postgraduate clinical psychology students. Comparison: No Intervention. Type: Wait-list/usual care educational programme. Assessment points: Pre-test, post-test Follow-up: Six months
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: The Children's Depression Inventory (CDI). Attribution style: The Children's Attributional Style Questionnaire (CASQ). Loneliness- Asher and Wheeler Loneliness and Social Dissatisfaction Scale (CLQ). Self-worth: The Global Self-Worth Sub-Scale of Self Perception Profile for Children (SPPC)
Notes	The author was contacted for additional data, which was provided Moncrieff Rating: Inadequate.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information.
Allocation concealment (selection bias)	Unclear risk	Unclear.

Quayle 2001 (Continued)

Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment point: Six months. No. approached= 70 No. agreed to participate=47 No. randomised=47 No. started trial= 47 No. dropped out during intervention=5 No. dropped out during follow-up: 6 months=6 Intent to treat analysis: Not reported.
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	“The facilitators used a program manual to ensure consistency of implementation and received supervision on a fortnightly basis by a registered psychologist. Facilitators kept logbooks on the content covered during each session, plus information relating to the process of program implementation” (pp. 197-198) Comment: Not clear how this was verified.

Raider 2008

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted sample. Mean age: No reported. Age range: 15 to 18 years. Sex: Male=11; Female=9. Source:The Multi-County Attention Centre. Location: Ohio. Inclusion criteria: Consent by both student and parent. Exclusion criteria: None reported.

Interventions	Intervention: Psychological. Type: The Trauma Intervention Program for Adjudicated and At-Risk Youth (SITCAP-ART) Duration: 8 to 10 weeks. No of sessions:10 to 11 sessions (seven group, one individual debriefing session, one procession session and one adolescent/parent session) Group Size: 6 Manualised: Yes. Training: Trained in SITCAP-ART and certified by the Trauma and Loss Institute. Delivered by: A staff member at the Northeast Ohio Behavioral Health Centre. Comparison: No intervention. Type: Wait-list. Assessment points: Pre-test, post-test	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Measure of post-traumatic and related symptoms: The Trauma Symptom Checklist for Children (TSCC-A; Briere 1996), The Child and Adolescent Questionnaire (CAQ). Internalising/externalising problem behaviours: The Youth Self Report (YSR)	
Notes	No usable data at the time of analysis.	
Risk of bias		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“Research participants were randomly assigned to two groups” (p. 177). No further information regarding technique given
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	High risk	However all outcome measures were self-report instruments.
Incomplete outcome data (attrition bias) All outcomes	High risk	No. approached=23 No. agreed to participate= 23 No. randomised= 23 No. started trial= 23 No. dropped out during intervention= 3 No. dropped out during follow-up= n/a Intent-to-treat analysis: No

Raider 2008 (Continued)

Selective reporting (reporting bias)	Unclear risk	It is not clear whether they intended to measure depression symptoms
Other bias	Unclear risk	No information.
Implementation integrity	Low risk	Fidelity of Treatment Checklist (FTC) completed.

Rivet 2005

Methods	<p>RCT</p> <p>Power calculation: Not reported.</p> <p>Source of subjects described: Yes.</p> <p>Representative sample recruitment: Yes.</p> <p>Use of diagnostic criteria (or clear specification of inclusion criteria): Yes</p>
Participants	<p>Description:</p> <p>Universal sample.</p> <p>Mean age: Intervention=13.73 years; Control=14.18 years.</p> <p>Age range: 12 to 16 years.</p> <p>Sex: Male=40; Female=40.</p> <p>Source: Two single sex secondary public Catholic schools.</p> <p>Location: Mauritius.</p> <p>Inclusion criteria: Parental consent.</p> <p>Exclusion criteria: No specified criteria.</p>
Interventions	<p>Intervention: Psychological</p> <p>Type: Resourceful Adolescent Program (RAP-A).</p> <p>Duration: 8 weeks. 40 to 50 minutes per session for 11 weeks.</p> <p>No of sessions: 11.</p> <p>Group size: Not reported.</p> <p>Manualised: Yes.</p> <p>Training: Two days (16 hours) of training. Booster sessions for those running the programme later.</p> <p>Delivered by: Teachers.</p> <p>Comparison: No intervention.</p> <p>Type: Usual care.</p> <p>Assessment points: Pre-test, post-test</p> <p>Follow-up: Six months.</p>
Outcomes	<p>Outcome measures described clearly or use of validated instruments: Yes</p> <p>Depressive symptoms: Reynolds Adolescent Depression Scale (RADS)</p> <p>Hopelessness: Beck Hopelessness Scale (BHS).</p> <p>Coping: Youth Coping Index (YCI).</p> <p>Self-esteem: Rosenberg Self-Esteem Scale (RSE).</p>

Notes	The author was contacted for additional data, which was provided Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information.
Allocation concealment (selection bias)	Unclear risk	“Teachers running the RAP-A Program randomly assigned the students to the RAP-A Group or Control Group” (p. 70)
Blinding (performance bias and detection bias) Subjects	High risk	It is likely that participants would know to which group they had been assigned
Blinding (performance bias and detection bias) Assessors	High risk	Self-report measures used.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment point: Six months. No. approached= Not reported No. agreed to participate=200 No. randomised=160 No. started trial=160 No. dropped out during intervention=Nil No. dropped out during follow-up: Nil No. crossed over: Nil. Intent to treat analysis: Not reported. “All participating students completed the program and completed all measures at pre-, post- and follow-up intervention (i.e. 100% retention rate and completion of measures)” (p. 74)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	“All facilitators attended a 2-day Training Workshop involving 16 hours of training conducted by one of the research team who was officially recognised as a RAP-Trainer” (p. 73) “Each facilitator was provided with re-

Rivet 2005 (Continued)

		<p>sources, including a Group Leader's Manual" (p. 73)</p> <p>"To maintain program integrity, booster training sessions were organised 6 months later for facilitators running the program in January 2004" (p. 74)</p> <p>"To ensure program integrity, the overall structure of the program was kept with no changes in language" (p. 74)</p> <p>"Attendance rates were kept and only 3 students missed one session throughout the entire program" (p. 74)</p> <p>Comment: No information about implementation of integrity outcomes</p>
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Roberts 2003

Methods	<p>RCT</p> <p>Power calculation: Not reported.</p> <p>Source of subjects described: Yes.</p> <p>Representative sample recruitment: Yes.</p> <p>Use of diagnostic criteria (or clear specification of inclusion criteria): Yes</p>
Participants	<p>Description: Targeted sample.</p> <p>Mean age: 11.89 (SD 0.33) years.</p> <p>Age range: 11 to 13 years.</p> <p>Sex: Male=95 (50.3%); Female=94 (49.7%).</p> <p>Source: Rural schools.</p> <p>Location: Western Australia.</p> <p>Inclusion criteria: Elevated depressive symptoms or high levels of perceived parental conflict. Participating students in each class were ranked according to CDI scores. Thirteen students with highest scores were included. In classes with 13 or fewer students, all students were included</p> <p>Exclusion criteria: Not reported.</p>
Interventions	<p>Intervention: Psychological</p> <p>Type: Penn Prevention Program (adapted for Australia).</p> <p>Duration: Six months.</p> <p>No of sessions: 12.</p> <p>Group size: Not reported.</p> <p>Manualised: Yes.</p> <p>Training: 40 hours from PP developers and 30 hours training for co-facilitators from researchers.</p> <p>Delivered by: facilitator and co-facilitator who were psychologists and nurses with bachelors level behavioral sciences degrees. One psychologist had a masters degree</p> <p>Comparison: No intervention.</p> <p>Type: Usual health education class plus monitoring of their symptoms. Somewhat different to usual care condition as parents of children experiencing significant distress at</p>

Roberts 2003 (Continued)

	any assessment were given advice on management, however, no direct intervention undertaken with these children as a control condition Assessment points: Pre-test, post-test, Follow-up: 6 months, 18 months and 30 months.	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depression: Children's Depression Inventory (CDI). Anxiety Symptoms: Revised Children's Manifest Anxiety Scale (RCMAS) Explanatory style for positive and negative events: Children's Attributional Style Questionnaire (CASQ) Social skills: Matson Evaluation of Social Skills with Youngsters (MESSY) Parents perception of behaviour at home: Children's Behaviour Checklist (CBCL)	
Notes	The author was contacted for additional data, which was provided Moncrieff rating: Adequate	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Randomisation into groups by school. No other information.
Allocation concealment (selection bias)	High risk	No
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment points: 6 months, 18 months, 30 months. No. approached=720 No. agreed to participate=369 No. randomised=189 No. started trial=189 (Table 3, 2003 paper, indicates pre data for 179) No. dropped out during intervention=4 (Table 3, 2003 paper, indicates data missing for 22 of the original 179) No. dropped out during follow-up: 6 months=6 18 months=nil 30 Months=34 Intent-to-treat analysis: Not reported.

Roberts 2003 (Continued)

Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Low risk	All sessions audio taped and checklists used to rate integrity (p. 623)

Roberts 2010

Methods	Cluster RCT Power calculation: Yes. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal sample. Mean age: 11.99 years (0.33) Age range: 11 to 13 years. Sex: Male= 226; Female= 270 Source: Students from 12 government schools in Perth, randomly sampled from the lowest SES decile. Location: Australia. Inclusion criteria: Children from disadvantaged schools. Exclusion criteria: None stated.
Interventions	Intervention: Psychological Type: Aussie Optimism Program (AOP). Consists of two components: optimistic thinking skills and social life skills. Duration: 20 weeks. No of sessions: 10 lessons of 60 minutes each Group Size: Not stated. Manualised: Yes. Training: 16 hours of training given to teachers containing information on depression and anxiety, mental health promotion strategies, activity demonstration, skills practice and feedback. Delivered by: Teachers. Comparison: No intervention. Type: Teachers in the control condition administered the regular health education lessons. Assessment points: Pre-test, post-test, 18 months.
Outcomes	Outcome measures described clearly or use of validated instruments: Depression: The Child Depression Inventory (CDI; Kovacs 1992).
Notes	Measured child history of mental health problems; Intervention=54.9% had no problems, 7.2% had 1 or more problems and 37.9% did not state. Control= 49.3% had no problems, 9.0% had one or more problems and 41.7% did not state

<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"Pairs of schools were matched on SES, school size and number of Grade 7 students, and members of each pair were randomized to conditions" (p. 69)
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	High risk	"All 12 schools consented and were advised of their condition" (p. 70)
Blinding (performance bias and detection bias) Assessors	Low risk	"Questionnaires were read to whole classes by trained research assistants, blind to group allocation" (p. 70)
Incomplete outcome data (attrition bias) All outcomes	High risk	Follow-up assessment points: 18 months. No. approached= Not stated. No. agreed to participate= 496 No. randomised= 496 No. started trial= 496 No. dropped out during intervention= 61 No. dropped out during follow-up= 119 Intent-to-treat analysis: No. Authors use "deletion by case" to manage attrition
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	High risk	Authors developed the programme.
Implementation integrity	Low risk	"Mean percentage of content covered for the Social Life Skills (SLS) lessons reported by teachers and cross checked against student workbooks ranged from 87.4% to 98.3% (M=95.3%). For the Optimistic Thinking Skills (OTS) lessons, mean percentage of content covered per lesson was 97.5 to 100% (M=98.4%)" (p. 71)

Rooney 2006

Methods	RCT (Cluster) Power calculation: Yes. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Participants were from low socioeconomic areas and were given written parental consent
Participants	Description: Universal Mean age: 9.08 years Age range: Not reported Sex: Male=68 (78%); Female=52 (43%) Inclusion criteria: School selection based on socioeconomic status of school area. Participants had written parental consent to participate. Exclusion criteria: Not reported.
Interventions	Intervention: Positive Thinking Program (PTP) Type: Psychological (based on CBT) Duration: 60 minutes per session No of sessions: 8 Group Size: Not reported Manualised: Yes. Training: Yes - eight hour training workshop. Delivered by: Psychologists with four year behavioural science degree. Comparison: No intervention. Type: Usual class. Assessment points: Pre-test, post-test, Wave 4 Follow up: 9 months and 18 months.
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive Symptoms: Children's Depression Inventory (CDI) Depressive Disorder: Diagnostic Interview for Children and Adolescents IV (DICA IV) Anxiety: Reynolds Children's Manifest Anxiety Scale (RCMAS) Negative/Positive Events: Children's Attributional Questionnaire (CAQ)
Notes	The author was contacted for additional data, which was not provided Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"four state primary schools were randomly selected from low socioeconomic areas... the four schools were partitioned into two pairs....one school from each pair was then randomly allocated to the intervention condition" (p. 79)

Rooney 2006 (Continued)

Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	High risk	Follow-up assessment points: 9 months, 18 months No. approached= 4 State Schools. Number not reported. No. agreed to participate=136 No. randomised=136 No. started trial=136 No. dropped out during intervention=16 No. dropped out during follow-up=20 9 months=3 6 months=17 No. crossed over: N/A. Intent-to-treat analysis: No
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	High risk	Author involved in the development of the programme.
Implementation integrity	Unclear risk	“They [the facilitators] were trained in running groups by the developers of the PTP, and received supervision and support during the implementation from the program developers” (p.82) Comment: No information on the extent of integrity achieved.

Sawyer 2010

Methods	RCT Power calculation: Yes. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal sample. Mean age (SD): 13.1 years (0.5) Age range: 13 to 14 years.

Sawyer 2010 (Continued)

	Sex: Not stated. Source: Secondary schools. Location: Australia. Inclusion criteria: School had to have at least 100 students enrolled in year eight. Exclusion criteria: None stated.	
Interventions	Intervention: Psychological. Type: Beyondblue. Consisting of four components: Curriculum intervention, Building supportive environments, Building Pathways for Care and Education and Community Forums Duration: Three years. No of sessions: 30 sessions of curriculum intervention (10 per year, 30 to 45 minutes per session). Group Size: Not stated. Manualised: Yes. Training: Not stated. Delivered by: Teachers. Comparison: No intervention. Type: Schools in comparison condition participated in a community forum but otherwise had minimal contact with the research team other than data collection Assessment points: Pre-test, post-test.	
Outcomes	Outcome measures described clearly or use of validated instruments: Depression: Centre for Epidemiological Studies Depression Scale (CES-D; Radloff 1977) .	
Notes		
Risk of bias		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"Schools in each pair were randomly allocated to the intervention or comparison groups..." (p. 202)
Allocation concealment (selection bias)	Low risk	"Schools in each pair were randomly allocated to the intervention or comparison groups by a research assistant who was blind to the groups to which schools were being allocated" (p. 202)
Blinding (performance bias and detection bias) Subjects	High risk	"Due to the nature of the intervention, schools...could not be blinded to group membership" (p. 202)
Blinding (performance bias and detection bias) Assessors	High risk	Due to the nature of the intervention...researchers could not be blinded to group membership during the interven-

Sawyer 2010 (Continued)

		tion" (p. 202)
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment point: Post-intervention (three years). No. approached=105 schools (Number of students not reported) No. agreed to participate=50 schools No. randomised=50 schools No. started trial=5634 students No. dropped out during intervention=1669 ITT analysis: Yes.
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	High risk	Authors involved in the development of the programme.
Implementation integrity	Low risk	"Throughout the 3 year period, the fidelity of the intervention was monitored through project facilitator reports and evaluations completed by staff and students" (p. 202)

Schmiede 2006

Methods	RCT Power calculation: No. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted. Mean age: 11.39 yrs. Age range: 8 to 12 years. Sex: Male=130; Female=114. Inclusion Criteria: 1.Death of a biological or parent figure (parenting role at least two years prior to the death). 2.Death of a parent occurred no sooner than four months or longer than 30 months prior to the start of the programme. 3.Age of at least one child ranged from 8 to 16 years. 4.At least one child and one caregiver interested in participating and willing to accept the random assignment. 5.Caregiver and participating child could complete the battery in English. 6.Neither caregiver nor any child was currently receiving other mental health or bereavement services. 7.Children with diagnosis of ADHD were taking medication. 8.Children were not in a special class for the mentally handicapped.

	9.Family was not planning to move out of the area in the next six months Exclusion Criteria: Current clinical diagnosis. 1.Child or caregiver expressed suicidal intent. 2.The caregiver had a diagnosis of major depression assessed by the Structured Clinical Interview of DSM-IV Axis I module for major depressive episode (SCID-I Version 2; First 2002) and scored greater than 31 on the BDI (Beck 1961). 3.The child had a T score greater than 70 on the aggressive, delinquent, or attention problem subscales of the Teacher Report Form, and one or more of the following diagnoses as assessed by either the child or parent versions of the Diagnostic Interview Schedule for Children: conduct disorder, oppositional defiant disorder or ADHD and not on medication	
Interventions	Intervention: Psychological. Type: The Family Bereavement Program. Duration: Two hours for 12 weeks. No of sessions: 12. Group Size: Five to nine. Manualised: Yes. Training: Group leaders received 40 hours of training prior to the start of the programme. Delivered by: Co-delivered by 2 clinicians with master’s degrees or equivalent experience Comparison: Self-study programme Type: Self study literature control condition. Assessment points: Pre-test, post-test Follow-up: 11 months.	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Children’s Depression Inventory (CDI). Anxiety: Children’s Manifest Anxiety Scale-Revised (R-CMAS). Externalising problems: Youth Self Report (YSR).	
Notes		
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“Random assignment was performed at the family level” (p. S153). There is mention of families attending randomisation meetings, but no further explanation Comment: No information about sequence generation method.
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	High risk	Participants would know to which condition they had been assigned

Schmiege 2006 (Continued)

Blinding (performance bias and detection bias) Assessors	High risk	Self-report and caregiver-report measures used.
Incomplete outcome data (attrition bias) All outcomes	High risk	Follow-up assessment point: 11 months No. approached=617 No. agreed to participate=617 No. randomised=244 Intervention=135 Control=109 No. started trial=244 Intervention=135 Control=109 No. dropped out during intervention=9 Intervention=4 Control=5 No. dropped out during follow-up=23 Intervention=16 Control=7 No. crossed over: N/A. Intent-to-treat analysis: No.
Selective reporting (reporting bias)	Unclear risk	While not clear, it appears that the aim was to look at data by sex Note: in terms of the review, the way they have reported does mean the meta-analysis is missing data (i.e. only reported by risk not total)
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	Intervention integrity: "Two individual family meetings were held to review each family's use of program skills and to monitor progress on the program goals" (p. S154)

Seligman 1999

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted sample. Mean age: Not reported.

Seligman 1999 (Continued)

	<p>Age range: First year undergraduate students. Sex: Male=111 (48%); Female=120 (52%). Source: University of Pennsylvania. Location: USA. Inclusion criteria: 1. Not receiving psychotherapy or medication for psychological problems. 2. Continued to score in the pessimistic quartile of the ASQ. 3. With scores of 19 or less on the Beck Depression Inventory. 4. Not meeting diagnosis criteria for Axis I disorders. 5. Signed voluntary consent forms. Structured Clinical Interview for the DSM-III-R (SCID; First 2002) conducted to determine eligibility. Exclusion Criteria: Not reported.</p>	
Interventions	<p>Intervention: Psychological. Type: Cognitive-Behavioral prevention programme. Duration: One to two hours. No. of sessions: eight over eight weeks. Group size: Not reported. Manualised: Yes. Training: Previous training in CBT techniques with experience ranging from 2 to 30 years. Delivered by: Trained cognitive therapists who currently worked or had previously worked at Aaron Beck’s Centre for Cognitive Therapy. Co-trainers were either the same cognitive therapists or doctoral students enrolled in the clinical psychology program at the University of Pennsylvania Comparison: No intervention. Type: Assessment only group. Assessment points: Pre-, post-, three years</p>	
Outcomes	<p>Outcome measures described clearly or use of validated instruments: Yes Depression: Beck Depression Inventory (BDI; Beck 1961) and Hamilton Depression Rating Scale (SIGH-D). Major Depression: LIFE MDD Anxiety: Beck Anxiety Inventory (BAI) and The Hamilton Anxiety Rating Scale (SIGH-A) Explanatory style: ASQ. Hopelessness: Hopelessness Scale (HS). Dysfunctional attitudes: Dysfunctional Attitudes Scale (DAS) Self-esteem: The Self Concept Test.</p>	
Notes	<p>The author was contacted for additional data, which was not provided Moncrieff Rating: High.</p>	
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Stratified randomisation. No other information.

Seligman 1999 (Continued)

Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	High risk	Participants would have known if they had been assigned to the workshop or control conditions
Blinding (performance bias and detection bias) Assessors	Low risk	"Prior to each diagnostic interview, research assistants asked participants not to tell the interviewer which group they were in" (p. 7)
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	No. approached= 6990 No. agreed to participate=1028 No. randomised= 231 No. started trial= 231 Subjects=106 Control=119 No. dropped out during intervention: Not reported. No. dropped out during follow-up: Follow-up 1=2 Follow-up 2=1 Follow-up 3=7 Follow-up 4=12 Follow-up 5=0 Follow-up 6=3 Intent-to-treat analysis: Not reported. Comment: No information as to how incomplete data was addressed
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	High risk	Authors involved in development of the workshop
Implementation integrity	Unclear risk	"We developed a highly detailed and scripted manual to standardize delivery of the workshop" (p. 5)

Seligman 2007

Methods	RCT Power calculation: No. Source of subjects described: University of Pennsylvania Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes	
Participants	Description: Targeted Mean age: Not reported Age range: Not reported. Sex: Male= 35%; Female= 65%. Inclusion Criteria: 1. Identified as being at risk for depression. Participants with scores between 9 and 24 on the Beck Depression Inventory (BDI; Beck 1961). 2. Participants who read and signed the consent form. Exclusion Criteria: Participants who scored greater than 24 on the BDI	
Interventions	Intervention: Psychological. Type: Cognitive behavioural techniques based on Beck’s cognitive therapy for depression Duration: Two hour meetings for eight weeks. No of sessions: 8. Group Size: 10 to 12. Manualised: Yes . Training: Group leaders attended 25 hours of training from the developer of the training manual. Delivered by: Cognitive therapists. Comparison: No intervention. Type: Assessment only. Assessment points: pre-workshop, post-workshop. Follow-up: each semester.	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive diagnosis and generalised anxiety disorders: Structured Clinical Interview of the DSM-IV (SCID; First 2002). Depressive symptoms: Beck Depression Inventory (BDI; Beck 1961). Wellness: Satisfaction with Life Scale (SLC).	
Notes	Replication and extension of 1999 study adding a web-based material and email coaching as a supplement to the workshop This is a three year study but this article reports on the six month follow-up data	
Risk of bias		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“Participants were stratified on the basis of sex, ASQ score (above vs below the median) and BDI score (above vs below the median) , to ensure that the conditions were balanced” (p. 1118) Comment: Sequence generation method

Seligman 2007 (Continued)

		not detailed.
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	High risk	Participants would have known if they had been assigned to the workshop or control conditions
Blinding (performance bias and detection bias) Assessors	Low risk	“Prior to each diagnostic interview, research assistants asked participants not to tell the interviewer which condition they were in” (p. 1118)
Incomplete outcome data (attrition bias) All outcomes	High risk	Follow-up assessment points: Six months. No. approached=4759 No. agreed to participate=1821 No. randomised=240 Intervention=113 Control=127 No. started trial=227 Intervention=102 Control=125 No. dropped out during intervention=0 No. dropped out during follow-up=15 No. crossed over: N/A Intent-to-treat analysis: No. Comment: No information as to how incomplete data was addressed
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	High risk	Authors involved in development of the workshop.
Implementation integrity	Unclear risk	“We developed a highly detailed and scripted manual to standardize the delivery of the workshop” (p. 1115) Comment: No information as to the extent of the implementation integrity

Shatte a1997

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes	
Participants	Description: Universal sample. Mean age: 12.47 (SD=0.70). Age range: 12 to 14 yrs. Sex: Male=81; Female=71. Source: Middle school. Location: Upper Darby School district, Philadelphia, USA. Inclusion Criteria: Student and parental consent. Exclusion Criteria: Not reported.	
Interventions	Intervention: Psychological. Type: Penn Optimism Program. Duration: Two hours. Sessions: 12 Group size: Nine participants. Training: 35 hours for graduate students and 40 hours for teachers. Delivered by: Teachers and graduate students. Comparison: Placebo condition. Type: Penn Enhancement Program. Duration: 12 weeks. No. of sessions: 12. Manualised: Yes. Training: Same as for the intervention programme. Delivered by: Same as for the intervention programme. Assessment points: Pre-test Post-test Follow-up: Four months Eight months Twelve months	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depression-Children’s Depression Inventory.	
Notes	a1997: POP vs Control b1997: PEP vs Control The control population was divided by the number of comparison arms in the study (two)	
Risk of bias		
Bias	Authors’ judgement	Support for judgement

Shatte a1997 (Continued)

Random sequence generation (selection bias)	Unclear risk	No information.
Allocation concealment (selection bias)	High risk	No
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: 4, 8 and 12 months. No. approached=1400 No. agreed to participate=226 No. randomised= 152 No. started trial: Total=152 (Intervention=55. Placebo=50. Control=47) No. dropped out during intervention: Total=13 (Intervention=4. Placebo=3. Control=5) No. dropped out during follow-up: Four Months- Total=3 (Intervention=1 Placebo=2 Control=0) Eight Month- Total=9 (Intervention=4 Placebo=4 Control=1) Twelve Months- Total=20 (Intervention=6 Placebo=6 Control=8) Intent-to-treat analysis: Yes
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	Facilitators received regular supervision and sessions were audio taped

Shatte b1997

Methods	See Shatte a1997
Participants	
Interventions	
Outcomes	

Shatte b1997 (Continued)

Notes	a1997: POP vs Control b1997: PEP vs Control	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	See Shatte a1997
Allocation concealment (selection bias)	High risk	See Shatte a1997
Blinding (performance bias and detection bias) Subjects	Unclear risk	See Shatte a1997
Blinding (performance bias and detection bias) Assessors	Unclear risk	See Shatte a1997
Incomplete outcome data (attrition bias) All outcomes	Low risk	See Shatte a1997
Selective reporting (reporting bias)	Unclear risk	See Shatte a1997
Other bias	Unclear risk	See Shatte a1997
Implementation integrity	Unclear risk	See Shatte a1997

Sheffield a2006

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal and Targeted samples. Mean age: 14.34. Age range: Sex: Male=1426; Female=1347 Source: High schools. Location: Queensland and New South Wales, Australia. Inclusion Criteria: For Combined and Indicated Programs students had to score in the top 20% on the combined scores on the CDI and the CES-D. Exclusion Criteria: Not reported.

Interventions	Intervention: Psychological. Types: 1. Universal Program: Cognitive restructuring and problem solving skills training. 2. Indicated Program: Similar CBT components as Universal but with high symptom students and smaller groups. 3. Combined - Universal and Indicated intervention: High symptom group received universal intervention followed by Indicated intervention Duration: Universal Intervention: 45 to 50 minutes once per week. Indicated Intervention: 90 minutes. No. of sessions: Universal: Eight sessions over eight weeks. Indicated Intervention: Eight sessions over eight weeks. Group size: Indicated Intervention: 8 to 10 participants. Training: Universal Intervention: Six hours. Indicated Intervention: One day seminar/workshop. Delivered by: Teachers. Manualised: Yes Comparison: No intervention. Type: Usual class. Assessment points: Pre-test, post-test Follow-up:12 months	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Children's Depression Inventory (CDI), Center for Epidemiological Studies-Depression Scale (CES-D; Radloff 1977). Depressive disorders: Anxiety Disorders Interview Schedule for Children (ADIS-C), Longitudinal Interval Follow-up Evaluation (LIFE). Associated psychopathology: The Spence Children's Anxiety Scale (SCLAS). Program skills: Negative Problem Orientation (NPO); Avoidance Style (AS) subscale of the Social Problem Solving Inventory-Revised (SPSI-R) and The Children's Automatic Thoughts Scale (CATS). Social and adaptive functioning: The Child and Adolescent Social and Adaptive Functioning Scale (CASAFS)	
Notes	Three intervention programmes. One programme for universal sample and two programmes for targeted samples a2006: Universal vs Control b2006: Indicated vs Control c2006: Universal plus indicated vs Control The author was contacted for additional data, which was provided Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed. The control population was divided by the number of comparison arms in the study (three) prior to conducting ICC calculations	
Risk of bias		
Bias	Authors' judgement	Support for judgement

Sheffield a2006 (Continued)

Random sequence generation (selection bias)	Low risk	“Schools were then randomly allocated (using a number drawn by the researchers at random from a container and the sequence concealed until assignment) from each stratum to one of four conditions” (p. 67)
Allocation concealment (selection bias)	Low risk	Central allocation.
Blinding (performance bias and detection bias) Subjects	High risk	Unlikely.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment point: 12 months. No. approached=2479 No. agreed to participate=2606 No. randomised= 2606 No. started trial: Total=2606 Interventions: Universal=634 Universal and Indicated (Combined)=636 Indicated=722 Control=614 No. dropped out during intervention: Total=119 Interventions: Universal=55; Combined=7; Indicated=22 Control=35 No. dropped out during follow-up: 12 Months. Total=65. Interventions: Universal=32; Combined=3; Indicated=7 Control=2 No. crossed over: Not reported. Intent-to-treat analysis: Not reported “Two schools dropped out of the study after randomization but before commencement of the intervention phase...These schools were therefore excluded from all analyses” (p. 67)
Selective reporting (reporting bias)	Unclear risk	Protocol not available

Sheffield a2006 (Continued)

Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	<p>“After each session, teachers in the Queensland universal program completed an evaluation form to assess the usefulness, organization, and degree of implementation of the content for that session...For teachers, the items concerned quality of materials, content, perceived effectiveness in teaching skills...” (p. 69)</p> <p>Comment: No data reported on the extent of implementation integrity</p>

Sheffield b2006

Methods	See Sheffield a2006
Participants	
Interventions	
Outcomes	
Notes	a2006: Universal vs Control b2006: Indicated vs Control c2006: Universal plus indicated vs Control

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	See Sheffield a2006
Allocation concealment (selection bias)	Low risk	See Sheffield a2006
Blinding (performance bias and detection bias) Subjects	High risk	See Sheffield a2006
Blinding (performance bias and detection bias) Assessors	Unclear risk	See Sheffield a2006
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	See Sheffield a2006
Selective reporting (reporting bias)	Unclear risk	See Sheffield a2006

Sheffield b2006 (Continued)

Other bias	Unclear risk	See Sheffield a2006
Implementation integrity	Unclear risk	See Sheffield a2006

Sheffield c2006

Methods	See Sheffield a2006
Participants	
Interventions	
Outcomes	
Notes	a2006: Universal vs Control b2006: Indicated vs Control c2006: Universal plus indicated vs Control

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	See Sheffield a2006
Allocation concealment (selection bias)	Low risk	See Sheffield a2006
Blinding (performance bias and detection bias) Subjects	High risk	See Sheffield a2006
Blinding (performance bias and detection bias) Assessors	Unclear risk	See Sheffield a2006
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	See Sheffield a2006
Selective reporting (reporting bias)	Unclear risk	See Sheffield a2006
Other bias	Unclear risk	See Sheffield a2006
Implementation integrity	Unclear risk	See Sheffield a2006

Shen 2002

Methods	RCT Power calculation:Not reported. Source of subjects described:Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes	
Participants	Description: Targeted sample. Mean age: Not stated. Age range: 8 to 12 years Sex: Male= 14; Female= 16 Source: A rural elementary school in Taiwan that had experienced the 921 Earthquake. Location: Taiwan. Inclusion criteria: Children who had experienced an earthquake Exclusion criteria:	
Interventions	Intervention: Psychological. Type: Play therapy Duration: Four weeks No of sessions: 10 (40 minute sessions) Group Size:3 Manualised: Unclear. Training: Stated that the counsellor had training but no specific details of what the training entailed. Delivered by: A school counsellor. Comparison: No intervention. Type: No play therapy treatment given. Assessment points: Pre-test, post-test.	
Outcomes	Outcome measures described clearly or use of validated instruments: Depression: Multiscore Depression Inventory for Children (MDI-C)	
Notes		
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“These children were randomly assigned to an experimental group...and a control group...” (p. 46)
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias)	Unclear risk	No information.

Shen 2002 (Continued)

Assessors		
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment point: Post-intervention. No. approached= 244 No. agreed to participate= 65 No. randomised= 65 No. started trial= 65 No. dropped out during intervention= Not reported. Intent-to-treat analysis: Not reported
Selective reporting (reporting bias)	Unclear risk	No information.
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	No information.

Simpson 2008

Methods	RCT Power calculation: Yes. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted sample. Mean age: 9.02 years. Age range: 7 to 11 years. Sex: Male= 41; Female= 25. Source: Nine Schools in the greater Toronto area. Location: Canada. Inclusion Criteria: Consent given by both parent and student. Exclusion Criteria: Participants with severe clinical levels of depression or anxiety, engaged in ongoing psychotherapy, those with known intellectual disabilities likely to limit the benefits of CBT. Medication permitted if dose remained stable during the study
Interventions	Intervention: Psychological. Type: School-based CBT Group; The Feelings Club. Parents attended three sessions teaching about depression/anxiety and how to advocate for their children. Duration: 12 weeks. No of sessions: 12, one session per week. Group Size: Not reported. Manualised: Yes. Training: Not reported. Delivered by: Not reported. Comparison: Attention placebo control. Type: Activity group; children participated in enjoyable, after school activities and games.

Simpson 2008 (Continued)

	Parents invited to three sessions and taught general parenting strategies. Assessment points: Pre-test, post-test.	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Children’s Depression Inventory (CDI). Anxiety symptoms- The Multidimensional Anxiety Scale for Children (MASC) Coping: The Children’s Coping Strategies Checklist (CCSC). Child Behaviour Checklist (CBCL) Child/parent reported self-regulation: The Early Adolescent Temperament Questionnaire (EATQ-R-S)	
Notes		
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“Participants were randomly assigned to either the CBT or activity condition” (p. 47)
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Low risk	“To facilitate the blinding of subjects...children were asked at the end of the session how the activities made them feel but not provided any specific advice or instruction on their responses” (p. 48)
Blinding (performance bias and detection bias) Assessors	Low risk	Self-report data obtained - because participants were “blind” they would also be “blind” at assessment
Incomplete outcome data (attrition bias) All outcomes	Low risk	No. approached= Not reported. No. agreed to participate= Not reported. No. randomised= 68 No. started trial= 68 No. dropped out during intervention= 6 No. dropped out during follow-up= 2 Intent-to-treat analysis: Yes “An intention-to-treat was also conducted with no difference to the results” (p. 55)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	No information.

Spence 2003

Methods	<p>RCT</p> <p>Power calculation: Yes.</p> <p>Source of subjects described: Yes.</p> <p>Representative sample recruitment: Yes.</p> <p>Use of diagnostic criteria (or clear specification of inclusion criteria): Yes</p>
Participants	<p>Description: Universal sample.</p> <p>Mean age: 12.85 years.</p> <p>Age range: 12 to 14 years.</p> <p>Sex:</p> <p>Intervention: Male=47.5%; Female= 52.5%.</p> <p>Controls: Male=49.4%; Female=50.6%.</p> <p>Source: High school.</p> <p>Location: Brisbane, Australia.</p> <p>Inclusion criteria: High risk students defined as scoring 13 or more on the BDI (Beck 1961) and did not meet criteria for depressive disorder.</p> <p>Exclusion criteria: Students who met criteria for a depressive disorder</p>
Interventions	<p>Intervention: Psychological.</p> <p>Type: Problem Solving for Life Program.</p> <p>Duration: 45 to 50 minutes per session.</p> <p>No of sessions: 8.</p> <p>Group size: 25 to 35 students.</p> <p>Manualised: Teachers received all teaching materials and resources.</p> <p>Training: Six hours.</p> <p>Delivered by: Teachers.</p> <p>Comparison: No intervention.</p> <p>Type: Monitoring condition.</p> <p>Delivered by: Teachers.</p> <p>Assessment points: Pre-test, post-test</p> <p>Follow-up: 12 months, 2, 3 and 4 years</p>
Outcomes	<p>Outcome measures described clearly or use of validated instruments: Yes</p> <p>Depression: Beck Depression Inventory (BDI Beck 1961)</p> <p>Dysthymia: Four questions from DSM-IV</p> <p>Diagnosis: Structured Diagnostic Interview with High Risk Students (ADIS-C)</p> <p>New or continuing episodes of depression during the follow-up period: Longitudinal Follow-up Evaluation (LIFE)</p> <p>General psychopathology: Youth Self Report (YSR)</p> <p>Social functioning: The Child and Adolescent Social Adaptive Functioning Scale (CASAFS)</p> <p>Problem solving: Social Problem-Solving Inventory-Revised Short Form (SPSI-R)</p> <p>Attributional style: The Children's Attributional Style Questionnaire (CASQ-R)</p> <p>Negative life events: Life Events Record modified</p> <p>Family conflict: Family Conflict sub-scale of the Colorado Self-Report of Family Functioning Inventory (CSRFFI)</p>
Notes	<p>Moncrieff Rating:</p> <p>Adequate.</p>

Spence 2003 (Continued)

	The author was contacted for additional data, which was provided Subjects and controls further divided into high risk versus low risk groups for analysis Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Randomised to groups by school. No other information.
Allocation concealment (selection bias)	Unclear risk	Unclear
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment points: 12 months, 2, 3, and 4 years No. approached=2272 No. agreed to participate=1500 No. randomised= 1500 No. started trial= 1234 No. dropped out during intervention= 15% No. dropped out during follow-up=217 (2005 paper reports data for 1074 participants at two years; 909 participants at three years; 909 participants at four years) Intent to treat analysis: Not reported.
Selective reporting (reporting bias)	Unclear risk	While not clear, it appears the aim was to analyse results by risk Note: in terms of the review, the way they have reported does mean the meta-analysis is missing data (i.e. only reported by risk not total)
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	Teachers recorded whether they completed each component of the program for that session

Stice a2006

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes	
Participants	Description: Targeted. Mean age: 18 years. Age range: 15 to 22 years. Sex: Male=68 (30%); Female=157 (70%). Inclusion criteria: Participants reported elevated depressive symptoms greater than 20 on CES-D. Exclusion criteria: Participants who scored greater than 30 on the BDI (n =20)	
Interventions	Intervention: Psychological/Educational. Type: 1.CBT Group 2.Supportive-expressive group 3.Bibliotherapy 4.Expressive writing 5.Journaling Duration: One hour. No of sessions: 4. Group Size: 6 to 10. Manualised: Yes. Training: Session by session didactic training, participation in mock groups with lab staff before the start of first group. Delivered by: Clinical graduate student and co-facilitated by an undergraduate Comparison: No intervention. Type: Waitlist control condition. Assessment points: Pre-test, post-test Follow-up: One month, six months	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Beck Depression Inventory (BDI; Beck 1961).	
Notes	a2006: CBT vs Control b2006: Supportive Expressive Group Therapy vs Control c2006: Bibliotherapy vs Control d2006: Expressive Writing therapy vs Control e2006: Journaling vs Control The author was contacted for additional data, which was not provided Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed	
Risk of bias		
Bias	Authors' judgement	Support for judgement

Stice a2006 (Continued)

Random sequence generation (selection bias)	Unclear risk	“Participants were randomly assigned within blocks created by sex and school, to one of six conditions” (p. 866) Comment: Sequence generation method not reported.
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	High risk	
Blinding (performance bias and detection bias) Assessors	High risk	Self-report measure used.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment points: One month, six months. No. approached= Not reported No. agreed to participate=225 No. randomised=225 No. started trial=225 No. dropped out during intervention=33 No. dropped out during follow-up=20 One months=Not reported Six months=Not reported No. crossed over: N/A Intent-to-treat analysis: Not reported
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	High risk	Authors involved in programme design.
Implementation integrity	Unclear risk	“Detailed manuals were used for both the CBT and supportive-expressive interventions...Facilitators were provided detailed, session-by-session didactic training, and facilitators participated in mock groups with lab staff prior to running their first group” (p. 866) Comment: Outcome of implementation integrity not reported.

Stice a2008

Methods	<p>RCT</p> <p>Power calculation: Not reported.</p> <p>Source of subjects described: Yes.</p> <p>Representative sample recruitment: Yes.</p> <p>Use of diagnostic criteria (or clear specification of inclusion criteria): Yes</p>
Participants	<p>Description: Targeted sample.</p> <p>Mean age: 15.6 years.</p> <p>Age range: 14 to 19 years.</p> <p>Sex: Male= 150; Female= 191</p> <p>Source: High school students.</p> <p>Location: USA</p> <p>Inclusion criteria: Score of greater than 20 on the Centre for Epidemiologic Studies Depression scale (CES-D; Radloff 1977) and signed consent from both adolescent and parent. Exclusion criteria: Adolescents who met the criteria for DSM-IV MDD at pre-test assessment</p>
Interventions	<p>Intervention: Psychological.</p> <p>Type:</p> <p>Type 1= Cognitive behavioural (CB) intervention.</p> <p>Type 2= Group supportive-expressive intervention.</p> <p>Type 3= Bibliotherapy.</p> <p>Duration: Six weeks.</p> <p>No of sessions: 6</p> <p>Group Size: 6 to 10.</p> <p>Manualised: Yes.</p> <p>Training: Facilitators attended a two day training workshop, weekly supervision, and were provided with written summaries prior to each session.</p> <p>Delivered by: Clinical graduate students and co-facilitated by undergraduate students.</p> <p>Comparison: No intervention.</p> <p>Type: Assessment only control condition. Youth given a brochure describing depression.</p> <p>Assessment points: Pre-test, post-test,</p> <p>Follow-up: Six months</p>
Outcomes	<p>Outcome measures described clearly or use of validated instruments: Yes</p> <p>Depressive symptoms and diagnosis: 16 items measuring depression adapted from the Schedule for Affective Disorders and Schizophrenia in school age children (K-SADS), Beck Depression Inventory (BDI; Beck 1961).</p> <p>Social Adjustment: 17 items adapted from the Social Adjustment Scale-Self Report for Youth</p>
Notes	<p>a2008: CBT vs Control</p> <p>b2008: Supportive Expressive Therapy vs Control</p> <p>c2008: Bibliotherapy vs Control</p> <p>The author was contacted for additional data, which was provided</p> <p>Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed. Prior to conducting ICC calculations, dichotomous data for the control population was divided by the number of comparison arms in the study (three), as was the control population for both continuous and dichotomous data</p>

<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"Randomly assigned, within blocks created by sex and school, by the project coordinator using computer generated random numbers..." (p. 597)
Allocation concealment (selection bias)	Unclear risk	No information.
Blinding (performance bias and detection bias) Subjects	Unclear risk	Specific blinding procedures not reported. However, cross-contamination questionnaire completed by participants. Eighty-four per cent did not remember the other conditions and 88% had not talked to anyone from the other conditions (p. 600)
Blinding (performance bias and detection bias) Assessors	Low risk	"Assessors, who were blinded to condition..." (p. 597).
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment point: Six months No. approached= 698 No. agreed to participate= 341 No. randomised= 341 No. started trial= 341 No. dropped out during intervention= 9 No. dropped out during follow-up= 25 Intent-to-treat analysis: Yes "Three percent of participants did not provide data at post-test, and 9% did not provide data at 6-month follow up...We employed an intent-to-treat analysis by using maximum-likelihood estimates to impute missing data..." (p. 601)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Low risk	"96% of CB components and 100% of the supportive-expressive components were rated as full adherence" (p 600)

Stice b2006

Methods	See Stice a2006
Participants	
Interventions	
Outcomes	
Notes	a2006: CBT vs Control b2006: Supportive Expressive Group Therapy vs Control c2006: Bibliotherapy vs Control d2006: Expressive Writing therapy vs Control e2006: Journaling vs Control

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	See Stice a2006
Allocation concealment (selection bias)	Unclear risk	See Stice a2006
Blinding (performance bias and detection bias) Subjects	High risk	See Stice a2006
Blinding (performance bias and detection bias) Assessors	High risk	See Stice a2006
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	See Stice a2006
Selective reporting (reporting bias)	Unclear risk	See Stice a2006
Other bias	High risk	See Stice a2006
Implementation integrity	Unclear risk	See Stice a2006

Stice b2008

Methods	See Stice a2008
Participants	
Interventions	
Outcomes	

Stice b2008 (Continued)

Notes	a2008:CBT vs Control b2008: Supportive Expressive Therapy vs Control c2008: Bibliotherapy vs Control	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	See Stice a2008
Allocation concealment (selection bias)	Unclear risk	See Stice a2008
Blinding (performance bias and detection bias) Subjects	Unclear risk	See Stice a2008
Blinding (performance bias and detection bias) Assessors	Low risk	See Stice a2008
Incomplete outcome data (attrition bias) All outcomes	Low risk	See Stice a2008
Selective reporting (reporting bias)	Unclear risk	See Stice a2008
Other bias	Unclear risk	See Stice a2008
Implementation integrity	Low risk	See Stice a2008

Stice c2006

Methods	See Stice a2006
Participants	
Interventions	
Outcomes	
Notes	a2006: CBT vs Control b2006: Supportive Expressive Group Therapy vs Control c2006: Bibliotherapy vs Control d2006: Expressive Writing Therapy vs Control e2006: Journaling vs Control
<i>Risk of bias</i>	

Stice c2006 (Continued)

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	See Stice a2006
Allocation concealment (selection bias)	Unclear risk	See Stice a2006
Blinding (performance bias and detection bias) Subjects	High risk	See Stice a2006
Blinding (performance bias and detection bias) Assessors	High risk	See Stice a2006
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	See Stice a2006
Selective reporting (reporting bias)	Unclear risk	See Stice a2006
Other bias	High risk	See Stice a2006
Implementation integrity	Unclear risk	See Stice a2006

Stice c2008

Methods	See Stice a2008
Participants	
Interventions	
Outcomes	
Notes	a2008: CBT vs Control b2008: Supportive Expressive Therapy vs Control c2008: Bibliotherapy vs Control

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	See Stice a2008
Allocation concealment (selection bias)	Unclear risk	See Stice a2008

Stice c2008 (Continued)

Blinding (performance bias and detection bias) Subjects	Unclear risk	See Stice a2008
Blinding (performance bias and detection bias) Assessors	Low risk	See Stice a2008
Incomplete outcome data (attrition bias) All outcomes	Low risk	See Stice a2008
Selective reporting (reporting bias)	Unclear risk	See Stice a2008
Other bias	Unclear risk	See Stice a2008
Implementation integrity	Low risk	See Stice a2008

Stice d2006

Methods	See Stice a2006
Participants	
Interventions	
Outcomes	
Notes	a2006: CBT vs Control b2006: Supportive Expressive Group Therapy vs Control c2006: Bibliotherapy vs Control d2006: Expressive Writing Therapy vs Control e2006: Journaling vs Control

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	See Stice a2006
Allocation concealment (selection bias)	Unclear risk	See Stice a2006
Blinding (performance bias and detection bias) Subjects	High risk	See Stice a2006

Stice d2006 (Continued)

Blinding (performance bias and detection bias) Assessors	High risk	See Stice a2006
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	See Stice a2006
Selective reporting (reporting bias)	Unclear risk	See Stice a2006
Other bias	High risk	See Stice a2006
Implementation integrity	Unclear risk	See Stice a2006

Stice e2006

Methods	See Stice a2006
Participants	
Interventions	
Outcomes	
Notes	a2006: CBT vs Control b2006: Supportive Expressive Group Therapy vs Control c2006: Bibliotherapy vs Control d2006: Expressive Writing Therapy vs Control e2006: Journaling vs Control

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	See Stice a2006
Allocation concealment (selection bias)	Unclear risk	See Stice a2006
Blinding (performance bias and detection bias) Subjects	High risk	See Stice a2006
Blinding (performance bias and detection bias) Assessors	High risk	See Stice a2006
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	See Stice a2006

Stice 2006 (Continued)

Selective reporting (reporting bias)	Unclear risk	See Stice 2006
Other bias	High risk	See Stice 2006
Implementation integrity	Unclear risk	See Stice 2006

Stoppelbein 2003

Methods	RCT (Cluster) Power calculation: Yes. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Universal sample. Mean age: 15 years. Age range: 12 to 14 years. Sex: Male=41%; Female= 59%. Source: Public high school. Location: Tuscaloosa, Alabama, USA. Inclusion criteria: Consented to participation. Exclusion criteria: Students who were undergoing psychotherapy and with current psychiatric diagnosis
Interventions	Intervention: Psychological. Type: Adaptation of the Coping with Depression course by Clarke et al (1990). Duration: 50 minute sessions. No of sessions: 10. Group size: Not reported. Manualised: Yes. Training: Yes but no details reported. Delivered by: Group leader trained in CBT techniques. Comparison: Control. Type: Didactic lectures on general topics in psychology. Assessment points: Pre-test, post-test Follow-up: Six months
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Children's Depression Inventory. Negative cognitive triad: Cognitive Triad Inventory for Children (CTI-C). Depressive cognition: Dysfunctional Attitude Scale (DAS). Attributional style: Children's Attributional Style Questionnaire (CASQ)
Notes	Sample size at follow-up reported in Table 2 as larger than original sample size (69 versus 59) The author was contacted for additional data, which was not provided No usable data obtained from author at the time of analysis.

Stoppelbein 2003 (Continued)

<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	<p>"Classes with similar percentages of adolescents at risk for depression were randomly assigned to either the prevention program or the control group" (p. 15)</p> <p>"Although class periods were randomly assigned to the prevention or control group in the present study, the adolescents nested within these classes were not randomly assigned to their class period" (p. 41)</p>
Allocation concealment (selection bias)	High risk	
Blinding (performance bias and detection bias) Subjects	Unclear risk	Blinding of subjects was not reported, however the control and intervention conditions may have been apparent
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	<p>Follow up assessment point: Six months</p> <p>No. approached=127</p> <p>No. agreed to participate= not reported</p> <p>No. randomised=not reported</p> <p>No. started trial=59</p> <p>No. dropped out during intervention: 14 total ("seven of the students were absent for either the pre- or post-testing, four dropped out of school, two declined to participate at post-testing, and one student changed schools over the course of the semester")</p> <p>Intent-to-treat analysis: Not reported.</p>
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	No information.

Tol 2008

Methods	RCT (Cluster) Power calculation: Yes. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria):Yes	
Participants	Description: Targeted sample. Mean age: 9.9 years. Age range: 7 to 15 years. Sex: Male= 207; Female= 196 Source: Children from randomly selected schools in political violence-affected communities. Location: Poso, Indonesia. Inclusion criteria: Above cut-off score on symptom checklists assessing exposure to violent events Exclusion criteria: Inability to function in a group setting, any of the following psychiatric disorder; mutism, mental retardation, substance abuse, dissociative disorders, epilepsy without medication, panic or phobic disorders and child psychosis.	
Interventions	Intervention: Psychological. Type: School-based group intervention, including; trauma processing activities, co-operative play and creative-expressive elements. Duration: Five weeks. No of sessions: 15. Group Size: Around 15. Manualised: Yes. Training: Two week training programme. Delivered by:Young people selected from the community who; were at least 18 years-old, have had at least a high school education. Selection procedure based on social skills through role-plays. Generally had no formal mental health training but some volunteering experience in humanitarian programmes. Comparison: No intervention. Type: Wait-list. Assessment points: Pre-test, post-test Follow up: Six months	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms- Depression Self Rating Scale (DSRS). Post-traumatic Stress Symptoms- Child Post-traumatic Stress Scale. Anxiety symptoms- Self-Report for Anxiety Related Disorders 5-item version (SCARED-5). Aggression- Children's Aggression Scale for Parents. Hope- Children's Hope Scale.	
Notes		
Risk of bias		
Bias	Authors' judgement	Support for judgement

Tol 2008 (Continued)

Random sequence generation (selection bias)	Low risk	Initial selection of schools was adequately randomised: "Out of 21 qualifying schools, 14 were randomly selected using 'select exact amount of cases randomization'..." (p. 656)
Allocation concealment (selection bias)	Unclear risk	Via random computer generation.
Blinding (performance bias and detection bias) Subjects	High risk	Wait-list comparison applied.
Blinding (performance bias and detection bias) Assessors	High risk	"...not possible to blind them to treatment status because they needed to visit the selected schools" (p. 658)
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow up assessment point: Six months No. approached= 495 No. agreed to participate= 495 No. randomised= 403 No. started trial= 403 No. dropped out during intervention= 10 No. dropped out during follow-up= 25 Intent-to-treat analysis: Yes "Intent-to-treat analysis consisted of replacing values for missing assessments with the value of the last successful assessment" (p. 659)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Low risk	"Multiple research assessors judged fidelity of interventionists to the treatment manual...average treatment adherence was 89.76%" (p. 658)

Vuori 2008

Methods	RCT (Cluster) Power calculation: No. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
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Vuori 2008 (Continued)

Participants	Description: Universal. Mean age: Not reported Age range: 14 to 15 years. Sex: Male= Number not reported (49.7%); Female= Number not reported (50.3%) Location: Finland Inclusion Criteria: Parental consent. Exclusion Criteria: No parental consent.	
Interventions	Intervention: Educational. Type: Towards Working Life program Duration: 15 hours total No of sessions: 4 to 5. Group Size: 20. Manualised: Yes . Training: Group trainers attended a three-day course. At least one trainer had previous experience of more than one Toward Working Life groups. Delivered by: Two trainers. Trainers were counsellors working in basic education and counsellors from vocational institutes and head masters of the schools. Comparison: Type: Usual class Assessment points: T1= Baseline T2=During workshops T3=Post-intervention T4=End of basic level T5=Follow-up at 12 months T2 and T4 not included in the study.	
Outcomes	Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Finnish DEPS-10 Risk of depression: DEPS-10 School burnout: School Burnout Scale	
Notes	No usable data at the time of analysis.	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“Randomization was carried out for each pair of classes, so that approximately half of the pupils in these combined two classes were randomly assigned to the experimental and half to the control group. Consequently, the original two classes became two new classes with randomly selected pupils” (p. 72) Randomisation method not reported.

Vuori 2008 (Continued)

		Selection bias: GPA of students in control group was higher than in experimental group (p. 75), they had higher educational aspirations (pp. 74-75), tended to be in higher SES groups (p. 75), and tended to be female (p. 75)
Allocation concealment (selection bias)	Unclear risk	Not used.
Blinding (performance bias and detection bias) Subjects	High risk	
Blinding (performance bias and detection bias) Assessors	High risk	
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment point: 12 months. No. approached=not reported No. agreed to participate=1088 No. randomised=380 Intervention=522 Control=512 No. started trial=380 No. dropped out during intervention=9 No. dropped out during follow-up=131 Intent-to-treat analysis: Yes Attrition bias: "The GPA of last school report at baseline measurement was statistically significantly higher among respondents than with dropouts" (p. 74)
Selective reporting (reporting bias)	High risk	Reported a result but no data.
Other bias	Unclear risk	No information.
Implementation integrity	Low risk	"The first follow-up questionnaire included items for the integrity of the intervention among the experimental group and was completed in the classrooms at the end of the last day of the intervention (T3)" (p. 72) Group trainers took part in a three-day course, one in every pair of trainers had previous experience in working in more than one group, trainers used manuals and they were supervised by training supervisors and researchers One group was disqualified and excluded

		from research data along with control group for not adhering to study protocol (p. 73)
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Wolchik a2000

Methods	<p>RCT</p> <p>Power calculation: No.</p> <p>Source of subjects described: Yes.</p> <p>Representative sample recruitment: Yes.</p> <p>Use of diagnostic criteria (or clear specification of inclusion criteria): Yes</p>
Participants	<p>Description: Targeted.</p> <p>Mean age: 10.4 years.</p> <p>Age range: 9 to 12 years.</p> <p>Sex: Male=51%; Female=49%.</p> <p>Inclusion Criteria: 1. 9 to 12 year old children of divorced parents within two years of the intervention start date. 2. Divorce decree granted within previous two years. 3. Primary residential parent was female. 4. At least one child between 9 to 12 years resided primarily $\geq 50\%$ of the week with mother. 5. Neither mother nor child in treatment for psychological problems. 6. Mother had not remarried, did not live with a boyfriend and did not plan to marry during trial. 7. Custody arrangement expected to remain stable during trial. 8. Family resided within one hour drive of site of programme. 9. Mother and child could complete assessment in English. 10. Child was not in a special education programme for the mentally challenged or learning disabled. 11. If children had ADHD diagnosis, they were taking medication</p> <p>Exclusion Criteria: If child scored higher than 17 on CDI or score above the 97th percentile on the Externalising subscale of the Child Behavior Checklist</p>
Interventions	<p>Intervention: Psychological.</p> <p>Type: 1. Mother Program. 2 Mother and Child Program.</p> <p>Duration: 1.75 hours per session</p> <p>No. of sessions: 11.</p> <p>Group Size: 3 to 7.</p> <p>Manualised: Yes.</p> <p>Training: 30 hours of training prior to the start of the programme and 1.5 hours per week during programme delivery.</p> <p>Delivered by: Clinicians who had Master's degree in clinical psychology, social work, or another mental health-related field.</p> <p>Comparison: Self-study</p> <p>Type: Self-study programme. Mother and child each received three books with syllabi to guide their reading. First book after assignment to condition, second book three weeks later, third book six weeks after assignment.</p> <p>Duration: Six weeks.</p> <p>Assessment points: Pre-test, post-test</p> <p>Follow up: Six months.</p>

Outcomes	Outcome measures described clearly or use of validated instruments: Yes Mother-Child Relationship Quality: Teleki, Powell and Dodder’s adaption of the Child Report of Parenting Behavior Inventory; Parent-Adolescent Communication Scale. Discipline: Oregon Social Learning Centre. Interpersonal conflict: Children’s Perception of Interparental Conflict Scale. Interparent Conflict: Children’s Perception of Interparent Conflict Scale Appraisals of divorce stressors: Threat Appraisal Scale. Coping: Children’s Coping Strategies Checklist-Revised. Externalising behaviour problems: Externalising subscale of the Child Behavior Checklist (CBCL) and Youth Self Report. Internalising behaviour problems: CBCL ; Children’s Depression Inventory (CDI); Children’s Manifest Anxiety Scale-Revised	
Notes	a2000: Mother only intervention vs Control b2000: Mother-child intervention vs Control The author was contacted for additional data, which was provided The control population was divided by the number of comparison arms in the study (two)	
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“Computerized court record of 1.816 randomly selected divorce decrees” (p. 845) “Participants who remained eligible and interested after the pretest interview attended an orientation session, where they were randomly assigned to condition” (p. 845) “We randomly assigned 240 families to one of three conditions” (p. 845) Comment: No information about sequence generation method.
Allocation concealment (selection bias)	High risk	Not used.
Blinding (performance bias and detection bias) Subjects	High risk	Participants would have known to which condition they had been assigned
Blinding (performance bias and detection bias) Assessors	Unclear risk	“Coders were masked to participant condition” (p. 846).
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment point: Six months. No. approached=671 No. agreed to participate=341 No. randomised=240

		<p>Intervention1:Mother Program=81 Intervention 2: Mother and Child (Dual Component)=83 Control: Self-Study Reading=76 No. started trial= as above No. dropped out during intervention=26 Intervention1: Mother Program=16 Intervention 2: Mother and Child (Dual Component)=10 Control: Self Study Reading=Not reported No. dropped out during follow-up=6 No. crossed over: N/A Intent-to-treat analysis: Yes. Quote: "The dual component and the mother groups did not differ in their attrition rates" (p. 848) Comment: No information as to how incomplete data was statistically addressed</p>
Selective reporting (reporting bias)	Unclear risk	Appears their aim was to use a composite score not the CDI. We obtained the CDI data from authors
Other bias	High risk	Primary author developed the programme.
Implementation integrity	Low risk	<p>"The programs were explicitly described in a manual for leaders; a careful process evaluation assessed fidelity of implementation" (p. 844) "Coders were masked to participant condition, received extensive training, demonstrated mastery of the code, and participated in ongoing training throughout coding" (p. 846) "sessions were delivered using manuals that detailed the content and format...extensive training...and supervision were provided...leaders were required to score over 89% correct on quizzes of session content prior to conducting each session...extensive process evaluation data were collected to monitor fidelity of implementation" (p. 846)</p>

Wolchik b2000

Methods	See Wolchik a2000	
Participants		
Interventions		
Outcomes		
Notes	a2000: Mother only intervention vs Control b2000: Mother-child intervention vs Control	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	See Wolchik a2000
Allocation concealment (selection bias)	High risk	See Wolchik a2000
Blinding (performance bias and detection bias) Subjects	High risk	See Wolchik a2000
Blinding (performance bias and detection bias) Assessors	Unclear risk	See Wolchik a2000
Incomplete outcome data (attrition bias) All outcomes	Low risk	See Wolchik a2000
Selective reporting (reporting bias)	Unclear risk	See Wolchik a2000
Other bias	High risk	See Wolchik a2000
Implementation integrity	Low risk	See Wolchik a2000

Young 2006

Methods	RCT Power calculation: No. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted. Mean age: 13.4 years. Age range: 11 to 16 years. Sex: Male=6 (14.6%); Female=35 (85.4%).

	<p>Inclusion Criteria: 1. Adolescent and parental consent. 2. Adolescents scored 16 to 39 on the CES-D and if they had at least two subthreshold or threshold depression symptoms on the K-SADS-PL. 3. Elevated depressed mood, irritability, or anhedonia was required as was a CGAS score of 61 or higher.</p> <p>Exclusion Criteria: Adolescents who met criteria for a current depressive episode and did not have at least two depression symptoms or had a current diagnosis of depression, dysthymia, bipolar disorder, psychosis, panic disorder, obsessive-compulsive disorder, post-traumatic stress disorder, oppositional defiant disorder, conduct disorder, or untreated ADHD</p>	
Interventions	<p>Intervention: Psycho-educational.</p> <p>Type: IPT-AST: Teen Talk. Focuses on psycho-education and general skill building.</p> <p>Duration: 90 minutes per session</p> <p>No of sessions: 10 (two Initial individual sessions and eight weekly group sessions).</p> <p>Group Size: 3 to 7.</p> <p>Manualised: Yes.</p> <p>Training: Co-therapists were trained and supervised by the first author.</p> <p>Delivered by: Therapist who was the first author and co-therapists who were masters-level psychologists and social workers.</p> <p>Comparison: No intervention</p> <p>Type: School counselling/Usual care.</p> <p>Delivered by: School guidance counsellor and social worker.</p> <p>Duration: 30 to 45 minutes over 10 to 12 weeks.</p> <p>No. of Sessions: 4.2 sessions on average.</p> <p>Assessment points: Pre-test, post-test.</p> <p>Follow up: Three and six months.</p>	
Outcomes	<p>Outcome measures described clearly or use of validated instruments: Yes</p> <p>Depressive symptoms: Center for Epidemiological Studies-Depression (CES-D; Radloff 1977).</p> <p>Clinical diagnosis: Schedule for Affective Disorders and Schizophrenia for School Age Children (K-SADS-PL) and the Children’s Global Assessment Scale (CGAS)</p>	
Notes		
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	“adolescents were randomly assigned to receive IPT-AST’ or SC using a table of random numbers” (p.1257)
Allocation concealment (selection bias)	Unclear risk	Not used.
Blinding (performance bias and detection bias) Subjects	High risk	Participants would have known to which condition they had been assigned

Young 2006 (Continued)

Blinding (performance bias and detection bias) Assessors	Low risk	"The K-SADS-PL interviews were performed by a clinical evaluator...who was blind to treatment condition" (p. 1257)
Incomplete outcome data (attrition bias) All outcomes	Low risk	Follow-up assessment points: Three and six months. No. approached=558 No. agreed to participate=365 No. randomised=41 Subjects=27 (female=22; male=5) Controls=14 (female=13; male=1) No. started trial= as above No. dropped out during intervention=1 No. dropped out during follow-up=1 No. crossed over: N/A Intent-to-treat analysis: Yes. Comment: No information on incomplete outcome data.
Selective reporting (reporting bias)	High risk	One of the 2010 papers reports a sample of 57 participants however the 2006 and associated 2010 paper report a sample of 41 participants
Other bias	High risk	Some authors were involved in the development and implementation of the programme
Implementation integrity	Unclear risk	"The therapists included the first author and Masters-level psychologists and social workers who were trained and supervised by the first author" (p. 1258) Comment: No information on the extent of the implementation integrity (e.g. objective observers or other types of measurement)

Yu 2002

Methods	RCT Power calculation: Not reported. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted sample. Mean age: 11.8 yrs (SD=1.69). Age range: Not reported.

Yu 2002 (Continued)

	<p>Sex: Intervention: Male=60; Female= 44. Controls: Male=62; Female=54. Source: Elementary school. Location: Peking, China. Inclusion criteria: Overall risk scores ≥ 25 % for their age group. Exclusion criteria: Not reported.</p>
Interventions	<p>Intervention: Psychological. Type: Penn Optimism Program-Chinese Version. Duration: 10 weeks No. of sessions: 10, once per week. Group size: 10 to 14 participants. Manualised: Yes. Training: 40 hours from researchers. Delivered by: Teachers. Comparison: No intervention. Type: Control group. Assessment points: Pre-test, post-test Follow-up: Three and six months</p>
Outcomes	<p>Outcome measures described clearly or use of validated instruments: Yes Depressive symptoms: Children's Depression Inventory (CDI). Anxiety: CASQ.</p>
Notes	<p>Seligman was contacted for additional data, which was not provided Moncrieff Rating: High. Sample sizes were adjusted in the Cochrane Review analyses after ICC calculations were performed</p>

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information.
Allocation concealment (selection bias)	Unclear risk	Unclear.
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Unclear risk	No information.

Yu 2002 (Continued)

Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Follow-up assessment points: Three and six months. No. approached= 1425 No. agreed to participate=355 No. randomised=355 No. started trial: Total=220 Subjects=104 Controls=116 No. dropped out during intervention: Total=5 Subjects=3 Controls=2 No. dropped out during follow-up: Three months=4 Six months=4 Intent-to-treat analysis: Not reported.
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	No information.
Implementation integrity	Unclear risk	Supervision and weekly meetings.

Zehnder 2010

Methods	RCT Power calculation: Yes. Source of subjects described: Yes. Representative sample recruitment: Yes. Use of diagnostic criteria (or clear specification of inclusion criteria): Yes
Participants	Description: Targeted sample. Mean age (SD): Intervention=11.8 years (2.6) Control=11.3 years (2.8) Age range: 7 to 16 years Sex: Male= 58 ; Female= 41 Source: University Children's Hospital, Zurich. Location: Switzerland Inclusion criteria: Medical treatment after an RTA, fluent in German. Exclusion criteria: Severe head injury or previous evidence of intellectual impairment
Interventions	Intervention: Psychological. Type: Brief trauma therapy and PTSD psycho-education: Detailed reconstruction of the accident and creation of a trauma narrative, identification of accident-related appraisals, psycho-education, leaflet on post-traumatic stress. Duration: Single session. No of sessions: One session of 30 minutes. Group Size: Individual

	Manualised: Unclear. Training: Not stated. Delivered by: A psychologist. Comparison: No intervention. Type:Standard medical care including clinical diagnostics and comprehensive medical treatment. Assessment points: Pre-test, two months, six months.	
Outcomes	Outcome measures described clearly or use of validated instruments: Depression:The Children’s Depression Inventory (CDI).	
Notes		
<i>Risk of bias</i>		
Bias	Authors’ judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	“The randomization list, stratified for sex, was generated by the program RANCODE 3.6...at the beginning of the project” (p. 3)
Allocation concealment (selection bias)	Low risk	“Immediately after the baseline assessment the interviewer opened an envelope that contained the predetermined randomization for that particular child” (p. 3)
Blinding (performance bias and detection bias) Subjects	Unclear risk	No information.
Blinding (performance bias and detection bias) Assessors	Low risk	“Follow-up assessments at 2 and 6 months were conducted by a different interviewer, who was blind to the child’s status in the project” (p. 3)
Incomplete outcome data (attrition bias) All outcomes	High risk	Follow-up assessment point: Six months No. approached= 139 No. agreed to participate=101 No. randomised=101 No. started trial=101 No. dropped out during intervention=1 No. dropped out during follow-up=1 Intent-to-treat analysis: No. One participant dropped out of the intervention group and analyses are performed on the remaining participants only
Selective reporting (reporting bias)	Unclear risk	Protocol not available

Zehnder 2010 (Continued)

Other bias	Low risk	Yes
Implementation integrity	Unclear risk	No information

Characteristics of excluded studies [ordered by study ID]

Study	Reason for exclusion
Abela 2007	Not an intervention study. Psychometric validation of a tool
Ang 2006	Not an intervention study.
Anonymous 2006	Not an intervention study.
Asarnow 2002	Treatment study. Study sample includes adolescents with clinical depression
Aseltine 2004	Primary focus not depression prevention. Reports suicide prevention not depressive symptoms
Aseltine 2007	Study did not report depression outcome measure. Measurement of knowledge and attitudes
Bailey 2006	Not an intervention study.
Baramkoochi 2009	Article in Iranian
Barrera 2007	A review.
Beardslee 1993	Not an intervention study. A case study demonstrating family intervention for parents
Beardslee 1997	Not a suitable comparison condition. Study comparing two intervention groups
Beardslee 2003	Not a suitable comparison condition. Study comparing two intervention groups
Beauchaine 2006	Review of interventions for conduct problems
Beck 1981	Treatment study.
Berg 2006	Not an intervention study.
Bolton 2007	Treatment study.
Brozina 2006	Not an intervention study.
Bruce 2006	Not an intervention study.

(Continued)

Bryan 2007	Not an intervention study.
Buhs 1997	Not a randomised controlled trial. Study had no comparison group
Bursuk 1998	Not a randomised controlled trial.
Burton 2007	Participants above upper age limit
Campbell 2007	Not an intervention study.
Carandang 2007	Not an intervention study.
Cardemil 2005	Not a randomised controlled trial.
Ceperich 1997	Treatment study. A suicide prevention unpublished dissertation
Clarke 2009	Participants above upper age limit.
Clore 2008	Participants above upper age limit.
Commission 2005	A review.
Cooper 2010	Treatment study.
Cortes 2006	Not an intervention study.
Costin 2009	Participants above upper age limit.
Coverdale 1991	Not a randomised controlled trial.
Creedy 2004	Not a randomised controlled trial.
Cuijpers 2005	A review. Focus on preventative interventions on the incidence of mental disorders
Cuijpers 2006	A review.
d'Acremont 2007	Not an intervention study. Psychometric validation of a tool
Dallaire 2006	Not an intervention study.
Davidson 2004	Primary focus not on depression prevention. Study on therapist competence
DeSouza 1995	Not an intervention study. Compared two populations on depression scores
Diamond 2010	Treatment study. Population being treated for suicidality.
Dietz 2008	Treatment study.

(Continued)

DiFilippo 2000	Not an intervention study. Participants were adolescent psychiatric inpatients who met psychiatrist's diagnosis for major depression and also had co-morbid disorders
Dolbier 2010	Participants above upper age limit.
Doll 2007	Not an intervention study.
Dozeman 2007	Participants above upper age limit.
Drabick 2007	Not an intervention study.
Eggert 1995	Treatment study. Study reporting intervention for suicide prevention
Eggert 2002	Treatment study. Study reporting intervention for suicide prevention
Eskin 2008	Participants above upper age limit.
Falloon 1992	Participants above upper age limit. Uncontrolled trial with adult population who had DSM-III-R diagnosis
Fava 1998	Uncontrolled Clinical Trial with adult population who met DSM-IV criteria for depression, or panic disorder with agoraphobia, or social phobia, or generalised anxiety disorder, or obsessive-compulsive disorder
Fraser 2008	Not a randomised controlled trial.
Friedberg 2003	Not a randomised controlled trial.
Fristad 2009	Treatment study.
Geisner 2007	Primary focus not depression prevention. Focus on reducing substance use
George 2006	Not an intervention study.
Ghaderi 2005	Primary focus not on depression prevention. Focus of the study is on eating disorders
Gonzales 2004	Not a randomised controlled trial.
Gortner 2006	Participants above upper age limit.
Gould 2004	Not a randomised controlled trial.
Gould 2005	Primary focus not depression prevention..Study reporting effects on suicidal ideation
Greenberg 2003	A review.
Gunlicks-Stoessel 2010	Treatment study.

(Continued)

Gwynn 1987	Not a randomised controlled trial.
Hahn 2007	Study did not report depression outcome measure.
Hains 1992b	Not a randomised controlled trial.
Hamdan-Mansour 2009	Participants above upper age limit
Han 2006	Primary focus not depression prevention. Intervention aimed to increase help-seeking
Hannan 2000	No suitable comparison condition. Study reports on intervention effects only
Harper 1999	Not an intervention study. A descriptive study only.
Hayes 2005	Treatment study. Participants are university students with depressive disorder
Heinicke 2007	Primary focus of the study not on depression prevention. Focus is on eating disorder
Herman 2007	Not an intervention study.
Hoff 2005	Treatment study. Study on the impact of a suicide prevention program
Houston 2003	Primary focus not depression prevention. Study reporting on GP contact before and after self harm
Hughes 2009	Treatment study.
Ialongo 1999	Study did not report depression outcome measure.
Ingoldsby 2006	Not an intervention study.
Jaycox 1994	Not a randomised controlled trial.
Jaycox 2010	Not a randomised controlled trial.
Johnson 1991	Primary focus not depression prevention. An unpublished dissertation focusing on depression rather than prevention
Karam 2008	Not a randomised controlled trial.
Keeler 2000	Not a suitable comparison condition. Study reports on intervention effects only
Kellam 1994	Primary focus not on depression prevention. Study reporting intervention for reading achievement
Kenardy 2003	Participants above upper age limit. Study with adult population
Kennard 2008	Treatment study

(Continued)

Kistner 2006	Not an intervention study.
Kistner 2007	Not an intervention study.
Kleftaras 2006	Not an intervention study.
Kowalenko 2005	Not a randomised controlled trial.
Kroll 1996	Treatment study. Clinical controlled trial for relapse prevention in adolescents diagnosed with major depressive disorder
Lee 2007	Primary focus not depression prevention.
Lewinsohn 1996	Treatment study. Not a prevention trial.
Listug 2005	Treatment study.
Liu 2004	Not a randomised controlled trial.
Margolin 2006	Not an intervention study.
Martinovic 2006	Primary focus not on depression prevention. Focus is epilepsy
Melman 2007	Not an intervention study.
Mendenhall 2008	Treatment study.
Mercado 2004	Not a randomised controlled trial.
Merritt 2007	Primary focus not depression prevention. Aim to increase depression 'literacy' or recognition of depression
Moor 2007	Aim to increase depression 'literacy' or recognition of depression
Morales 2006	Not an intervention study.
Munoz 1995	Participants above upper age limit. Adult population with mean age of 52.5 yrs
Nabkasorn 2006	Not an educational or psychological intervention
Naylor 2009	Primary focus not on depression prevention.
Neil 2009	A review of two trials
Nelson 2006	Primary focus not depression prevention. Intervention aimed to improve reading
Newman 2007	Not an intervention study.

(Continued)

O'Brien 2007	Treatment study. (population being treated for anxiety disorder)
O'Dea 2000	Primary focus not depression prevention. Study reporting intervention for self-esteem
O'Kearney 2006	Not a randomised controlled trial.
O'Kearney 2009	Not an RCT
Oria 2001	Not a Randomised Controlled Trial
Peden 2001	Participants above upper age limit. Adult population with age range of 18-24 years
Persaud 2005	Treatment study. Study sample met clinical diagnosis for depression
Peters 2003	Not a randomised controlled trial. Longitudinal study on 4 year olds
Pfeffer 2002	Not a randomised controlled trial.
Podorefsky 2001	Not a randomised controlled trial.
Portzky 2006	Primary focus not on depression prevention. Focus on secondary or co-morbid disorder
Pössel 2003	Not randomised controlled trial.
Randell 2001	Treatment study. Study reporting intervention for suicide prevention
Rashid 2008	Treatment study.
Rice 2007	Psychometric validation of a tool.
Rinaldi 2006	Not an intervention study.
Robson 2008	Not a randomised controlled trial.
Rose 2007	Not an intervention study.
Rossello 2008	Treatment study.
Ruini 2006	Not a suitable comparison group. Study comparing two intervention groups
Salloum 2008	Not a suitable comparison group. Study comparing two intervention groups
Santor 2007	Not a randomised controlled trial.
Shechtman 1993	Primary focus not depression prevention. Study reporting intervention for school adjustment
Shochet 2001	Not a randomised controlled trial.

(Continued)

Smit 2006	Participants above upper age limit.
Smith 2003	Participants above upper age limit.
Solantaus 2009	Study did not report depression outcome measure.
Stallard 2003	Primary focus not depression prevention. Focus is injury secondary to accident
Stallard 2005	A book review.
Stein 2003	Primary focus of study not depression prevention. Study reporting on PTSD not depression
Steinhardt 2008	Participants above upper age limit.
Sternberg 2006	Not an intervention study.
Stevens 2008	Primary focus of study not on depression prevention. Trial of screening
Suveg 2009	Treatment study (population being treated for anxiety)
Tang 2009	Treatment study (population already have depressive disorder)
Tellier 1999	Not a randomised controlled trial.
Thabet 2005	Treatment study. An intervention study with children diagnosed with post traumatic stress disorder
Thompson 2001	Treatment study. Study reporting intervention for suicide prevention
Van Voorhees 2005	Not a randomised controlled trial. Participant age range of 18-24
Van Voorhees 2009	Not a suitable comparison condition. Head to head trial of two active interventions
Vostanis 1998	Treatment study. Clinical controlled trial for adolescents diagnosed with depressive disorders and co-morbid disorders. Diagnosis based on DSM-III-R criteria for depression
Vuijk 2007	Primary focus not on depression prevention.
Waaktaar 2004	Not a randomised controlled trial.
Waddell 2007	A review
Wang 2006	Not a randomised controlled trial.
Webster-Stratton 2008	Treatment study.
Weinberg 1978	Participants above upper age limit.

(Continued)

Weissberg 2003	Not an intervention study. Background article not a trial.
Weisz 2009	Treatment study.
Wight 2006	Not an intervention study.
Wilde 1994	Not a randomised controlled trial.
Willemse 2004	Participants above upper age limit. Age range of 18-65.
Woolley 2007	A review of self-report instruments
Yang 2006	Not an intervention study.
Yao 2007	Not an intervention study. Psychometric validation of a tool
Zou 2007	Not a randomised controlled trial

Characteristics of ongoing studies [ordered by study ID]

Hoek 2009

Trial name or title	Prevention of depression and anxiety in adolescents: A randomized controlled trial testing the efficacy and mechanisms of Internet-based self-help problem-solving therapy
Methods	
Participants	
Interventions	
Outcomes	
Starting date	
Contact information	
Notes	

Whittaker 2011

Trial name or title	ADAPT - A trial of a mobile phone-based depression prevention programme for adolescents
Methods	RCT Method of allocation: Individuals will be randomised by computer allocation to intervention or placebo control by random number generation. A stratified minimisation randomisation will be used.

Whittaker 2011 (Continued)

	<p>Blinding (subjects): Yes.</p> <p>Blinding (assessors): Yes</p> <p>Power calculation: Yes. 90% power at $P=0.05$ to detect an effect size of a three point difference in CDRS-R score at 12 months (SD=16)</p> <p>Use of diagnostic criteria (or clear specification of inclusion criteria): Yes.</p> <p>Outcome measures described clearly or use of validated instruments: Yes.</p> <p>Follow-up assessment points: 12 months</p>
Participants	<p>Description: Targeted sample.</p> <p>Age range: 12 to 18 years</p> <p>Source: General population. Recruited through: banners and advertisements on the Internet/magazines/in schools, referral by school doctors and through information for parents with adolescents being treated in mental health care institutions for anxiety and depression.</p> <p>Inclusion Criteria: Participants must be in Years 9 to 12 at participating schools, have a Vodafone mobile phone, speak English and be able to give informed consent.</p> <p>Exclusion Criteria: Clinical scores at baseline measurement on the RADS 2 and CDRS-R, those students who have been through the 'Travellers Programme' within 18 months and those who will not be available for follow-up in one year's time</p>
Interventions	<p>Intervention: Psychological.</p> <p>Type: Multi-media mobile phone-based programme based on the RAP-Kiwi programme - aimed at reducing depressive symptoms in youth.</p> <p>Manualised: No.</p> <p>Comparison: Placebo</p> <p>Type: Attention control programme</p> <p>Assessment points: Pre-test, post-test, 12 months</p>
Outcomes	<p>Primary: Change in CDRS-R scores from baseline to 12 months.</p> <p>Secondary: Change in RADS-2 scores from baseline to 12 months; diagnosis of depression; suicidal ideation; overall functioning; quality of life; drop-out rates; satisfaction with the programme</p> <p>Measures: RADS-2, Moods and Feelings Questionnaire, Satisfaction with programmes, PQ-LES-Q, CDRS-R, K-SADS, YRBS Q</p>
Starting date	June 2008
Contact information	<p>Dr Robyn Whittaker (Clinical Trials Research Unit, University of Auckland) - (09) 373 7599, ext. 84766</p> <p>Dr Sally Merry (Dept of Psychological Medicine, University of Auckland) - (09) 373 7599, ext. 86981</p>
Notes	Funded by the Health Research Council of New Zealand.

DATA AND ANALYSES

Comparison 1. Psychological/educational intervention versus no intervention/wait-list/usual care

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Depressive disorder (by population)	18	3115	Risk Difference (M-H, Random, 95% CI)	-0.09 [-0.14, -0.05]
1.1 Targeted	7	890	Risk Difference (M-H, Random, 95% CI)	-0.07 [-0.12, -0.02]
1.2 Universal	11	2225	Risk Difference (M-H, Random, 95% CI)	-0.12 [-0.20, -0.05]
2 Depressive disorder (by intervention)	18	3115	Risk Difference (M-H, Random, 95% CI)	-0.09 [-0.14, -0.05]
2.1 Educational	0	0	Risk Difference (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
2.2 Psychological	18	3115	Risk Difference (M-H, Random, 95% CI)	-0.09 [-0.14, -0.05]
3 Depressive disorder (by sex)	13	3669	Risk Difference (M-H, Random, 95% CI)	-0.04 [-0.07, -0.02]
3.1 Males	12	1789	Risk Difference (M-H, Random, 95% CI)	-0.05 [-0.08, -0.02]
3.2 Females	13	1880	Risk Difference (M-H, Random, 95% CI)	-0.06 [-0.10, -0.01]
4 Depressive disorders (by risk)	2	146	Risk Difference (M-H, Random, 95% CI)	-0.06 [-0.17, 0.05]
4.1 High Risk	2	76	Risk Difference (M-H, Random, 95% CI)	-0.15 [-0.27, -0.02]
4.2 Low Risk	2	70	Risk Difference (M-H, Random, 95% CI)	0.0 [-0.07, 0.07]
5 Depression scores (by population)	63	13799	Std. Mean Difference (IV, Random, 95% CI)	-0.20 [-0.26, -0.14]
5.1 Targeted	32	4174	Std. Mean Difference (IV, Random, 95% CI)	-0.31 [-0.41, -0.21]
5.2 Universal	31	9625	Std. Mean Difference (IV, Random, 95% CI)	-0.10 [-0.16, -0.04]
6 Depression scores (by intervention)	51	10474	Std. Mean Difference (IV, Random, 95% CI)	-0.21 [-0.28, -0.15]
6.1 Psychological	51	10474	Std. Mean Difference (IV, Random, 95% CI)	-0.21 [-0.28, -0.15]
7 Depression scores (by sex)	40	13350	Std. Mean Difference (IV, Random, 95% CI)	-0.10 [-0.19, -0.01]
7.1 Males	37	6361	Std. Mean Difference (IV, Random, 95% CI)	-0.15 [-0.24, -0.06]
7.2 Females	37	6989	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.21, 0.11]
8 Depression scores (by risk)	14	5944	Std. Mean Difference (IV, Random, 95% CI)	-0.12 [-0.20, -0.04]
8.1 High Risk	14	1979	Std. Mean Difference (IV, Random, 95% CI)	-0.16 [-0.29, -0.03]
8.2 Low Risk	14	3965	Std. Mean Difference (IV, Random, 95% CI)	-0.10 [-0.21, -0.00]

Comparison 2. Psychological/educational intervention versus placebo/attention/other intervention

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Depressive disorder (by population)	1	125	Risk Difference (M-H, Random, 95% CI)	-0.07 [-0.19, 0.04]
1.1 Targeted	1	125	Risk Difference (M-H, Random, 95% CI)	-0.07 [-0.19, 0.04]
2 Depressive disorder (by intervention)	1	125	Risk Difference (M-H, Random, 95% CI)	-0.07 [-0.19, 0.04]
2.1 Psychological	1	125	Risk Difference (M-H, Random, 95% CI)	-0.07 [-0.19, 0.04]

3 Depression scores (by population)	6	607	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.21, 0.11]
3.1 Targeted	3	231	Std. Mean Difference (IV, Random, 95% CI)	-0.14 [-0.40, 0.12]
3.2 Universal	3	376	Std. Mean Difference (IV, Random, 95% CI)	-0.00 [-0.21, 0.20]
4 Depression scores (by intervention)	5	563	Std. Mean Difference (IV, Random, 95% CI)	-0.02 [-0.19, 0.14]
4.1 Psychological	5	563	Std. Mean Difference (IV, Random, 95% CI)	-0.02 [-0.19, 0.14]
5 Depression scores (by gender)	1	235	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.31, 0.21]
5.1 Males	1	125	Std. Mean Difference (IV, Random, 95% CI)	-0.00 [-0.36, 0.35]
5.2 Females	1	110	Std. Mean Difference (IV, Random, 95% CI)	-0.10 [-0.48, 0.27]

Comparison 3. Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Depressive disorder (by population)	19	1842	Risk Difference (M-H, Random, 95% CI)	-0.11 [-0.16, -0.06]
1.1 Targeted	10	1306	Risk Difference (M-H, Random, 95% CI)	-0.06 [-0.10, -0.03]
1.2 Universal	9	536	Risk Difference (M-H, Random, 95% CI)	-0.19 [-0.33, -0.05]
2 Depressive disorder (by intervention)	18	1688	Risk Difference (M-H, Random, 95% CI)	-0.12 [-0.17, -0.06]
2.1 Educational	0	0	Risk Difference (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
2.2 Psychological	18	1688	Risk Difference (M-H, Random, 95% CI)	-0.12 [-0.17, -0.06]
3 Depressive disorder (by sex)	11	1570	Risk Difference (M-H, Random, 95% CI)	-0.03 [-0.06, -0.00]
3.1 Males	10	770	Risk Difference (M-H, Random, 95% CI)	-0.03 [-0.08, 0.01]
3.2 Females	11	800	Risk Difference (M-H, Random, 95% CI)	-0.04 [-0.08, 0.00]
4 Depressive disorder (by risk)	6	1142	Risk Difference (M-H, Random, 95% CI)	-0.05 [-0.09, -0.01]
4.1 High Risk	6	916	Risk Difference (M-H, Random, 95% CI)	-0.06 [-0.11, -0.00]
4.2 Low Risk	3	226	Risk Difference (M-H, Random, 95% CI)	-0.04 [-0.15, 0.07]
5 Depression scores (by population)	43	6999	Std. Mean Difference (IV, Random, 95% CI)	-0.16 [-0.23, -0.10]
5.1 Targeted	24	3146	Std. Mean Difference (IV, Random, 95% CI)	-0.22 [-0.32, -0.12]
5.2 Universal	19	3853	Std. Mean Difference (IV, Random, 95% CI)	-0.09 [-0.17, -0.02]
6 Depression scores (by intervention)	39	6219	Std. Mean Difference (IV, Random, 95% CI)	-0.17 [-0.24, -0.11]
6.1 Psychological	39	6219	Std. Mean Difference (IV, Random, 95% CI)	-0.17 [-0.24, -0.11]
7 Depression scores (by sex)	27	7286	Std. Mean Difference (IV, Random, 95% CI)	-0.04 [-0.17, 0.08]
7.1 Males	26	3392	Std. Mean Difference (IV, Random, 95% CI)	-0.19 [-0.27, -0.12]
7.2 Females	27	3894	Std. Mean Difference (IV, Random, 95% CI)	0.09 [-0.13, 0.31]
8 Depression scores (by risk)	9	2813	Std. Mean Difference (IV, Random, 95% CI)	-0.03 [-0.14, 0.07]
8.1 High Risk	9	668	Std. Mean Difference (IV, Random, 95% CI)	0.03 [-0.15, 0.22]
8.2 Low Risk	9	2145	Std. Mean Difference (IV, Random, 95% CI)	-0.07 [-0.20, 0.06]

Comparison 4. Psychological/educational intervention versus placebo/attention/other intervention three to nine months

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Depression scores (by population)	4	437	Std. Mean Difference (IV, Random, 95% CI)	0.07 [-0.12, 0.26]
1.1 Targeted	1	66	Std. Mean Difference (IV, Random, 95% CI)	0.06 [-0.42, 0.55]
1.2 Universal	3	371	Std. Mean Difference (IV, Random, 95% CI)	0.01 [-0.31, 0.33]
2 Depression scores (by intervention)	4	437	Std. Mean Difference (IV, Random, 95% CI)	0.07 [-0.12, 0.26]
2.1 Educational	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
2.2 Psychological	4	437	Std. Mean Difference (IV, Random, 95% CI)	0.07 [-0.12, 0.26]

Comparison 5. Psychological/educational intervention versus no intervention/wait-list/usual care 12 months

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Depressive disorder (by population)	11	2283	Risk Difference (M-H, Random, 95% CI)	-0.06 [-0.11, -0.01]
1.1 Targeted	3	239	Risk Difference (M-H, Random, 95% CI)	-0.14 [-0.24, -0.04]
1.2 Universal	8	2044	Risk Difference (M-H, Random, 95% CI)	-0.04 [-0.09, 0.02]
2 Depressive disorder (by intervention)	11	2270	Risk Difference (M-H, Random, 95% CI)	-0.12 [-0.19, -0.04]
2.1 Psychological	11	2270	Risk Difference (M-H, Random, 95% CI)	-0.12 [-0.19, -0.04]
3 Depressive disorder (by sex)	5	2048	Risk Difference (M-H, Random, 95% CI)	-0.01 [-0.04, 0.03]
3.1 Males	5	948	Risk Difference (M-H, Random, 95% CI)	0.02 [-0.02, 0.05]
3.2 Females	5	1100	Risk Difference (M-H, Random, 95% CI)	-0.02 [-0.09, 0.04]
4 Depressive disorder (by risk)	3	346	Risk Difference (M-H, Random, 95% CI)	0.01 [-0.05, 0.06]
4.1 High Risk	3	288	Risk Difference (M-H, Random, 95% CI)	0.01 [-0.06, 0.08]
4.2 Low Risk	2	58	Risk Difference (M-H, Random, 95% CI)	0.0 [-0.08, 0.08]
5 Depression scores (by population)	24	6463	Std. Mean Difference (IV, Random, 95% CI)	-0.10 [-0.18, -0.02]
5.1 Targeted	8	1351	Std. Mean Difference (IV, Random, 95% CI)	-0.20 [-0.37, -0.04]
5.2 Universal	16	5112	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.14, 0.03]
6 Depression scores (by intervention)	22	6354	Std. Mean Difference (IV, Random, 95% CI)	-0.10 [-0.18, -0.02]
6.1 Psychological	22	6354	Std. Mean Difference (IV, Random, 95% CI)	-0.10 [-0.18, -0.02]
7 Depression scores (by sex)	16	5130	Std. Mean Difference (IV, Random, 95% CI)	-0.06 [-0.14, 0.03]
7.1 Males	14	2317	Std. Mean Difference (IV, Random, 95% CI)	-0.07 [-0.21, 0.07]
7.2 Females	16	2813	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.17, 0.06]
8 Depression scores (by risk)	8	2695	Std. Mean Difference (IV, Random, 95% CI)	0.01 [-0.08, 0.09]
8.1 High Risk	8	737	Std. Mean Difference (IV, Random, 95% CI)	0.02 [-0.14, 0.17]
8.2 Low Risk	8	1958	Std. Mean Difference (IV, Random, 95% CI)	0.00 [-0.10, 0.10]

Comparison 6. Psychological/educational intervention versus placebo/attention/other intervention 12 months

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Depression scores (by population)	1	295	Std. Mean Difference (IV, Random, 95% CI)	-0.07 [-0.30, 0.16]
1.1 Universal	1	295	Std. Mean Difference (IV, Random, 95% CI)	-0.07 [-0.30, 0.16]
2 Depression scores (by intervention)	1	295	Std. Mean Difference (IV, Random, 95% CI)	-0.07 [-0.30, 0.16]
2.1 Psychological	1	295	Std. Mean Difference (IV, Random, 95% CI)	-0.07 [-0.30, 0.16]
3 Depression scores (by sex)	1	212	Std. Mean Difference (IV, Random, 95% CI)	-0.10 [-0.46, 0.27]
3.1 Males	1	109	Std. Mean Difference (IV, Random, 95% CI)	0.09 [-0.29, 0.46]
3.2 Females	1	103	Std. Mean Difference (IV, Random, 95% CI)	-0.28 [-0.67, 0.11]

Comparison 7. Psychological/educational intervention versus no intervention/wait-list/usual care 24 months

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Depressive disorder (by population)	8	2084	Risk Difference (M-H, Random, 95% CI)	-0.01 [-0.04, 0.03]
1.1 Targeted	2	313	Risk Difference (M-H, Random, 95% CI)	-0.01 [-0.10, 0.09]
1.2 Universal	6	1771	Risk Difference (M-H, Random, 95% CI)	-0.01 [-0.05, 0.03]
2 Depressive disorder (by intervention)	7	1849	Risk Difference (M-H, Random, 95% CI)	-0.01 [-0.04, 0.03]
2.1 Psychological	7	1849	Risk Difference (M-H, Random, 95% CI)	-0.01 [-0.04, 0.03]
3 Depressive disorder (by sex)	4	1903	Risk Difference (M-H, Random, 95% CI)	-0.00 [-0.03, 0.02]
3.1 Males	4	909	Risk Difference (M-H, Random, 95% CI)	-0.01 [-0.04, 0.03]
3.2 Females	4	994	Risk Difference (M-H, Random, 95% CI)	-0.00 [-0.05, 0.04]
4 Depressive disorder (by risk)	3	345	Risk Difference (M-H, Random, 95% CI)	-0.02 [-0.08, 0.04]
4.1 High Risk	3	167	Risk Difference (M-H, Random, 95% CI)	-0.10 [-0.21, 0.01]
4.2 Low Risk	3	178	Risk Difference (M-H, Random, 95% CI)	0.02 [-0.05, 0.09]
5 Depression scores (by population)	14	3599	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.08, 0.05]
5.1 Targeted	4	598	Std. Mean Difference (IV, Random, 95% CI)	0.03 [-0.13, 0.19]
5.2 Universal	10	3001	Std. Mean Difference (IV, Random, 95% CI)	-0.03 [-0.12, 0.05]
6 Depression scores (by intervention)	13	3215	Std. Mean Difference (IV, Random, 95% CI)	-0.02 [-0.09, 0.05]
6.1 Psychological	13	3215	Std. Mean Difference (IV, Random, 95% CI)	-0.02 [-0.09, 0.05]
7 Depression scores (by sex)	8	3359	Std. Mean Difference (IV, Random, 95% CI)	0.05 [-0.13, 0.24]
7.1 Males	8	1589	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.15, 0.05]
7.2 Females	8	1770	Std. Mean Difference (IV, Random, 95% CI)	0.18 [-0.17, 0.53]
8 Depression scores (by risk)	4	1142	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.18, 0.17]
8.1 High Risk	4	308	Std. Mean Difference (IV, Random, 95% CI)	0.08 [-0.36, 0.51]
8.2 Low Risk	4	834	Std. Mean Difference (IV, Random, 95% CI)	-0.07 [-0.21, 0.06]

Comparison 8. Psychological/educational intervention versus placebo/attention/other intervention 24 months

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Depression scores (by population)	1	263	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.29, 0.19]
1.1 Universal	1	263	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.29, 0.19]
2 Depression scores (by intervention)	1	263	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.29, 0.19]
2.1 Psychological	1	263	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.29, 0.19]

Comparison 9. Psychological/educational intervention versus no intervention/wait-list/usual care 36 months

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Depressive disorder (by population)	2	464	Risk Difference (M-H, Random, 95% CI)	-0.10 [-0.19, -0.02]
1.1 Targeted	1	225	Risk Difference (M-H, Random, 95% CI)	-0.08 [-0.21, 0.05]
1.2 Universal	1	239	Risk Difference (M-H, Random, 95% CI)	-0.12 [-0.22, -0.01]
2 Depressive disorder (by intervention)	2	464	Risk Difference (M-H, Random, 95% CI)	-0.10 [-0.19, -0.02]
2.1 Psychological	2	464	Risk Difference (M-H, Random, 95% CI)	-0.10 [-0.19, -0.02]
3 Depression scores (by population)	6	1203	Std. Mean Difference (IV, Random, 95% CI)	-0.09 [-0.21, 0.02]
3.1 Targeted	2	301	Std. Mean Difference (IV, Random, 95% CI)	-0.24 [-0.47, -0.02]
3.2 Universal	4	902	Std. Mean Difference (IV, Random, 95% CI)	-0.04 [-0.17, 0.09]
4 Depression scores (by intervention)	6	1203	Std. Mean Difference (IV, Random, 95% CI)	-0.09 [-0.21, 0.02]
4.1 Psychological	6	1203	Std. Mean Difference (IV, Random, 95% CI)	-0.09 [-0.21, 0.02]
5 Depression scores (by sex)	2	816	Std. Mean Difference (IV, Random, 95% CI)	-0.06 [-0.20, 0.08]
5.1 Males	2	395	Std. Mean Difference (IV, Random, 95% CI)	-0.03 [-0.23, 0.17]
5.2 Females	2	421	Std. Mean Difference (IV, Random, 95% CI)	-0.09 [-0.30, 0.12]
6 Depression scores (by risk)	1	524	Std. Mean Difference (IV, Random, 95% CI)	-0.03 [-0.20, 0.14]
6.1 High Risk	1	171	Std. Mean Difference (IV, Random, 95% CI)	-0.10 [-0.41, 0.20]
6.2 Low Risk	1	353	Std. Mean Difference (IV, Random, 95% CI)	0.01 [-0.20, 0.22]

Analysis 1.1. Comparison 1 Psychological/educational intervention versus no intervention/wait-list/usual care, Outcome 1 Depressive disorder (by population).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 1 Psychological/educational intervention versus no intervention/wait-list/usual care

Outcome: 1 Depressive disorder (by population)

(Continued ...)

Analysis 1.2. Comparison 1 Psychological/educational intervention versus no intervention/wait-list/usual care, Outcome 2 Depressive disorder (by intervention).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 1 Psychological/educational intervention versus no intervention/wait-list/usual care

Outcome: 2 Depressive disorder (by intervention)

(Continued . . .)

Analysis 1.3. Comparison 1 Psychological/educational intervention versus no intervention/wait-list/usual care, Outcome 3 Depressive disorder (by sex).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 1 Psychological/educational intervention versus no intervention/wait-list/usual care

Outcome: 3 Depressive disorder (by sex)

(Continued ...)

Analysis 1.4. Comparison 1 Psychological/educational intervention versus no intervention/wait-list/usual care, Outcome 4 Depressive disorders (by risk).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 1 Psychological/educational intervention versus no intervention/wait-list/usual care

Outcome: 4 Depressive disorders (by risk)

Analysis 1.5. Comparison 1 Psychological/educational intervention versus no intervention/wait-list/usual care, Outcome 5 Depression scores (by population).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 1 Psychological/educational intervention versus no intervention/wait-list/usual care

Outcome: 5 Depression scores (by population)

(Continued ...)

Analysis 1.6. Comparison 1 Psychological/educational intervention versus no intervention/wait-list/usual care, Outcome 6 Depression scores (by intervention).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 1 Psychological/educational intervention versus no intervention/wait-list/usual care

Outcome: 6 Depression scores (by intervention)

(Continued ...)

Analysis 1.7. Comparison 1 Psychological/educational intervention versus no intervention/wait-list/usual care, Outcome 7 Depression scores (by sex).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 1 Psychological/educational intervention versus no intervention/wait-list/usual care

Outcome: 7 Depression scores (by sex)

(Continued ...)

Analysis 1.8. Comparison 1 Psychological/educational intervention versus no intervention/wait-list/usual care, Outcome 8 Depression scores (by risk).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 1 Psychological/educational intervention versus no intervention/wait-list/usual care

Outcome: 8 Depression scores (by risk)

(Continued ...)

Analysis 2.1. Comparison 2 Psychological/educational intervention versus placebo/attention/other intervention, Outcome 1 Depressive disorder (by population).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 2 Psychological/educational intervention versus placebo/attention/other intervention

Outcome: 1 Depressive disorder (by population)

Analysis 2.2. Comparison 2 Psychological/educational intervention versus placebo/attention/other intervention, Outcome 2 Depressive disorder (by intervention).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 2 Psychological/educational intervention versus placebo/attention/other intervention

Outcome: 2 Depressive disorder (by intervention)

Analysis 2.3. Comparison 2 Psychological/educational intervention versus placebo/attention/other intervention, Outcome 3 Depression scores (by population).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 2 Psychological/educational intervention versus placebo/attention/other intervention

Outcome: 3 Depression scores (by population)

Analysis 2.4. Comparison 2 Psychological/educational intervention versus placebo/attention/other intervention, Outcome 4 Depression scores (by intervention).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 2 Psychological/educational intervention versus placebo/attention/other intervention

Outcome: 4 Depression scores (by intervention)

Analysis 2.5. Comparison 2 Psychological/educational intervention versus placebo/attention/other intervention, Outcome 5 Depression scores (by gender).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 2 Psychological/educational intervention versus placebo/attention/other intervention

Outcome: 5 Depression scores (by gender)

Analysis 3.1. Comparison 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months, Outcome 1 Depressive disorder (by population).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months

Outcome: 1 Depressive disorder (by population)

(Continued ...)

Analysis 3.2. Comparison 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months, Outcome 2 Depressive disorder (by intervention).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months

Outcome: 2 Depressive disorder (by intervention)

(Continued . . .)

Analysis 3.3. Comparison 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months, Outcome 3 Depressive disorder (by sex).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months

Outcome: 3 Depressive disorder (by sex)

(Continued ...)

Analysis 3.4. Comparison 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months, Outcome 4 Depressive disorder (by risk).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months

Outcome: 4 Depressive disorder (by risk)

(Continued . . .)

Analysis 3.5. Comparison 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months, Outcome 5 Depression scores (by population).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months

Outcome: 5 Depression scores (by population)

Analysis 3.6. Comparison 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months, Outcome 6 Depression scores (by intervention).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months

Outcome: 6 Depression scores (by intervention)

(Continued ...)

Analysis 3.7. Comparison 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months, Outcome 7 Depression scores (by sex).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months

Outcome: 7 Depression scores (by sex)

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Analysis 3.8. Comparison 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months, Outcome 8 Depression scores (by risk).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 3 Psychological/educational intervention versus no intervention/wait-list/usual care three to nine months

Outcome: 8 Depression scores (by risk)

(Continued . . .)

Analysis 4.1. Comparison 4 Psychological/educational intervention versus placebo/attention/other intervention three to nine months, Outcome 1 Depression scores (by population).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 4 Psychological/educational intervention versus placebo/attention/other intervention three to nine months

Outcome: 1 Depression scores (by population)

Analysis 4.2. Comparison 4 Psychological/educational intervention versus placebo/attention/other intervention three to nine months, Outcome 2 Depression scores (by intervention).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 4 Psychological/educational intervention versus placebo/attention/other intervention three to nine months

Outcome: 2 Depression scores (by intervention)

Analysis 5.1. Comparison 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months, Outcome 1 Depressive disorder (by population).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months

Outcome: 1 Depressive disorder (by population)

Analysis 5.2. Comparison 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months, Outcome 2 Depressive disorder (by intervention).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months

Outcome: 2 Depressive disorder (by intervention)

Analysis 5.3. Comparison 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months, Outcome 3 Depressive disorder (by sex).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months

Outcome: 3 Depressive disorder (by sex)

Analysis 5.4. Comparison 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months, Outcome 4 Depressive disorder (by risk).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months

Outcome: 4 Depressive disorder (by risk)

Analysis 5.5. Comparison 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months, Outcome 5 Depression scores (by population).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months

Outcome: 5 Depression scores (by population)

Analysis 5.6. Comparison 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months, Outcome 6 Depression scores (by intervention).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months

Outcome: 6 Depression scores (by intervention)

Analysis 5.7. Comparison 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months, Outcome 7 Depression scores (by sex).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months

Outcome: 7 Depression scores (by sex)

(Continued ...)

Analysis 5.8. Comparison 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months, Outcome 8 Depression scores (by risk).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 5 Psychological/educational intervention versus no intervention/wait-list/usual care 12 months

Outcome: 8 Depression scores (by risk)

Analysis 6.1. Comparison 6 Psychological/educational intervention versus placebo/attention/other intervention 12 months, Outcome 1 Depression scores (by population).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 6 Psychological/educational intervention versus placebo/attention/other intervention 12 months

Outcome: 1 Depression scores (by population)

Analysis 6.2. Comparison 6 Psychological/educational intervention versus placebo/attention/other intervention 12 months, Outcome 2 Depression scores (by intervention).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 6 Psychological/educational intervention versus placebo/attention/other intervention 12 months

Outcome: 2 Depression scores (by intervention)

Analysis 6.3. Comparison 6 Psychological/educational intervention versus placebo/attention/other intervention 12 months, Outcome 3 Depression scores (by sex).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 6 Psychological/educational intervention versus placebo/attention/other intervention 12 months

Outcome: 3 Depression scores (by sex)

Analysis 7.1. Comparison 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months, Outcome 1 Depressive disorder (by population).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months

Outcome: 1 Depressive disorder (by population)

Analysis 7.2. Comparison 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months, Outcome 2 Depressive disorder (by intervention).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months

Outcome: 2 Depressive disorder (by intervention)

Analysis 7.3. Comparison 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months, Outcome 3 Depressive disorder (by sex).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months

Outcome: 3 Depressive disorder (by sex)

Analysis 7.4. Comparison 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months, Outcome 4 Depressive disorder (by risk).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months

Outcome: 4 Depressive disorder (by risk)

Analysis 7.5. Comparison 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months, Outcome 5 Depression scores (by population).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months

Outcome: 5 Depression scores (by population)

Analysis 7.6. Comparison 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months, Outcome 6 Depression scores (by intervention).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months

Outcome: 6 Depression scores (by intervention)

Analysis 7.7. Comparison 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months, Outcome 7 Depression scores (by sex).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months

Outcome: 7 Depression scores (by sex)

Analysis 7.8. Comparison 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months, Outcome 8 Depression scores (by risk).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 7 Psychological/educational intervention versus no intervention/wait-list/usual care 24 months

Outcome: 8 Depression scores (by risk)

Analysis 8.1. Comparison 8 Psychological/educational intervention versus placebo/attention/other intervention 24 months, Outcome 1 Depression scores (by population).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 8 Psychological/educational intervention versus placebo/attention/other intervention 24 months

Outcome: 1 Depression scores (by population)

Analysis 8.2. Comparison 8 Psychological/educational intervention versus placebo/attention/other intervention 24 months, Outcome 2 Depression scores (by intervention).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 8 Psychological/educational intervention versus placebo/attention/other intervention 24 months

Outcome: 2 Depression scores (by intervention)

Analysis 9.1. Comparison 9 Psychological/educational intervention versus no intervention/wait-list/usual care 36 months, Outcome 1 Depressive disorder (by population).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 9 Psychological/educational intervention versus no intervention/wait-list/usual care 36 months

Outcome: 1 Depressive disorder (by population)

Analysis 9.2. Comparison 9 Psychological/educational intervention versus no intervention/wait-list/usual care 36 months, Outcome 2 Depressive disorder (by intervention).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 9 Psychological/educational intervention versus no intervention/wait-list/usual care 36 months

Outcome: 2 Depressive disorder (by intervention)

Analysis 9.3. Comparison 9 Psychological/educational intervention versus no intervention/wait-list/usual care 36 months, Outcome 3 Depression scores (by population).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 9 Psychological/educational intervention versus no intervention/wait-list/usual care 36 months

Outcome: 3 Depression scores (by population)

Analysis 9.4. Comparison 9 Psychological/educational intervention versus no intervention/wait-list/usual care 36 months, Outcome 4 Depression scores (by intervention).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 9 Psychological/educational intervention versus no intervention/wait-list/usual care 36 months

Outcome: 4 Depression scores (by intervention)

Analysis 9.5. Comparison 9 Psychological/educational intervention versus no intervention/wait-list/usual care 36 months, Outcome 5 Depression scores (by sex).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 9 Psychological/educational intervention versus no intervention/wait-list/usual care 36 months

Outcome: 5 Depression scores (by sex)

Analysis 9.6. Comparison 9 Psychological/educational intervention versus no intervention/wait-list/usual care 36 months, Outcome 6 Depression scores (by risk).

Review: Psychological and educational interventions for preventing depression in children and adolescents

Comparison: 9 Psychological/educational intervention versus no intervention/wait-list/usual care 36 months

Outcome: 6 Depression scores (by risk)

APPENDICES

Appendix I. MEDLINE Search Strategy

1. Affective Symptoms/ or Depression/ or Behavioral Symptoms/
2. exp Depressive Disorder/
3. (depressi\$ adj3 disorder\$).tw.
4. (depressi\$ adj3 symptom\$).tw.
5. (depressi\$ adj3 episode\$).tw.
6. subclinical depress\$.tw.
7. depressed mood.tw.
8. or/1-7
9. early intervention\$.tw.
10. (early onset or recent onset or (prevent\$ adj3 onset)).tw.
11. (sub-threshold or subthreshold).tw.
12. (sub-syndrom\$ or subsyndrom\$).tw.
13. indicat\$ prevention.tw.
14. select\$ prevention.tw.

15. (targeted prevention or targeted intervention\$).tw.
16. (universal prevention or universal intervention\$).tw.
17. (prevention program\$ or prevention intervention\$).tw.
18. Primary Prevention/
19. Preventive Health Services/
20. or/9-19
21. 8 and 20
22. exp Health Education/
23. (educat\$ adj3 pack\$).tw.
24. (educat\$ adj3 interv\$).tw.
25. (educat\$ adj3 program\$).tw.
26. Counseling/
27. group counsel\$.tw.
28. exp Psychotherapy/
29. exp Behavior Therapy/
30. cognitive behav\$ intervention\$.tw.
31. group intervention\$.tw.
32. or/22-31
33. 8 and 32
34. Depression/pc, th [Prevention & Control, Therapy]
35. Depressive Disorder/pc, th [Prevention & Control, Therapy]
36. 34 or 35
37. 21 or 33 or 36
38. limit 37 to "all child (0 to 18 years)"
39. clinical trial.pt.
40. clinical trial\$.mp.
41. random\$.mp.
42. placebo\$.ti,ab.
43. or/39-42
44. 38 and 43

Appendix 2. PsycINFO Search Strategy

1. "Depression (Emotion)"/ or Major Depression/ or Affective Disorder/ or Dysthymic Disorder/
2. (depressi\$ adj3 disorder\$).tw.
3. (depressi\$ adj3 symptom\$).tw.
4. (depressi\$ adj3 episode\$).tw.
5. subclinical depress\$.tw.
6. depressed mood.tw.
7. or/1-6
8. early intervention\$.tw.
9. (early onset or recent onset or (prevent\$ adj3 onset)).tw.
10. (sub-threshold or subthreshold).tw.
11. (sub-syndrom\$ or subsyndrom\$).tw.
12. indicat\$ prevention.tw.
13. select\$ prevention.tw.
14. (targeted prevention or targeted intervention\$).tw.
15. (universal prevention or universal intervention\$).tw.
16. (prevention program\$ or prevention intervention\$).tw.
17. Primary Prevention/
18. Preventive Health Services/
19. or/8-18

20. 7 and 19
21. exp Health Education/
22. (educat\$ adj3 pack\$).tw.
23. (educat\$ adj3 interv\$).tw.
24. (educat\$ adj3 program\$).tw.
25. Counseling/
26. group counsel\$.tw.
27. exp Psychotherapy/
28. exp Behavior Therapy/
29. cognitive behav\$ intervention\$.tw.
30. group intervention\$.tw.
31. or/21-30
32. 7 and 31
33. Depression/pc, th [Prevention & Control, Therapy]
34. Depressive Disorder/pc, th [Prevention & Control, Therapy]
35. 33 or 34
36. 20 or 32 or 35
37. limit 37 to (100 childhood <birth to age 12 yrs> or 200 adolescence <age 13 to 17 yrs>)
38. clinical trial.pt.
39. clinical trial\$.mp.
40. random\$.mp.
41. placebo\$.ti,ab.
42. or/38-41
43. 37 and 42

Appendix 3. EMBASE Search Strategy

1. Depression/ or Major Depression/ or Dysthymia/ or Mood Disorder/
2. (depressi\$ adj3 disorder\$).tw.
3. (depressi\$ adj3 disorder\$).tw.
4. (depressi\$ adj3 symptom\$).tw.
5. (depressi\$ adj3 episode\$).tw.
6. subclinical depress\$.tw.
7. depressed mood.tw.
8. or/1-7
9. early intervention\$.tw.
10. (early onset or recent onset or (prevent\$ adj3 onset)).tw.
11. (sub-threshold or subthreshold).tw.
12. (sub-syndrom\$ or subsyndrom\$).tw.
13. indicat\$ prevention.tw.
14. select\$ prevention.tw.
15. (targeted prevention or targeted intervention\$).tw.
16. (universal prevention or universal intervention\$).tw.
17. (prevention program\$ or prevention intervention\$).tw.
18. Primary Prevention/
19. Preventive Health Services/
20. or/9-19
21. 8 and 20
22. exp Health Education/
23. (educat\$ adj3 pack\$).tw.
24. (educat\$ adj3 interv\$).tw.
25. (educat\$ adj3 program\$).tw.

26. Counseling/
27. group counsel\$.tw.
28. exp Psychotherapy/
29. exp Behavior Therapy/
30. cognitive behav\$ intervention\$.tw.
31. group intervention\$.tw.
32. or/22-31
33. 8 and 32
34. Depression/pc, th [Prevention & Control, Therapy]
35. Depressive Disorder/pc, th [Prevention & Control, Therapy]
36. 34 or 35
37. 21 or 33 or 36
38. limit 37 to (preschool child <1 to 6 years> or school child <7 to 12 years> or adolescent <13 to 17 years>)
39. clinical trial.pt.
40. clinical trial\$.mp.
41. random\$.mp.
42. placebo\$.ti,ab.
43. or/39-42
44. 38 and 43

Appendix 4. ERIC Search Strategy

((Thesaurus Descriptors: "Depression (psychology)") or (Thesaurus Descriptors: Dysthymia) or (Keywords: "depressive disorder" or "Keywords: depression disorder") or (Keywords: "depressive symptoms" or "Keywords: depression symptoms" or Keywords: "symptoms of depression")) and (Education Level: "Elementary Education" or Education Level: "Elementary Secondary Education" or Education Level: "Primary Education" or Education Level: "Secondary Education")

Appendix 5. Hierachy of outcome measures

Most studies used several depression rating scales or diagnostic interviews as outcome measures. For the purposes of pooling results to obtain an aggregate outcome, a single "best available" outcome measure was chosen for each study. The order of selection was determined by the rating of each instrument over the following five criteria: appropriateness to children and adolescents; reliability; construct validity; agreement with clinical interview; track record in psychopharmacological research. Most of the data for this rating were obtained from a review by Petti ([Petti 1985](#)).

The hierarchy of selection for analysis, and the number of criteria met by each rating scale (in parentheses), were as follows:

1. Schedule for Affective Disorders and Schizophrenia for School-Age Children (Kiddie-SADS), combined child and parent report. (5)
2. Children's Depression Rating Scale (CDRS). (4)
3. Bellevue Index of Depression (BID). (3)
4. Children's Depression Inventory (CDI). (3)
5. Hamilton Depression Rating Scale (HAM-D). (3)
6. Depressive Adjective Checklist (DACL). (2)

WHAT'S NEW

Last assessed as up-to-date: 22 July 2010.

Date	Event	Description
29 March 2011	New search has been performed	Updated search and new studies added
15 January 2011	New citation required and conclusions have changed	Conclusion have changed due to the inclusion of new studies in the analysis

HISTORY

Protocol first published: Issue 3, 2001

Review first published: Issue 1, 2004

Date	Event	Description
8 May 2010	Amended	Converted to new review format.
23 July 2008	New citation required and conclusions have changed	Substantive amendment

CONTRIBUTIONS OF AUTHORS

Sally Merry, Heather McDowell, Julliet Bir, Sarah Hetrick devised the protocol.

Sally Merry co-ordinated the review, extracted and entered data, ran analysis, and took a lead role in writing the review.

Sarah Hetrick ran searches, screened trials for inclusion, extracted data and assisted with the write-up on the review.

Georgina Cox ran searches, screened trials for inclusion, extracted and entered data and checked drafts of the review.

Tessa Brudevold-Iversen ran searches, screened trials for inclusion, extracted and entered data and checked drafts of the review.

Julliet Bir screened trials for inclusion, extracted and entered data and checked drafts of the review.

Heather McDowell screened trials for inclusion, extracted and entered data and checked drafts of the review.

DECLARATIONS OF INTEREST

Drs Merry and McDowell and Ms J Bir have been involved in a study of a depression prevention programme. The results of this have been included in this update.

SOURCES OF SUPPORT

Internal sources

- University of Auckland, New Zealand.

External sources

- Health Research Council, New Zealand.

DIFFERENCES BETWEEN PROTOCOL AND REVIEW

In the first version of the review, the protocol indicated that uncontrolled and controlled clinical trials, open trials, case-controlled trials, and cohort studies (e.g. [Altman 1991](#); [Myles 2000](#); [SIGN 2000](#)) would be included if there were no, very few, or only poor quality RCTs. However, given the large number of RCTs retrieved both for the first version and for this updated version of the review, only RCTs have been included.

In the updated version of the review, fewer outcomes have been included given the paucity of data available in the first version of the review for these additional outcomes, and because of the large number of studies included in this update.

Assessment of the risk of bias has been used in this version of the review, updating the previous quality assessment methods used.

NOTES

During the course of this review update the authors have recognised that the review topic might now be better addressed in a series of separate intervention specific reviews and this work is likely to be undertaken during the next year.

INDEX TERMS

Medical Subject Headings (MeSH)

Adolescent; Depression [diagnosis; *prevention & control]; Depressive Disorder [diagnosis; *prevention & control]; Psychotherapy [methods]; Randomized Controlled Trials as Topic

MeSH check words

Adult; Child; Child, Preschool; Female; Humans; Male

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