National Institute for Health and Care Excellence

Final

Depression in children and young people, 2019 evidence review

[A] Psychological interventions for the treatment of depression

NICE guideline NG134

Evidence review underpinning recommendations 1.5.4 to 1.5.11 (mild depression) and 1.6.1 to 1.6.6 (moderate to severe depression) in the NICE guideline

June 2019

Final

This evidence review was developed by the NICE Guideline Updates Team

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Psychological interventions for depression

Review question

What are the most effective psychological interventions for children and young people with depression?

Introduction

Depression in children and young people can have a devastating impact on their development, ability to function and attendance at school. The 2015 NICE guidance (NICE guideline CG28) on depression in children and young people recommends psychological interventions for people with mild or moderate to severe depression before pharmacological interventions are considered. Psychological interventions can be delivered as group interventions (e.g. group Cognitive Behavioural Therapy, CBT), using computers or other digital devices (e.g. computer CBT), as individual sessions (e.g. CBT) or as sessions involving family in addition to the child or young person with depression, either in joint sessions (e.g. family therapy) or in parallel (interpersonal psychotherapy, IPT, which includes some parent sessions, psychodynamic psychotherapy). The choice of therapy is based on the individual needs of the child or young person with depression, taking into account their history and presentation and the context in which treatment is to be provided.

The NICE guideline on depression in children and young people (NICE guideline CG28) was reviewed in 2017 as part of NICE's routine surveillance programme to determine whether new evidence was available that could alter the current recommendations. The surveillance report identified new evidence relating to psychological therapies for the treatment of depression in children and young people. In particular, results from the National Institute for Health Research funded IMPACT trial (Goodyer 2017) suggested that a brief psychosocial intervention was as clinically effective as short-term psychoanalytical therapy and CBT, while a cost-effectiveness analysis showed no difference in cost between the interventions. As a result, the decision was made to update this part of the guideline.

The aim of this review is to compare psychological interventions to determine the most effective treatments for depression in children and young people. This review identified studies that fulfilled the conditions specified in Table 1. For full details of the review protocol, see appendix A.

PICO table

Table 1 PICO table for psychological interventions review

Population	Children and young people aged 5 to 18 years with recognised symptoms of depressive disorder
Interventions	• Individual cognitive behavioural therapy (CBT) • Group CBT • Individual computer-based CBT • CBT with separate parent sessions • Dialectical behavioural therapy (DBT) • Interpersonal psychotherapy (also known as interpersonal therapy, IPT, and IPT-A [IPT for adolescents]) • Group IPT • Psychodynamic child psychotherapy (psychoanalytic child psychotherapy is included as a specific type of subtype of psychodynamic psychotherapy) • Self-modelling

	• Relaxation
	• Social skills training
	• Systemic therapy
	• Family therapy (excluding CBT with parental involvement)
	• Control enhancement training
	• Individual non-directive supportive therapy (NDST)
	• Group NDST
	• Guided self-help including:
	  ○ Bibliotherapy
	  ○ Apps targeting depression (that are separate from computer- based CBT)
	• Mindfulness-based cognitive therapy
	• Mindfulness (other than mindfulness-based cognitive therapy)
	• Psychosocial interventions
	• Psychoeducation
	• Behavioural activation
	• Eye movement desensitisation and reprocessing
	• Counselling
	• Arts/creative psychotherapies
	  ○ Art therapy
	  ○ Psychodrama
	  ○ Music therapy
	  ○ Dance therapy
	• Play therapy

Comparator	• Any of the interventions listed above • Waiting list • No intervention • Attention control • Usual care
Outcomes	**Primary outcomes:** • Level of function (functional status) • Depression symptoms following treatment • Remission • Quality of life **Secondary outcomes**: • Suicide-related adverse events during or following treatment (including numbers of suicides if reported) • Suicidal ideation • Self-harm (self-injury or self-poisoning regardless of intent) • Discontinuation from treatment (due to adverse events or for any reason)

Methods and process

This evidence review was developed using the methods and process described in Developing NICE guidelines: the manual (2014). Methods specific to this review question are described in the review protocol in appendix A and the methods section in appendix B.

The search strategies used in this review are detailed in appendix C.

Declarations of interest were recorded according to NICE's 2014 conflicts of interest policy.

The following methods were specific for this review:

1. References that were excluded from the 2015 update of this review question were also excluded in this review at the title and abstract stage if the reasons for exclusion remained valid based on the current review protocol in appendix A. Any references that were potentially relevant based on changes in the review protocol from the 2015 update (such as the addition of art therapies to the list of interventions) were included at the titale and abstract stage and screened at full text. A modified version of the table of excluded references from the 2015 update is included in appendix M.
2. Controls were defined as follows:
    a. Waiting list was merged with no treatment
        - Participants were measured at post-treatment and did not receive anything additional during the treatment period of the intervention.
    b. Monitoring
        - Participants were monitored for their depression symptoms during the duration of the intervention.
    c. Pill placebo
        - Participants received a pill placebo matching the active treatment.
    d. Attention control
        - Participants had access to a programme (for example, a course, website, education, etc). that did not have the same elements of the intervention
    e. Usual care
        - Participants received any treatment as usual which could include other psychological interventions or antidepressants.

    Controls were reclassified, where necessary, into these groups based on the descriptions provided in the trials and committee input.
3. This review used the term digital CBT to cover CBT delivered online by computer or using other electronic interfaces, such as mobile phones or tablets, or by using a downloadable programme. Since the majority of the studies that included this intervention delivered it using a computer, the pairwise and NMA results refer to computer CBT, but the term digital CBT is used in the rationale to reflect the wider range of potential delivery methods.
4. For continuous outcomes:
    a. Some studies reported on more than one scale per outcome. A ranked list of scales was developed for each outcome to prioritise data extraction with the result that only one scale was extracted per outcome per study. The prioritisation was based on committee suggestions of the most frequently used scales in the included studies and a hierarchy of depression symptom severity measurement scales reported by a Cochrane review of newer generation antidepressants for depressive disorders in children and adolescents (Hetrick 2012). See Table 42 in appendix Q for the ranking of these scales.
    b. Data from individual studies were inverted to match the direction of top ranked scale in cases where the direction of improvement was opposite to the top ranked scale prior to pooling (where pooling was possible) in a meta-analysis. Scale directions were inverted even if only one study was found per comparison and outcome to ensure that all improvements were in one direction. This aimed to simplify interpretation of the pair-wise data and was required for data export from RevMan for inclusion in the network meta-analysis (NMA). The direction was changed by multiplying the mean change in effect by -1.
    c. Continuous outcomes were reported as standardised mean differences (SMDs) if multiple studies using multiple scales were pooled for analysis. If the study/studies reported effects using a single scale then mean differences were used. However, when these results were entered into the NMA relative effectiveness charts as pairwise data, the results were converted to the same scale as the NMA results if the MDs were reported on a different scale. To do this

the pooled MD was converted to a SMD in RevMan and then back converted to the chosen output scale as described below.

   d. To simplify the interpretation of continuous outcomes, pooled effect sizes were back calculated from SMDs to MDs on a single scale. The choice of scale used here was made with committee input based on top ranked/most frequently used scales in the included studies. These were the HoNOSCA scale for quality of life; CDI for depressive symptoms and CGAS for functional status.
   e. For the pairwise data shown in the GRADE and NMA tables, the back calculations were carried out using a pooled standard deviation (SD) based on the SDs from all the studies included in the network meta-analysis that reported results using this scale across all depression severity groups and timepoints.

5. For dichotomous outcomes:
   a. In the case of discontinuation, the number of people who started treatment or control was taken as the sample size for use in the calculation of relative risks.
   b. Discontinuation was not reported consistently by the included RCTs and covered dropouts too in some cases. The outcome was called discontinuation for any reason to try to highlight this issue. Since the definition of remission varied greatly across studies and the data was also expected to be more variable, random effect models were used when pooling studies with different definitions of remission, irrespective of the I^2 value for the meta-analysis.
6. Data from Kahn (1990) was excluded from the pairwise and meta-analysis of depression symptoms post-treatment as the SD provided for this outcome for one of the interventions was unreasonably large compared to the depression scale used to measure it and was likely to be a typing error. Data for other time points and outcomes were still included.
7. Gunlicks-Stoessel (2016) compared IPT-A (IPT for adolescents) to IPT-A plus additional parent sessions. This was not included in the NMA because the IPT-A comparator had a reduced number of parent sessions and so was not sufficiently similar to IPT-A to be grouped in the same node of the NMA.
8. Studies were divided into mild and moderate to severe severity groups to help the committee make different recommendations for children and young people with different severities of depression. In the 2015 update of the guideline, the studies were divided into those which recruited children and young people with a diagnosis of depression, who were considered to be the more severe group (moderate to severe depression), and those which recruited participants with depressive symptoms who were considered to be the least severe group (mild depression). The committee decided to keep this division of the studies (see discussion section for details of the rationale for this decision.)
9. Studies reporting on children and young people with comorbidities and depression were included in this review if the focus of the intervention was treatment for depression, but excluded if the treatment was for depression **and** the comorbidty (for example for anxiety and depression). However, these studies were not included in the NMA and kept as separate subgroups in the pairwise analysis in case the presence of the comorbidity altered the effect of the intervention.
10. The proposed subgroup analysis dividing the moderate to severe population into people with no previous depression, a previous incidence of depression or refractory depression was not carried out as the included studies did not provide this information.
11. The following subgroups were used for all pairwise and NMA analyses, where data was available, to aid with decision making by the committee:
    a. 5-11 years old, mild depression
    b. 12-18 years old, mild depression
    c. 5-11 years old, moderate to severe depression
    d. 12-18 years old, moderate to severe depression
12. Two RCTs (Ip 2016 and Stasiak 2014) were considered to involve the use of a particularly complex attention control. Ip (2016) used a control anti-smoking website to promote a smoke-free attitude among participants, whereas Stasiak (2016) used a psychoeducation computer program. Since these attention controls were more intensive than the other attention controls used by other RCTs and could be judged to be active

interventions in their own right, they might have unduly skewed the results of the comparison of computer CBT to attention control. To examine whether this was the case, these RCTs were excluded from the pairwise meta-analysis as an additional sensitivity analysis.

13. The NMA models for dichotomous outcomes were based on models from the NICE Decision Support Unit (DSU) technical support document 2 (models 1c and 1d). The models for standardised mean differences were supplied by the TSU and came from Dias et al. (2016). The models are shown in appendix R.
14. Results were reported as the posterior median and 95% credible interval from the NMA model with the best fit to the data based on the NICE Guideline Updates team criteria for model choice detailed in appendix B.
15. The DSU code presents the results of dichotomous outcomes as OR. These were converted to RR by the NICE Guideline Updates Team using the event rate in the reference treatment arm (treatment coded 1 for model output) for each dichotomous outcome. The event rate was taken from the largest trial with the relevant treatment arm for that outcome and time point.
16. Where the data for the NMA for a dichotomous outcome (for example discontinuation) included trials with 0 events in both arms, these trials were not included as part of the analysis because trials with 0 events in both arms do not contribute evidence on the relative treatment effects in pairwise or NMA.
17. A continuity correction was used where the data contained zero events in 1 arm of a trial, but not the other, but only if there were problems running the model. Continuity correction was used to help the models converge because there were issues with data containing 0 events. The continuity correction involved adding 0.5 to the zero event arm and its matching comparator arm and 1 to the denominator for both arms. The use of a continuity correction is noted in the model fit table.
18. NMAs were not run for networks without useful comparisons for making recommendations. For example, in a small network where individual CBT would only be compared to 2 controls the committee were not interested in the relative effects of the controls compared to each other and the NMA would not provide additional useful information to the pairwise analysis).
19. For models looking at continuous outcomes, MD data for each trial was converted to SMD data within the models using a different SD value per scale that was reported by the included studies. The pooled SDs for each scale were calculated using the SDs of all of the trials that reported MD data for that particular scale, outcome, age and severity subgroup and time point. However, in the cases of the Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA) for quality of life, Child Depression Inventory (CDI) for depressive symptoms and the Children's Global Assessment Scale (CGAS) for functional status, the SD used to convert MD to SMD was the pooled SD from all of the trials reporting data using that particular scale across all of the depression age and severity subgroups and timepoints. This SD was also used to back convert the NMA results onto the chosen scale for output.
20. The published NMA was not used as a source of data for this review as new NMAs were carried out to combine all the existing evidence and look at the outcomes of interest identified by the committee. Instead, the published NMA was used to provide evidence to support or contrast with the findings of this review. In addition, the published NMA grouped the interventions by the type of psychotherapy (for example, CBT or IPT) rather than separating interventions by the type of psychotherapy and method of delivery (for example, group CBT or individual CBT). This was not considered to be an informative approach by the committee.
21. Inconsistency checking of the NMAs was carried (see appendix S) in cases where the models contained loops of evidence. These analyses relaxed the NMA assumption that the data from trials within a loop was consistent and identified several studies as being potentially inconsistent. The characteristics of these studies and others within the loop were re-examined and sensitivity analyses were carried out removing these studies from the NMA models where potential inconsistency had been detected. The results of these

analyses were compared to the original results and are discussed in the sensitivity analyses section of the quality of the evidence part of the committee discussion.

22. The pairwise meta-analysis using RevMan converted MDs to SMDs using individual trial SDs because this is the methodology built into the software package. The NMA models standardised the studies using the pooled SDs for each scale included in the analysis. In order to check that these 2 approaches gave similar results, NMA sensitivity analyses were carried out for 2 of the key outcomes identified by the committee (functional status and depression symptoms). The post treatment time point was selected as this was the time point with the most data and the 12-18 age group was chosen for the same reason. The results of these analyses were compared to the original results and are discussed in the sensitivity analyses section of the quality of the evidence part of the committee discussion.
23. Although there were studies at high risk of bias included in the NMA, sensitivity analyses excluding these studies were not carried out because sensitivity analyses for the pair wise data did not alter the interpretation of the effects of the treatments with 2 exceptions. These were not considered sufficient to warrant running NMA sensitivity analyses for the depression symptoms post treatment outcome for mild depression in 12-18 year olds because the excluded studies were not expected to contribute greatly to the analysis due to their small size and the number of other studies in the network that also involved individual CBT.

We would like to acknowledge the Technical Support Unit, at University of Bristol, particularly Nicky Welton, Sofia Dias, Caitlin Daly and Deborah Caldwell, for providing advice, models, inconsistency checking and quality assurance for the network meta-analyses included in this review.

Protocol deviation

The planned subgroup analysis looking at the effect of treatment duration on effectiveness of the therapies was not carried out because it was decided that there were too few trials for individual pairwise comparisons for this to be informative.

This review had a number of prespecified subgroups based on age and depression severity and it was planned that pooled results from the pairwise comparisons would be reported in GRADE tables unless there was evidence suggesting between subgroup heterogeneity (defined as a statistically significant test for subgroup interactions at the 95% confidence level). However, the committee decided that it was easier to use the results of the NMAs to make recommendations when they were divided up by age and severity into 4 groups (mild depression for 5-11 year olds or 12-18 year olds; moderate to severe depression for 5-11 year olds or 12-18 year olds). The pairwise analyses were reordered to match the NMAs to facilitate comparison of the pairwise and NMA results.

The protocol did not include pill placebo as a comparator as the committee did not expect that trials comparing a pharmaceutical intervention with a pill placebo would also include a psychotherapy. However, 2 trials were identified that fell into this category and otherwise fulfilled the inclusion criteria for this review. In these cases, data was extracted for the pill placebo and psychological therapy arms only.

Clinical evidence

Included studies

A systematic search was carried out to identify randomised controlled trials (RCTs) and systematic reviews of RCTs, which found 10,246 references (see appendix C for the literature search strategy). Evidence identified in the 2015 update (53 references), surveillance review (32 references), from systematic reviews (see below) and post-consultation (3 references) was also reviewed. In total, 10,334 references were identified for

screening at title and abstract level. 10,078 were excluded based on their titles and abstracts and 256 references (58 systematic reviews and 198 RCTs) were ordered for screening based on their full texts.

Fifty eight systematic reviews were identified in the full text screen and the most recent were used as additional sources of references (5 RCTs). In total 70 RCTs published in 85 references were included based on their relevance to the review protocol (appendix A). In addition, one published NMA was identified that was relevant to this topic. The clinical evidence study selection is presented as a PRISMA diagram in appendix D.

See appendix O for a list of references for included studies.

Excluded studies

See appendix M for a list of excluded studies with reasons for exclusion and appendix O for the bibliographic reference.

Summary of clinical studies included in the evidence review

The included RCTs are summarised in Table 2 (RCTs for all age and depression severity groups), (5-11 year olds with mild depression), Table 4 (12-18 year olds with mild depression), Table 5 (5-11 year olds with moderate to severe depression), Table 6 (12-18 year olds with moderate to severe depression) and Table 7 (summary of the characteristics of the RCTs).

Table 2 Number of included studies for each comparison for all age and depression severity groups. Blank cells indicate comparisons for which no studies were included; some interventions were not added in columns because there were no RCTs reporting on all comparisons.

	Waiting list/no treatment	Usual care	Attention control	Monitoring	Pill placebo	Individual CBT	Computer CBT	Group CBT	Guided self-help	Family therapy	Family based IPT	IPT-A	NDST	Psychodynamic psychotherapy	Relaxation	Group IPT
Individual CBT	7	8			1											
Computer CBT	2	1	5													
Group CBT	10	4	3	1			1									
Group CBT plus parent sessions	2							2								
Guided self help	1		1	1				1								
Online guided self-help	1															
Family therapy		3	1			1										
Family psychoeducation with CBT					1											
IPT-A	1	1		1		1										
NDST						4		1	1	2	1	2				
Psychodynamic psychotherapy						1				1						
Relaxation	1					1		2								
Self-modelling								1							1	
Psychosocial intervention						1								1		

	Waiting list/no treatment	Usual care	Attention control	Monitoring	Pill placebo	Individual CBT	Computer CBT	Group CBT	Guided self-help	Family therapy	Family based IPT	IPT-A	NDST	Psychodynamic psychotherapy	Relaxation	Group IPT
IPT-A with additional parent sessions												1				
Dance therapy	1															
BA		1														
Group IPT	1											1	2			
Computer CBT plus group CBT			1				1	1								
Group mindfulness								1								
Creative play therapy	1															1

BA: behavioural activation; CBT: cognitive behavioural therapy; IPT: interpersonal psychotherapy; IPT-A: IPT for adolescents; NDST: non-directive supportive therapy

Table 3 Number of included studies for each comparison for mild depression, age 5-11 years. Blank cells indicate comparisons for which no studies were included; some interventions were not added in columns because there were no RCTs reporting on all comparisons.

	Waiting list/no treatment	Usual care	Attention control	Monitoring	Pill placebo	Ind CBT	Computer CBT	Group CBT	Guided self-help	Family therapy	IPT-A	NDST	Psychodynamic psychotherapy	Relaxation
Individual CBT														
Computer CBT														
Group CBT	2													
Group CBT plus parent sessions														
Guided self help														
Family therapy														
IPT-A														
NDST														
Psychodynamic psychotherapy														
Relaxation														
Self-modelling														
Psychosocial intervention														
IPT-A plus parent sessions														
Dance therapy														
Psychoeducation														
BA														
Group IPT														
Computer CBT plus group CBT														
Group mindfulness														

BA: behavioural activation; CBT: cognitive behavioural therapy; IPT: interpersonal psychotherapy; IPT-A: IPT for adolescents; NDST: non-directive supportive therapy

Table 4 Number of included studies for each comparison for mild depression, age 12-18 years. Blank cells indicate comparisons for which no studies were included; some interventions were not added in columns because there were no RCTs reporting on all comparisons.

	Waiting list/no treatment	Usual care	Attention control	Monitoring	Pill placebo	Ind CBT	Computer CBT	Group CBT	Guided self-help	Family therapy	IPT-A	NDST	Psychodynamic psychotherapy	Relaxation	Group IPT
Individual CBT	3	5													
Computer CBT	2	1	4												
Group CBT	6	3	3				1								
Group CBT plus parent sessions															
Guided self help	2		1					1							
Family therapy		1													
IPT-A															
NDST						1									
Psychodynamic psychotherapy															
Relaxation	2							2							
Self-modelling	1							1						1	
Group NDST	1							1	1						3
Psychosocial intervention															
IPT-A plus parent sessions															
Dance therapy	1														
Psychoeducation															
BA															
Group IPT	1														
Computer CBT plus group CBT			1				1	1							
Group mindfulness								1							
Creative play therapy	1														1

Table 5 Number of included studies for each comparison for moderate to severe depression, age 5-11 years. Blank cells indicate comparisons for which no studies were included; some interventions were not added in columns because there were no RCTs reporting on all comparisons.

	Waiting list/no treatment	Usual care	Attention control	Monitoring	Pill placebo	Ind CBT	Computer CBT	Group CBT	Guided self-help	Family therapy	Family based IPT	IPT-A	NDST	Psychodynamic psychotherapy	Relaxation
Individual CBT		1													
Computer CBT															
Group CBT	1		1												
Group CBT plus parent sessions															
Guided self help															
Family psychoeducation with CBT					1										
IPT-A															
NDST										1	1				
Psychodynamic psychotherapy										1					
Relaxation															
Self-modelling															
Psychosocial intervention															
IPT-A plus parent sessions															
Dance therapy															
BA															
Group IPT															
Computer CBT plus group CBT															
Group mindfulness															

BA: behavioural activation; CBT: cognitive behavioural therapy; IPT: interpersonal psychotherapy; IPT-A: IPT for adolescents; NDST: non-directive supportive therapy

Table 6 Number of included studies for each comparison for moderate to severe depression, age 12-18 years. Blank cells indicate comparisons for which no studies were included; some interventions were not added in columns because there were no RCTs reporting on all comparisons.

	Waiting list/no treatment	Usual care	Attention control	Monitoring	Pill placebo	Ind CBT	Computer CBT	Group CBT	Online guided self-help	Family therapy	IPT-A	NDST	Psychodynamic psychotherapy	Relaxation
Individual CBT	3	3			1									
Computer CBT			1											
Group CBT	2	1												
Group CBT plus parent sessions	2							2						
Online guided self help	1													
Family therapy		2	1			1								
IPT-A	1	1		1		1								
NDST						4				1				
Psychodynamic psychotherapy						1								
Relaxation						1								
Self-modelling														
Psychosocial intervention						1							1	
IPT-A with additional parent sessions											1			
Dance therapy														
Psychoeducation														
BA		1												
Group IPT											1			
Computer CBT plus group CBT														
Group mindfulness														

BA: behavioural activation; CBT: cognitive behavioural therapy; IPT: interpersonal psychotherapy; IPT-A: IPT for adolescents; NDST: non-directive supportive therapy

Table 7 Summary of the characteristics of the included studies

Studies were classified into 2 age groups: 5 to 11 years and 12 to 18 years. This classification was based on age range or mean age reported by the studies. Classifications used in the 2015 update of this review were retained here. However, some studies may have recruited across the age boundary and were assigned to the younger or the older group based on their mean age. The table below summarises the classification for each study by age group and level of severity, with the presence of depression symptoms being used to indicate mild depression and a diagnosis of a depressive disorder indicating moderate to severe depression.

Study reference	Study Design	Study population	Intervention & comparator	Relevant outcomes
Ackerson 1998	RCT	Young people with depression symptoms Age: 12 to 18 Location : US Setting: Community	Guided self-help vs attention control	• Depression symptoms
Alavi 2013	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: Iran Setting: Hospital	Cognitive behavioural therapy vs waiting list	• Depression symptoms • Suicidal ideation
Asarnow 2002	RCT	Young people with depression symptoms Age: 12 to 18 Location: US Setting: School	Cognitive behavioural therapy vs waiting list	• Depressive symptoms
Bella-Awusah 2015	RCT	Young people with depression symptoms Age: 12 to 18 Location: Nigeria Setting: Public schools	Cognitive behavioural therapy vs waiting list	• Depressive symptoms • Functional status
Bolton 2007	RCT	Young people with depression symptoms Age: 12 to 18 Location: Uganda Setting: Camps for internally displaced persons in northern Uganda	Group interpersonal therapy vs waiting list	• Discontinuation
Brent 1997	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: US Setting: secondary care	Cognitive behavioural therapy vs family therapy vs non-directive supportive therapy	• Function status • Depression symptoms • Remission • Suicidal ideation
Brent 2015	RCT	Young people with depression symptoms Age: 12 to 18 Location: US Setting: Hospital and university sites	Cognitive behavioural therapy vs usual care	• Depressive symptoms

Study reference	Study Design	Study population	Intervention & comparator	Relevant outcomes
Charkhande 2016	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: Iran Setting: Psychotherapy clinics	Cognitive behavioural therapy vs waiting list	• Depressive symptoms
Clarke 1995	RCT	Young people with depression symptoms Age: 12 to 18 Location: US Setting: School	Group cognitive behavioural therapy vs usual care	• Depressive symptoms • Functional status • Discontinuation for any reason
Clarke 1999	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: US Setting: Research	Group cognitive behavioural therapy vs group cognitive behavioural therapy + parent sessions vs waiting list	• Functional status • Depression symptoms
Clarke 2001	RCT	Young people with depression symptoms Age: 12 to 18 Location: US Setting: Research	Group cognitive behavioural therapy vs usual care	• Functional status • Depression symptoms • Suicidal ideation
Clarke 2002	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: US Setting: Research	Group cognitive behavioural therapy vs usual care	• Functional status • Depression symptoms • Suicidal ideation
Clarke 2016	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: US Setting: Not reported	Cognitive behavioural therapy vs usual care	• Depressive symptoms • Suicidal ideation • Functional status • Quality of life
De Cuyper 2004	RCT	Children with depression symptoms Age: 12 to 18 Location: Belgium Setting: Research	Cognitive behavioural therapy vs waiting list	• Depression symptoms
Diamond 2002	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: US Setting: Not reported	Family therapy vs attention control	• Depression symptoms • Remission
Diamond 2010	RCT	Young people with depression symptoms Age: 12 to 18 Location: US	Family therapy vs usual care	• Depression symptoms • Remission

Study reference	Study Design	Study population	Intervention & comparator	Relevant outcomes
		Setting: Hospital		
Dietz 2015	RCT	Young people with diagnosed depressive disorder Age: 5 to 11 Location: US Setting: Outpatient psychotherapy	Family based IPT vs non-directive supportive therapy	• Depressive symptoms • Remission
Dobson 2010	RCT	Young people with depression symptoms Age: 12 to 18 Location: Iran Setting; Not reported	Group cognitive behavioural therapy vs attention control	• Depression symptoms • Discontinuation for any reason
Duong 2016	RCT	Young people with depression symptoms Age: 12 to 18 Location: US Setting: Public schools	Cognitive behavioural therapy vs non-directive supportive therapy	• Depressive symptoms
Feehan 1996	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: UK Setting: Secondary care	Cognitive behavioural therapy vs non-directive supportive therapy	• Remission
Fleming 2012	RCT	Young people with depression symptoms Age: 12 to 18 Location: New Zealand Setting: School	Computer-based cognitive behavioural therapy vs waiting list	• Depression symptoms • Remission
Fristad 2016	RCT	Young people with diagnosed depressive disorder Age: 5 to 11 Location: US Setting: Not reported	Family psychoeducatio n with CBT vs pill placebo	• Depressive symptoms • Remission
Gaete 2016	RCT	Young people with depression symptoms Age: 12 to 18 Location: Chile Setting: Secondary schools	Cognitive behavioural therapy vs no treatment	• Depressive symptoms • Remission
Goodyer 2017a	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: UK Setting: CAMHS clinics	CBT vs psychodynamic psychotherapy vs psychosocial intervention	• Depressive symptoms • Remission • Quality of life
Gunlicks-	RCT	Young people with	Interpersonal	• Depressive symptoms

Study reference	Study Design	Study population	Intervention & comparator	Relevant outcomes
Stoessel 2016		diagnosed depressive disorder Age: 12 to 18 Location: US Setting: Not reported	psychotherapy for adolescents vs interpersonal psychotherapy for adolescents plus additional parent sessions	• Functional status
Hayes 2011	RCT	Young people with depression symptoms Age: 12 to 18 Location: Australia Setting: Secondary care	Cognitive behavioural therapy vs usual care	• Depression symptoms
Hogberg 2018	RCT	Young people with depression symptoms Age: 12 to 18 Location: Stockholm Setting: Outpatients units	Cognitive behavioural therapy vs usual care	• Depressive symptoms • Suicidal ideation • Remission
Ip 2016	RCT	Young people with depression symptoms Age: 12 to 18 Location: China Setting: Secondary schools	Computer-based cognitive behavioural therapy vs attention control	• Depressive symptoms
Israel 2013	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: Norway Setting: Outpatient clinics	Family therapy vs usual care	• Depressive symptoms • Remission
Jacob 2016	RCT	Young people with depression symptoms Age: 12 to 18 Location: Philippines Setting: High schools	Guided self-help vs no treatment	• Depressive symptoms
Jeong 2005	RCT	Young people with depression symptoms Age: 12 to 18 Location: Korea Setting Middle school	Dance therapy vs no treatment	• Depressive symptoms
Kahn 1990	RCT	Young people with depression symptoms Age: 12 to 18 Location: US Setting: School	Group cognitive behavioural therapy vs relaxation vs self-modelling vs waiting list	• Depression symptoms
Kobak 2015	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: US	CBT vs usual care	• Depressive symptoms

Study reference	Study Design	Study population	Intervention & comparator	Relevant outcomes
		Setting: Not reported		
Lewinsohn 1990	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: US Setting: Not reported	Group cognitive behavioural therapy vs group cognitive behavioural therapy plus parent sessions vs waiting list	• Depression symptoms • Remission
Liddle 1990	RCT	Children with diagnosed depressive disorder Age: 5 to 11 Location: Australia Setting: School	Group cognitive behavioural therapy vs waiting list	• Depression symptoms
Listug-Lunde 2013	RCT	Young people with depression symptoms Age: 12 to 18 Location: US Setting: Middle school	Cognitive behavioural therapy vs usual care	• Depressive symptoms
March/TADS 2004	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: US Setting: Academic and community clinics	Cognitive behavioural therapy vs pill placebo	• Functional status • Depression symptoms • Suicidal ideation • Discontinuation for any reason
McCauley 2016	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: US Setting: Not reported	Behavioural activation vs usual care	• Depressive symptoms • Functional status
Merry 2012	RCT	Young people with depression symptoms Age: 12 to 18 Location: New Zealand Setting: Primary care	Computer-based cognitive behavioural therapy vs usual care	• Depression symptoms • Discontinuation for any reason
Mufson 1999	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: US Setting: Secondary care	Interpersonal psychotherapy for adolescents vs monitoring	• Depression symptoms • Discontinuation for any reason
Mufson 2004	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: US Setting: School	Interpersonal psychotherapy for adolescents vs usual care	• Depression symptoms • Functional status • Discontinuation for any reason

Study reference	Study Design	Study population	Intervention & comparator	Relevant outcomes
Noel 2013	RCT	Young people with depression symptoms Age: 12 to 18 Location: US Setting: School	Group cognitive behavioural therapy vs waiting list	• Depression symptoms
O'Shea 2015	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: Australia Setting: School of Psychology Clinic and State High School	Interpersonal psychotherapy for adolescents vs group interpersonal psychotherapy	• Depressive symptoms • Remission • Functional status
Poole 2018	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: Australia Setting: Community	Family therapy vs usual care	• Depressive symptoms • Functional status
Poppelaars 2016	RCT	Young people with depression symptoms Age: 12 to 18 Location: Netherlands Setting: Secondary education	Group cognitive behavioural therapy vs computer-based cognitive behavioural therapy vs combined interventions vs attention control	• Depressive symptoms • Suicidal ideation
Puskar 2003	RCT	Young people with depression symptoms Age: 12 to 18 Location: US Setting: School	Group cognitive behavioural therapy vs no treatment	• Depression symptoms
Reynolds 1986	RCT	Young people with depression symptoms Age: 12 to 18 Location: US Setting: School	Group cognitive behavioural therapy vs relaxation vs waiting list	• Depression symptoms
Rickhi 2015	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: Canada Setting: Canadian Institute of Natural and Integrative Medicine	Online guided self-help vs waiting list	• Depressive symptoms
Rosello 1999	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: Puerto Rico Setting: Research	Interpersonal psychotherapy for adolescents vs cognitive behavioural therapy vs waiting list	• Depression symptoms • Discontinuation for any reason

Study reference	Study Design	Study population	Intervention & comparator	Relevant outcomes
Shirk 2014	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: US Setting: Community clinics	Cognitive behavioural therapy vs usual care	• Depression symptoms
Shomaker 2017	RCT	Young people with depression symptoms Age: 12 to 18 Location: US Setting: Centre for family and couple therapy	Group cognitive behavioural therapy vs group mindfulness	• Depressive symptoms • Discontinuation
Smith 2015	RCT	Young people with depression symptoms Age: 12 to 18 Location: UK Setting: Secondary schools	Computer-based cognitive behavioural therapy vs waiting list	• Depressive symptoms • Functional status
Stallard 2012	RCT	Young people with depression symptoms Age: 12 to 18 Location: UK Setting: School	Group cognitive behavioural therapy vs attention control vs usual care	• Depression symptoms
Stark 1987	RCT	Children with depression symptoms Age: 5 to 11 Location: US Setting: School	Group cognitive behavioural therapy vs waiting list	• Depression symptoms
Stasiak 2014	RCT	Young people with depression symptoms. Age: 12 to 18 Location: New Zealand Setting: School	Computer-based cognitive behavioural therapy vs attention control	• Depression symptoms • Remission • Discontinuation for any reason
Stice 2008	RCT	Young people with depression symptoms Age: 12 to 18 Location: US Setting : School	Group cognitive behavioural therapy vs non-directive supportive therapy vs guided self-help vs monitoring	• Depression symptoms
Szigethy 2007	RCT	Young people with depression symptoms Comorbidity: irritable bowel syndrome Age: 12 to 18 Location: US Setting: Hospital	Cognitive behavioural therapy vs usual care	• Functional status • Depression symptoms
Szigethy 2014	RCT	Young people with diagnosed depressive	Cognitive behavioural	• Remission

Study reference	Study Design	Study population	Intervention & comparator	Relevant outcomes
		disorder Comorbidity: irritable bowel syndrome Age: 12 to 18 Location: US Setting: Hospital	therapy vs non-directive supportive therapy	
Tompson 2017	RCT	Young people with diagnosed depressive disorder Age: 5 to 11 Location: US Setting: Not reported	Family therapy vs non-directive supportive therapy	• Depressive symptoms • Remission • Functional status
Topooco 2018	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: Sweden Setting: Online	Computer-based cognitive behavioural therapy vs attention control	• Depressive symptoms • Remission
Trowell 2007	RCT	Children with diagnosed depressive disorder Age: 5 to 11 Location: Greece, Finland, UK Setting: Secondary care	Psychodynamic psychotherapy vs family therapy	• Functional status • Depression symptoms • Remission • Discontinuation for any reason
Vostanis 1996a	RCT	Young people with diagnosed depressive disorder Age: 12 to 18 Location: UK Setting: Secondary care	Cognitive behavioural therapy vs non-directive supportive therapy	• Remission
Weisz 1997	RCT	Children with depression symptoms Age: 5 to 11 Location: US Setting: School	Group cognitive behavioural therapy vs no treatment	• Depression symptoms
Weisz 2009	RCT	Children with diagnosed depressive disorder Age: 5 to 11 Location: US Setting: Community clinic	Cognitive behavioural therapy vs usual care	• Depression symptoms
Wijnhoven 2014	RCT	Young people with depression symptoms Age: 12 to 18 Location: Netherlands Setting: School	Group cognitive behavioural therapy vs no treatment	• Depression symptoms
Wood 1996	RCT	Young people with diagnosed depressive	Cognitive behavioural therapy vs	• Functional status • Depression symptoms

Study reference	Study Design	Study population	Intervention & comparator	Relevant outcomes
		disorder Age: 12 to 18 Location: UK Setting: Secondary care	relaxation	• Remission • Discontinuation for any reason
Wright 2017	RCT	Young people with depression symptoms Age: 12 to 18 Location: UK Setting: CAMHS, GP or community centre	Computer-based cognitive behavioural therapy vs attention control	• Depressive symptoms • Quality of life
Young 2006	RCT	Young people with depression symptoms Age: 12 to 18 Location: US Setting: School	Group interpersonal psychotherapy vs group non-directive supportive therapy	• Depressive symptoms • Functional status
Young 2010	RCT	Young people with depression symptoms Age: 12 to 18 Location: US Setting: School	Group interpersonal psychotherapy vs group non-directive supportive therapy	• Functional status • Depression symptoms
Young 2016	RCT	Young people with depression symptoms Age: 12 to 18 Location: US Setting: Middle and high schools	Group interpersonal psychotherapy vs group non-directive supportive therapy	• Depressive symptoms • Functional status

See appendix E for full evidence tables.

Quality assessment of clinical studies included in the evidence review

See evidence tables in appendix E for quality assessment of individual studies, appendix F for forest plots and appendix H for GRADE tables.

Economic evidence

Included studies

A search was conducted to identify economic evaluations relevant to the review question with a date limit of the previous 2014 guideline (Appendix C). The search returned a total of 4,031 records, 4,015 of which were exclude on the basis of title and abstract. The remaining 16 studies were fully inspected and 3 were included in the synthesis. During inspection of the full publications and reference lists, an additional economic evaluation by Domino 2009 was identified and included in the review.

Excluded studies

Details of excluded studies are provided in appendix M.

Summary of studies included in the economic evidence review

The 4 published economic evaluations included in the review compared cognitive behavioural (CBT) therapy with or without selective serotonin reuptake inhibitors (SSRIs) to usual care, brief psychological intervention (BPI) or short-term psychoanalytic psychotherapy (STPP). These are summarised in Table 8 with further details in appendix J.

Goodyer 2017 (IMPACT HTA)

Goodyer et al was a cost-effectiveness analysis conducted alongside a clinical trial comparing cognitive behavioural therapy (CBT), brief psychological intervention (BPI) and short-term psychoanalytic psychotherapy (STPP) in a population of 465 English adolescents with depression. The time horizon of the analysis comprised the 86-week duration of the trial's follow-up and took a UK societal perspective, with education and voluntary services costs being considered. The outcomes of the interventions were assessed using the EQ-5D instrument applied at baseline and then at 6, 12, 36, 52 and 86-week follow-up sessions. System resource usage was elicited from the participants and parents/carers at the same time points. The analysis included costs of delivering BPI, CBT and STPP, NHS primary and secondary services, social care, education, voluntary sector services, and medication costs. Prices were based on usual UK sources.

In the deterministic results BPI was the most cost-effective intervention with an incremental cost-effectiveness ratio (ICER) of £23,000/QALY, although the trial did not detect any statistically significant differences in costs or outcomes and absolute differences between interventions were small. CBT was cheaper and less effective than BPI and STPP was equally effective and more expensive than BPI. The probabilistic results suggest that CBT had a greater than 50% probability of being the most cost-effective treatment regardless of the willingness to pay for one additional QALY. The base case considered that sessions that were offered but not attended had a cost of £0, under the assumption that professionals could still make use of their time. In sensitivity analysis the cost of 50% of the offered but not attended sessions was included in the calculations raising the cost of CBT, previously the cheapest alternative. BPI became dominant with a probability greater than 50% of being the most cost-effective strategy for any willingness to pay value. Overall, the relative cost-effectiveness of the interventions assessed is very unclear.

Important limitations affecting the generalisability of the cost-effectiveness estimates in this study are the uncertainty about how levels of attendance at planned sessions reflect current clinical practice and the volume of missing data related to resource consumption. This is particularly relevant given the analysis' sensitivity to the cost of interventions and the marginal difference in QALYs gained between comparators. The analysis took a societal perspective which deviates from NICE's reference case. It is also unclear whether the adult version of the EQ-5D questionnaire and value set are appropriate for measuring health related quality of life in adolescents. It is also unclear whether, given the seniority of the therapists delivering BPI (>80% consultant psychiatrists), the efficacy estimates for this intervention are generalisable to current practice in the NHS.

Byford 2007

Byford 2007 conducted a trial based economic evaluation comparing the cost effectiveness of CBT combined with SSRIs and standard clinical care with SSRIs and standard clinical care alone, in a population of 208 English adolescents with probable or diagnosed major depression. The analysis had a 28-week time horizon and was conducted from a societal perspective, including the costs of delivering the interventions, costs of health, social, education, voluntary and private service use as well as costs of travel and productivity loss from parents/guardians. The units of resource used were collected from the adolescents using the Child and Adolescent Service use Schedule (CA-SUS). Unit costs used standard UK sources as well as published literature. The outcomes of the interventions were assessed

using the Health and Nation Outcome Scale for Children and Adolescents (HoNOSCA) and Euro-QOL 5 dimension (EQ-5D) instrument applied at baseline, 12 and 28 weeks.

The incremental analysis using the HoNOSCA score as the outcome measure showed that CBT in combination with SSRIs was dominated by of SSRIs with standard care. This means that CBT was more expensive and less effective than the SSRIs with standard clinical care comparator. The probabilistic results showed that the probability of CBT+SSRIs being cost effective was 25% at a willingness to pay of £50,000. Results were similar when quality of life was used as an outcome, with the CBT+SSRIs interventions having a probability of being cost-effective lower than 4% at any willingness to pay threshold. Several sensitivity analysis scenarios were explored, none of which changed the direction of the results.

The main limitation of this analysis for decision making is that it considers a population of adolescents who are all receiving anti-depressants and could therefore be considered further along the care pathway than the population in this review question. It is unclear if the relative effectiveness of CBT observed in this trial is relevant. The mean attendance to CBT sessions was only 58% of planned sessions (11/19), which may have impacted the effectiveness of the intervention. Also, the duration of follow-up (28 weeks) may not suffice to capture the medium to long term effects of CBT. The analysis took a societal perspective considering the costs of education, voluntary and private sectors, such as travel costs and productivity losses, which deviates from NICE's reference case. QALYs were valued using the adult version of EQ-5D.

Dickerson et al 2018

Dickerson et al was an economic evaluation alongside a clinical trial comparing brief CBT (median 7 acute and 3 follow-up sessions) plus treatment as usual (TAU) with TAU alone in a total of 212 adolescents declining antidepressant medication. Patients in either arm were allowed to access any TAU over the follow-up period. The time horizon of the economic evaluation was two years and it was conducted from a US societal perspective.

The study recorded and assigned costs to all service use in both arms at one and two year follow up. Depressive symptoms were assessed at baseline and at 6, 12, 25, 52, 78 and 104 weeks. This assessment also recorded Depression Free Days (DFDs), which enabled the calculation of QALYs accrued across the follow-up period assuming that DFDs had QoL = 1 and depressed days had HRQoL = 0.4.

The study found that CBT was associated with a per patient increase in QALYs of 0.109 (se 0.062) driven by an increase of 43.3 (se 24.6) DFDs over the two year follow up period. It also found a per patient decrease in costs of -$4,976 (se $2,225), making it a dominant intervention. In a sensitivity analysis excluding inpatient days (an important and influential driver of costs), the authors calculated that CBT had an ICER of $5,588 per QALY gained over TAU. The authors conducted probabilistic sensitivity analysis suggesting a 97% probability that CBT dominates TAU.

Important limitations of this study as it relates to this review question include the pragmatic nature of the trial design, the societal and US perspective, the influence that small units of differential resource use have over the incremental costs and a method for calculating QALYs that was not directly collected from trial participants and is outside NICE's reference case. It is also not clear that the population is directly relevant as they have been offered antidepressants rather than psychological therapies.

Domino 2009

The publication by Domino 2009 is a trial-based economic evaluation comparing fluoxetine versus cognitive behavioural therapy (CBT) plus fluoxetine versus CBT alone. The study assessed a population of 327 adolescents aged 12 to 18 years with a primary diagnosis of major depression, and was conducted in the US using a societal perspective. The original

trial incorporated clinical management with placebo to allow for a double-blind comparison with fluoxetine. The economic analysis considered the 36-week costs and outcome for the trial participants assigned to one of the active treatment arms.

The outcomes of the interventions were measured in depression free days and quality of life. Depression free days were assessed using the Children depression rating Scale Revised (CDRS-R) which was applied every 6 weeks. Scores less than 29 were considered as depression-free, scores equal or greater than 45 as not free of depression and intermediate scores were included linearly in the calculations of daily utility weights. To calculate quality-adjusted life-years (QALYs) depression-free days were assigned a utility value of 1.0, depression days to a utility weight of 0.6 and days with intermediate values were linearly interpolated (e.g. if depression-free for half a day, the total day's utility would be 0.8). The authors recognised the limitations of calculating QALYs based on depression-free days measurement and have also calculated exploratory QALY weights from the Quality of Life Enjoyment and Satisfaction Questionnaire (PQ-LES-Q), assuming that the lowest score across time points (15) had a QALY weight of 0.6 and that the highest score (75) was associated with an utility of 1.0, intermediate values were linearly interpolated.

In addition to the costs of delivering the interventions and medication, the authors also included caregiver-reported costs incurred outside the study such as primary care, medical visits, criminal justice, school based services, emergency department visits and hospital admissions.

The study found that CBT in combination with fluoxetine was associated with an ICER of $23,067 (£20,444), dominating the alternative strategies. Parameter uncertainty was explored using bias-corrected 95% confidence intervals and 1,000 iteration bootstrapping. When the summary measure of QALY was used fluoxetine + CBT had a greater than 90% probability of being cost-effective compared to fluoxetine alone, for a willingness to pay of $100,000 (£88,632). Similar results were obtained when using QALYs generated using different instruments. When the utility weights were varied in sensitivity analysis. If QALY loss from depression was as low as 0.2, fluoxetine + CBT had an 89% probability of being more cost-effective than fluoxetine alone, at a willingness to pay of $200,000 (£177,264). If QALY loss was higher (0.6) then the combined strategy had a 94% probability of being cost-effective, compared to fluoxetine.

The study had important limitations including the societal perspective and the fact it was conducted in the US. QALY calculations used depression-free days obtained from the CDRS-R scale, this being adapted from the adult depression literature. This may be of limited validity in a population of adolescents with major depression. The authors used different strategies to explore the uncertainty around the quality of life outcome. Missing cost and efficacy data was replaced using regression estimates imputed from the patients with complete records, which may have increased the uncertainty in the estimates of the analysis.

Table 8 Summary of economic evaluations included in the review

Study	Comparators	Costs	Effects	Cost-effectiveness	Uncertainty	Applicability	Limitations
Goodyer 2017 (IMPACT HTA) – Trial based economic evaluation	INT1: BPI INT2: CBT INT3: STPP	BPI: £2678 CBT: £2379 STPP: £3082	QALYs: CBT: 1.228 BPI: 1.241 STPP: 1.246	**ICER BPI vs CBT:** £23,000/QALY **ICER STPP vs CBT:** £80,800/QALY	CBT was the strategy with highest probability of being cost-effective. When the cost of sessions not attended was included BPI became the most cost-effective intervention.	Directly applicable	Potentially serious limitations
Byford 2007 – Trial based economic evaluation	INT1: CBT + SSRIs INT2: SSRIs + clinical care	INT1: £1,272 INT2: £36	INT1: 0.36 INT2: 0.38	INT1 was dominated[(a)] by INT2.	The probability of INT1 being more cost-effective than IN2 was 25% at a willingness to pay of £50,000. At a willingness to pay of £100,000 this probability did not rise above 26%.	Partially applicable	Potentially serious limitations
Dickerson et al 2018 – Trial based economic evaluation	INT1: TAU INT2: TAU + CBT	INT1: $8,631 INT2: $3,655	INT2 vs INT1 Depression free days: 43.3 QALYs: 0.109	INT2 dominates	Probabilistic sensitivity analysis suggests INT2 has a 97% probability of dominating INT1. Other sensitivity analysis did not change the direction of the conclusions.	Partially applicable	Potentially serious limitations
Domino 2009 – Trial based economic	INT1: fluoxetine INT2: CBT INT3:	INT1: £5,924 INT2: £4,999 INT3: £5,618	QALY: INT1 vs INT2: -0.0067 INT1 vs INT3:	INT1 vs INT2 ICER: $52,200 (£46,266) INT1 vs INT3	Probabilistic sensitivity analysis has shown that INT3 has a greater than 90% probability of	Partially applicable	Potentially serious limitations

Study	Comparators	Costs	Effects	Cost-effectiveness	Uncertainty	Applicability	Limitations
evaluation	fluoxetine + CBT		0.0012	ICER: $-23,067 (-£20,444) INT3 dominates	being the most cost-effective strategy. The results of the analysis were sensible to the measure of effect used in the analysis.		

BPI, brief psychological intervention; CBT, cognitive behavioural therapy; HTA, health technology assessment; ICER, incremental cost-effectiveness analysis; QALY, quality-adjusted life year; SSRIs, selective serotonin reuptake inhibitors; STPP, short-term psychoanalytic psychotherapy; TAU, treatment as usual.

(a) Intervention 1 was dominated because it was more expensive and less effective than intervention 2.

Economic model

The committee has considered the published economic evidence and has decided not to prioritise original economic modelling to answer the research question. The reasons for this relate to several aspects:

- The network meta-analysis for this guideline mostly reported short term clinical outcomes that would have been difficult to tie to definitive differences in health related quality of life between the treatments.
- Outcomes were heterogeneously reported between trials and significant uncertainty existed in the differential effectiveness between active interventions.
- The number and duration of the therapies and the level of attendance is heterogeneously reported in the literature, which made the costing exercise imprecise and not necessarily representative of clinical practice.

The committee considered the potential resource use associated with the interventions (see appendix L) alongside the clinical evidence and found that there was sufficient evidence to inform the recommendations. The costing estimates were imprecise but provided some evidence that group and computer interventions were likely to be cheaper than individual therapies and that some individual therapies were likely to be cheaper than others.

Evidence statements

Pairwise analysis

The format for the evidence statements is described in appendix B.

Mild depression in 5-11 year olds

Depression symptoms at post-treatment

The following psychological interventions were effective at reducing depression symptoms compared to a control:

- Group CBT compared to waiting list/no treatment (moderate quality evidence from 2 RCTs with 47 participants)

Depression symptoms at >6 to ≤18 months

The following psychological interventions could not differentiate depression symptoms between children with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Group CBT compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 29 participants)

Mild depression in 12-18 year olds

Depression symptoms at post-treatment

The following psychological interventions were effective at reducing depression symptoms compared to a control:

- Computer CBT compared to waiting list/no treatment (low quality evidence from 2 RCTs with 142 participants)

- Group CBT compared to waiting list/no treatment (moderate quality evidence from 5 RCTs with 395 participants)
- Relaxation compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 18 participants)
- Dance therapy compared to waiting list/no treatment (low quality evidence from 1 RCT with 40 participants)
- Individual CBT compared to usual care (very low quality evidence from 3 RCTs with 86 participants)
- Guided self-help compared to attention control (low quality evidence from 1 RCT with 14 participants)

The following interventions were effective at reducing depression symptoms compared to another intervention:

- Group CBT compared to guided self-help (moderate quality evidence from 1 RCT with 169 participants)
- Group CBT compared to group non-directive supportive therapy (moderate quality evidence from 1 RCT with 177 participants)
- Group mindfulness compared to group CBT (very low quality evidence from 1 RCT with 33 participants)
- Individual CBT compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 110 participants)
- Group IPT compared to non-directive supportive therapy (low quality evidence from 3 RCTs with 280 participants)

The following psychological interventions could not differentiate depression symptoms between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to waiting list/no treatment (very low quality evidence from 2 RCTs with 60 participants)
- Individual CBT and family education compared to waiting list (moderate quality evidence from 1 RCT with 23 participants)
- Computer CBT compared to attention control (low quality evidence from 3 RCTs with 386 participants)
- Computer CBT compared to usual care (high quality evidence from 1 RCT with 187 participants)
- Computer CBT compared to group CBT and computer CBT (high quality evidence from 1 RCT with 107 participants)
- Group CBT compared to attention control (moderate quality evidence from 3 RCTs with 818 participants)
- Group CBT compared to usual care (low quality evidence from 3 RCTs with 798 participants)
- Group CBT compared to relaxation (moderate quality evidence from 2 RCTs with 47 participants)
- Group CBT compared to self-modelling (moderate quality evidence from 1 RCT with 34 participants)
- Group CBT compared to computer CBT (high quality evidence from 1 RCT with 101 participants)
- Group CBT compared to group CBT and computer CBT (high quality evidence from 1 RCT with 106 participants)
- Group CBT and computer CBT compared to attention control (high quality evidence from 1 RCT with 107 participants)

- Family therapy compared to usual care (moderate quality evidence from 1 RCT with 66 participants)
- Guided self-help compared to waiting list/no treatment (very low evidence from 2 RCTs with 194 participants)
- Group non-directive supportive therapy compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 172 participants)
- Group non-directive supportive therapy compared to guided self-help (moderate quality evidence from 1 RCT with 168 participants)
- Relaxation compared to self-modelling (moderate quality evidence from 1 RCT with 34 participants)

Subgroup analysis with comorbidities

The following interventions were effective at reducing depression symptoms compared to another intervention in young people with mild depression and irritable bowel syndrome:

- Individual CBT compared to usual care (moderate quality evidence from 1 RCT with 86 participants)

Sensitivity analysis removing studies at high risk of bias

This sensitivity analysis showed that individual CBT became effective at reducing depression symptoms at post-treatment compared to waiting list/no treatment when studies at high risk of bias were removed.

This sensitivity analysis showed that individual CBT compared to usual care could not differentiate depression symptoms at post-treatment anymore when studies at high risk of bias were removed.

Sensitivity analysis removing studies with a complex attention control

This sensitivity analysis showed similar results for depression symptoms at post-treatment with or without RCTs with a complex attention control (computer CBT compared to attention control).

Depression symptoms at ≤6 months

The following psychological interventions were effective at reducing depression symptoms compared to a control:

- Group CBT compared to waiting list/no treatment (moderate quality evidence from 5 RCTs with 394 participants)
- Group non-directive supportive therapy compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 172 participants)
- Relaxation compared to waiting list/no treatment (moderate quality evidence from 2 RCTs with 49 participants)

The following psychological interventions or controls were effective at reducing depression symptoms compared to an intervention:

- Usual care compared to group CBT (moderate quality evidence from 2 RCTs with 650 participants)
- Group CBT compared to guided self-help (moderate quality evidence from 1 RCT with 169 participants)
- Group mindfulness compared to group CBT (very low quality evidence from 1 RCT with 33 participants)

- Group non-directive supportive therapy compared to guided self-help (moderate quality evidence from 1 RCT with 168 participants)
- Group IPT compared to group non-directive supportive therapy (moderate quality evidence from 3 RCTs with 280 participants)

The following psychological interventions could not differentiate depression symptoms between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to waiting list/no treatment (moderate quality evidence from 2 RCTs with 299 participants)
- Individual CBT compared to usual care (very low quality evidence from 2 RCTs with 28 participants)
- Individual CBT compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 110 participants)
- Computer CBT compared to attention control (high quality evidence from 3 RCTs with 191 participants)
- Computer CBT compared to usual care (high quality evidence from 1 RCT with 187 participants)
- Computer CBT compared to group CBT and computer CBT (high quality evidence from 1 RCT with 107 participants)
- Group CBT compared to attention control (moderate quality evidence from 3 RCTs with 733 participants)
- Group CBT compared to group non-directive supportive therapy (moderate quality evidence from 1 RCT with 177 participants)
- Group CBT compared to relaxation (moderate quality evidence from 2 RCTs with 45 participants)
- Group CBT compared to self-modelling (moderate quality evidence from 1 RCT with 34 participants)
- Group CBT compared to computer CBT (high quality evidence from 1 RCT with 101 participants)
- Group CBT compared to group CBT and computer CBT (high quality evidence from 1 RCT with 106 participants)
- Group CBT and computer CBT compared to attention control (high quality evidence from 1 RCT with 107 participants)
- Family therapy compared to usual care (moderate quality evidence from 1 RCT with 66 participants)
- Guided self-help compared to waiting list/no treatment (moderate evidence from 1 RCT with 164 participants
- Relaxation compared to self-modelling (moderate quality evidence from 1 RCT with 34 participants)
- Self-modelling compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 34 participants)

Sensitivity analysis removing studies at high risk of bias

This sensitivity analysis showed similar results for depression symptoms at ≤6 months with or without RCTs at high risk of bias (individual CBT compared to waiting list/no treatment; individual CBT compared to usual care; computer CBT compared to attention control).

Sensitivity analysis removing studies with a complex attention control

This sensitivity analysis showed similar results for depression symptoms at ≤6 months with or without RCTs with a complex attention control (computer CBT compared to attention control).

Depression symptoms at >6 to ≤18 months

The following psychological interventions were effective at reducing depression symptoms compared a control:

- Group non-directive supportive therapy compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 172 participants)
- Computer CBT compared to attention control (high quality evidence from 2 RCTs with 352 participants)

The following psychological interventions were effective at reducing depression symptoms compared to another intervention:

- Computer CBT compared to group CBT (high quality evidence from 1 RCT with 101 participants)

The following psychological interventions could not differentiate depression symptoms between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 110 participants)
- Computer CBT compared to group CBT and computer CBT (high quality evidence from 1 RCT with 107 participants)
- Group CBT compared to attention control (high quality evidence from 1 RCT with 101 participants)
- Group CBT compared to waiting list/no treatment (moderate quality evidence from 2 RCTs with 144 participants)
- Group CBT compared to usual care (moderate quality evidence from 2 RCTs with 182 participants)
- Group CBT compared to guided self-help (moderate quality evidence from 1 RCT with 169 participants)
- Group CBT compared to group non-directive supportive therapy (moderate quality evidence from 1 RCT with 177 participants)
- Group CBT compared to group CBT and computer CBT (high quality evidence from 1 RCT with 106 participants)
- Group CBT and computer CBT compared to attention control (high quality evidence from 1 RCT with 107 participants)
- Guided self-help compared to waiting list/no treatment (moderate evidence from 1 RCT with 164 participants
- Group IPT compared to group non-directive supportive therapy (moderate quality evidence from 3 RCTs with 245 participants)
- Group non-directive supportive therapy compared to guided self-help (Moderate quality evidence from 1 RCT with 168 participants)

Sensitivity analysis removing studies with a complex attention control

This sensitivity analysis showed similar results for depression symptoms at >6 to ≤18 months with or without RCTs with a complex attention control (computer CBT compared to attention control).

Functional status at post-treatment
The following psychological interventions could not differentiate functional status between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Group CBT compared to usual care (moderate quality evidence from 2 RCTs with 204 participants)
- Group IPT compared to group non-directive supportive therapy (very low quality evidence from 3 RCTs with 280 participants)

Subgroup analysis with comorbidities

The following interventions were effective at improving functional status compared to a control in young people with mild depression and irritable bowel syndrome:
- Individual CBT compared to usual care (low quality evidence from 1 RCT with 40 participants)

Functional status at ≤6 months

The following psychological interventions could not differentiate functional status between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Group CBT compared to usual care (moderate quality evidence from 1 RCT with 112 participants)
- Group IPT compared to group non-directive supportive therapy (very low quality evidence from 3 RCTs with 267 participants)

Subgroup analysis with comorbidities

The following interventions were effective at improving functional status compared to a control in young people with mild depression and irritable bowel syndrome:
- Individual CBT compared to usual care (low quality evidence from 1 RCT with 35 participants)

Functional status at >6 to ≤18 months

The following psychological interventions could not differentiate functional status between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:
- Group CBT compared to usual care (moderate quality evidence from 2 RCTs with 182 participants)
- Group IPT compared to group non-directive supportive therapy (moderate quality evidence from 2 RCTs with 203 participants)

Subgroup analysis with comorbidities

The following psychological interventions could not differentiate functional status between young people with mild depression and irritable bowel syndrome who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to usual care (low quality evidence from 1 RCT with 33 participants)

Remission at post-treatment

The following psychological interventions could not differentiate risk of remission between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to usual care (low quality evidence from 1 RCT with 13 participants)
- Computer CBT compared to attention control (high quality evidence from 1 RCT with 30 participants)
- Computer CBT compared to waiting list/no treatment (high quality evidence from 1 RCT with 30 participants)
- Family therapy compared to usual care (moderate quality evidence from 1 RCT with 26 participants)

Remission at ≤6 months

The following psychological interventions could not differentiate risk of remission between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Family therapy compared to usual care (moderate quality evidence from 1 RCT with 28 participants)

Quality of life at post-treatment

The following psychological interventions could not differentiate quality of life between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Computer CBT compared to waiting list/no treatment (high quality evidence from 1 RCT with 30 participants)
- Computer CBT compared to usual care (high quality evidence from 1 RCT with 187 participants)

Quality of life at ≤6 months

The following psychological interventions could not differentiate quality of life between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Computer CBT compared to attention control (low quality evidence from 1 RCT with 52 participants)
- Computer CBT compared to usual care (high quality evidence from 1 RCT with 187 participants)

Self-harm

The following psychological interventions could not differentiate risk of self-harm between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Computer CBT compared to waiting list/no treatment (high quality evidence from 1 RCT with 30 participants)

Self-harm (thoughts)

The following psychological interventions could not differentiate risk of self-harm (thoughts) between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Group CBT compared to usual care (moderate quality evidence from 1 RCT with 213 participants)
- Group CBT compared to attention control (moderate quality evidence from 1 RCT with 249 participants)

Self-harm (deliberate)

The following psychological interventions could not differentiate risk of self-harm (deliberate) between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Group CBT compared to usual care (moderate quality evidence from 1 RCT with 128 participants)
- Group CBT compared to attention control (moderate quality evidence from 1 RCT with 148 participants)

Suicide-related adverse events

The following psychological interventions could not differentiate risk of suicide-related adverse events between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Computer CBT compared to usual care (high quality evidence from 1 RCT with 187)

Suicide ideation at post-treatment

The following psychological interventions could not differentiate risk of suicide ideation between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Computer CBT compared to attention control (high quality evidence from 1 RCT with 102 participants)
- Individual CBT compared to usual care (low quality evidence from 1 RCT with 27 participants)
- Computer CBT compared to group CBT and computer CBT (high quality evidence from 1 RCT with 107 participants)
- Group CBT compared to attention control (high quality evidence from 1 RCT with 101 participants)
- Group CBT compared to usual care (moderate quality evidence from 1 RCT with 84 participants)
- Group CBT compared to computer CBT (high quality evidence from 1 RCT with 101 participants)
- Group CBT compared to group CBT and computer CBT (high quality evidence from 1 RCT with 106 participants)
- Group CBT and computer CBT compared to attention control (high quality evidence from 1 RCT with 107 participants)

Suicide ideation at ≤6 months

The following psychological interventions were effective at reducing suicide ideation compared to a control:

- Family therapy compared to usual care (moderate quality evidence from 1 RCT with 28 participants)

Suicide ideation at >6 to ≤18 months

The following psychological interventions were effective at reducing suicide ideation compared to a control:

- Group CBT compared to usual care (moderate quality evidence from 1 RCT with 72 participants)

Discontinuation for any reason at end point

The following psychological interventions or controls were effective at reducing discontinuation compared to an intervention:

- Attention control compared to group CBT (moderate quality evidence from 3 RCTs with 182 participants)
- Waiting list/no treatment compared to group non-directive supportive therapy (moderate quality evidence from 1 RCT with 159 participants)
- Waiting list/no treatment compared to guided self-help (moderate quality evidence from 1 RCT with 164 participants)

The following psychological interventions could not differentiate risk of discontinuation between young people with mild depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to waiting list/no treatment (moderate quality evidence from 2 RCTs with 362 participants)
- Individual CBT compared to usual care (low quality evidence from 3 RCTs with 367 participants)
- Individual CBT compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 110 participants)
- Computer CBT compared to attention control (very low quality evidence from 4 RCTs with 475 participants)
- Computer CBT compared to waiting list/no treatment (moderate quality evidence from 2 RCTs with 142 participants)
- Computer CBT compared to usual care (high quality evidence from 1 RCT with 185 participants)
- Computer CBT compared to group CBT and computer CBT (high quality evidence from 1 RCT with 104 participants)
- Group CBT compared to waiting list/no treatment (low quality evidence from 4 RCTs with 381 participants)
- Group CBT compared to usual care (very low quality evidence from 2 RCTs with 840 participants)
- Group CBT compared to guided self-help (moderate quality evidence from 1 RCT with 41 participants)
- Group CBT compared to group non-directive supportive therapy (moderate quality evidence from 1 RCT with 155 participants)

- Group CBT compared to relaxation (moderate quality evidence from 1 RCT with 20 participants)
- Group CBT compared to group CBT and computer CBT (high quality evidence from 1 RCT with 100 participants)
- Group CBT and computer CBT compared to attention control (high quality evidence from 1 RCT with 103 participants)
- Group mindfulness compared to group CBT (very low quality evidence from 1 RCT with 28 participants)
- Guided self-help compared to attention control (low quality evidence from 1 RCT with 30 participants)
- Group IPT compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 209 participants)
- Group IPT compared to group non-directive supportive therapy (moderate quality evidence from 3 RCTs with 280 participants)
- Group IPT compared to creative play therapy (moderate quality evidence form 1 RCT with 210 participants)
- Group non-directive supportive therapy compared to guided self-help (moderate quality evidence from 1 RCT with 45 participants)
- Relaxation compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 21 participants)
- Creative play therapy compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 209 participants)

Sensitivity analysis removing studies at high risk of bias

This sensitivity analysis showed similar results for discontinuation for any reason at end point with or without RCTs at high risk of bias (individual CBT compared to usual care; computer CBT compared to attention control).

Sensitivity analysis removing studies with a complex attention control

This sensitivity analysis showed similar results for discontinuation for any reason at end point with or without RCTs with a complex attention control (computer CBT compared to attention control).

Moderate to severe depression in age 5-11 year olds

Depression symptoms at post-treatment

The following psychological interventions were effective at reducing depression symptoms compared to another psychological intervention:

- Family therapy compared to psychodynamic psychotherapy (moderate quality evidence from 1 RCT with 72 participants)

The following psychological interventions could not differentiate depression symptoms between children with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to usual care (low quality evidence from 1 RCT with 44 participants)
- Group CBT compared to attention control (moderate quality evidence from 1 RCT with 21 participants)
- Group CBT compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 21 participants)

- Family psychoeducation with CBT compared to pill placebo (moderate quality evidence from 1 RCT with 37 participants)
- Family based IPT compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 38 participants)
- Family therapy compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 134 participants)

Depression symptoms at ≤6 months

The following psychological interventions could not differentiate depression symptoms between children with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Group CBT compared to attention control (moderate quality evidence from 1 RCT with 21 participants)
- Group CBT compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 21 participants)
- Psychodynamic psychotherapy compared to family therapy (moderate quality evidence from 1 RCT with 72 participants)

Functional status at post-treatment

The following psychological interventions could not differentiate functional status between children with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Family therapy compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 134 participants)
- Psychodynamic psychotherapy compared to family therapy (moderate quality evidence from 1 RCT with 72 participants)

Functional status at ≤6 months

The following psychological interventions could not differentiate functional status between children with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Psychodynamic psychotherapy compared to family therapy (moderate quality evidence from 1 RCT with 72 participants)

Remission at post-treatment

The following psychological interventions could not differentiate remission between children with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Family therapy compared to non-directive supportive therapy (moderate quality evidence from 1 RCTs with 134 participants)
- Family based IPT compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 38 participants)
- Family psychoeducation with CBT compared to pill placebo (moderate quality evidence from 1 RCT with 37 participants)
- Psychodynamic psychotherapy compared to family therapy (moderate quality evidence from 1 RCT with 72 participants)

Remission at ≤6 months

The following psychological interventions were effective at increasing the number of people in remission compared to another psychological intervention:

- Psychodynamic psychotherapy compared to family therapy (moderate quality evidence from 1 RCT with 72 participants)

Discontinuation for any reason at end point

The following psychological interventions could not differentiate risk of discontinuation between children with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Family therapy compared to non-directive supportive therapy (moderate quality evidence from 1 RCTs with 134 participants)
- Family based IPT compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 40 participants)
- Family psychoeducation with CBT compared to pill placebo (moderate quality evidence from 1 RCT with 37 participants)
- Psychodynamic psychotherapy compared to family therapy (moderate quality evidence from 1 RCT with 72 participants)

Moderate to severe depression in age 12-18 year olds

Depression symptoms at post-treatment

The following psychological interventions were effective at reducing depression symptoms compared to a control:

- Individual CBT compared to waiting list/no treatment (very low quality evidence from 3 RCTs with 194 participants)
- Group CBT compared to waiting list/no treatment (moderate quality evidence from 2 RCTs with 102 participants)
- Group CBT and parent sessions compared to waiting list/no treatment (low quality evidence from 2 RCTs with 99 participants)
- Online guided self-help compared to waiting list/no treatment (moderate quality of evidence from 1 RCT with 31 participants)
- Computer CBT compared to attention control (low quality evidence from 1 RCT with 70 participants)

The following psychological interventions were effective at reducing depression symptoms compared to another psychological intervention:

- Individual CBT compared to family therapy (moderate quality evidence from 1 RCT with 64 participants)
- Individual CBT compared to psychosocial intervention (high quality evidence from 1 RCT with 209 participants)
- Individual CBT compared to relaxation (moderate quality evidence from 1 RCT with 48 participants)

The following psychological interventions could not differentiate depression symptoms between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to pill placebo (low quality evidence from 1 RCT with 223 participants)
- Individual CBT compared to usual care (very low quality evidence from 3 RCTs with 220 participants)
- Individual CBT compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 64 participants)
- Individual CBT compared to psychodynamic psychotherapy (high quality evidence from 1 RCT with 213 participants)
- Group CBT compared to usual care (moderate quality evidence from 1 RCT with 86 participants)
- Group CBT compared to group CBT and parent sessions (low quality evidence from 2 RCTs with 109 participants)
- Family therapy compared to attention control (moderate quality evidence from 1 RCT with 32 participants)
- Family therapy compared to usual care (high quality evidence from 2 RCTs with 78 participants)
- Family therapy compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 62 participants)
- IPT-A compared to waiting list (moderate quality evidence from 1 RCT with 37 participants)
- IPT-A compared to monitoring (moderate quality evidence from 1 RCT with 48 participants)
- IPT-A compared to usual care (moderate quality evidence from 1 RCT with 63 participants)
- IPT-A compared to individual CBT (moderate quality evidence from 1 RCT with 40 participants)
- IPT-A compared to IPT-A and parent sessions (moderate quality evidence from 1 RCT with 15 participants)
- IPT-A compared to group IPT (moderate quality evidence from 1 RCT with 39 participants)
- Psychodynamic psychotherapy compared to psychosocial intervention (high quality evidence from 1 RCT with 214 participants)
- Behaviour activation compared to usual care (low quality evidence from 1 RCT with 60 participants)

Sensitivity analysis removing studies at high risk of bias

This sensitivity analysis showed similar results for depression symptoms at post-treatment with or without RCTs at high risk of bias (individual CBT compared to usual care).

Depression symptoms at ≤6 months

The following psychological interventions could not differentiate depression symptoms between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to usual care (moderate quality evidence from 1 RCT with 212 participants)
- Individual CBT compared to psychodynamic psychotherapy (high quality evidence from 1 RCT with 221 participants)
- Individual CBT compared to psychosocial intervention (high quality evidence from 1 RCT with 216 participants)

- Individual CBT compared to relaxation (moderate quality evidence from 1 RCT with 48 participants)
- Group CBT compared to group CBT and parent sessions (moderate quality evidence from 1 RCT with 30 participants)
- Family therapy compared to usual care (high quality evidence from 1 RCT with 64 participants)
- IPT-A compared to individual CBT (moderate quality evidence from 1 RCT with 23 participants)
- Psychodynamic psychotherapy compared to psychosocial intervention (high quality evidence from 1 RCT with 115 participants)

Depression symptoms at ≥6 to ≤18 months

The following psychological interventions could not differentiate depression symptoms between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to usual care (moderate quality evidence from 1 RCT with 212 participants)
- Individual CBT compared to psychodynamic psychotherapy (high quality evidence from 1 RCT with 237 participants)
- Individual CBT compared to psychosocial intervention (high quality evidence from 1 RCT with 239 participants)
- Group CBT compared to usual care (moderate quality evidence from 1 RCT with 73 participants)
- Group CBT compared to group CBT and parent sessions (moderate quality evidence from 1 RCT with 29 participants)
- IPT-A compared to group IPT (moderate quality evidence from 1 RCT with 39 participants)
- Psychodynamic psychotherapy compared to psychosocial intervention (high quality evidence from 1 RCT with 130 participants)

Functional status at post-treatment

The following psychological interventions were effective at improving functional status compared to a control:

- Individual CBT compared to usual care (moderate quality evidence from 1 RCT with 212 participants)
- Group CBT and parent sessions compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 59 participants)
- IPT-A compared to usual care (moderate quality evidence from 1 RCT with 58 participants)

The following psychological interventions or controls were effective at improving functional status compared to an intervention:

- IPT-A and parent sessions compared to IPT-A (moderate quality evidence from 1 RCT with 15 participants)

The following psychological interventions could not differentiate functional status between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to pill placebo (low quality evidence from 1 RCT with 223 participants)
- Individual CBT compared to family therapy (moderate quality evidence from 1 RCT with 66 participants)
- Individual CBT compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 68 participants)
- Individual CBT compared to relaxation (moderate quality evidence from 1 RCT with 53 participants)
- Group CBT compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 64 participants)
- Group CBT compared to usual care (moderate quality evidence from 1 RCT with 86 participants)
- Group CBT compared to group CBT and parent sessions (moderate quality evidence from 1 RCT with 69 participants)
- IPT-A compared to group IPT (moderate quality evidence from 1 RCT with 39 participants)
- Behaviour activation compared to usual care (low quality evidence from 1 RCT with 60 participants)

Functional status at ≤6 months

The following psychological interventions could not differentiate functional status between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to usual care (moderate quality evidence from 1 RCT with 212 participants)
- Individual CBT compared to relaxation (moderate quality evidence from 1 RCT with 48 participants)
- Family therapy compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 53 participants)

Functional status at ≥6 to ≤18 months

The following psychological interventions could not differentiate functional status between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to usual care (moderate quality evidence from 1 RCT with 212 participants)
- Group CBT compared to usual care (moderate quality evidence from 1 RCT with 73 participants)
- IPT-A compared to group IPT (moderate quality evidence from 1 RCT with 39 participants)

Remission at post-treatment

The following psychological interventions were effective at increasing the number of people in remission compared to a control:

- Group CBT compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 30 participants)
- Computer CBT compared to attention control (low quality evidence from 1 RCT with 70 participants)

The following psychological interventions were effective at increasing the number of people in remission compared to another intervention:

- Individual CBT compared to family therapy (moderate quality evidence from 1 RCT with 66 participants)
- Individual CBT compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 124 participants)
- Individual CBT compared to relaxation (moderate quality evidence from 1 RCT with 48 participants)

The following psychological interventions could not differentiate risk of remission between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to usual care (moderate quality evidence from 1 RCT with 43 participants)
- Individual CBT compared to non-directive supportive therapy (moderate quality evidence from 3 RCTs with 124 participants)
- Individual CBT compared to psychodynamic psychotherapy (high quality evidence from 1 RCT with 97 participants)
- Individual CBT compared to psychosocial intervention (high quality evidence from 1 RCT with 313 participants)
- Group CBT compared to group CBT and parent sessions (moderate quality evidence from 1 RCT with 35 participants)
- Group CBT and parent sessions compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 33 participants)
- Family therapy compared to attention control (moderate quality evidence from 1 RCT with 32 participants)
- Family therapy compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 64 participants)
- IPT-A compared to group IPT (moderate quality evidence from 1 RCT with 39 participants)
- Psychodynamic psychotherapy compared to psychosocial intervention (high quality evidence from 1 RCT with 315 participants)

Subgroup analysis with comorbidities

The following psychological interventions could not differentiate risk of remission between young people with moderate to severe depression and irritable bowel syndrome who were offered psychological interventions compared to other psychological interventions or controls

- Individual CBT compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 217 participants)

Remission at <6 months

The following psychological interventions could not differentiate risk of remission between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to relaxation (moderate quality evidence from 1 RCT with 43 participants)

Remission at >6 to ≤18 months

The following psychological interventions could not differentiate risk of remission between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 56 participants)
- IPT-A compared to group IPT (moderate quality evidence from 1 RCT with 39 participants)

Quality of life at post-treatment

The following psychological interventions were effective at improving quality of life compared to a control:

- Individual CBT compared to usual care (moderate quality evidence from 1 RCT with 212 participants)

The following psychological interventions could not differentiate quality of life between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to pill placebo (low quality evidence from 1 RCT with 163 participants)
- Individual CBT compared to psychodynamic psychotherapy (high quality evidence from 1 RCT with 169 participants)
- Individual CBT compared to psychosocial intervention (high quality evidence from 1 RCT with 169 participants)
- Psychodynamic psychotherapy compared to psychosocial intervention (high quality evidence from 1 RCT with 176 participants)

Quality of life at ≤6 months

The following psychological interventions were effective at improving quality of life compared to usual care:

- Individual CBT compared to usual care (moderate quality evidence from 1 RCT with 212 participants)

The following psychological interventions could not differentiate quality of life between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to psychodynamic psychotherapy (high quality evidence from 1 RCT with 169 participants)
- Individual CBT compared to psychosocial intervention (high quality evidence from 1 RCT with 169 participants)
- Psychodynamic psychotherapy compared to psychosocial intervention (high quality evidence from 1 RCT with 171 participants)

Quality of life at >6 to ≤18 months

The following psychological interventions could not differentiate quality of life between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to usual care (moderate quality evidence from 1 RCT with 212 participants)
- Individual CBT compared to psychodynamic psychotherapy (high quality evidence from 1 RCT with 177 participants)
- Individual CBT compared to psychosocial intervention (high quality evidence from 1 RCT with 190 participants)
- Psychodynamic psychotherapy compared to psychosocial intervention (high quality evidence from 1 RCT with 183 participants)

Suicide-related adverse events

The following psychological interventions could not differentiate risk of suicide-related adverse events between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to pill placebo (low quality evidence from 1 RCT with 123 participants

Suicide ideation at post-treatment

The following psychological interventions were effective at reducing suicide ideation compared to a control:

- Individual CBT compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 30 participants)
- Individual CBT compared to usual care (moderate quality evidence from 1 RCT with 212 participants)

The following psychological interventions could not differentiate risk of suicide ideation between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to pill placebo (low quality evidence from 1 RCT with 123 participants)
- Individual CBT compared to family therapy (moderate quality evidence from 1 RCT with 66 participants)
- Individual CBT compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 68 participants)
- Group CBT compared to usual care (moderate quality evidence from 1 RCT with 86 participants)
- Family therapy compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 64 participants)

Suicide ideation at ≤6 months

The following psychological interventions could not differentiate risk of suicide ideation between young people with moderate to severe depression who were

offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to usual care (moderate quality evidence from 1 RCT with 212 participants)

Suicide ideation at >6 to ≤18 months

The following psychological interventions could not differentiate risk of suicide ideation between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to usual care (moderate quality evidence from 1 RCT with 212 participants)
- Group CBT compared to usual care (moderate quality evidence from 1 RCT with 73 participants)
- Group CBT compared to group CBT and parent sessions (moderate quality evidence from 1 RCT with 73 participants)

Discontinuation for any reason at end point

The following psychological interventions were effective at reducing discontinuation compared to a control:

- Behavioural activation compared to usual care (low quality evidence from 1 RCT with 53 participants)
- IPT-A compared to monitoring (moderate quality evidence from 1 RCT with 48 participants)

The following psychological interventions were effective at reducing discontinuation compared to an intervention:

- Individual CBT compared to psychosocial intervention (high quality evidence from 1 RCT with 289 participants)

The following psychological interventions could not differentiate risk of discontinuation between young people with moderate to severe depression who were offered psychological interventions compared to other psychological interventions or controls:

- Individual CBT compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 48 participants)
- Individual CBT compared to pill placebo (low quality evidence from 1 RCT with 123 participants)
- Individual CBT compared to usual care (moderate quality evidence from 3 RCTs with 321 participants)
- Individual CBT compared to family therapy (moderate quality evidence from 1 RCT with 72 participants)
- Individual CBT compared to non-directive supportive therapy (moderate quality evidence from 2 RCTs with 128 participants)
- Individual CBT compared to psychodynamic psychotherapy (high quality evidence from 1 RCT with 178 participants)
- Individual CBT compared to relaxation (moderate quality evidence from 1 RCT with 53 participants)
- Computer CBT compared to attention control (low quality evidence from 1 RCT with 70 participants)

- Group CBT compared to waiting list/no treatment (moderate quality evidence from 2 RCTs with 121 participants)
- Group CBT and parent sessions compared to waiting list/no treatment (moderate quality evidence from 2 RCTs with 116 participants)
- Group CBT compared to group CBT and parent sessions (moderate quality evidence from 2 RCTs with 127 participants)
- Family therapy compared to usual care (moderate quality evidence from 2 RCTs with 73 participants)
- Family therapy compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 70 participants)
- Online guided self-help compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 31 participants)
- IPT-A compared to waiting list/no treatment (moderate quality evidence from 1 RCT with 46 participants)
- IPT-A compared to usual care (moderate quality evidence from 1 RCT with 63 participants)
- IPT-A compared to individual CBT (moderate quality evidence from 1 RCT with 48 participants)
- IPT-A compared to IPT-A and parent sessions (moderate quality evidence from 1 RCT with 15 participants)
- Group IPT compared to IPT-A (moderate quality evidence from 1 RCT with 39 participants)
- Psychodynamic psychotherapy compared to psychosocial intervention (high quality evidence from 1 RCT with 283 participants)

Subgroup analysis with comorbidities

The following psychological interventions could not differentiate risk of discontinuation between young people with moderate to severe depression and irritable bowel syndrome who were offered psychological interventions compared to other psychological interventions or controls

- Individual CBT compared to non-directive supportive therapy (moderate quality evidence from 1 RCT with 191 participants)

Sensitivity analysis removing studies at high risk of bias

This sensitivity analysis showed similar results for discontinuation for any reason at end point with or without RCTs at high risk of bias (individual CBT compared to usual care).

Network meta-analysis

The format of the evidence statements is described in appendix B and summaries of the results of the NMA are presented in appendix G.

Mild depression in 12-18 year olds

Depression symptoms at post-treatment, mild depression in 12 to 18 years old

Very low quality evidence from 1 network meta-analysis with 25 RCTs containing 3,213 participants found that the following psychological interventions were effective at reducing depression symptoms compared to waiting list/no treatment:

- Group CBT
- Relaxation
- Guided self-help

- Computer CBT
- Group CBT + computer CBT
- Family therapy
- Group IPT

The following psychological interventions were effective reducing depression symptoms:

- Group IPT better than group NDST

The evidence could not differentiate depression symptoms between the remaining comparators.

Depression symptoms at ≤6 months, mild depression in 12 to 18 years old

Low quality evidence from 1 network meta-analysis with 21 RCTs containing 2,852 participants found that the following psychological interventions were effective at reducing depression symptoms compared to waiting list/no treatment:

- Group CBT
- Group NDST
- Individual CBT
- Computer CBT
- Group CBT + computer CBT
- Family therapy
- Group IPT

The following psychological interventions were effective at reducing depression symptoms compared to attention control:

- Computer CBT
- Group IPT

The following psychological interventions were effective at reducing depression symptoms:

- Group CBT compared to guided self-help, NDST
- Group NDST compared to guided self-help, NDST
- Computer CBT compared to group CBT, guided self-help, individual CBT, NDST
- Group CBT + computer CBT compared to guided self-help, NDST
- Family therapy compared to guided self-help, individual CBT, NDST
- Group IPT compared to group CBT, guided self-help, group NDST, individual CBT, NDST
- Attention control compared to guided self-help, NDST
- Usual care compared to guided self-help, individual CBT, NDST

The evidence could not differentiate depression symptoms between the remaining comparators.

Depression symptoms at >6 to ≤18 months, mild depression in 12 to 18 years old

Moderate quality evidence from 1 network meta-analysis with 9 RCTs containing 1,417 participants found that the following psychological interventions were effective at reducing depression symptoms compared to waiting list/no treatment:

- Group NDST
- Computer CBT
- Group IPT

The following psychological interventions were effective at reducing depression symptoms compared to attention control:

- Computer CBT

The following psychological interventions were effective at reducing depression symptoms compared to usual care:

- Computer CBT

The following psychological interventions were effective at reducing depression symptoms:

- Computer CBT compared to group CBT, guided self-help, group NDST

The evidence could not differentiate depression symptoms between the remaining comparators.

Remission at post-treatment, mild depression in 12 to 18 years old

Very low quality evidence from 1 network meta-analysis with 2 RCTs containing 87 participants found that the following psychological interventions were effective at increasing remission compared to usual care:

- Individual CBT

The evidence could not differentiate remission between:

- Family therapy compared to individual CBT and usual care

Discontinuation for any reason at end point, mild depression in 12 to 18 years old

Low quality evidence from 1 network meta-analysis with 21 RCTs containing 3,396 participants could not differentiate discontinuation between:

- Group CBT, relaxation, guided self-help, group NDST, individual CBT, NDST, computer CBT, group + computer CBT, group IPT, creative play therapy, attention control, usual care, and waiting list or no treatment

Moderate to severe depression in 5-11 year olds

Depression symptoms at post-treatment, moderate to severe depression in 5 to 11 years old

Moderate quality evidence from 1 network meta-analysis with 3 RCTs containing 244 participants found that the following psychological interventions were effective at reducing depression symptoms

- Family based IPT compared to psychodynamic psychotherapy
- Family therapy compared to psychodynamic psychotherapy

The evidence could not differentiate depression symptoms between the remaining comparators.

Functional status at post-treatment, moderate to severe depression in 5 to 11 years old

Low quality evidence from 1 network meta-analysis with 2 RCTs containing 206 participants could not differentiate functional status between:

- Family therapy, NDST and psychodynamic psychotherapy

Functional status at post-treatment, moderate to severe depression in 5 to 11 years old

Low quality evidence from 1 network meta-analysis with 2 RCTs containing 206 participants could not differentiate functional status between:

- Family therapy, NDST and psychodynamic psychotherapy

Remission at post-treatment, moderate to severe depression in 5 to 11 years old

Moderate quality evidence from 1 network meta-analysis with 3 RCTs containing 244 participants found that the following psychological interventions were effective at increasing remission:

- Family based IPT compared to NDST

The evidence could not differentiate remission between:

- Family therapy compared to family based IPT, NDST
- Psychodynamic psychotherapy compared to family based IPT, NDST, family therapy

Discontinuation for any reason at end point, moderate to severe depression in 5 to 11 years old

Moderate quality evidence from 1 network meta-analysis with 3 RCTs containing 246 participants found that the following psychological interventions were effective at reducing discontinuation:

- NDST compared to family therapy
- Psychodynamic psychotherapy compared to family therapy

The evidence could not differentiate discontinuation between the remaining comparators.

Moderate to severe depression in 12-18 year olds

Depression symptoms at post-treatment, moderate to severe depression in 12 to 18 years old

Very low quality evidence from 1 network meta-analysis with 22 RCTs containing 1,886 participants found that the following psychological interventions were effective reducing depression symptoms compared to waiting list/no treatment:

- Individual CBT
- IPT-A
- Family therapy
- Group CBT

No interventions were better than others in this group.

The evidence could not differentiate depression symptoms between the remaining comparators.

Depression symptoms at ≤6 months, moderate to severe depression in 12 to 18 years old

Low quality evidence from 1 network meta-analysis with 5 RCTs containing 703 participants could not differentiate depression symptoms between:

- Individual CBT, psychodynamic psychotherapy, psychosocial intervention, relaxation, family therapy, IPT-A and usual care

Depression symptoms at >6 to ≤18 months, moderate to severe depression in 12 to 18 years old

Moderate quality evidence from 1 network meta-analysis with 4 RCTs containing 706 participants could not differentiate depression symptoms between:

- Individual CBT, psychodynamic psychotherapy, psychosocial intervention, group CBT, group CBT + parent sessions and usual care

Functional status at post-treatment, moderate to severe depression in 12 to 18 years old

Low quality evidence from 1 network meta-analysis with 9 RCTs containing 926 participants found that the following psychological interventions were effective at increasing functional status compared to waiting list or no treatment:

- Individual CBT
- Family therapy
- Group CBT + parent sessions
- IPT-A

The following psychological interventions were effective at increasing functional status compared to usual care:

- Individual CBT
- Family therapy
- IPT-A

The evidence could not differentiate functional status between the remaining comparators.

Functional status at >6 months to ≤18 months, moderate to severe depression in 12 to 18 years old

Moderate quality evidence from 1 network meta-analysis with 2 RCTs containing 285 participants could not differentiate functional status between:

- Individual CBT, group CBT and usual care

Functional status at ≤6 months, moderate to severe depression in 12 to 18 years old

Low quality evidence from 1 network meta-analysis with 2 RCTs containing 260 participants could not differentiate functional status between:

- Individual CBT, relaxation and usual care

Remission at post-treatment, moderate to severe depression in 12 to 18 years old

Moderate quality evidence from 1 network meta-analysis with 8 RCTs containing 875 participants found that the following psychological interventions were effective at increasing remission compared to attention control

- Individual CBT
- Family therapy
- NDST
- Psychodynamic psychotherapy
- Psychosocial intervention
- Computer CBT

The following psychological interventions were effective at increasing remission

- Individual CBT compared to family therapy, NDST, relaxation
- Psychodynamic psychotherapy compared to family therapy and relaxation
- Psychosocial intervention compared to family therapy and relaxation
- Usual care compared to family therapy, relaxation

The evidence could not differentiate remission between the remaining comparators.

Quality of life at post-treatment, moderate to severe depression in 12 to 18 years old

Low quality evidence from 1 network meta-analysis with 3 RCTs containing 632 participants found that the following psychological interventions were effective at improving quality of life compared to usual care

- Individual CBT
- Pill placebo

The evidence could not differentiate quality of life between:

- Individual CBT and pill placebo
- Psychodynamic psychotherapy compared to pill placebo, individual CBT and usual care
- Psychosocial intervention compared to pill placebo, individual CBT, psychodynamic psychotherapy, and usual care

Quality of life at ≤6 months, moderate to severe depression in 12 to 18 years old

Low quality evidence from 1 network meta-analysis with 2 RCTs containing 469 participants found that the following psychological interventions were effective at improving quality of life compared to usual care:

- Individual CBT

The evidence could not differentiate quality of life between:

- Individual CBT compared to psychodynamic psychotherapy and psychosocial intervention
- Psychodynamic psychotherapy compared to individual CBT, psychosocial intervention, and usual care

Quality of life at >6 to ≤18 months, moderate to severe depression in 12 to 18 years old

Moderate quality evidence from 1 network meta-analysis with 2 RCTs containing 487 participants could not differentiate quality of life between:

- Individual CBT compared to psychodynamic psychotherapy, psychosocial intervention and usual care
- Psychodynamic psychotherapy compared to psychosocial intervention and usual care

- Psychosocial intervention compared to usual care

Suicide ideation (dichotomous) at post-treatment, moderate to severe depression in 12 to 18 years old

Moderate quality evidence from 1 network meta-analysis with 3 RCTs containing 534 participants found that the following psychological interventions were effective at reducing suicide ideation compared to usual care:

- Individual CBT

The evidence could not differentiate suicide ideation between:

- Individual CBT compared to family therapy, NDST, and pill placebo
- Family therapy compared to NDST, usual care, and pill placebo
- NDST compared to usual care and pill placebo

Discontinuation for any reason at end point, moderate to severe depression in 12 to 18 years old

Moderate quality evidence from 1 network meta-analysis with 18 RCTs containing 1,886 participants found that the following psychological interventions were effective at reducing discontinuation compared to waiting list or no treatment:

- Group IPT
- Behavioural activation

The following psychological interventions were effective at reducing discontinuation compared to usual care:

- Group IPT
- Behavioural activation

The following psychological interventions were effective at reducing discontinuation compared to monitoring:

- Individual CBT
- IPT-A
- Family therapy
- Psychodynamic psychotherapy
- Group CBT
- Group CBT + parent sessions
- Group IPT
- Behavioural activation

The following psychological interventions were effective at reducing discontinuation:

- Individual CBT compared to psychosocial intervention and online guided self-help
- Group IPT compared to IPT-A, psychodynamic psychotherapy, psychosocial intervention, online guided self-help, IPT-A + parent sessions
- Behavioural activation compared to individual CBT, IPT-A, psychodynamic psychotherapy, psychosocial intervention, online guided self-help
- Group CBT compared to online guided self-help
- Group CBT + parent sessions compared to online guided self-help
- Pill placebo compared to online guided self-help

The evidence could not differentiate discontinuation between the remaining comparators.

NMA sensitivity analyses and inconsistency checking

The results of the sensitivity analyses using an alternative approach to converting MD to SMD only detected minor differences in results compared to the original approach used in the NMAs for depression symptoms and functional status post treatment for 12- 18 year olds with mild or moderate to severe depression.

Inconsistency checking identified several networks with potential inconsistency. Sensitivity analyses removing the studies that were potentially inconsistent for depression symptom post treatment and at 6 months for mild depression in 12-18 year olds (see appendix S) led to minor changes in results in most cases, however, in the post treatment NMA, group IPT became disconnected from the network. In the 6 months post treatment network, individual CBT ceased to be effective at reducing depression symptoms compared to waiting list/ no treatment amongst other changes.

Published NMA results

High quality evidence from 1 published network meta-analysis containing 3,805 participants (children and young people aged 7 to 18 years with depression) found that IPT and CBT were effective at reducing depression symptoms at post-treatment compared to control interventions (including psychological placebo, usual care and waiting list) and compared to play therapy. The evidence was partially applicable because the NMA does not cover all of the outcomes of interest, does not report results by the ages groups of interest to this review, and does not separate interventions by the type of psychotherapy and method of delivery (group and individual forms of a particular type of therapy are combined to form single nodes in the analyses).

Economic evidence statements

- Evidence from 1 single UK study conducted alongside a RCT (n=470) suggests that cognitive behavioural therapy is likely to be cost-effective in young people compared to brief psychological intervention and short-term psychoanalytic psychotherapy, although there were no significant differences in costs or effects. The evidence is directly applicable to the UK but has potentially serious limitations.
- Evidence from 1 single UK study conducted alongside a RCT (n=208) suggests that cognitive behavioural therapy in combination with selective serotonin reuptake inhibitors is unlikely to be cost-effective in young people compared to selective serotonin reuptake inhibitors alone. The evidence is partially applicable to the research question but has potentially serious limitations.
- Evidence from 1 single US study conducted alongside an RCT (n=212) suggests that cognitive behavioural therapy combined with treatment as usual is likely to be cost-effective in young people declining selective serotonin reuptake inhibitors compared to treatment as usual. The evidence is partially applicable to the UK and but potentially serious limitations.
- Evidence from 1 single US study conducted alongside a RCT (n=327) suggests that cognitive behavioural therapy in combination with fluoxetine is likely to be cost-effective in young people compared to cognitive behavioural therapy or fluoxetine on its own. The evidence is partially applicable to the UK but has potentially serious limitations.

The committee's discussion of the evidence

Interpreting the evidence

The outcomes that matter most

The committee agreed that the key outcomes for children and young people with depression were depression symptoms, functional status, remission and quality of life and they made these the primary outcomes for this review to reflect their importance. Depression symptoms and remission were chosen because they could be used to assess whether the interventions were having the desired effect of treating the depressive symptoms experienced by the child or young person. Remission was considered to be harder to achieve than a reduction in depression symptoms measured by a depression scale. Following on from these changes, the interventions would also ideally lead to an improvement in functional status and quality of life, enabling the child or young person being treated for depression to return to school, join in with family life again and resume social activities. The committee also agreed that self-report scales would give the opportunity to children and young people to report their own experience.

The committee agreed that suicide ideation, suicide-related adverse events and self-harm were also very important outcomes as they could be indications that an intervention was not working or might be harmful. They noted that suicide (ideation or attempts) and self- harm represent signs of distress and were very real risks for children and young people with depression if they are untreated. However, these outcomes were not prioritised because the committee expected that there would be a shortage of evidence, making it harder to use them for decision making than the primary outcomes listed above.

The committee were interested in examining the data on discontinuation, but acknowledged that this was a complex outcome to interpret and as a result, they did not prioritise it. The committee noted that discontinuation could be caused by many different factors and could include cases where the intervention did not work for the particular child or young person; interventions working sooner than expected leading to drop outs as no more sessions are required; or issues concerning access such as timing of sessions and transport or equality issues (see the section below on 'other factors the committee took into account' for a full discussion of equality issues).

The quality of the evidence

Deciding on the division of the trials based on the severity of depression of the participants and the age of the child or young person

The committee agreed that it was appropriate to try to make separate recommendations based on the severity of the depression and the age of the child or young person because it was expected that younger children were likely to respond differently to treatments compared to young people and the treatments that were most effective might be different for children and young people with mild depression compared to those with moderate to severe depression. As a result, they agreed to divide the analyses into 2 age groups and depression severity levels: 5-11 year olds or 12-18 year olds; mild depression or moderate to severe depression.

The committee agreed that it was necessary to separate the children and young people into different groups because children differ greatly in their level of development and maturity compared to teenagers. They agreed to retain the categories used in the 2015 and divided the studies into those recruiting 5-11 or 12-18 year olds. However, they noted that within a category 5 year olds (or 12 year olds)

would also be very different in their level of development and maturity compared to 11 year olds (or 18 year olds) and that this would likely affect the choice of treatment and its effectiveness.

These age categories were used in the 2015 update of this review question and the studies that were included previously were kept in the same categories as before for this analysis. In the majority of cases, studies recruited children or young people and it was obvious which category the study fell into as the study age range fell within the 5-11 or 12-18 range. However, in other cases, the age range spanned 2 categories and the decision was based on a combination of the mean age of the participants, if supplied, and the range itself. For example, in Trowell 2007 participants were 9-15 years old and had a mean age of 11.71 years. This study was classified under the 5-11 heading here as it was included in this category in the 2015 update, but it could have been included in the 12-18 category instead or as well as the 5-11 category.

In an ideal situation, the included studies would have recruited children or young people with either mild or moderate to severe depression using recognised instruments. This would have allowed the included studies to be divided up by severity. However, this was not possible as the trials did not recruit participants in this manner. The committee considered dividing the studies based on the mean population characteristics of each study, but decided against this approach because it was unclear which cut off point should be used to distinguish between populations of children and young people with mild or moderate to severe depression for each depression scale reported in the baseline study characteristics table. They were also concerned about using a depression scale in isolation to determine severity as this does not reflect clinical practice, which also includes additional sources of information in the decision making process. As a result, the committee agreed to divide the studies into those with participants with mild or moderate to severe depression based on the study inclusion criteria. Studies that recruited children and young people with a diagnosis of depression were classified as having participants with moderate to severe depression and those using depression symptoms as inclusion criteria were classified under mild depression. However, this classification was not without issue as some of the studies that included children and young people based on depression symptoms excluded those with a diagnosis of depression, whilst others did not and so may have included some participants with more severe depression.

Some of the studies looking at psychological interventions for depression were aimed at the prevention of depression in high risk groups. These studies were excluded from this review if the participants did not meet the requirement of having depression symptoms at baseline. However, under our classification, studies such as Dobson 2010 are grouped with other studies of mild depression as the participants had depression symptoms at baseline. In this case, we interpreted the study as being aimed at preventing the development of more severe depression in young people who already had mild depression.

Grouping of controls and issues surrounding the use of multiple types of control

The studies used a number of controls, which included active interventions such as attention control and usual care, whilst others used no treatment or waiting list as controls. The committee agreed that waiting list or no treatment were sufficiently similar that they could be merged to act as a single node in the NMAs and that these were the most appropriate controls as they reflected real clinical practice most closely. In comparison, in some trials attention control was very intensive and could almost count as an active intervention in its own right. The use of pill placebo as a control was also problematic as there was a risk of a placebo effect. This control was

used by a small number of trials that also included a drug intervention arm, but for the purposes of this analysis the drug arm data was not included. The definitions of the controls used in individual trials was varied and they were reclassified based on descriptions provided by the committee to ensure that each control node in the NMA consisted of similar control interventions.

The committee noted that although the recommended psychological therapies were more effective than waiting list/no treatment in many of the outcomes and time points, this was not the case when compared to attention control or usual care. Instead, many of the active treatments were worse than, or not detectably different from, usual care or an attention control. In the case of the attention control this might be attributed to a large amount of interaction between the researcher and the child or young person with depression acting as an intervention in itself in some trials, reducing the relative effect of the psychological intervention. In contrast, in other trials, an attention control may have involved more minimal contact. The variable nature of usual care, which could include psychological or other therapies or antidepressant treatment, may have had a similar effect to the attention control.

Modified GRADE methodology and overall quality of the evidence

This update used a modification of the GRADE process to assess the quality of the evidence underlying the results for each outcome. Rather than including imprecision in the GRADE tables, the impact of imprecision on the certainty of the effect estimates was discussed with the committee during the presentation of results of the pairwise meta-analysis and NMA. However, this approach meant that the quality of the evidence as presented to the committee and listed in the evidence statements for both the pairwise meta-analyses and NMAs was likely to be graded higher than would otherwise have been the case for some outcomes. (Please refer to the benefits and harms section below for a discussion of the approach taken by the committee to examine imprecision in the results.)

Overall, the quality of the pairwise evidence varied from high to very low, with the main reason for downgrading being due to risk of bias of the included studies due to a lack of allocation concealment, lack of blinding, and high attrition without information about how missing data was handled.

The quality of the evidence was moderate for the majority of NMAs. The main reasons for downgrading were due to risk of bias of the included studies for the reasons mentioned above and inconsistency between the results of the pairwise and NMA results. Networks that contained fewer studies were typically graded as being of higher quality than the larger NMAs. These larger networks included outcomes, such as depression symptoms for 12- 18 year olds for both severity levels, that were of particular importance and played larger roles in the committee's decision making process. The analyses with smaller networks, such as for depression symptoms post treatment for 5-11 year olds year olds with moderate to severe depression (Figure 73), were less likely to show substantial differences between the pairwise and NMA results (and therefore be downgraded for inconsistency) than networks with large numbers of interventions from multiple trials (for example, depression symptoms for 12-18 year olds with mild depression post treatment, Figure 58). This was not unexpected as the larger, more complex networks contained many more comparisons between the pairwise and NMA results and so there were more chances for individual comparisons to show differences between the pairwise and NMA results and a single discrepancy resulted in the whole network being downgraded. While smaller networks were often graded as higher quality largely as a result of containing fewer studies.

Interpreting whether the results of the analyses were clinically meaningful

To help the committee with their examination of the clinical importance of the effects of the interventions across outcomes, it was necessary to convert continuous outcomes reported on multiple scales to a single scale per outcome to allow the data to be combined. Depression symptoms, functional status, and quality of life were all measured as continuous outcomes using a variety of scales (see appendix P for information about the key scales reported by the included studies). The committee agreed to allow prioritisation of certain scales for data extraction for each outcome based on the most frequently used scales in the included studies, a hierarchy of depression symptom severity measurement scales reported by a Cochrane review of newer generation antidepressants for depressive disorders in children and adolescents (Hetrick 2012) and their own experience (see appendix Q for the ranking of these scales). The pooled results of the meta-analyses for these outcomes are reported in the forest plots and GRADE tables as standardised mean differences (SMDs), or mean differences (MD) where the studies for that particular pairwise comparison used a single common scale.

However, although SMDs have the benefit of allowing multiple scales per outcome to be combined, it is hard to relate changes in SMDs to clinically meaningful differences that would matter to children and young people with depression. As a result, the committee agreed that it was helpful to back convert the SMDs onto a common scale for each outcome to aid interpretation of the results of the analyses. The committee chose a single highly ranked scale for each outcome based on their experience of using the scales. The standardised mean difference results were then back converted to these scales. In the case of depression symptoms the committee agreed to use the Child Depression Inventory (CDI), for functional status they chose the Children's global assessment scale (CGAS) and for quality of life they used Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA).

The committee discussed these scales in detail and reached an agreement on the changes that they thought would be clinically meaningful for each outcome and scale based on their clinical expertise and published literature. For the continuous outcomes these were:

- Depression symptoms: a difference of 8 points on the CDI
- Functional status: a difference of 5-10 points on the CGAS
- Quality of life: a difference of 5-10 points on the HoNOSCA

The committee chose to set a range for the minimal clinically important differences (MIDs) for functional status and quality of life because they thought that the published values were rather high at 10 points on each scale. Since HoNOSCA is measured from 0-52 or 0-60 and CGAS is measured from 1-90 or 1-100, a change of 10 points would be quite large. Details of all identified MIDs are included in Table 9.

Looking at the continuous outcomes overall, the committee noted that some NMAs had much wider credible intervals (CrIs) than others, which led to increased uncertainty surrounding the results for these outcomes. These NMAs typically consisted of large numbers of interventions, with very few trials per intervention. For example, for depression symptoms post-treatment (at the end of treatment), for moderate to severe depression in 12-18 year olds the CrIs for some comparisons were up to 30 points wide. However, for 5-11 year olds, the CrIs were around 10 points wide on the CDI scale for the same outcome. In other cases, such as quality of life post-treatment in the 12-18 year old age group, the CrIs were much tighter but the network of trials was much smaller.

For the dichotomous outcomes the committee found it easier to interpret the results of the pairwise analysis using the absolute risk per 100 people rather than by looking at the relative risk as presented by the risk ratio (RR) for the pairwise evidence. They decided that for remission and self-harm a difference of 10 people out of 100 people would likely reflect meaningful differences between interventions. In contrast for suicide ideation and suicide-related adverse events, a smaller difference was important because of the potential severity of these outcomes. For discontinuation they agreed that a difference of 20 people out of 100 people might reflect meaningful differences between interventions. They chose this because they noted that discontinuation from psychological therapy was not the same as for pharmaceutical interventions and there were many possible reasons for discontinuation of therapy that were unrelated to the actual interventions themselves. For example, discontinuation may have been more related to the ages of the participants, their environment and/or the therapy having worked (see 'the outcomes that matter most' above and 'other factors the committee took into account' for more discussion of issues surrounding attendance at therapy sessions). However, the results of the NMAs for dichotomous outcomes were presented in the form of risk ratios and not converted to absolute risks because very few studies reported data for these outcomes and, apart from remission, they were not prioritised for decision making. In the case of remission, there was data for 12-18 year olds with moderate to severe depression in particular, but the majority of CrIs spanned the line of no effect.

Gaps in the evidence base and issues concerning the reporting of outcomes

The committee noted that the majority of the included studies reported data on depression symptoms, but fewer reported functional status and remission. Very few studies reported the impact of the therapies on quality of life. There was limited evidence for the rest of outcomes (suicide-related adverse events, suicide ideation and self-harm) as the majority of RCTs did not report data on these outcomes. The majority of studies included data on discontinuation, but this was hard to interpret as there were multiple reasons that a child or young person with depression could have for discontinuing an intervention, including remission. In addition, the committee identified a number of groups of people whose characteristics could affect their attendance at sessions (see 'the outcomes that matter most' above and 'other factors the committee took into account' for more discussion of these issues). The committee noted that for many of the included studies, the participants on the waiting list were offered the intervention once the trial ended.

The definition of remission varied across studies. However, these differences were not a barrier for pairwise or network meta-analysis because remission was measured in the same way between arms within single RCTs and the results were analysed as relative effects within trials.

The committee noted that there was a shortage of trials that recruited younger children aged 5 to 11 years with mild depression and the only active intervention under investigation was group CBT. There was also limited evidence for the same age group with moderate to severe depression. Here the interventions tested were restricted to individual CBT, group CBT, NDST, psychodynamic psychotherapy, family psychoeducation with CBT, family therapy and family based IPT. For both levels of depression severity the study sample sizes were small and there were typically only 1 or 2 trials per therapy.

There was more evidence for young people aged 12-18 years for both mild and moderate to severe depression, but again sample sizes were small for most included RCTs and some interventions were only examined by 1 or 2 trials. In contrast, individual CBT was included as an intervention in a large number of trials (more than

15 trials across the different depression severity levels for this age group) and group CBT was reported in more than 10 trials.

The committee also noted that, while all included studies reported data at the end of treatment (post-treatment) there was a shortage of evidence for the effects of interventions at later time points in many cases. They considered shorter term follow up to be up to and including 6 months post-treatment and longer follow up to cover a year to 18 months. The data was analysed for these follow up times for both the pairwise and network meta-analyses, where it was available. Longer time points were not chosen because the committee thought the data would be unreliable, given its paucity and their experience that children and young people between the ages of 5-18 years change dramatically within relatively short periods of time compared to adults.

Based on the shortage of evidence for effectiveness over time, the committee included a requirement for evidence of effectiveness post-treatment and at later time points in all of the research recommendations they made to help investigate whether the effects of the interventions are maintained over time (see below for the details of these research recommendations).

The review included studies that recruited children and young people with depression and comorbidities if the focus of the intervention was treatment for depression only, but these studies were excluded if the treatment was for depression **and** the comorbidty (for example for anxiety **and** depression). However, these studies were not included in the NMA and kept as separate subgroups in the pairwise analysis in case the presence of the comorbidity altered the effect of the intervention. The committee noted that there were very few studies that recruited people with comorbidities and depression specifically to treat depression, This review identified 3 such studies (Shomaker 2017, Szigethy 2007 and Szigethy 2014). Shomaker 2017 recruited young people aged 12-17 years with a high risk of diabetes, while the other papers recruited 9-17 year olds with inflammatory bowel disease. The committee also noted that the studies that did not deliberately recruit children or young people with a comorbidity, did not present subgroup data for comorbidities. However, the specific management of patients with other physical or psychiatric conditions (ie. comorbidities) was not within the scope of this update and the committee would have been unable to make separate recommendations for these groups even if the data had existed.

There was a shortage of evidence concerning which psychological therapies were most effective for children and young people who had not responded to a previous psychological therapy. The review protocol included a subgroup analysis to look at the effectiveness of these therapies in people with moderate to severe depression who had either no previous depression, a previous incidence of depression or refractory depression. However, this subgroup analysis was not carried out as the included studies did not provide this information.

Other issues

The committee noted that IPT-A includes a variable number of parent sessions as part of the intervention, but the Gunlicks-Stoessel (2016) study compared IPT-A with reduced parental involvement to IPT-A with additional parental involvement. They therefore agreed that this study should not be included in the NMA as the IPT-A intervention was not comparable to IPT-A as carried out in other studies and could not be grouped under the same intervention node. Since this study did not include a non-IPT arm, this exclusion could not have influenced the IPT-A results in the NMA.

A large proportion of the group therapy trials included in this analysis were carried out in a school setting but, as these interventions were administered by healthcare professionals and not teachers, the committee agreed that they could be delivered outside the school setting and were therefore suitable for inclusion in the analysis as types of group therapy. The committee noted that these interventions were aimed at treating children and young people with existing symptoms of depression or a diagnosis of depression rather than at preventing the development of depression in the future. Trials that recruited children and young people at risk of depression and/or that aimed to prevent depression developing in a group of children or young people were not included in this review as they did not meet the review protocol, which required people to have existing symptoms or diagnosis of depression.

NMA sensitivity analyses and NMA model inconsistency checks

Sensitivity analyses were carried out to compare the results obtained by different methods of standardising the study results for continuous outcomes (a process made necessary by different studies using different questionnaires to measure the same outcome). Modified models that standardised at the individual study level (see methods and processes point 22 for details) were run for: depression symptoms and functional status at post-treatment for 12 to 18 year olds with mild depression; and for the same outcomes post-treatment for 12 to 18 year olds with moderate to severe depression. The results of these models were compared to the original results with only minor differences being identified between the two sets. As a result, the committee were confident that changing the method of standardisation in this manner does not alter the results of the analyses substantially and the committee were able to use the original results to make recommendations.

A second set of analyses were carried out to examine the networks identified as being potentially inconsistent (appendix S). This focused on the networks for depression symptoms post treatment and at 6 months post treatment for 12-18 year olds with mild depression as these models were of particular importance for the committee's decision making process. Firstly, the parts of the network containing the potentially inconsistent studies were identified. The characteristics of the studies identified as being potentially inconsistent were examined in detail to determine if there were any differences between these studies and the other studies in the loop in question that could explain the inconsistency. If substantial differences were identified this might suggest that the potentially inconsistent studies should be excluded from the NMA or placed in a separate/different node in the network. These checks focused on key factors that the committee had previously mentioned during their discussions that could potentially alter the results substantially, such as study format (e.g. group in a clinic or primary care setting versus group in a school setting), study population, and the details of the interventions and the controls. Secondly, the characteristics of the other RCTs within the loops were examined to determine whether any of them could be causing the inconsistency instead. In both cases, no differences in study characteristics were identified that could account for the inconsistency and therefore there were no reasons to exclude any of the individual studies.

Thirdly, the NMA models for these outcomes were re-run without the potentially inconsistent studies to investigate the effects these studies have on the NMA results. In the case of depression symptoms post treatment, Jacob (2016), Stice (2008), and Ackerson (1998) were the only studies looking at guided self-help and their removal led to the loss of this treatment from the network. It also broke the connections with the nodes for group NDST, which had not been recommended, and group IPT, which was recommended. However, the effects on the results for the interventions that were retained in the network were minimal, with all of the interventions that were

effective compared to waiting list/no treatment remaining so in the sensitivity analysis. These interventions would still be recommended based on the results of the sensitivity analysis. Group IPT was recommended by the committee based on the original NMA data. The pairwise data from 3 RCTs showed that this intervention was more effective at reducing depression symptoms than group NDST, suggesting that any potential inconsistency in the NMA would not affect conclusions about the interventions effectiveness.

One study, Hayes (2011), was identified as the potential source of inconsistency and was removed from the network for the sensitivity analysis for depression symptoms at 6 months post treatment. This RCT reported on individual CBT versus usual care and its removal did not result in the loss of any treatments from the network. The sensitivity analysis showed minor differences in results compared to the original NMA for all comparisons. The only meaningful change was for individual CBT, which ceased to be effective at reducing depression symptoms compared to waiting list/no treatment amongst other changes. However, based on the pairwise results from 3 RCTs, the recommendation for individual CBT would still stand because, compared to usual care, individual CBT reduced depression symptoms post treatment and improved functional status at the same time point. In addition, the improvement in functional status was still detected at 6 months post treatment.

In conclusion, although statistical inconsistency was identified in the depression symptoms NMA models for 12-18 year olds with mild depression post treatment and at 6 months post treatment, the effects on the results of the NMAs were minor in most cases and, taking the pairwise direct evidence into account where differences were found, and the committee agreed that the recommendations did not need to be changed.

Benefits and harms

Mild and moderate to severe depression- recommendations included in both severity levels

The committee agreed that it is important to involve the children and young people with depression and their families or carers (as appropriate) in the decision making process as much as possible to ensure that they understand which therapies are suitable for them and why and, if there is a choice of suitable therapies, to help them make an informed decision based on their preferences. They made a recommendation to reflect this issue and included it in the sections for both mild and moderate to severe depression. They also noted that this discussion should include the evidence base for the therapies and, in particular, that there is limited evidence for effectiveness in 5-11 year olds).

The committee also agreed that an equivalent recommendation was required to prompt the practitioner to carry out a full assessment of needs, including the clinical and social/personal history and current situation/environment of the child or young person with depression before making a choice of therapy. The committee chose to include social/personal history to stress the importance of taking a broader individual history than that covered by clinical issues alone. They agreed that a child or young person's social/personal history could be a major factor in the development of depression and should be taken into consideration during the decision making process. This recommendation was also based on a discussion of the difficulties faced by some children and young people in attending therapy sessions, which may be due to transport problems, poverty or family issues amongst many others (see 'other factors the committee took into account' for more discussion of these issues).

The committee noted that the context or setting in which the treatment was to be provided was also an important consideration as, for example, children and young people in young offenders institutions would have different needs to those living in normal society with parents or carers. By tailoring the therapy to the person's needs and environment the committee hoped to improve attendance and increase the likelihood of the therapy being effective at relieving depression. This recommendation also included consideration of comorbidities, neurodevelopmental disorders, communication abilities (language, sensory impairment) and learning disabilities as part of the full assessment of needs to ensure that the chosen therapy met the needs of the individual and was provided in a manner that they could understand or access. The committee noted that for certain groups of children and young people, such as those with learning difficulties, the therapies may require adaptation prior to use. They included a reference to the NICE guideline on mental health problems in people with learning disabilities which has relevant sections on this issue and recommends psychological therapies that are particularly suitable for this group. The committee also noted that an existing recommendation in the section on treatment and considerations in all settings referred to comorbid diagnoses and the need for these to be assessed and manged in parallel with the treatment for depression.

Mild depression

The committee noted that there was a shortage of trials that recruited children aged 5-11 years with mild depression and the 2 trials that did so both looked at group CBT compared to waiting list/ no treatment. Group CBT was more effective at reducing depression symptoms post treatment than waiting list/ no treatment and the point estimate of effect exceeded the threshold set by the committee as being clinically meaningful (-8.23 [-13.78, -2.77]), but this effect was not maintained at later time points and there was no data available for other outcomes. As a result, the committee decided to make a recommendation for this age group to follow the treatments that were effective in 12-18 year olds.

The committee noted the difficulty of generalising evidence across the age groups as levels of development and maturity can vary greatly both between and within the 5-11 and 12-18 year groups and even between children or young people of the same age. To highlight this issue and ensure the treatment selected was suitable for the individual, the committee included maturity and developmental level in the factors that the healthcare professional should take into account when discussing treatment options with the child or young person and their family (or carer). In addition, the committee agreed that interventions that were effective for 12-18 year olds would not necessarily be effective for younger children, but in the absence of robust evidence for younger children and the continued need for treatment, they agreed that it was important to provide some guidance and the earlier recommendations were designed to give healthcare professional the scope to match treatment to the individual as best as possible. The committee agreed that developmental adaptation of the therapies may be required for 5-11 year olds and included this point in the recommendation as well. In addition, due to the shortage of evidence for effective treatments for 5-11 year olds with mild depression, the committee wrote a research recommendation for this age group. (They included 5-11 year olds with moderate to severe depression in this research recommendation because there is also a shortage of evidence for this group. See the section on moderate to severe depression below for discussion of the limited evidence for this group.)

Based on the NMAs for 12-18 year olds, the committee noted that group CBT was effective at reducing depression symptoms post-treatment and at 6 months follow up, and reduced suicide ideation compared to a control. These results were based on the data from 10 RCTs that included group CBT as an intervention, while the NMA

networks contained up to 25 RCTs in total across interventions. Computer CBT was also better than control for reducing depression symptoms post-treatment (at the end of treatment), and at up to 6 months and up to 18 months later. This intervention was reported in 6 trials. Individual CBT (3 RCTs) was more effective than waiting list/ no treatment at reducing depression symptoms at 6 months post-treatment, but not at the end of treatment, and it increased remission post-treatment. In pairwise data from Szigethy 2007, which was not included in the NMA because the participants had comorbid irritable bowl disease, individual CBT was also better than usual care at increasing functional status post treatment and at 6 months. Group IPT (3 RCTs) was effective at improving depression symptoms post-treatment and later follow up times (up to 6 months and up to 18 months later) compared to waiting list/ no treatment.

Group NDST (4 RCTs) was more effective than waiting list/ no treatment at reducing depression symptoms at 6 months and up to 18 months post-treatment, but not at the end of treatment. In pairwise data (that was not included in an NMA because there were insufficient connected studies to form a network) group NDST could not be differentiated from group IPT for effects on functional status post treatment and at later time points. From the NMAs, group IPT was more effective then group NDST at reducing depression symptoms post treatment, but could not be differentiated from group NDST at 6 months. In addition, group NDST could not be differentiated from group CBT or digital CBT post treatment, or at 6 months follow up for group CBT. Family therapy (1 RCT) also showed a reduction in depression symptoms post-treatment and at 6 months follow up and reduced suicide ideation compared to waiting list/ no treatment or usual care. Finally, computer CBT, group CBT, group IPT, individual CBT and family therapy had high probabilities of being more effective at reducing depression symptoms than waiting list/no treatment (Table 34).

The committee discussed the uncertainty surrounding the effects of the aforementioned interventions for all of the outcomes. They examined the point estimates and the width of the credible intervals (CrIs) and noted that, compared to control, for depression symptoms post-treatment, family therapy, computer CBT and group IPT all had point estimates of over 8 points improvement (-8) on the CDI scale, which was the level the committee thought was likely to be clinically meaningful. Group CBT was just under this level with a point estimate of -6.79, however the upper CrI (-9.92) was greater than -8. The CrI were wide for most of the recommended interventions (e.g. family therapy -18.90, -1.45), and in all cases the CrIs spanned the MID resulting in some uncertainty about the magnitude of effect. The committee also noted that the size of the effect decreased over time with the point estimates of some of the interventions under consideration dropping to below the MID at 6 months, while family therapy, computer CBT and group IPT, were close to the MID.

For functional status post-treatment, using the pairwise data individual CBT compared to usual care gave 6.90 points improvement on CGAS, which is greater than the bottom limit of +5 for a clinically meaningful effect. The CrIs were also quite wide at 1.89, 11.91, but the upper CrI was greater than the upper limit of the range set by the committee as an MID for this outcome (+10).

The committee noted that, most of the evidence was for depression symptoms rather than functional status. Therefore, they agreed to prioritise depression symptoms as the key outcome to make recommendations based on the amount of evidence on this outcome and the magnitude of effcets. The committee also agreed that most of the included studies reported depression symptoms at the end of treatment (post-treatment) and that in their experience, this evidence is likely to be more indicative of the effectiveness of the treatment than later time points as children and young people

between the ages of 5-18 years can change dramatically within relatively short periods of time.

Based on the findings discussed above, the committee made a strong recommendation for digital CBT (also known as online CBT or computer CBT), group CBT, group IPT or group NDST to be offered to 12- 18 year olds with mild depression for a limited period of approximately 2-3 months if the young person lacked significant comorbid problems or active suicidal ideas or plans.

The committee envisaged that digital CBT could be more readily available for children and young people with depression than an individual treatment, which might have long waiting lists. Group therapy might meet the needs of other individuals better. In addition, the average costs estimated for computer CBT and group therapy (CBT, IPT, and NDST) were lower compared to individual CBT and family therapy (see 'cost-effectiveness and resource use' below for more discussion of these issues).

The comittee used the term digital CBT in the recommendation to highlight that computer CBT could also be delivered using different electronic devices, such as phone and tablets, or be accessed via a downloadable programme. The committee noted that the trials of computer CBT involved online access in the majority of cases, but the programmes used varied across studies They were unable to recommend a specific programme as this review did not examine the relative effectiveness of individual computer CBT programmes, but rather looked at their effectiveness as a class compared to other interventions.

The committee recognised that for the digital CBT recommendation to be implemented in practice, there would need to be additional research to determine which digital CBT package would be most appropriate for a UK population. They envisaged that this would follow a similar process at the local or national level as that used to determine which digital CBT packages are available on the NHS for adults with depression. The committee also noted that digital CBT could be offered as supported digital CBT, involving contact with a healthcare professional and in other cases there may be no additional support. The committee were unable to recommend one form of digital CBT over another as the majority of included studies appeared to be for unsupported digital CBT, but it was not always clear from the way the trial was reported which form was used in a particular trial. In order to determine which form of digital CBT is most effective for a UK population, the committee wrote a research recommendation on this topic.

The committee noted that the studies in this review used a variety of different packages such as SPARX, Stressbusters, and Grasp the Opportunity, but only Stressbusters was trialled in the UK. These programmes contained some common components including: psychoeducation, relaxation, analysis of behaviour, behavioural activation, basic communication and interpersonal skills, emotional recognition, dealing with strong emotions, problem solving, cognitive restructuring (identifying thoughts, challenging unhelpful/negative thoughts), mindfulness, and relapse prevention, but it was unclear which components of the programmes were responsible for its effectiveness in practice. As a result, they also included in the recommendation that the research should try to determine which components of the intervention influence effectiveness to enable the selection (or design) of a programme that contains these components.

The combination of similar levels of effectiveness with differing degrees of likely availability of therapies and costs to the health system led the committee to make tiered recommendations to first offer a choice of digital CBT or group therapies (CBT,

IPT or NDST) for children and young people with mild depression. However, the committee acknowledged that these options may not meet the needs of the individual and as a result they offered individual CBT and family therapies as alternatives for these cases. The committee specified attachment based family therapy in the recommendation because the study that provided the evidence for this recommendation used this form of family therapy.

Individual CBT (4 RCTs) was better at reducing depression symptoms at 6 months post treatment compared to waiting list/ no treatment, but not at post treatment. It also improved remission post treatment and functional status post treatment and at 6 months. The point estimate for the improvement in depression symptoms at 6 months was less than the value that the committee thought would be clinically meaningful at -2.29 and the CrIs did not cross the 8 point boundary. The improvements in functional status fell within the range specified by the committee as being clinically meaningful at 6.90 (1.89, 11.91) post treatment and at 6 months (5.90 [1.93,9.87]). However, the results on functional status came from a study that recruited young people with irritable bowel syndrome and depression and although the committee agreed that it was likely that these effects would also be seen in young people without the comorbidity, some uncertainty remained. Taking these points into consideration, along with the higher costs of individual CBT compared to group therapies and digital CBT, the committee agreed that individual CBT should be considered as a second line choice if the other options were unsuitable or failed to meet the young person's needs.

Family therapy was included as a second line option because, although the point estimates for effect on depression symptoms post treatment exceeded the MID compared to waiting list/ no treatment (-10.11 [-18.90, -1.45]), at 6 months follow up this was just under the MID (-7.76 [-12.39, -3.17]) the results were based on a single RCT with 66 participants. However, family therapy was better at reducing depression symptoms than individual CBT at 6 months post treatment and at reducing suicide ideation compared to usual care and it might be the most suitable type of therapy for a particular young person.

Although group mindfulness was better than waiting list/ no treatment at reducing depression symptoms post treatment and at 6 months in the NMA, this intervention was not recommended because the effect was not sustained longer term and no data was available for effects on other outcomes such as functional status. In addition, the committee noted that the data for this intervention came from a single, small US based study with 33 female participants who were at risk of type 2 diabetes due to being overweight or obese (Shomaker 2017). The committee therefore agreed that the evidence behind the results for group mindfulness were insufficiently robust to change UK practice. However, the committee agreed that a research recommendation was appropriate to investigate the effectiveness of group mindfulness compared with other psychological therapies with a larger sample size of UK participants to allow differences in effectiveness between interventions to be detected. They also specifed that longer term follow-up should be carried out to determine whether the effects of group mindfulness are short-lived or maintained over time.

The committee also decided not to making positive recommendations for individual non-directive supportive therapy (NDST) or guided self-help for the following reasons:

- Individual NDST was not more effective at reducing depression symptoms for this severity group than control (waiting list/no treatment, attention control or usual care) post-treatment and was less effective than group or computer CBT, group

NDST, group IPT or family therapy at 6 months follow up. There was no data on other outcomes and the evidence came from 1 RCT.
- Although guided self-help was more effective than waiting list/no treatment for depression symptoms post-treatment, it was not more effective than the newly recommended group therapies (group CBT, group NDST, group IPT), computer CBT, individual CBT or family therapy. In addition, the effect on depression symptoms compared to waiting list/no treatment was not sustained at 6 months post-treatment, and guided self-help was also less effective than group or computer CBT, group NDST, group IPT, family therapy, usual care or attention control at 6 months follow up.

Relaxation, dance therapy and group with computer CBT also had high probabilities of being more effective at reducing depression symptoms than waiting list/no treatment (Table 34). They were not recommended for the following reasons:

- Relaxation was more effective at reducing depression symptoms post-treatment than waiting list/no treatment, but this effect was not sustained at 6 months post-treatment (Table 14) and there was no evidence for the effects of this therapy on functional status, quality of life, or remission (not reported in the 2 included RCTs).
- Dance therapy was trailled in 1 RCT with 40 participants and this study only reported effects on depression symptoms post treatment. This result was judged to be low quality due to high risk of bias of the study.
- Group with computer CBT was more effective than waiting list/no treatment at reducing depression symptoms post-treatment and at 6 months, but there was no evidence for other outcomes apart from discontinuation and these results were based on evidence from a single study looking at this intervention. In addition, group with computer CBT was not more effective at relieving depression symptoms than group CBT (Table 13), which was recommended, and this intervention likely to be more resource intensive than group CBT alone.

The committee stressed that it was important for people to be trained and skilled in the therapies they are delivering and they included a link to the relevant recommendations in the guideline to highlight this point. However, they noted that these therapies could be provided in multiple settings such as primary care, schools, social services, the community and the voluntary sector as well as in tier 2 child and adolescent mental health services (CAMHS). The committee made a recommendation to make people aware of these different settings, but they agreed that the list was not meant to be exhaustive. The committee noted that this guideline does not cover non-healthcare related professionals, such as school teachers, and as a result if an intervention was to be carried out in a school setting it was envisaged that a trained practitioner would be involved. (This would not exclude a person from being both a trained practitioner and school teacher.)

The committee agreed that it was appropriate to refer children and young people with depression for review by a tier 2 or 3 CAMHS team if they did not respond to the treatment within a specific time frame allowed (2-3 months) and made a recommendation to reflect this point. In addition, they agreed that the recommendations for moderate to severe depression would apply for these people. However, the committee noted that the terminology for tier 2 or 3 CAMHS is under revision currently and may change in the future.

The committee wrote a research recommendation for a brief psychosocial intervention to be tested in 12-18 year olds with mild or moderate to severe depression. The committee also wrote a second research recommendation to promote investigation of the effectiveness of behavioural activation in children and

young people with mild depression. The rationale for these recommendations is detailed at the end of the section on moderate to severe depression below as the recommendations covered both mild and moderate to severe depression and were based on studies that included 12-18 year olds with moderate to severe depression.

Moderate to severe depression

The committee agreed that, due to the severity of their depression, children and young people presenting with moderate to severe depression should be reviewed by a CAMHS team who can provide suitable further assessment and treatment suitable for this severity of depression. They made a recommendation to reflect this.

The committee agreed that there was a shortage of evidence for many of the interventions in the 5-11 year age group with moderate to severe depression and the evidence of benefit of the therapies compared to control was absent. There was evidence for family based IPT, psychoeducation with CBT, psychodynamic psychotherapy, NDST, group CBT, individual CBT and family therapy. In the pairwise data, none of the interventions that were tested against a control were better than the control for reducing depression symptoms post-treatment. The NMA networks only contained some of these interventions, due to a lack of common interventions to make a larger network, and these did not include a control. From the NMA results, family IPT was more effective at reducing depression symptoms post treatment than psychodynamic psychotherapy (-7.05 [-13.73, -0.39]) and family therapy was more effective than psychodynamic psychotherapy (-5.20 [-8.96, -1.46]), while in the pairwise data psychodynamic psychotherapy was more effective at increasing remission at 6 months than family therapy (1.23 [1.04, 1.45]). These results were based on 3 RCTs with up to 244 people.

Due to the lack of clear evidence for effectiveness for the psychological therapies in 5-11 years olds, the committee made a recommendation based on their clinical expertise, taking into account the limited evidence for thiss age group and the evidence from the 12-18 year olds with moderate to severe depression. They recommended that family based IPT, family therapy or psychodynamic psychotherapy be considered because they were suitable for younger children and were more effective than other therapies in the NMA. They also included individual CBT in this recommendation because it was the most effective treatment for 12-18 year olds with moderate to severe depression and they agreed that older or more mature children might benefit from this intervention. In all cases, they agreed that development adaptation of the therapies to suit the child and regular monitoring were important. They envisaged that the earlier recommendations on tailoring the choice of intervention to the individual needs of the child and their maturity and developmental level would also help to ensure that the child received a suitable treatment. In addition, the committee included a research recommendation specifically aimed at the 5-11 age group to try to stimulate research in this area. The recommendation also covered children with mild depression because there is a shortage of evidence for the most effective treatments for this group of children as well.

The committee noted that multiple forms of family therapy exist, including family-focused treatment for childhood depression, attachment based and systemic family therapy, but agreed that they were sufficiently similar that they could be analysed under the grouping of family therapy. The committee specified the types of family therapy in the recommendation based on the forms used by the studies included in the evidence base for 5-11 year olds with moderate to severe depression.

The committee noted that the terms “psychodynamic psychotherapy” and “psychoanalytic psychotherapy” are sometimes used interchangeably but that more usually, psychoanalytic psychotherapy is regarded as a narrower term than psychodynamic psychotherapy. This update searched for studies of psychodynamic psychotherapy and thus this term was retained throughout, but the committee noted that both the studies found (Trowell 2007; Goodyer 2017 – IMPACT trial) were of the same model of psychoanalytic psychotherapy, which in the IMPACT trial was labelled “Short-term Psychoanalytic Psychotherapy” or STPP. In the recommendations they chose to use the term psychodynamic psychotherapy to encompass this class of intervention.

The committee examined the results of the NMAs for all of the outcomes for the 12-18 age group with moderate to severe depression in detail. Please note that all of the discussion from this point onwards is based on the analyses of evidence from the 12-18 age group with moderate to severe depression, unless otherwise specified.

Based on the results of a single NMA containing 22 RCTs, the committee identified a number of possible interventions which were more effective at reducing depression symptoms post-treatment compared to waiting list/no treatment or usual care. These results were based on the data from RCTs that included individual CBT (10 RCTs), family therapy (4 RCTs), IPT-A (4 RCTs), and group CBT (4 RCTs) as an intervention. In addition, these interventions also had the highest probabilities of being effective compared to waiting list/no treatment (Table 35).

Individual CBT was also more effective than control for the following outcomes: functional status at post-treatment; quality of life at post-treatment and suicide ideation at post-treatment. In addition, individual CBT was more effective at inducing remission post-treatment compared to family therapy, NDST, and relaxation.

The committee discussed the uncertainty surrounding the effects of individual CBT for all of the outcomes where NMA results were available. For depression symptoms post-treatment, individual CBT had a point estimate of effect of -9.88, which was greater than the clinically meaningful level of -8. Again the CrIs were quite wide, but the lower CrI was very large at -15.66. For functional status compred to waiting list/ no treatment, the point estimate was 6.59, which was within the range of 5-10 the committee agreed would be clinically meaningful (CrI 0.26, 12.87); and compared to usual care 4.27 (2.00, 6.55). Based on the magnitude of effects, the number and range of outcomes showing effects and the large number of studies trialling individual CBT, the committee decided to recommend individual CBT as the first line treatment for 12-18 year olds with moderate to severe depression.

The committee also decided to make a weaker recommendation for family therapy, IPT-A, brief psychosocial intervention (BPI) and psychodynamic psychotherapy as second line treatments should individual CBT not meet the young person’s clinical needs or be unsuitable based on the following rationale.

Family therapy (4 RCTs) was more effective than control for the following outcomes at post treatment: depression symptoms; functional status and remission. The post treatment results for family therapy compared to to waiting list/ no treatment were greater than the MID at -8.95 (-18.38, -0.14) for depression symptoms, and functional status (8.97 [1.41, 16.60]) was well within the clinically meaningful range. Family therapy was also effective compared to usual care for functional status post treatment (6.67 [1.92, 11.47]) and better at inducing remission than attention control (4.76 [1.20, 33.33]). It was not recommended as a first line treatment because although it had similar magnitude of effects for functional status and depression symptoms compared to individual CBT, there was no data on suicide ideation and

quality of life and the evidence base for family therapy was much smaller (4 studies versus 10 for individual CBT).

IPT-A (4 RCTs) was effective at reducing depression symptoms and increasing functional status post-treatment compared to waiting list/no treatment or usual care. The effect post treatment was greater than the MID for depression symptoms (-9.68 [-18.29, -1.12]) and for functional status compared to waiting list/ no treatment 9.59 (1.21, 18.00) or usual care (7.30 [1.28, 13.24]). IPT-A was recommeded as a second line intervention because there was no data for remission, suicide ideation or quality of life, or for later time points for functional status and IPT-A was no better or worse than other interventions or controls at 6 months for depression symptoms

The committee also discussed the evidence for effectiveness of the BPI, which was trialled in the IMPACT study. In this study, BPI was not found to be less effective than psychodynamic psychotherapy or individual CBT across a range of outcomes and time points. In the NMAs, BPI was also effective at increasing remission at post-treatment compared to attention control and compared to family therapy and relaxation, although it was not detectably different to psychodynamic psychotherapy. Based on these results and considering the likely lower cost of BPI compared to psychodynamic psychotherapy (Table 39), they decided to also recommend that BPI be an option. However, since the evidence for the effectiveness of a brief psychosocial intervention (BPI) or psychodynamic psychotherapy was weaker than for individual CBT, the committee only made a 'consider' recommendation for these interventions should individual CBT be otherwise contraindicated or should this intervention prove more appropriate for the individual's situation and clinical needs.

The committee discussed the evidence for psychodynamic psychotherapy (also called STPP or short term psychoanalytic psychotherapy in the IMPACT trial). Psychodynamic psychotherapy was effective at increasing remission post-treatment compared to attention control (1 NMA with 8 RCTs) and compared to family therapy and relaxation. However, there was no evidence for functional status and psychodynamic psychotherapy was not more effective than control at relieving depression symptoms or improving quality of life post-treatment. The committee noted that the evidence for psychodynamic psychotherapy in the NMA came from 1 trial (versus a brief psychosocial intervention (BPI) or individual CBT). They also noted that the IMPACT trial was unable to detect a difference in effectiveness between individual CBT and psychodynamic psychotherapy on a range of outcomes across different follow-up periods. However, an additional trial, Trowell 2007, also tested this intervention in 9-15 year olds, but was included in the analysis of the 5-11 age group. This trial showed that psychodynamic psychotherapy could not be differentiated from family therapy for functional status post treatment and at 6 months, while depression symptoms were reduced by family therapy compared to psychodynamic psychotherapy post treatment, but could not be differentiated at 6 months follow up. These findings provide extra support for the inclusion of psychodynamic psychotherapy in the recommendations, but the lack of effect compared to a control for depression symptoms and small number of trials led to committee to make it a 2nd line treatment.

The committee recognised that there were fewer studies of family therapy, IPT-A and psychodynamic psychotherapy, but they agreed that the evidence supported the option of these interventions in clinical practice. However they were also in agreement that further research in this area would be useful to provide evidence about the relative effectiveness of these interventions compared with each other and individual CBT.

The committee noted that parental involvement is an explicit element in IPT-A, BPI, family therapy and psychodynamic psychotherapy, and sometimes in CBT, in trials included in this analysis. Parent work is carried out in different ways for different psychotherapies and can be very important for work with children and young people with depression.

The committee decided not to recommend group CBT for the following reasons:

- Group CBT was more effective than waiting list/no treatment at reducing depression symptoms post-treatment, but was not detectably better than usual care or waiting list/no treatment at improving functional status post-treatment. There was no evidence for quality of life or remission outcomes. In addition, the committee had already recommended individual CBT which was also more effective than control for other outcomes such as functional status; quality of life and suicide ideation.

The committee recognised that the recommendations for BPI were based on NMA networks incorporating a single RCT testing BPI in young people aged 12-18 years with moderate to severe depression. As a result, they included a research recommendations to explore the clinical effectiveness of this intervention further in comparison with other psychological therapies or control interventions in this age and severity group. In particular, committee noted that >80% of the therapists delivering BPI in the IMPACT trial were psychiatrists and it is unclear whether the results obtained by these staff would be generalisable to current practice in the NHS, given that BPI is designed as a simpler, less intensive psychological intervention that requires less specialist training to deliver. The committee noted that in future trials of BPI the intervention should be carried out by practitioners other than psychiatrists to confirm that the lack of differences seen between BPI and individual CBT or psychodynamic psychotherapy was not due to the relative seniority of the staff conducting the intervention in the IMPACT trial. In addition, they also included a requirement within the research recommendation to investigate the effectiveness of BPI in other settings, including primary care. In addition, the committee expanded this research recommendation to include young people aged 5-11 years old because they noted that this intervention has yet to be tested in this group and could be beneficial for them too.

The committee also made a research recommendation to investigate the effectiveness of behavioural activation because this therapy may meet the specific needs of some children and young people with mild or moderate to severe depression that are not already covered by the other recommended psychological therapies. Behavioural activation is particularly helpful in treating the symptoms of withdrawal from social activities, inactivity and avoidance which are common symptoms for young people who experience depression. In addition, some children and young people might find it difficult to engage with the concepts of CBT but be more able to respond to behavioural activation because the link between behaviour and mood is an every day experience that they would be used to. Additionally, it could be more suitable for younger children and for children with learning disabilities or neurodevelopmental disorders. Only 1 RCT (McCauley 2016) was identified which compared behavioural activation with usual care in adolescents with a diagnosis of depression at recruitment (moderate to severe depression). The RCT could not detect any differences between behavioural activation and usual care in depression symptoms and functional status at post-treatment. However, the sample size was small (60 participants) and it is possible that a larger trial would be able to detect an effect on these outcomes. The committee included children aged 5-11 years and young people aged 12-18 years with mild or moderate to severe depression in this research recommendation because they agreed that both age groups and severities

of depression could potentially benefit from this intervention and this review did not identify any studies using behavioural activation in 5-11 year olds or 12-18 year olds with mild depression or 5-11 year olds with moderate to severe depression.

In all of the research recommendations, a sufficiently large sample size is essential to allow differences in effectiveness between interventions to be detected. They also specify that longer term follow-up is carried out as many RCTs included in this review only look at the effect of the psychological intervention post–treatment and it is important to determine whether the effects of the interventions are short-lived or maintained over time.

Cost effectiveness and resource use

A systematic review of health economic evidence found four published economic evaluations, which considered the cost-effectiveness of individual CBT, variously with or without selective serotonin reuptake inhibitors (SSRIs) compared to usual care, BPI or STPP (see the Economic evidence section for details). Three of the studies examined the cost-effectiveness of individual CBT, and were found to be partially applicable with potentially serious limitations. The committee agreed that these studies did not provide sufficient evidence to draw firm cost-effectiveness conclusions.

In addition, the committee discussed the IMPACT study which considered CBT and STPP versus BPI in adolescents with depression. There were no statistically significant differences in costs or effectiveness between the interventions, leading the authors to conclude that BPI might be a valuable lower-intensity addition to the 'menu' of psychological treatments. The committee discussed that the evidence for BPI is only partially applicable due to high proportion of psychiatrists delivering BPI within the study, although BPI could potentially be a cost-effective option if it could be delivered as effectively by less specialist CAMHS staff. However, although BPI was not shown to be any worse than the other interventions, no conclusions can be drawn about whether it is non-inferior to the other interventions because the study was not powered to detect non-inferiority.

The committee decided that de novo health economic modelling was not required to answer the research question. Instead, the committee discussed the opportunity cost of each therapy (health gain lost by choosing an alternative option) by qualitatively considering the evidence on resource use alongside the clinical evidence (for full details see appendix L – Costing Exercise). Resource use data were obtained from the most relevant studies in the clinical review, including information on staff, number and length of sessions, number of participants and average attendance (where available), as well as the committee's expert opinion. Given data limitations, costs were presented as estimated ranges rather than definitive point estimates of mean costs, with the aim of capturing the potential range of costs associated with the various interventions.

The committee discussed the units of resource use and associated costs presented to them, with a particular focus on the estimated average costs per person treated and the opportunity costs of missed appointments. The two extremes of costing missed appointments are to: a) assume that there is no opportunity cost associated with a non-attendance (an opportunity cost of 0% of sessions that were missed), or b) assume that the full cost of the entire course of sessions is incurred, regardless of whether or not the person attended (an opportunity cost of 100% of sessions that were missed). The committee agreed that there are many complexities surrounding non-attendance, including that it was difficult to tell whether average attendance figures reported in the studies were related to earlier-than-planned effectiveness,

ineffectiveness, unpalatability of specific interventions or a combination of these. There was no strong evidence that participants were more likely to attend the maximum number of sessions planned for one intervention than any other but such evidence as there was did not contradict the committee's experience that more intensive interventions are likely to have lower overall attendance rates (as a proportion of planned sessions). They agreed the true opportunity cost associated with each intervention was uncertain but likely to lie between the two extremes outlined above. Despite this, it was agreed that it is the ranking of the costs of the interventions that is important, rather than the absolute costs, so any inaccuracies in the cost estimates are unlikely to have affected conclusions as long as a consistent approach was applied to all interventions. As such, the opportunity cost of missed appointments was not included explicitly and the committee did not attempt to be more precise in its quantification of costs than the estimates set out in appendix L, although they noted that the per hour staffing costs were perhaps uniformly a bit high compared to current practice. It was, however, agreed that group and computer based psychological interventions are generally expected to have a lower average cost per patient than individual psychological interventions.

After qualitative assessment of the evidence, the committee were happy that the cost ranges that were presented represent reasonable estimates. They agreed that interventions with lower cost should be favoured if their effectiveness and suitability are comparable, while acknowledging the limitations of the cost data. Importantly, the consensus was that although practitioners should take costs into account to some extent, cost alone is not a reason to deny an individual the most appropriate intervention for their needs. Areas where cost influenced the decision to recommend certain treatments are outlined in the "benefits and harms" section above along with the other outcomes the committee considered important.

Other factors the committee took into account

The committee noted that there were potential differences between the responsiveness of males and females to the psychological interventions, but the included studies did not report any subgroup analyses based on sex. They also noted that the incidence of depression increased greatly in girls as they reach puberty. In order to facilitate examination of this issue the committee included sex under the list of subgroup analyses listed for their research recommendations.

The committee identified a number of potential equality issues which included those concerning: young offenders, looked after children, ethnic/cultural/language differences, physical access to the sessions, computer access,sensory deficits (for example hearing/sight) socioeconomic status and people with neurodevelopmental disorders.

Many of these issues were related to difficulties in ensuring the attendance/access of the children and young people with depression to the therapy sessions.

- Children and young people living in rural areas might have problems with travelling to their appointments if public transport is sporadic and unreliable, and their parents/carers are unable to drive them there.
- Some children and young people, particularly those from lower socioeconomic backgrounds, might not have access to a computer or suitable device to access the therapy if an online or, computer based therapy is the preferred option. They may also lack internet at home or have insufficient data on mobile phones to access online therapies. Alternatively, they may have access, but not be able to use online systems due to a lack of experience with computers or lack the privacy needed to complete the therapy if they only have access using a school or public

library computer. Alternatively, they may have parents who control their computer use and may prevent them from accessing the therapy. (The unsuitability of digital therapy for very young children is not an equality issue, but rather a developmental one, and should be taken into account by the practitioner when matching the therapy to the person.)

- Young offenders depend on their carers/ prison officers to escort them to appointments and these appointments may not be a priority for the staff at these institutions.
- The committee advised that adolescents are less likely to turn up to appointments compared with children aged 5 to 11 years and this is not dependent on the severity of depression. This may be due to a number of factors including transport problems and issues with remembering to go to the appointment if not escorted by parents or carers. In contrast, children aged 5-11 years are likely to be brought to sessions by parents and carers and have better attendance as a result.
- Children and young people from lower socioeconomic groups may lack the financial support required to ensure that they attend the sessions. These families may also be less likely to seek help in the first place and/ or less able to navigate the healthcare system to ensure that the child or young person receives the help they require.
- Children and young people with more chaotic home lives (for example, due to alcohol and drug misuse by family members, neglect or absence) may lack the family support required to ensure that they attend the sessions. These families may also be less likely to seek help in the first place and/ or be less willing or able to navigate the healthcare system to ensure that the child or young person receives the help they require.
- Children and young people from abusive homes may be prevented from seeking help and/ or attending therapy sessions by controlling parents or carers. They may be afraid to leave the home and be unable to protect other family members if there is a violent or abusive member of the household.
- Looked after children and young people may lack the support they need to engage with mental health services.
- The way that children and young people with depression and their families view mental health problems may be affected by their ethnic, religion and cultural background. Families or carers from some ethnic groups/ religious or cultural backgrounds may view mental health issue as shaming or stigmatising and be less likely to seek medical help as a result. Or they may be less able to navigate the healthcare system to ensure that the child or young person receives the help they require. Language difficulties may also hinder access to treatment.
- Children and young people with neurodevelopmental disorders might respond differently to various psychological therapies. (This may also be the case for children and young people with learning disabilities, but these issues are covered in NICE guidance NG54 on mental health problems in people with learning disabilities: prevention, assessment and management for recommendations covering psychological interventions for people with learning disabilities to treat depression.)
- LGBTQ children and young people may have different requirements to other children and young people with depression.
- Children with physical illnesses, such as cancer, may have additional requirements due to their physical illness.
- Children and young people with sensory deficits (eg sight/ hearing) may find it harder to attend or engage, for example with digital CBT, or with talking therapies.

The committee dealt with these issues in several ways. Firstly, by recommending: that practitioners should discuss the choice of therapies with children and young people and their family members or carers (as appropriate) and explain what the different therapies involve and how these might meet their needs, preferences and values. By promoting the involvement of children and young people with depression and their families or carers (as appropriate), in the shared decision making process cases of non-attendance that occur because the person with depression or their family member/ carer does not like/want that particular type of psychological therapy may be reduced. In addition, the family members/carers will have a greater understanding of what is involved in the psychological therapy and may be more able to provide support for the child or young person with depression.

Secondly, the committee recommended that the choice of interventions is based on a full assessment of needs, including the circumstances of the person and their carer(s), their history and presentation, and the context in which treatment is to be provided. The committee noted that consideration of these factors should help practitioners to identify the needs and circumstances of the person and to choose the best psychological therapy for them. For example, this could involve ensuring that children and young people who do not a suitable device and data or an internet connection are not offered an online therapy and that people in young offenders institutions are not penalised if they miss sessions due to a lack of staff to supervise their transfer to the sessions. In addition, for mild depression, the recommendations include a choice of group, digital or individual therapy allowing the format of the sessions to match the needs and preferences of the child or young person with depression. The committee also included consideration of neurodevelopmental disorders and communication needs (language, sensory impairment) as part of the decision making process. They noted that language and learning difficulties may affect communication, for example in deaf children and young people whose first language is British Sign Language.

Thirdly, the recommendations for mild depression and for moderate to severe depression either offer a choice oftreatments, or a first line treatment(s) and then go on to recommend a second grouping of therapies if the earlier options would not meet the child or young person’s needs or are unsuitable for their circumstances. This stresses the importance of tailoring the treatment to the requirements of the individual again.

Fourthly, the committee noted that the studies included in the evidence did not provide information on the effectiveness of these therapies for the subgroups listed above. As a result, they recommended that each of the therapies that were covered by research recommendations should include subgroup analyses that cover environment and family situation and neurodevelopmental disorders as part of the clinical trial process to provide evidence for future updates of the guideline.

Finally, the new recommendations cover the treatment of children and young people with depression after they have requested help. They do not address the problem that certain disadvantaged groups are less likely to seek help in the first place as consideration of barriers to seeking help was not part of this update. However, this issue will be considered for inclusion in future updates of this guideline.

Appendices

Appendix A – Review protocol

Review protocol for psychological interventions to manage depression in children and young people

Field	Content
PROSPERO registration number	CRD42018106506
Review title	Psychological interventions to manage depression in children and young people.
Review question	What are the most effective psychological interventions for children and young people with depression?
Objective	The aim of the review is to compare psychological interventions to determine their effectiveness in treating depression in children and young people with depression.
Searches	The following databases will be searched: • Cochrane Central Register of Controlled Trials (CENTRAL) • Cochrane Database of Systematic Reviews (CDSR) • Database of Abstracts of Reviews of Effectiveness (DARE) • Economic Evaluations Database (EED) • Embase • MEDLINE/MEDLINE in Process • MEDLINE daily update • MEDLINE ePubs ahead of print Searches will be restricted by: • Date limits where appropriate (interventions included in the 2015 update will be searched for from that search date onwards, new interventions will be searched for without date limits)

	• English language • Human studies • Study design (RCTs, SRs, observational studies) • Conference abstracts will be excluded from the search results
Condition being studied	Depression in children and young people aged 5 to 18 years.
Population	Inclusion: Children and young people aged 5 to 18 with recognised symptoms of depressive disorder, including: • a clinical diagnosis of depression (for example, using DSM, ICD, KSADS-PL) or • suspicion of a depressive disorder based on a combination of symptoms and associated functional impairment that are unexplained by other conditions. Exclusion: • Studies that recruited people under and over 18 years old with depression, even if the population mean age is < 18 years. (Unless the data is reported separately for the 18 and under group.) • Children and young people with bipolar disorder.
Interventions	• Individual cognitive behavioural therapy (CBT) • Group CBT • Individual computer-based CBT • CBT with separate parent sessions • Dialectical behavioural therapy (DBT) • Interpersonal psychotherapy • Psychoanalytic child psychotherapy • Psychodynamic child psychotherapy • Self-modelling • Relaxation • Social skills training • Systemic therapy

	• Family therapy (excluding CBT with parental involvement)
	• Control enhancement training
	• Individual non-directive supportive therapy
	• Guided self-help including:
	  ○ Bibliotherapy
	  ○ Apps targeting depression (that are separate from computer- based CBT)
	• Mindfulness-based cognitive therapy
	• Mindfulness (other than mindfulness-based cognitive therapy)
	• Psychosocial interventions
	• Psychoeducation
	• Behavioural activation
	• Eye movement desensitisation and reprocessing
	• Counselling
	• Arts/creative psychotherapies
	  ○ Art therapy
	  ○ Psychodrama
	  ○ Music therapy
	  ○ Dance therapy
	• Play therapy
	
	Studies investigating the effectiveness of each of these interventions will be looked for during the search process, but they will be grouped into broader categories based on the description of the interventions and committee expertise during analysis.
	
	Exclusion: Trials with psychological interventions that allow antidepressant drug use where the different arms are offered different drugs.

Comparators	• Any of the interventions listed above • Waiting list • No intervention • Attention control (a control group that receives an intervention that gives the same amount of

	attention as the intervention under test) • Usual care (excluding treatment with antidepressant drugs unless allowed in both arms)
Types of study to be included	• Randomised controlled trials (RCTs) • Systematic reviews of RCTs
Other exclusion criteria	• Narrative reviews • Non-randomised studies (including comparative and non-comparative studies, case series and case reports) • Studies without extractable data • Conference abstracts • Studies that recruit people with depression **or** another morbidity such as anxiety and the population with depression cannot be separated for data extraction. • Studies that specifically recruit people with **both** depression **and** another comorbidity, such as anxiety, where the intervention is not aimed at treating depression or is aimed at treating both depression and the comorbidity.
Context	This question will update the NICE guideline on depression in children and young people: identification and management
Primary outcomes (critical outcomes)	**Primary outcomes:** • Level of function (functional status, measure of general function using a validated tool) • Depression symptoms (assessed using validated questionnaire or structured interview, reported as absolute measure or an improvement from baseline) • Remission (as defined in study) • Quality of life (only overall scores from any generic or disease specific quality of life tool will be

	reported [quality of life subscales will not be reported])
Secondary outcomes	• Suicide-related adverse events during or following treatment (including numbers of suicides if reported) • Suicidal ideation (assessed using questionnaire) • Self-harm (self-injury or self-poisoning regardless of intent) • Discontinuation from treatment (due to adverse events or for any reason)
Data extraction (selection and coding)	Full details of the methods of data extraction are presented in Appendix B
Risk of bias (quality) assessment	Full details of quality assessment are presented in Appendix B
Strategy for data synthesis	Full details of the methods of data synthesis are presented in Appendix B
Analysis of sub-groups	**Pair-wise data subgroups** • Severity of depression (children or young people with mild compared to moderate to severe depression) • Children aged 5 to 11, young people aged 12 to 18. • Length of duration of intervention (short, ≤2 months; medium, 3-6 months; long, >6 months) • Moderate to severe population subgroups (no previous depression, previous incidence of depression, refractory depression) **NMA subgroups** • Severity of depression (children or young people with mild compared to moderate to severe

	depression) • Children aged 5 to 11, young people aged 12 to 18.		
Type and method of review	☒ Intervention ☐ Diagnostic ☐ Prognostic ☐ Qualitative ☐ Epidemiologic ☐ Service Delivery ☐ Other (please specify)		
Language	English		
Country	England		
Anticipated or actual start date	02/07/2018		
Anticipated completion date	02/04/2019		
Stage of review at time of this submission	**Review stage**	**Started**	**Completed**
	Preliminary searches	☑	☑
	Piloting of the study selection process	☑	☑
	Formal screening of search results against eligibility criteria	☑	☑
	Data extraction	☑	☐
	Risk of bias (quality)	☑	☐

	assessment		
	Data analysis	☑	☐
Named contact	**5a. Named contact** Guideline Updates Team **5b Named contact e-mail** DepressionInChildren@nice.org.uk **5e Organisational affiliation of the review** National Institute for Health and Care Excellence (NICE) and Guideline Updates Team		
Review team members	From the NICE Guideline Updates Team: • Marie Harrisingh, Technical lead • Yolanda Martinez, Technical analyst • Ross Maconachie, Health economist • Lynda Ayiku, Information specialist		
Funding sources/sponsor	This systematic review is being completed by the Guideline Updates Team which receives funding from NICE.		
Conflicts of interest	All guideline committee members and anyone who has direct input into NICE guidelines (including the evidence review team and expert witnesses) must declare any potential conflicts of interest in line with NICE's code of practice for declaring and dealing with conflicts of interest. Any relevant interests, or changes to interests, will also be declared publicly at the start of each guideline committee meeting. Before each meeting, any potential conflicts of interest will be considered by the guideline committee Chair and a senior member of the development team. Any decisions to exclude a person from all or part of a meeting will be documented. Any changes to a member's declaration of interests will be recorded in the minutes of the meeting. Declarations of interests will be published with the final guideline.		
Collaborators	Development of this systematic review will be overseen by an advisory committee who will use the review to inform the development of evidence-based recommendations in line with section 3 of Developing NICE guidelines: the manual. Members of the guideline committee are: Chair: Susan Bewley		

	Members: • Peta Mees, Child /Adolescent Psychotherapist • Kapil Sayal, Child/Adolescent Psychiatrist • Eunice Ayodeji, Child/Adolescent Mental Health Nurse • Di Bailey, Social worker with relevant experience of child psychological interventions • Jocelyn Catty, Child/Adolescent Psychotherapist • Abdullah Kraam, Child and Adolescent Psychiatrist • Portia Dodds, Lay member (until September 2018) • Mair Elliott, Lay member (from September 2018) • Catherine Newell, Lay member • Catherine Gallop, Child/Adolescent Clinical psychologist • Janice Allister, General Practitioner
Other registration details	N/A
Reference/URL for published protocol	N/A (to be updated once review protocol is published)
Dissemination plans	The reviewers and guideline committee work with NICE's communications team to disseminate and promote awareness of the guideline at the time of publication and afterwards. Members from the NICE communications team discuss with the reviewers and the committee opportunities for promoting the guideline. Committee members may be asked to take part in such activities. With help from the guideline committee and the developer, they identify how to reach relevant audiences for the guideline, including people using services, carers, the public, practitioners and providers. NICE may use a range of different methods to raise awareness of the guideline. These include standard approaches such as: • notifying registered stakeholders of publication • publicising the guideline through NICE's newsletter and alerts • issuing a press release or briefing as appropriate, posting news articles on the NICE website, using social media channels, and publicising the guideline within NICE.

	NICE may also use other means of raising awareness of the guideline – for example, newsletters, websites, training programmes, conferences, implementation workshops, NICE field team support and other speaking engagements. Some of these may be suggested by guideline committee members (particularly members affiliated to organisations for people using services and carer organisations). Each guideline is different and activities for raising awareness will vary depending on the type and content of the guideline.
Keywords	Psychotherapy; depression; child; adolescent.
Details of existing review of same topic by same authors	N/A – this is a new review
Current review status	☒ Ongoing ☐ Completed but not published ☐ Completed and published ☐ Completed, published and being updated ☐ Discontinued
Additional information	N/A
Details of final publication	www.nice.org.uk

Appendix B – Methods

Incorporating published systematic reviews

For all review questions where a literature search was undertaken looking for a particular study design, systematic reviews containing studies of that design were also included. All included studies from those systematic reviews were screened to identify any additional relevant primary studies not found as part of the initial search. Systematic reviews were not used as a source of data in this particular review and so no quality assessment was carried out.

Evidence synthesis and meta-analyses

Where possible, meta-analyses were conducted to combine the results of quantitative studies for each outcome. For continuous outcomes analysed as mean differences, where change from baseline data were reported in the trials and were accompanied by a measure of spread (for example standard deviation), these were extracted and used in the meta-analysis. Where measures of spread for change from baseline values were not reported, the corresponding values at study end were used and were combined with change from baseline values to produce summary estimates of effect. These studies were assessed to ensure that baseline values were balanced across the treatment groups; if there were significant differences at baseline these studies were not included in any meta-analysis and were reported separately. For continuous outcomes analysed as standardised mean differences (SMDs), where only baseline and final time point values were available, change from baseline standard deviations were estimated, assuming a correlation coefficient of 0.5.

For the pair-wise data analysis, continuous data was analysed as mean differences when all the data came from a single measure and as standardised mean differences if multiple measures of the same outcome were combined. In cases where data was reported for multiple scales for a single outcome, data was only extracted for a single scale per study. For each outcome the scales were ranked based on committee discussions about which scales were most clinically useful and the frequency of reporting using each scale in the included studies (see Table 42 in appendix Q for the ranking of these scales).

In cases where SMDs were used they were back converted to a single scale to aid interpretation by the committee where possible. The choice of this scale was made based on committee input taking into account which scales are commonly used in the UK, which scales were prioritised for data extraction and had the most data, and which scales had associated MIDs that could help with interpretation of the results.

For the network meta-analyses (NMAs, see below), it was expected that using SMDs would be necessary, due to the larger number of studies included in each model. However, if a particular model only included data from one outcome scale then mean differences were used instead.

Evidence of effectiveness of interventions

Quality assessment

Individual RCTs and quasi-randomised controlled trials were quality assessed using the Cochrane Risk of Bias Tool. Each individual study was classified into one of the following three groups:

- Low risk of bias – The true effect size for the study is likely to be close to the estimated effect size.

- Moderate risk of bias – There is a possibility the true effect size for the study is substantially different to the estimated effect size.
- High risk of bias – It is likely the true effect size for the study is substantially different to the estimated effect size.

Each individual study was also classified into one of three groups for directness, based on if there were concerns about the population, intervention, comparator and/or outcomes in the study and how directly these variables could address the specified review question. Studies were rated as follows:

- Direct – No important deviations from the protocol in population, intervention, comparator and/or outcomes.
- Partially indirect – Important deviations from the protocol in one of the population, intervention, comparator and/or outcomes.
- Indirect – Important deviations from the protocol in at least two of the following areas: population, intervention, comparator and/or outcomes.

Methods for combining intervention evidence

Meta-analyses of interventional data were conducted with reference to the Cochrane Handbook for Systematic Reviews of Interventions (Higgins et al. 2011).

Where different studies presented continuous data measuring the same outcome but using different numerical scales (e.g. a 0-10 and a 0-100 visual analogue scale), these outcomes were all converted to the same scale before meta-analysis was conducted on the mean differences. Where outcomes measured the same underlying construct but used different instruments/metrics, data were analysed using standardised mean differences (Hedges' g).

A pooled relative risk was calculated for dichotomous outcomes (using the Mantel–Haenszel method) reporting numbers of people having an event. Both relative and absolute risks were presented, with absolute risks calculated by applying the relative risk to the pooled risk in the comparator arm of the meta-analysis (all pooled trials).

Fixed- and random-effects models (der Simonian and Laird) were fitted for all syntheses, with the presented analysis dependent on the degree of heterogeneity in the assembled evidence. Fixed-effects models were the preferred choice to report, but in situations where the assumption of a shared mean for fixed-effects model were clearly not met random-effects results are presented.

Fixed-effects models were deemed to be inappropriate if one or both of the following conditions was met:

- Significant between study heterogeneity in methodology, population, intervention or comparator was identified by the reviewer in advance of data analysis. This decision was made and recorded before any data analysis was undertaken.
- The presence of significant statistical heterogeneity in the meta-analysis, defined as $I^2 \geq 50\%$.

However, in cases where the results from individual pre-specified subgroup analyses are less heterogeneous (with $I^2 < 50\%$) the results from these subgroups will be reported using fixed effects models. This may lead to situations where pooled results are reported from random-effects models and subgroup results are reported from fixed-effects models.

In cases where subgroup analyses were performed, it was planned that pooled results would be reported in the GRADE tables, but the results from individual strata would only reported if there was evidence suggesting between subgroup heterogeneity. This is defined as a statistically significant test for subgroup interactions (at the 95% confidence level). Where no such evidence was identified, only pooled results were presented. (See the protocol

deviation section of methods and processes for relevant information on how subgroup analyses were actually reported in GRADE tables.)

In any meta-analyses where some (but not all) of the data came from studies at high risk of bias, a sensitivity analysis was conducted, excluding those studies from the analysis. Results from both the full and restricted meta-analyses are reported. Similarly, in any meta-analyses where some (but not all) of the data came from indirect studies, a sensitivity analysis was conducted, excluding those studies from the analysis.

Meta-analyses were performed in Cochrane Review Manager V5.3.

Minimal clinically important differences (MIDs)

The Core Outcome Measures in Effectiveness Trials (COMET) database was searched to identify published minimal clinically important difference thresholds relevant to this guideline. Identified MIDs were assessed to ensure they had been developed and validated in a methodologically rigorous way, and were applicable to the populations, interventions and outcomes specified in this guideline. In addition, the Guideline Committee were asked to prospectively specify any outcomes where they were aware of useful MIDs. The committee identified the MIDs shown in Table 9.

Table 9: Identified MIDs

Outcome	MID	Source
Children's global assessment scale	10 points (-10,+10)	Bird HR, Canino G, Rubio-Stipec M et al. Further Measures of the Psychometric Properties of the Children's Global Assessment Scale. Archives of General Psychiatry 1987, 44(9):821-824. Green B, Shirk S, Hanze D et al. The Children's Global Assessment Scale in clinical practice: an empirical evaluation. Journal of the American Academy of Child Adolescent Psychiatry 1994, 33(8):1158-1164.
Child depression inventory	8 points (-8, +8)	Lobovits DA, and Handal PJ. Childhood depression: Prevalence using DSM-III criteria and validity of parent and child depression scales. Journal of Pediatric Psychology 1985, 10(1):45-54. Finch Jr AJ, Saylor CF, Edwards GL, et al. Children's Depression Inventory: Reliability over repeated administrations. Journal of Clinical Child Psychology 1987, 16(4):339-341.
Health of the Nation Outcome Scales for Children and Adolescents	10 points (-10,+10)	Hanssen-Bauer K, Heyerdahl S, Hatling T, et al. Admissions to acute adolescent psychiatric units: a prospective study of clinical severity and outcome. International Journal of Mental Health Systems 2011, 5(1):1-11. Garralda ME, Yates P, and Higginson I. Child and adolescent mental health use: HoNOSCA as an outcome measure. The British Journal of Psychiatry 2000, 177:52-58.

Specific use of MIDs in this guideline update

This evidence review for this guideline was conducted using a modified version of the GRADE approach to rating the certainty of evidence in systematic reviews. This is part of a pilot project being undertaken by NICE, to examine the assessment of certainy of evidence in systematic reviews. Instead of using predefined MIDs to assess imprecision in GRADE tables, imprecision was assessed qualitatively during committee discussions. These discussions involved consideration of published MIDs where they exist, but the committee were also encouraged to make judgements of imprecision based on the 95% confidence

intervals and sample sizes reported in the GRADE tables. This should enable judgements of clinical importance to be made in the context of wider decision making, taking into account evidence across all outcomes and analyses, including health economic analyses.

Committee discussions regarding the clinical importance of effects was recorded in the 'benefits and harms' section of the evidence review. In particular, this included consideration of whether the whole effect of a treatment (which may be felt across multiple independent outcome domains) would be likely to be clinically meaningful, rather than simply whether each individual sub outcome might be meaningful in isolation. The impact of imprecision on the recommendations was presented in the 'quality of the evidence' section of the committee discussion in the evidence review.

GRADE for pairwise meta-analyses of interventional evidence

GRADE was used to assess the quality of evidence for the selected outcomes as specified in 'Developing NICE guidelines: the manual (2014)'. Data from all study designs was initially rated as high quality and the quality of the evidence for each outcome was downgraded or not from this initial point, based on the criteria given in Table 10.

A modified form of GRADE that excluded consideration of imprecision was used for this guideline update. The reasons for this are discussed in the specific use of MIDs section above. As a result, the quality of the evidence presented in the GRADE tables was likely to be judged to be higher than normal as there is now one less domain to use for downgrading.

Table 10: Rationale for downgrading quality of evidence for intervention studies

GRADE criteria	Reasons for downgrading quality
Risk of bias	Not serious: If less than 33.3% of the weight in a meta-analysis came from studies at moderate or high risk of bias, the overall outcome was not downgraded. Serious: If greater than 33.3% of the weight in a meta-analysis came from studies at moderate or high risk of bias, the outcome was downgraded one level. Very serious: If greater than 33.3% of the weight in a meta-analysis came from studies at high risk of bias, the outcome was downgraded two levels. Outcomes meeting the criteria for downgrading above were not downgraded if there was evidence the effect size was not meaningfully different between studies at high and low risk of bias.
Indirectness	Not serious: If less than 33.3% of the weight in a meta-analysis came from partially indirect or indirect studies, the overall outcome was not downgraded. Serious: If greater than 33.3% of the weight in a meta-analysis came from partially indirect or indirect studies, the outcome was downgraded one level. Very serious: If greater than 33.3% of the weight in a meta-analysis came from indirect studies, the outcome was downgraded two levels. Outcomes meeting the criteria for downgrading above were not downgraded if there was evidence the effect size was not meaningfully different between direct and indirect studies.
Inconsistency	Concerns about inconsistency of effects across studies, occurring when there is unexplained variability in the treatment effect demonstrated across studies (heterogeneity), after appropriate pre-specified subgroup analyses have been conducted. This was assessed using the I^2 statistic. N/A: Inconsistency was marked as not applicable if data on the outcome was only available from one study. Not serious: If the I^2 was less than 33.3%, the outcome was not downgraded. Serious: If the I^2 was between 33.3% and 66.7%, the outcome was downgraded one level. Very serious: If the I^2 was greater than 66.7%, the outcome was downgraded two levels.

GRADE criteria	Reasons for downgrading quality
	Outcomes meeting the criteria for downgrading above were not downgraded if there was evidence the effect size was not meaningfully different between studies with the smallest and largest effect sizes.
Imprecision	This was not included in the GRADE table, but was considered during committee discussions of the evidence, taking into account 95% confidence intervals around the point estimate of the effect, any relevant MIDs, committee expertise and the effect of a single intervention based on multiple outcomes.

The quality of evidence for each outcome was upgraded if any of the following three conditions were met:

- Data from non-randomised studies showing an effect size sufficiently large that it cannot be explained by confounding alone.
- Data showing a dose-response gradient.
- Data where all plausible residual confounding is likely to increase our confidence in the effect estimate.

Publication bias

Publication bias was assessed in two ways. First, if evidence of conducted but unpublished studies was identified during the review (e.g. conference abstracts, trial protocols or trial records without accompanying published data), available information on these unpublished studies was reported as part of the review. Secondly, where 10 or more studies were included as part of a single meta-analysis, a funnel plot was produced to graphically assess the potential for publication bias.

Evidence statements for pairwise clinical data

The evidence statements were grouped by outcome for ease of interpretation. They were divided into 2 categories as follows:

- We state that the evidence showed that there is an effect if the 95% CI does not cross the line of no effect.
- The evidence could not differentiate between comparators if the 95% CI crosses the line of no effect. If any of the boundaries of the 95% CI included 1.0 or 0.0 for RR or MD respectively this was considered to be within the line of no effect and the result was reported as ‘could not differentiate’.

The evidence statements for an effect were further divided into 3 groups:

- Psychological interventions compared to controls where the psychological intervention was more effective than the control
- Psychological interventions compared to other psychological interventions and controls, where the first named intervention or control is more effective than the comparator for that outcome and time point.
- Psychological interventions compared to other psychological interventions, where one intervention was more effective than the other.

The evidence statements included the quality of the evidence from the GRADE table based on the pooled results for each age group and depression severity group separately.

Methods for combining direct and indirect evidence (network meta-analysis) for interventions

Conventional 'pairwise' meta-analysis involves the statistical combination of direct evidence about pairs of interventions that originate from two or more separate studies (for example, where there are two or more studies comparing A vs B).

In situations where there are more than two interventions, pairwise meta-analysis of the direct evidence alone is of limited use. This is because multiple pairwise comparisons need to be performed to analyse each pair of interventions in the evidence, and these results can be difficult to interpret. Furthermore, direct evidence about interventions of interest may not be available. For example studies may compare A vs B and B vs C, but there may be no direct evidence comparing A vs C. Network meta-analysis overcomes these problems by combining all evidence into a single, internally consistent model, synthesising data from direct and indirect comparisons, and providing estimates of relative effectiveness for all comparators and the ranking of different interventions. Network meta-analyses were undertaken in all situations where the following three criteria were met:

- At least three treatment alternatives.
- A connected network which enabled valid estimates to be made.
- The aim of the review was to produce recommendations on the most effective option, rather than simply an unordered list of treatment alternatives.

Synthesis

Hierarchical Bayesian Network Meta-Analysis (NMA) was performed using WinBUGS version 1.4.3. The models used reflected the recommendations of the NICE Decision Support Unit's Technical Support Documents (TSDs) on evidence synthesis, particularly TSD 2 ('A generalised linear modelling framework for pairwise and network meta-analysis of randomised controlled trials'; see http://www.nicedsu.org.uk) with additional models provided by the TSU (see appendix R for NMA models).

Results were reported summarising at least 10,000 samples from the posterior distribution of each model, having first run and discarded at least 50,000 'burn-in' iterations. Three separate chains with different initial values were used. In models where autocorrelation was detected thinning was carried out using a thin value of 10.

Non-informative prior distributions were used in all models. Unless otherwise specified, trial-specific baselines and treatment effects were assigned Normal (0,10000) priors, and the between-trial standard deviations used in random-effects models were given Uniform (0,5) priors for dichotomous outcomes and Uniform (0,10) priors for continuous outcomes.

Fixed- and random-effects models were explored for each outcome, with the final choice of model based on deviance information criterion (DIC): if DIC was at least 3 points lower for the random-effects model, it was preferred; otherwise, the fixed effects model was considered to provide an equivalent fit to the data in a more parsimonious analysis, and was preferred.

In any meta-analyses where some (but not all) of the data came from studies at high risk of bias, a sensitivity analysis was conducted, excluding those studies from the analysis. Results from both the full and restricted meta-analyses are reported. Similarly, in any meta-analyses where some (but not all) of the data came from studies that were partially or indirectly applicable compared to the protocol, a sensitivity analysis was conducted, excluding those studies from the analysis. Where sufficient studies were available, meta-regression was undertaken to explore the effect of study level covariates.

Choice of outcomes for network meta-analysis

Outcomes were selected from those listed in the review protocol, with the primary outcomes of level of function, depression symptoms following treatment, quality of life and remission being prioritised. Secondary outcomes were included if there were sufficient numbers of trials to form a connected network that included the majority of interventions. Additional models were run as required for outcomes needed to inform the economic analysis.

Subgroup analyses were carried out for severity of depression by running separate models that included studies with participants with mild or moderate-to-severe depression. Subgroup analyses were carried out by age (children aged 5-11, young people aged 12-18) where there were sufficient numbers of trials and studies to form a connected network and for cases where this network would provide additional information to the pairwise analysis. For example, in cases where the NMA would only provide additional information about the effectiveness of 2 control interventions the NMA was not considered useful for decision making and was not carried out.

Modified GRADE for network meta-analyses

A modified version of the standard GRADE approach for pairwise interventions was used to assess the quality of evidence across the network meta-analyses undertaken (Table 11). While most criteria for pairwise meta-analyses still apply, it is important to adapt some of the criteria to take into consideration additional factors, such as how each 'link' or pairwise comparison within the network applies to the others. As a result, the following was used when modifying the GRADE framework to a network meta-analysis. It is designed to provide a single overall quality rating for an NMA, which can then be combined with pairwise quality ratings for individual comparisons (if appropriate), to judge the overall strength of evidence for each comparison.

Table 11: Rationale for downgrading quality of evidence for NMAs

GRADE criteria	Reasons for downgrading quality
Risk of bias	Not serious: If fewer than 33.3% of the studies in the network meta-analysis were at moderate or high risk of bias, the overall network was not downgraded. Serious: If greater than 33.3% of the studies in the network meta-analysis were at moderate or high risk of bias, the network was downgraded one level. Very serious: If greater than 33.3% of the studies in the network meta-analysis were at high risk of bias, the network was downgraded two levels.
Indirectness	Not serious: If fewer than 33.3% of the studies in the network meta-analysis were partially indirect or indirect, the overall network was not downgraded. Serious: If greater than 33.3% of the studies in the network meta-analysis were partially indirect or indirect, the network was downgraded one level. Very serious: If greater than 33.3% of the studies in the network meta-analysis were indirect, the network was downgraded two levels.
Inconsistency	N/A: Inconsistency was marked as not applicable if there were no links in the network where data from multiple studies (either direct or indirect) were synthesised. For network meta-analyses conducted under a Bayesian framework, the network was downgraded one level if the DIC for a random-effects model was lower than the DIC for a fixed-effects model. In addition, the direct and indirect treatment estimates were compared as a check on the consistency of the network.
Imprecision	This was not included in the GRADE table, but was considered during committee discussions of the evidence, taking into account 95% credible intervals around the point estimate of the effect, any relevant MIDs, committee expertise and the effect of a single intervention based on multiple outcomes.

Evidence statements

The evidence statements were grouped by severity of depression and outcome for ease of interpretation. They were divided into 2 categories as follows:

- We state that the evidence showed that there is an effect if the 95% credible interval (CrI) does not cross the line of no effect.
- The evidence could not differentiate between comparators if the 95% CrI crosses the line of no effect. If any of the boundaries of the 95% CrI included 1.0 for RR or 0.0 for MD, this was considered to be within the line of no effect and the result was reported as 'could not differentiate'.

NMA evidence statements included the quality of the network as a whole and only listed the results of interventions compared to controls or each other. The relative effectiveness of controls compared to each other were not presented as they were not viable treatment options and, as a result, would not be useful for decision making.

Appendix C – Literature search strategies

Q1a What are the most effective psychological interventions for children and young people with depression? (Update of the search strategy used in the 2015 version of the guideline)

Sources searched to identify the clinical evidence:

Databases	Date searched	Version/files
Cochrane Central Register of Controlled Trials (CENTRAL)	11/07/2018	Issue 6 of 12, June 2018
Cochrane Database of Systematic Reviews (CDSR)	11/07/2018	Issue 7 of 12, July 2018
Database of Abstracts of Reviews of Effect (DARE)	11/07/2018	Issue 2 of 4, April 2015
Embase (Ovid)	11/07/2018	Embase <1974 to 2018 Week 28>
MEDLINE (Ovid)	11/07/2018	Ovid MEDLINE(R) ALL <1946 to July 10, 2018>
MEDLINE In-Process (Ovid)	11/07/2018	Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <July 10, 2018>
MEDLINE Epub Ahead of Print	11/07/2018	Ovid MEDLINE(R) Epub Ahead of Print <July 10, 2018>
MEDLINE Daily	11/07/2018	Ovid MEDLINE(R) Daily Update <July 10, 2018>
PsycINFO (Ovid)	11/07/2018	Ovid PsycINFO <1806 to July Week 1 2018>

The MEDLINE search strategy is presented below. This was translated for use in all of the other databases listed. The aim of the search was to identify evidence for the clinical

question being asked. Randomised Controlled Trial and Systematic Review filters were used to identify the study designs specified in the Review Protocol.

1 Depression/
2 exp Depressive Disorder/
3 (depress* or dysthymi* or dysphori* or melanchol* or sadness).tw.
4 ("seasonal affective disorder*" or sad).tw.
5 1 or 2 or 3 or 4 (458667)
6 exp Cognitive Therapy/
7 Therapy, Computer-Assisted/
8 (((cogniti* or computer*) adj4 (therap* or behavio* or interven*)) or cbt* or ccbt*).tw.
9 exp Psychotherapy/
10 (psychotherap* or logotherap*).tw.
11 ((self adj4 model*) or sm).tw.
12 Relaxation Therapy/
13 (relax* adj4 (therap* or techni*)).tw.
14 Behavior Therapy/
15 ((behavi* or condition*) adj4 (therap* or modifi*)).tw.
16 ((social adj4 skill* adj4 train*) or sst).tw.
17 Family Therapy/
18 Psychotherapy, group/
19 ((famil* or group) adj4 (therap* or techni*)).tw.
20 ((control adj4 enhancement adj4 (training or therap*)) or pascet).tw.
21 ((((non adj4 directive) or nondirective) adj4 supportive adj4 therap*) or ndst).tw.
22 (((client adj4 cent*) or rogerian) adj4 therap*).tw.
23 "guided self help".tw.
24 Self care/px or self care/mt
25 Mindfulness/
26 mindfulness.tw.
27 or/6-26
28 infan*.mp,so.
29 minor.mp,so.
30 minors*.mp,so.
31 boy.mp,so.
32 boys.mp,so.
33 boyfriend*.mp,so.
34 boyhood.mp,so.
35 girl*.mp,so.
36 kid.mp,so.
37 kids.mp,so.
38 child*.mp,so.
39 adolescen*.mp,so.
40 juvenil*.mp,so.
41 youth*.mp,so.
42 teen*.mp,so.
43 under*age*.mp,so.
44 pubescen*.mp,so.
45 exp pediatrics/
46 pediatric*.mp,so.
47 paediatric*.mp,so.
48 peadiatric*.mp,so.
49 school*.mp,so.
50 or/28-49
51 5 and 27 and 50
52 Meta-Analysis.pt.

53 Network Meta-Analysis/
54 Meta-Analysis as Topic/
55 Review.pt.
56 exp Review Literature as Topic/
57 (metaanaly$ or metanaly$ or (meta adj3 analy$)).tw.
58 (review$ or overview$).ti.
59 (systematic$ adj5 (review$ or overview$)).tw.
60 ((quantitative$ or qualitative$) adj5 (review$ or overview$)).tw.
61 ((studies or trial$) adj2 (review$ or overview$)).tw.
62 (integrat$ adj3 (research or review$ or literature)).tw.
63 (pool$ adj2 (analy$ or data)).tw.
64 (handsearch$ or (hand adj3 search$)).tw.
65 (manual$ adj3 search$).tw.
66 or/52-65
67 animals/ not humans/
68 66 not 67
69 Randomized Controlled Trial.pt.
70 Controlled Clinical Trial.pt.
71 Clinical Trial.pt.
72 exp Clinical Trials as Topic/
73 Placebos/
74 Random Allocation/
75 Double-Blind Method/
76 Single-Blind Method/
77 Cross-Over Studies/
78 ((random$ or control$ or clinical$) adj3 (trial$ or stud$)).tw.
79 (random$ adj3 allocat$).tw.
80 placebo$.tw.
81 ((singl$ or doubl$ or trebl$ or tripl$) adj (blind$ or mask$)).tw.
82 (crossover$ or (cross adj over$)).tw.
83 or/69-82
84 animals/ not humans/
85 83 not 84
86 68 or 85
87 51 and 86
88 limit 87 to english language
89 (2014* or 2015* or 2016* or 2017* or 2018*).ed.
90 88 and 89

Q1b What are the most effective psychological interventions for children and young people with depression? (search for interventions not included in previous versions of the guideline)

Databases	Date searched	Version/files
Cochrane Central Register of Controlled Trials (CENTRAL)	18th July 18	Issue 6 of 12, June 2018
Cochrane Database of Systematic Reviews (CDSR)	18th July 18	Issue 7 of 12, July 2018
Database of Abstracts of Reviews of Effect (DARE)	18th July 18	Issue 2 of 4, April 2015

Embase (Ovid)	17th July 18	Embase <1974 to 2018 Week 29>
MEDLINE (Ovid)	17th July 18	Ovid MEDLINE(R) ALL <1946 to July 16, 2018>
MEDLINE In-Process (Ovid)	17th July 18	Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <July 16, 2018>
MEDLINE Epub Ahead of Print	17th July 18	Ovid MEDLINE(R) Epub Ahead of Print <July 16, 2018>
Medline daily	17th July 18	Ovid MEDLINE(R) Daily Update <July 16, 2018>
PsycINFO (Ovid)	18th July 2018	PsycINFO <1806 to July Week 2 2018>

The MEDLINE search strategy is presented below. This was translated for use in all of the other databases listed. The aim of the search was to identify evidence for the clinical question being asked. Randomised Controlled Trial and Systematic Review filters were used to identify the study designs specified in the Review Protocol.

1 Depression/
2 exp Depressive Disorder/
3 (depress* or dysthymi* or dysphori* or melanchol* or sadness).tw.
4 ("seasonal affective disorder*" or sad).tw.
5 Mood Disorders/
6 ((mood* or affectiv*) adj (disorder* or illness* or neuro*)).tw.
7 Cyclothymic Disorder/
8 cyclothym*.tw.
9 exp bereavement/
10 (grief* or griev* or mourn* or bereav* or sorrow*).tw.
11 Anhedonia/
12 anhedon*.tw.
13 or/1-12
14 infan*.mp,so.
15 minor.mp,so.
16 minors*.mp,so.
17 boy.mp,so.
18 boys.mp,so.
19 boyfriend*.mp,so.
20 boyhood.mp,so.
21 girl*.mp,so.
22 kid.mp,so.
23 kids.mp,so.
24 child*.mp,so.
25 adolescen*.mp,so.
26 juvenil*.mp,so.
27 youth*.mp,so.
28 teen*.mp,so.
29 under*age*.mp,so.
30 pubescen*.mp,so.
31 exp pediatrics/
32 pediatric*.mp,so.
33 paediatric*.mp,so.
34 peadiatric*.mp,so.
35 school*.mp,so.

36 or/14-35
37 13 and 36
38 psychosocial support systems/
39 (psychosocial* or psycho-social* or "psycho social*").tw.
40 (psychoeducat* or psycho-educat* or "psycho educat*").tw.
41 Mobile Applications/
42 (app or apps).tw.
43 ((mobile* or phone* or smartphone* or smart-phone* or "smart* phone*" or cellphone* or cell-phone* or "cell phone*" or iphone* or i-phone* or "i phone*" or ipad* or i-pad* or "i pad*" or tablet* or apple* or ios or android* or windows or blackberry* or portable or electronic or device* or digital or software or online or internet or web or medical or health) adj application*).tw.
44 (digital health or digihealth or "digi health" or mobile health or mhealth or ehealth or m-health or e-health or "m health" or "e health").tw.
45 behavi* activat*.tw.
46 Eye Movement Desensitization Reprocessing/
47 (eye* adj4 (desens* or reprocess*)).tw.
48 exp Counseling/
49 (counselling or counseling).tw.
50 Bibliotherapy/
51 (bibliotherap* or biblio-therap* or "biblio therap*").tw.
52 (systemic adj4 (therap* or psycho* or interven* or manag* or support* or treat*)).tw.
53 Problem solving/
54 problem* solv*.tw.
55 solution* focus* therap*.tw.
56 solution* focus* brief therap*.tw.
57 (dialecti* behavio* therap* or DBT).tw.
58 (interpersonal adj4 (therap* or psycho* or interven* or manag* or support* or treat*)).tw.
59 exp Sensory Art Therapies/
60 ((sensory or creativ* or art or music* or danc* or drama* or play* or sandplay* or sand-play* or "sand play*") adj4 (therap* or psycho* or interven* or manag* or support* or treat*)).tw.
61 exp Psychodrama/
62 (psychodrama* or psycho-drama* or "psycho* drama*" or roleplay* or role-play* or "role* play*").tw.
63 Psychoanalysis/
64 exp Psychoanalytic Therapy/
65 (psychoanaly* or psycho-analy* or "psycho* analy*").tw.
66 or/38-65
67 37 and 66
68 Meta-Analysis.pt.
69 Network Meta-Analysis/
70 Meta-Analysis as Topic/
71 Review.pt.
72 exp Review Literature as Topic/
73 (metaanaly$ or metanaly$ or (meta adj3 analy$)).tw.
74 (review$ or overview$).ti.
75 (systematic$ adj5 (review$ or overview$)).tw.
76 ((quantitative$ or qualitative$) adj5 (review$ or overview$)).tw.
77 ((studies or trial$) adj2 (review$ or overview$)).tw.
78 (integrat$ adj3 (research or review$ or literature)).tw.
79 (pool$ adj2 (analy$ or data)).tw.
80 (handsearch$ or (hand adj3 search$)).tw.
81 (manual$ adj3 search$).tw.
82 or/68-81
83 animals/ not humans/

84 82 not 83
85 Randomized Controlled Trial.pt.
86 Controlled Clinical Trial.pt.
87 Clinical Trial.pt.
88 exp Clinical Trials as Topic/
89 Placebos/
90 Random Allocation/
91 Double-Blind Method/
92 Single-Blind Method/
93 Cross-Over Studies/
94 ((random$ or control$ or clinical$) adj3 (trial$ or stud$)).tw.
95 (random$ adj3 allocat$).tw.
96 placebo$.tw.
97 ((singl$ or doubl$ or trebl$ or tripl$) adj (blind$ or mask$)).tw.
98 (crossover$ or (cross adj over$)).tw.
99 or/85-98
100 animals/ not humans/
101 99 not 100
102 84 or 101
103 67 and 102
104 limit 103 to english language

Economic evaluations and quality of life data

Sources searched to identify economic evaluations:

Databases	Date searched	Version/files
Embase (Ovid)	18th July 18	Embase <1974 to 2018 Week 29>
MEDLINE (Ovid)	18th July 2018	Ovid MEDLINE(R) ALL <1946 to July 17, 2018>
MEDLINE In-Process (Ovid)	18th July 2018	Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <July 17, 2018>
EconLit (Ovid)	18th July 18	Econlit <1886 to July 12, 2018>
NHS Economic Evaluation Database (NHS EED) (legacy database)	18th July 18	Issue 2 of 4, April 2015
Health Technology Assessment (HTA Database)	18th July 18	Issue 4 of 4, October 2016

Search filters to retrieve economic evaluations and quality of life papers were appended to both of the search strategies (RQ1a and RQ1b) to identify relevant evidence. The MEDLINE economic evaluations and quality of life search filters are presented below. They were translated for use in MEDLINE in Process and Embase databases.

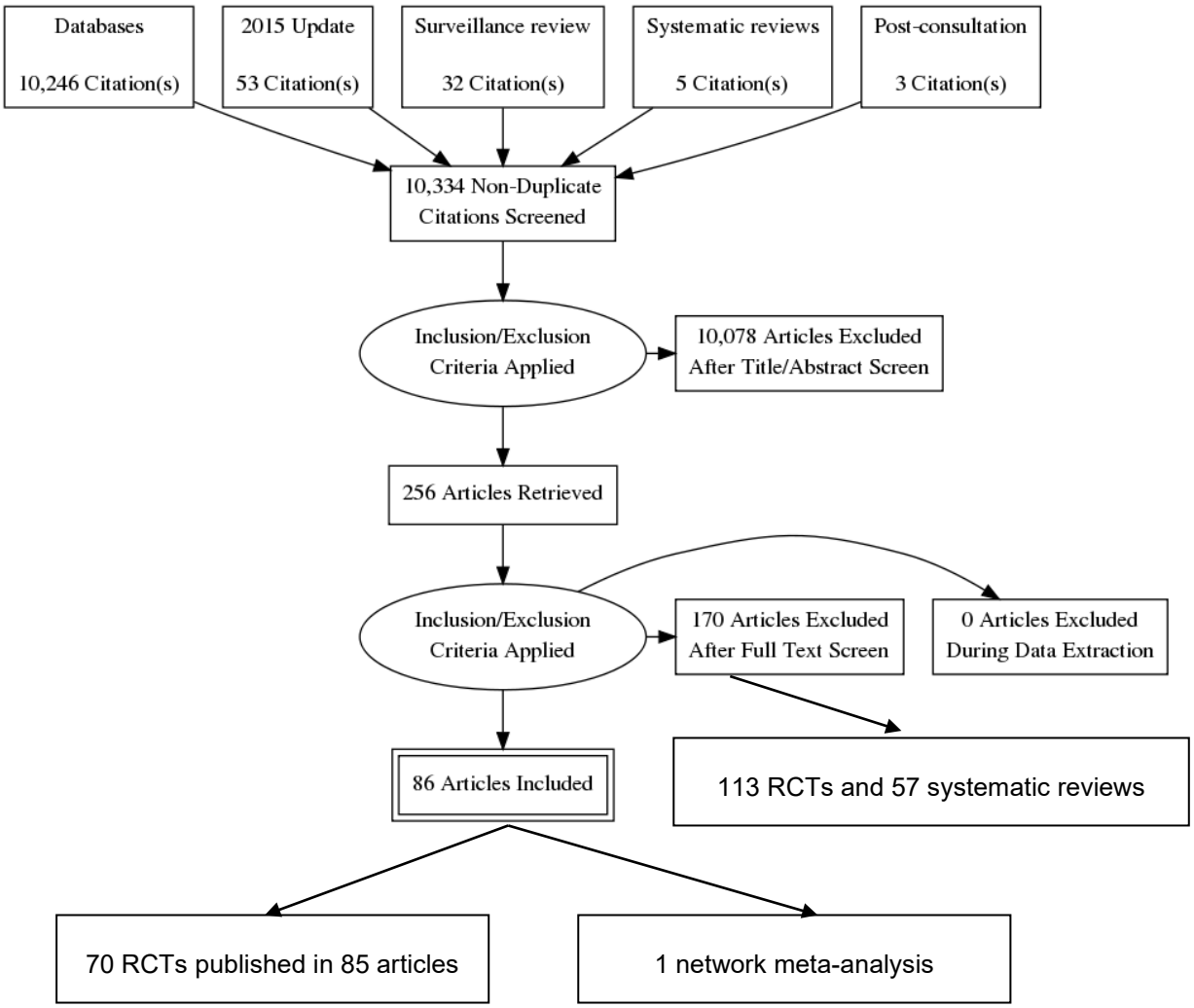
Economic evaluations
1. Economics/
2. exp "Costs and Cost Analysis"/
3. Economics, Dental/
4. exp Economics, Hospital/

5. exp Economics, Medical/
6. Economics, Nursing/
7. Economics, Pharmaceutical/
8. Budgets/
9. exp Models, Economic/
10. Markov Chains/
11. Monte Carlo Method/
12. Decision Trees/
13. econom$.tw.
14. cba.tw.
15. cea.tw.
16. cua.tw.
17. markov$.tw.
18. (monte adj carlo).tw.
19. (decision adj3 (tree$ or analys$)).tw.
20. (cost or costs or costing$ or costly or costed).tw.
21. (price$ or pricing$).tw.
22. budget$.tw.
23. expenditure$.tw.
24. (value adj3 (money or monetary)).tw.
25. (pharmacoeconomic$ or (pharmaco adj economic$)).tw.
26. or/1-25

Quality of Life
1. "Quality of Life"/
2. quality of life.tw.
3. "Value of Life"/
4. Quality-Adjusted Life Years/
5. quality adjusted life.tw.
6. (qaly$ or qald$ or qale$ or qtime$).tw.
7. disability adjusted life.tw.
8. daly$.tw.
9. Health Status Indicators/
10. (sf36 or sf 36 or short form 36 or shortform 36 or sf thirtysix or sf thirty six or shortform thirtysix or shortform thirty six or short form thirtysix or short form thirty six).tw.
11. (sf6 or sf 6 or short form 6 or shortform 6 or sf six or sfsix or shortform six or short form six).tw.
12. (sf12 or sf 12 or short form 12 or shortform 12 or sf twelve or sftwelve or shortform twelve or short form twelve).tw.
13. (sf16 or sf 16 or short form 16 or shortform 16 or sf sixteen or sfsixteen or shortform sixteen or short form sixteen).tw.
14. (sf20 or sf 20 or short form 20 or shortform 20 or sf twenty or sftwenty or shortform twenty or short form twenty).tw.
15. (euroqol or euro qol or eq5d or eq 5d).tw.
16. (qol or hql or hqol or hrqol).tw.
17. (hye or hyes).tw.
18. health$ year$ equivalent$.tw.
19. utilit$.tw.
20. (hui or hui1 or hui2 or hui3).tw.
21. disutili$.tw.
22. rosser.tw.
23. quality of wellbeing.tw.
24. quality of well-being.tw.
25. qwb.tw.
26. willingness to pay.tw.
27. standard gamble$.tw.

28. time trade off.tw.
29. time tradeoff.tw.
30. tto.tw.
31. or/1-30

Appendix D – Clinical evidence study selection



Appendix E – Evidence tables

Clinical evidence

Network meta-analyses

Author (year)	Title	Study characteristics	Quality and directness
Zhou (2015)	Comparative efficacy and acceptability of psychotherapies for depression in children and adolescents: A systematic review and network meta-analysis	**Study type** • Network Meta- Analysis (NMA) **Study details** • Dates searched *1st January 1966 to 1st July 2014* • Databases searched *PubMed, EMBASE, Cochrane, Web of Science, PsycINFO, CINAHL, LILACS and ProQuest Dissertations. ClinicalTrials.gov, the World Health Organization's trial portal and U.S. Food and Drug Administration reports were also reviewed* • Sources of funding *National Basic Research Program of China* **Study inclusion criteria** • Prospective RCTs *These included cross-over and cluster-randomised trials* • Studies were eligible if they included participants with comorbid psychiatric disorders **Study exclusion criteria** • Studies recruiting participants with treatment-resistant or psychotic	**Rationale for review included?** • Yes **Study inclusion/exclusion criteria specified clearly?** • Yes **Description of network and potential biases related to it?** • Incomplete description *Network plot is shown but potential biases related to it are not described* **Summary measures stated?** • Yes **Methodology for data handling described?** • Yes

Author (year)	Title	Study characteristics	Quality and directness
		depression • Studies including combination therapies *Combination of different psychological interventions, combination of psychotherapy with pharmacotherapy or another non-psychotherapeutic intervention* • Studies focusing on maintenance treatment or relapse prevention • Studies with psychotherapy interventions that were not aimed to treat depression **Participant inclusion criteria** • Children or adolescents *Aged from 6 to 18 years when initially enrolled in the primary study* • Diagnosis of depression *Diagnosis of major depression, minor depression, intermittent depression, or dysthymia based on standardised diagnostic interviews, or exceeded a predefined threshold for depressive symptoms using a validated depression severity measure* **Participant exclusion criteria** • None stated **Outcomes** • Depressive symptoms at post-treatment *This was the primary outcome (efficacy at post-treatment) measured by mean change scores in depressive symptoms (self- or assessor-rated) from baseline to post-treatment* • Depressive symptoms at follow-up *This was the secondary outcome (efficacy at follow-up) measured by mean change scores in depressive symptoms from baseline to the*	**Statistical methods to compare direct and indirect data described?** • Yes **Description of subgroup, sensitivity and meta-regression analyses where applicable?** • Yes **Network diagram available?** • Yes **Characteristics of the treatment network described?** • Yes **Results of each meta-analysis presented?** • Yes **Investigations of inconsistency carried out?** • Yes

Author (year)	Title	Study characteristics	Quality and directness
		end of follow-up • Depressive symptoms at other follow-ups *Data was also extracted for short-term (1 to 6 months) and long-term (6 to 12 months) follow-up in each study. If a study reported data for more than one time within the pre-defined follow-up periods, the last time point within the range was considered. If participants received further treatments after the initial trial (for example, continuous treatment or booster sessions), they were not included in the follow-up analysis.* • Acceptability of treatment *This was defined as all-cause discontinuation and measured by the proportion of patients who discontinued treatment up to the post-intervention time point* **Outcome measures** • Children's depression rating scale • Hamilton depression rating scale • Beck depression inventory • Children's depression inventory **Analysis** • NMA methodology *Network meta-analysis was performed using the Win-BUGS software package (version 1.4.3, MRC Biostatistics Unit, Cambridge, UK) with random effects models for multi-arm trials. RCTs comparing different modalities of the same type of psychotherapy (face-to-face, Internet or telephone), different treatment conditions (CBT or CBT plus sessions for parents) or different intervention formats (group or individual) were considered as the same node in the network analysis*	**Results presented for additional analyses?** • No *The following additional analyses were not presented: Short-term and long-term depressive symptoms, subgroup analyses (sex ratio, age group, number of sessions planned, intervention format, method for defining the presence of depression, comorbid psychiatric disorders, risk of bias, and year of publication)* **Discussion of study limitations?** • Yes **Overall quality** • High **Applicability as a source of data** • Partially applicable *The NMA does not cover all of the outcomes of interest, does not report results by age group, and does not separate interventions by the type of psychotherapy and*

Author (year)	Title	Study characteristics	Quality and directness
		Measures • Standardised mean difference (SMD)	*method of delivery.*

Randomised controlled trials

Author (year)	Title	Study characteristics	Risk of bias and directness
Ackerson (1998)	Cognitive bibliotherapy for mild and moderate adolescent depressive symptomatology.	**Data extraction (intervention)** • Antidepressants use *None: "No participants were receiving antidepressant medication"* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Community setting* • Study dates *Not reported* • Duration of treatment and follow-up *1 month treatment + 1 month follow up (post-treatment assessment)* • Sources of funding *Not specified* **Inclusion criteria** • Child depression inventory *Score of 10 or more* • Hamilton rating scale for depression *Score of 10 or more*	**Random sequence generation** • Unclear risk of bias *No details of randomisation* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *No blinding of clinicians or patients* **Blinding of outcome assessment** • High risk of bias *No blinding of assessors* **Incomplete outcome data** • High risk of bias *No details of how missing data accounted for in analysis – high*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Exclusion criteria • Child depression inventory *Score <10* • Hamilton rating scale for depression *Score <10* • Not living at home *with a parent willing to participate in the assessment phases of the study* • Reading level *<6th-grade equivalence* • Psychotic symptoms • Suicide symptoms • Participation in psychotherapy **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *22* • Split between study groups *Guided self-help: n=12 Waiting list: n=10* • Loss to follow-up *3 dropped out of guided self-help and 5 dropped out of waiting list control* • Sex (M/F) *Guided self-help: 5/7 Waiting list: 3/7* • Mean age (SD) *Guided self-help: 15.97 (1.43) Waiting list: 15.89 (0.86)* • Family origin or ethnicity *Caucasian/African American or Mixed race: Guided self-help (8/4) Waiting list (6/4)* **Interventions**	*rate of attrition in waiting list group (50%)* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • High **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Guided self-help *Cognitive bibliotherapy for depression with weekly phone calls. The book used was Feeling Good (Burns, 1980), which has a theoretical foundation derived from Beck's (1970) cognitive theory of depression.* **Comparisons** • Attention control *Weekly phone calls during their 4-week waiting period. This control was reported originally as waiting list and then reclassified for this evidence review as attention control* **Outcome measure(s)** • Depressive symptoms *Child depression inventory. Hamilton rating scale for depression*	
Alavi (2013)	Effectiveness of cognitive-behavioral therapy in decreasing suicidal ideation and hopelessness of the adolescents with previous suicidal attempts.	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: "All of the patients received appropriate pharmacotherapy if needed"* **Study type** • Randomised controlled trial **Study details** • Study location *Iran* • Study setting *Hospital* • Study dates *2011 - 2012* • Duration of treatment and follow-up	**Random sequence generation** • Unclear risk of bias *No details of randomisation* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *No blinding of clinicians or patients* **Blinding of outcome**

Author (year)	Title	Study characteristics	Risk of bias and directness
		3 months treatment without additional follow-up (only post-treatment assessment) • Sources of funding *Shiraz University of Medical Sciences* **Inclusion criteria** • Age *12-18* • Suicide attempt *Within last 3 months* • Major depressive disorder *Mild-moderate* **Exclusion criteria** • Bipolar disorder • Psychotic disorder • Pervasive disorder • Severe depressive disorder • Substance misuse disorder • Patients receiving electroconvulsive therapy • Suicide attempt *Solely for release or attention seeking* • Suicidal idea *No current suicidal idea expressed* • Could not participate in psychological therapy **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *30* • Split between study groups *CBT: 15 Waiting list control: 15* • Loss to follow-up	**assessment** • High risk of bias *No blinding of assessors* **Incomplete outcome data** • Unclear risk of bias *No details of attrition, or how missing data was accounted for* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		No details of attrition • Sex (M/F) *CBT: 1/14 Waiting list control: 2/13* • Mean age (SD) *CBT: 16.1 (1.6) Waiting list control: 16.0 (1.2)* • Family origin or ethnicity *Not reported* **Interventions** • CBT *12 sessions over the course of 3 months. The intervention includes 3 phases (according to Stanley model): 1) 3 sessions with five main components: chain analysis, safety planning, psychoeducation, developing reasons for living and hope, and case conceptualization; 2) sessions 4 to 9 including optional individual (including behavioural activation and increasing pleasurable activities, mood monitoring, emotion regulation and distress tolerance techniques, cognitive restructuring, problem solving, goal setting, mobilizing social support, and assertiveness skills) and family (including family behavioural activation, family emotion regulation, family problem solving, family communication, and family cognitive restructuring) skills training modules; 3) sessions 10 to 12 including a relapse prevention task that embraces five steps: (a) Preparation, (b) Review of the indexed attempt or suicidal crisis, (c) Review of the attempt or suicidal crisis using skills, (d) Review of a future high risk scenario, and (e) Debriefing and follow-up. 'Appropriate' pharmacotherapy given if needed.* **Comparisons** • Waiting list *Waiting was 3 months. Participants were assessed after 3 months; all participants received 'appropriate' pharmacotherapy if needed* **Outcome measure(s)**	

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Depressive symptoms *Beck depression inventory* • Suicidal ideation *Scale for suicidal ideation*	
Asarnow (2002)	A Combined Cognitive–Behavioral Family Education Intervention for Depression in Children: A Treatment Development Study	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *School* • Study dates *Not reported* • Duration of treatment and follow-up *Treatment period approximately 5 weeks. Only post-treatment assessment because comparator was waiting list.* • Sources of funding *None specified* **Inclusion criteria** • Child depression inventory *Score =>8* • Fourth to sixth grade student **Exclusion criteria**	**Random sequence generation** • Unclear risk of bias *No details of randomisation* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *No details of blinding of clinicians or patients (assume unblinded)* **Blinding of outcome assessment** • High risk of bias *No details of blinding of assessors (assume unblinded)* **Incomplete outcome data** • Unclear risk of bias *No details of attrition or how missing data was dealt with*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• None reported **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *23* • Split between study groups *CBT + family education: 12 Waiting list: 11* • Loss to follow-up *No details of attrition* • Sex (M/F) *Not reported* • Mean age (SD) *Not reported* • Family origin or ethnicity *Not reported* **Interventions** • CBT with family education component *90 minute sessions twice per week for approximately 5 weeks. The intervention had 3distinct components: 1) the inclusion of a family education component designed to enhance generalization to real world settings and promote a supportive family environment; 2) the development by the children of a videotape that was shown to the parents during the family education session in which children demonstrated and practiced the skills introduced during each CBT session; and 3) the inclusion of both generic and depression-specific CBT components to provide a means of targeting processes associated with depression as well as processes associated with frequent comorbid symptoms/disorders or life problems or both.* **Comparisons** • Waiting list	**Selective reporting** • Unclear risk of bias *Baseline data for CDI was not reported* **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Assessments were conducted at the same time as the intervention group **Outcome measure(s)** • Depressive symptoms *Children's depression inventory*	
Bella-Awusah (2015)	Effectiveness of brief school-based, group cognitive behavioural therapy for depressed adolescents in south west Nigeria	**Data extraction (intervention)** • Additional comments *Data from 16 week follow-up were collected from only participants in the intervention group.* • Antidepressants use *None: "None of the study participants reported ... use of antidepressants."* **Study type** • Randomised controlled trial **Study details** • Study location *Nigeria* • Study setting *Public schools* • Study dates *Not reported* • Duration of treatment and follow-up *5 weeks treatment and 1 week follow-up (post-treatment assessment)* • Sources of funding *This research was funded by the John D. and Catherine T. MacArthur Foundation through the University of Ibadan Centre for Child and Adolescent Mental Health.*	**Random sequence generation** • Unclear risk of bias *The study only reports that schools were randomised by ballot.* **Allocation concealment** • Unclear risk of bias *The procedure for allocation concealment was not described* **Blinding of participants and personnel** • High risk of bias *No blinding of participants or personnel* **Blinding of outcome assessment** • Low risk of bias *Not applicable because outcomes were measured using self-report measures* **Incomplete outcome data**

Author (year)	Title	Study characteristics	Risk of bias and directness
		Inclusion criteria • Age *14-17* • Beck depression inventory *Cut-off of 18 and above* • School grades *10 to 12* **Exclusion criteria** • Intellectual functioning *Having learning difficulties* • Being suicidal • Psychiatric disorder **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *40* • Split between study groups *CBT: 20 Waiting list control: 20* • Loss to follow-up *CBT: 1 Waiting list control: 0* • Sex (M/F) *CBT: 5/15 Waiting list control: 7/13* • Mean age (SD) *CBT: 15.6 (0.8) Waiting list control: 15.7 (1.1)* • Family origin or ethnicity *Not reported* **Interventions** • CBT	• Low risk of bias *Post-test measures were not available for 1 participant in the CBT group* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		The programme consisted of 5 structured sessions offered weekly, each lasting 45-60 minutes. Session 1 was focused on psycho-education on causes, symptoms and treatment of depression. The link between cognitions, emotions and behaviour was explained and participants were taught a simple cognitive technique to generate and use positive self talk. Session 2 was used to explain the rationale for behavioural activation. Participants were taught to identify pleasurable activities and avoidant activities as well as how to monitor their mood. In session 3, more pleasurable activities were identified and participants were encouraged to have a list of pleasurable activities to carry out daily. Session 3 was focused on relaxation techniques and participants were taught deep slow breathing exercises and positive imagery. Session 5 was a revision of the preceding sessions and techniques. **Comparisons** • Waiting list *Participants completed the post-treatment measures one week post-intervention* **Outcome measure(s)** • Depressive symptoms *Beck depression inventory Short mood and feelings questionnaire* • Functional status *Strengths and difficulties questionnaire*	
Bolton (2007)	Interventions for depression symptoms among adolescent survivors of war and displacement in northern Uganda: a randomized controlled trial	**Study details** • Study location *Uganda* • Study setting *2 camps for internally displaced persons in northern Uganda* • Study dates *May 2005 - December 2005* • Duration of treatment and follow-up	**Random sequence generation** • Low risk of bias *Random allocation was done by computerised generation of a random number between 1 and 400 for each eligible participant, ordering them by number and assigning the first third to group*

Author (year)	Title	Study characteristics	Risk of bias and directness
		16 weeks • Sources of funding *This project was solely funded by World Vision and War Child Holland. Dr Neugebauer's contributions were funded by the Ruth and David Levine Foundation.* **Inclusion criteria** • Age *14 to 17 years* • Depressive symptoms *Scored greater than 32 on the depression symptom scale (non-validated) Had symptoms for at least 1 month* • Function scale *dd* • Resided in camps during the preceding month **Exclusion criteria** • Suicidal idea *severe suicide ideaiton or behaviour* • inability to be interviews due to cognitive or physical disability **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *314* • Split between study groups *Group interpersonal psychotherapy (n=105) Creative Play (n=105) Wait-list controls (n=104)* • Loss to follow-up *11 (creative play) 7 (interpersonal psychotherapy) 14 (wait-list control)* • Sex (M/F) *180 F (57%) 134 M (43%)*	*IPT, the second third to creative play therapy and the final third to the waiting list* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *No blinding of participants and personnel* **Blinding of outcome assessment** • Low risk of bias *Interviewers were blinded to interviewees' intervention status* **Incomplete outcome data** • Low risk of bias *There were no significant differences in attrition across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Mean age (SD) *15.0 (1.1) [Group interpersonal Psychotherapy] 14.7 (1.0) [Creative Play] 15.2 (1.2) [Wait-list control]* **Interventions** • Group interpersonal psychotherapy • Creative play therapy **Comparisons** • Waiting list	*No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable
Brent (1997)	A clinical psychotherapy trial for adolescent depression comparing cognitive, family, and supportive therapy.	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Secondary care* • Study dates *1991 - 1995* • Duration of treatment and follow-up *12-16 weeks treatment without additional follow-up only post-treatment assessment* • Sources of funding *National institute for mental health*	**Random sequence generation** • Low risk of bias *Randomisation using the Begg and Iglewicz modification of the Efron biased coin toss, balancing on sex, number of parents in the household and clinically significant suicidality* **Allocation concealment** • Unclear risk of bias *Allocation concealment unclear* **Blinding of participants and personnel** • High risk of bias *Details of blinding not clear, assume unblinded* **Blinding of outcome assessment**

Author (year)	Title	Study characteristics	Risk of bias and directness
		Inclusion criteria • Age *13-18* • Major depressive disorder *Meet criteria for DSM-IIIR* • Beck depression inventory *Score of 13 or higher* **Exclusion criteria** • Bipolar disorder • Substance misuse disorder • Obsessive compulsive disorder • Eating disorder **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *107* • Split between study groups *CBT: 37 Systemic family therapy: 35 Non-directive supportive therapy: 35* • Loss to follow-up *Of participants randomised, 4 never returned for treatment, 8 dropped out, 7 were removed for clinical reasons (suicide attempt or seriously symptomatic at midpoint) and 10 because they were discovered to have a coexisting condition that made them ineligible* • Sex (M/F) *CBT: 9/28 Systemic family therapy: 8/27 Non-directive supportive therapy: 9/26* • Mean age (SD) *CBT: 15.7 (1.3) Systemic family therapy: 15.4 (1.4) Non-directive supportive therapy: 15.7 (1.5)* • Family origin or ethnicity *White origin CBT: 28 Systemic family therapy: 31 Non-directive*	• Low risk of bias *Diagnosis of depressive disorder at follow up made by assessor blind to treatment condition* **Incomplete outcome data** • Low risk of bias *There were no significant differences in attrition across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • High risk of bias *Significantly lower functional status in family therapy group than CBT group at baseline* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		supportive therapy: 30 **Interventions** • CBT *Adaptation of 'Beck' CBT for adolescents* • Family therapy *Systemic behaviour family therapy. Combination of functional family therapy and problem solving skills* **Comparisons** • Non-directive supportive therapy *Control for the non-specific aspects of treatment (passage of time, amount of contact with therapist, support of professional). Aim to build rapport and allow expression of feelings* **Outcome measure(s)** • Depressive symptoms *Beck depression inventory* • Suicidal ideation *K-SADS-P/E score > 4 presence of clinically significant suicidality corresponding to ideation with a plan or attempt* • Remission *No longer meet criteria for major depressive disorder and beck depression inventory<9 for 3 consecutive sessions* • Functional status *Children's global assessment schedule*	
Brent (2015)	Effect of a Cognitive-Behavioral Prevention Program on Depression 6 Years After Implementation Among At-Risk Adolescents: A Randomized	**Data extraction (intervention)** • Additional comments *Baseline data was reported for participants who completed the 6-year follow-up (n=139 CBT group; n=139 usual care group)* • Antidepressants use *Yes: Reported as service use of antidepressant treatment through 6*	**Random sequence generation** • Low risk of bias *Randomisation was done using Efron's biased coin toss to balance across cells and sites on age, sex, self-identified*

Author (year)	Title	Study characteristics	Risk of bias and directness
	Clinical Trial	*years follow-up: CBT (43 [27.0%]) Usual care (45 [28.7%])* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Hospital and university sites* • Study dates *2003 - 2006* • Duration of treatment and follow-up *Treatment lasted 8 weeks followed by 6 monthly booster sessions + 6 years follow-up* • Sources of funding *The project was supported by the National Institute of Mental Health and by the National Center for Research Resources, now National Center for Advancing Translational Sciences.* **Inclusion criteria** • Age *13-17* • Parents with diagnosis of major depression or dysthymia *At least 1 parent or caretaker with major depression or dysthymia in the last 3 years, or a depressive disorder with at least 3 recurrences, or a depressive episode of at least 3 years' duration during the adolescent's life.* • Depression *A previous depressive episode that was currently in remission for 2 months or longer, or had current sub-syndromal depressive symptoms (a score of ≥20 on the Center for Epidemiological Studies of Depression Scale [CES-D]), or both.*	*ethnicity and race, and inclusion criteria.* **Allocation concealment** • Low risk of bias *Centralised randomisation using a computer program* **Blinding of participants and personnel** • High risk of bias *No details of blinding of participants or personnel (assume unblinded)* **Blinding of outcome assessment** • Low risk of bias *Independent evaluators blind to intervention condition conducted the assessments* **Incomplete outcome data** • Low risk of bias *Low rate of attrition <15% and no significant differences in attrition across groups* **Selective reporting** • High risk of bias *Trial register at ClinicalTrials.gov (NCT00073671) but depressive*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Exclusion criteria • Bipolar disorder • Major depressive disorder or dysthymia • Schizophrenia • Other treatment for depression *Receiving a therapeutic dose of an antidepressant, or had previously had 8 or more sessions of cognitive-behavioural therapy or dialectical behaviour therapy.* **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *316* • Split between study groups *CBT: 159 Usual care: 157* • Loss to follow-up *CBT: 20 Usual care: 18* • Sex (M/F) *CBT: 82/57 Usual care: 83/56* • Mean age (SD) *CBT: 14.8 (1.5) Usual care: 14.9 (1.3)* • Family origin or ethnicity *CBT Caucasian: 111 Latino/Hispanic: 10 Usual care Caucasian: 111 Latino/Hispanic: 9* **Interventions** • CBT *CBP plus usual care. Cognitive-behavioural prevention (CBP) program is a modification of the Coping with Depression for Adolescents program that emphasizes cognitive re-structuring and problem solving, delivered in a structured, educational format that allows for adolescents to practice these skills. The CBP program*	*symptoms were not listed as primary or secondary outcomes.* **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		was delivered in 8 weekly 90-minute group sessions, followed by 6 monthly booster sessions. There were informational sessions for parents at weeks 1 and 8. Group leaders were at least masters' level therapists supervised by doctoral-level clinicians; fidelity to the model was found across all sites. Participants in both intervention arms were permitted to seek outside services. **Comparisons** • Usual care *Any family-initiated mental health treatment.* **Outcome measure(s)** • Depressive symptoms *Center for Epidemiological Studies of Depression Scale (CES-D) and Children's Depression Rating Scale-Revised (CDRS-R)*	
Charkhandeh (2016)	The clinical effectiveness of cognitive behavior therapy and an alternative medicine approach in reducing symptoms of depression in adolescents.	**Data extraction (intervention)** • Antidepressants use *None: Participants were not recruited if they were undergoing any psychiatric or psychological treatment, including psychotropic medications* **Study type** • Randomised controlled trial **Study details** • Study location *Iran* • Study setting *Psychotherapy clinics* • Study dates *Not reported*	**Random sequence generation** • Low risk of bias *Randomisation was done using a computerised random sampling method by the practitioner nurse at the centres.* **Allocation concealment** • Unclear risk of bias *Method of allocation concealment was not reported.* **Blinding of participants and personnel** • Unclear risk of bias *No description of blinding*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Duration of treatment and follow-up *Treatment lasted 12 weeks without additional follow-up only post-treatment assessment* • Sources of funding *Not reported* **Inclusion criteria** • Child depression inventory *Minimum score of 20* • Age *12-17* • Major depressive disorder *DSM-IV-TR criteria for major depression based on a structural interview by 2 separate clinical psychologists* • Completion of a pre-treatment assessment **Exclusion criteria** • Other treatment for depression *Already undergoing any psychiatric or psychological treatments, including psychotropic medications, supportive groups, and current practice of relaxation techniques.* **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *188* • Split between study groups *CBT: 65 Reiki: 63 Waiting list: 60* • Loss to follow-up *None reported* • Sex (M/F) *CBT: 34/31 Reiki: 34/29 Waiting list: 33/27* • Mean age (SD)	*(presume unblinded).* **Blinding of outcome assessment** • Unclear risk of bias *No description of blinding (presume unblinded).* **Incomplete outcome data** • Low risk of bias *No attrition reported* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Not reported • Family origin or ethnicity *Not reported* **Interventions** • CBT *The content of the CBT included two sessions of one and a half hours per week with a total of 36 hours in 12 sessions over 12 weeks. Therapy sessions provided programs using a number of principles such as teaching participants how to work of their problems and approaching educational problems from a psychological perspective.* **Comparisons** • Waiting list *Participants were assessed after the 12-week waiting list* • Other treatments *Reiki therapy was administered over 12 weeks with 20 minutes session once per week. The Reiki treatment proceeded with the practitioner placing his hands in various positions. They used the non-touching technique, where the hands were held a few centimetres away from the recipient's body, for some or all the positions.* **Outcome measure(s)** • Depressive symptoms *Child Depression Inventory*	
Clarke (1995)	Targeted Prevention of Unipolar Depressive Disorder in an At-Risk Sample of High School Adolescents: A Randomized Trial of a Group	**Data extraction (intervention)** • Antidepressants use *Yes: Reported for adolescents remaining in the study through the 12 months follow-up: Group CBT (2 of 52 participants [3.8%]) Usual care (2 of 58 participants [3.4%])*	**Random sequence generation** • Unclear risk of bias *Method of randomisation not reported*

Author (year)	Title	Study characteristics	Risk of bias and directness
	Cognitive Intervention	**Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *School* • Study dates *Not reported* • Duration of treatment and follow-up *5 weeks treatment + post-treatment assessment, 6 and 12 months follow up* • Sources of funding *National institute of mental heath* **Inclusion criteria** • Centre for epidemiologic studies depression scale *Score >=24* **Exclusion criteria** • Bipolar disorder • Major depressive disorder or dysthymia *Currently meet criteria for major depressive disorder or dysthymia (DSM-III-R criteria assessed by K-SADS-E interview)* • Too asocial to participate in the study **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *150*	**Allocation concealment** • Unclear risk of bias *Method of allocation concealment not reported* **Blinding of participants and personnel** • High risk of bias *No description of blinding – presume unblinded* **Blinding of outcome assessment** • High risk of bias *No description of blinding – presume unblinded* **Incomplete outcome data** • Unclear risk of bias *Attrition not reported separately for each group during follow-up period* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Split between study groups *CBT: 76 Usual care: 74* • Loss to follow-up *Drop-out rates during the intervention were 21/76 for the CBT group and 4/74 for the usual care group. Five more dropped out before 6 months, and 10 more before 12 months* • Sex (M/F) *45/105* • Mean age (SD) *15.3 (0.7)* • Family origin or ethnicity *Not reported* **Interventions** • Group CBT *'Coping with stress' course; fifteen 45-minute group sessions; 3 sessions per week for 5 weeks on school grounds; attendance averaged 72%* **Comparisons** • Usual care *Free to continue any existing intervention or begin any new intervention* **Outcome measure(s)** • Depressive symptoms *Centre for epidemiologic studies –depression scale score Hamilton depression rating scale* • Functional status *Global assessment of function* • Discontinuation for any reason	**Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
Clarke (1999)	Cognitive-behavioral treatment of adolescent depression: efficacy of acute group treatment and booster sessions.	**Data extraction (intervention)** • Additional comments *Recovery (the majority [76.3%] had 0 to 2 symptoms of major depressive disorder in the 2 weeks prior to the post-treatment assessment: Group CBT 24/37 (64.9%) Group CBT + parent sessions 22/32 (68.8%) Waiting list 13/27 (48.1%)* • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Research* • Study dates *1988 - 1991* • Duration of treatment and follow-up *Approximately 8 weeks treatment without additional follow-up (only post-treatment assessment)* • Sources of funding *National institute for mental health* **Inclusion criteria** • Age *14-18* • Major depressive disorder *Meet criteria for DSM-IIIR major depressive disorder or dysthymia* **Exclusion criteria**	**Random sequence generation** • Unclear risk of bias *No description of method of randomisation* **Allocation concealment** • Unclear risk of bias *No description of method of allocation concealment* **Blinding of participants and personnel** • High risk of bias *Blinding of participants and clinicians unclear – assume unblinded* **Blinding of outcome assessment** • High risk of bias *Blinding of assessors unclear – assume unblinded* **Incomplete outcome data** • Unclear risk of bias *Unclear how missing data has been accounted for in post-treatment means and standard deviations* **Selective reporting** • Low risk of bias

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Mania/hypomania • Panic disorder • Generalized anxiety disorder • Conduct disorder • Psychoactive substance abuse/dependence • Lifetime organic brain syndrome • Mental retardation • Schizophrenia • Other treatment for depression *Currently receiving other treatment for depression (and were unwilling to discontinue) or needed immediate, acute treatment* **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *123* • Split between study groups *Group CBT: 45 Group CBT + parent sessions: 42 Waiting list control: 36* • Loss to follow-up *8, 10 and 9 did not complete the post-treatment assessment for the group CBT, group CBT + parent sessions and waiting list groups, respectively* • Sex (M/F) *28/68* • Mean age (SD) *Mean (range): 16 (14-18)* • Family origin or ethnicity *Not reported* **Interventions** • Group CBT *Sixteen 2-hour Sessions over 8 weeks* • Group CBT + parent sessions	**Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		An identical group for adolescents supplemented with a 9 session parent group **Comparisons** • Waiting list *Participants were assessed post-treatment. Participants in this group were offered non-experimental treatment in either an adolescent only or an adolescent plus parent treatment group* **Outcome measure(s)** • Depressive symptoms *Beck depression inventory Hamilton depression rating scale* • Functional status *Global assessment of functioning*	
Clarke (2001)	A randomized trial of a group cognitive intervention for preventing depression in adolescent offspring of depressed parents.	**Data extraction (intervention)** • Additional comments *Trial was run alongside Clarke (2002) but with different population and intervention* • Antidepressants use *Yes: "All…, were permitted to initiate or continue any nonstudy mental health or other health services … (including antidepressant medication, of which there was very little)"* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Research*	**Random sequence generation** • Unclear risk of bias *Randomisation was via blocked procedure to ensure groups were not unbalanced. No further details on method of randomisation* **Allocation concealment** • Unclear risk of bias *No further details on allocation concealment* **Blinding of participants and personnel** • High risk of bias *No further details on blinding.*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Study dates *1994 - 1996* • Duration of treatment and follow-up *8 weeks treatment + post-treatment, 12 and 24 months follow-up* • Sources of funding *National institute for mental health* **Inclusion criteria** • Age *13-18* • Centre for epidemiologic studies depression scale *Reported some symptoms of depressive disorder and/or had centre for epidemiological studies depression scale of greater than 24* • Parents with diagnosis of major depression or dysthymia *Confirmed on medical notes. Current episode or episode in last 12 months* **Exclusion criteria** • Major depressive disorder or dysthymia *Meet criteria for DSM-IIIR major depressive disorder or dysthymia* **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *88* • Split between study groups *Group CBT: 41 Usual care: 47* • Loss to follow-up *Not specified separately for the two interventions. 2 did not take part in any follow up. 4, 9 and 16 did not participate in post-treatment, 12 month and 24 month interviews* • Sex (M/F) *Group CBT: 16/24 Usual care: 15/32*	*Presume unblinded* **Blinding of outcome assessment** • High risk of bias *No further details on blinding. Presume unblinded* **Incomplete outcome data** • Unclear risk of bias *Not specified separately for the two interventions* **Selective reporting** • Low risk of bias **Other sources of bias** • Unclear risk of bias *Attrition not specified separately for each group, so number of participants at each point in follow up for each group uncertain* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Mean age (SD) *Group CBT: 14.4 (1.4) Usual care: 14.7 (1.5)* • Family origin or ethnicity *Minority ethnic group Group CBT: 8 Usual care: 2* **Interventions** • Group CBT *Cognitive behavioural group depression prevention programme described by Clarke (1995). Three separate parent information sessions. Fifteen 1-hour Sessions over 8 weeks + usual care (could include antidepressant treatment or other therapy)* **Comparisons** • Usual care *This could include antidepressant treatment or other therapy* **Outcome measure(s)** • Depressive symptoms *Centre for epidemiologic studies depression scale Hamilton depression rating scale* • Suicidal ideation *K-SADS suicide symptom total* • Functional status *Global assessment of functioning*	
CLARKE (2002)	Group Cognitive-Behavioral Treatment for Depressed Adolescent Offspring of Depressed Parents in a Health Maintenance Organization	**Data extraction (intervention)** • Antidepressants use *Yes: Days' supply of psychotropic medications: Group CBT (109 days [SD 211]) Usual care (135 days [SD 272])* **Study type** • Randomised controlled trial	**Random sequence generation** • Low risk of bias *Randomisation was via blocked procedure to ensure groups were not unbalanced* **Allocation concealment**

Author (year)	Title	Study characteristics	Risk of bias and directness
		Study details • Study location *US* • Study setting *Research* • Study dates *1994 - 1996* • Duration of treatment and follow-up *8 weeks treatment + post-treatment, 12 and 24 months follow-up* • Sources of funding *Not specified* **Inclusion criteria** • Age *13-18* • Major depressive disorder *Meet criteria for DSM-IIIR major depressive disorder or dysthymia* • Parents with diagnosis of major depression or dysthymia *Confirmed on medical notes. Current episode or episode in last 12 months* **Exclusion criteria** • None reported **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *88* • Split between study groups *Group CBT: 41 Usual care: 47* • Loss to follow-up	• Unclear risk of bias *No further details on method of allocation concealment* **Blinding of participants and personnel** • High risk of bias *No further details on method of blinding, presume unblinded* **Blinding of outcome assessment** • High risk of bias *No further details on method of blinding, presume unblinded* **Incomplete outcome data** • Unclear risk of bias *Attrition not specified separately for each group, so number of participants at each point in follow up for each group uncertain* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias**

Author (year)	Title	Study characteristics	Risk of bias and directness
		2 did not take part in any follow up. 2, 6 and 13 did not participate in post-treatment, 12 month and 24 month interviews • Sex (M/F) *Group CBT: 12/35 Usual care: 15/26* • Mean age (SD) *Group CBT: 15.2 (1.3) Usual care: 15.3 (1.3)* • Family origin or ethnicity *Minority ethnic group Group CBT: 4 Usual care: 1* **Interventions** • Group CBT *Adolescent coping with depression course (Clarke 1990). Three separate parent information sessions. Sixteen 2-hour sessions over 8 weeks + usual care (could include antidepressant treatment or other therapy)* **Comparisons** • Usual care *This could include antidepressant treatment or other therapy* **Outcome measure(s)** • Depressive symptoms *Center for epidemiologic studies depression scale Hamilton depression rating scale* • Suicidal ideation *K-SADS suicide symptom total* • Functional status *Global assessment of functioning*	• Moderate **Directness** • Directly applicable
Clarke (2016)	Cognitive Behavioral Therapy in Primary Care for Youth Declining Antidepressants: A	**Data extraction (intervention)** • Antidepressants use *None: Inclusion criteria: "All youth had to have recently declined antidepressants or discontinued prematurely (<30 days' adherence)"*	**Random sequence generation** • Unclear risk of bias *Method of randomisation was not reported*

Author (year)	Title	Study characteristics	Risk of bias and directness
	Randomized Trial.	**Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Not reported* • Study dates *2006 - 2010* • Duration of treatment and follow-up *9 weeks treatment + post-treatment (12 weeks) + follow-ups at 3 months (26 weeks), 9 months (52 weeks), 15 months (78 weeks), 21 months (104 weeks)* • Sources of funding *Supported by the National Institute of Mental Health. Funded by the National Institutes of Health (NIH).* **Inclusion criteria** • Age *12-18* • Major depressive disorder *DSM-IV-TR diagnosis of major depression obtained via the Children's Schedule for Affective Disorders and Schizophrenia (KSADS).* • Medication *Having recently declined antidepressants or discontinued prematurely (<30 days' adherence).* **Exclusion criteria** • Bipolar disorder • Psychotic disorder	**Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *No details of blinding of participants or personnel (assume unblinded)* **Blinding of outcome assessment** • Low risk of bias *Assessors were blinded to randomisation* **Incomplete outcome data** • Low risk of bias *Low rate of attrition <15% and no significant differences in attrition across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Mental retardation • Other treatment for depression *Current antidepressants use. Having received ≥8 sessions of CBT.* • Suicide *Suicide risk* • Autism *Autism spectrum disorder* **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *212* • Split between study groups *CBT + treatment as usual (TAU): 106 TAU: 106* • Loss to follow-up *CBT + TAU: 13 TAU: 15* • Sex (M/F) *Total: 145/67* • Mean age (SD) *Total: 14.6 (1.7)* • Family origin or ethnicity *Total Hispanic: 34 Racial minority: 25* **Interventions** • CBT *The acute-phase CBT program consisted of 2, 4-session modules: cognitive therapy (CT) to address unrealistic thinking, and increasing pleasant activities (behavioural activation, or BA). Youth and therapist jointly selected 1 module to begin. Youth could stop after the first module if they were nearly or completely recovered. Partial and non-responders were encouraged to continue with the second module. Up to 6 elective continuation contacts were permitted. Therapists had at least a master's degree, and several years' experience delivering CBT in previous studies. Biweekly supervision*	**Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		addressed CBT implementation. **Comparisons** • Usual care *Youth in both conditions were permitted to continue and/or initiate any non-research mental health or general medical treatment. Usual care did not mean that all youth received the same type of treatment. Instead, it was self-elected and varied among the following options: Outpatient mental health; antidepressants; any other mental health medication; inpatient mental health or alcohol/drug; school counselling; juvenile court/probation.* **Outcome measure(s)** • Depressive symptoms *Children's Depression Rating Scale-Revised Centre for Epidemiological Studies-Depression Scale* • Suicidal ideation *Children's Schedule for Affective Disorders and Schizophrenia - suicidal ideation* • Functional status *Children's Global Adjustment Scale* • Quality of life *Paediatric Quality of Life Inventory*	
De Cuyper (2004)	Treating depressive symptoms in schoolchildren: a pilot study.	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial	**Random sequence generation** • Unclear risk of bias *Randomisation method not stated* **Allocation concealment** • Unclear risk of bias *Allocation concealment unclear*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Study details • Study location *Belgium* • Study setting *Research* • Study dates *Not reported* • Duration of treatment and follow-up *The treatment consists of 16 weekly sessions of 60 minutes each and two booster sessions, respectively one and four months after treatment + post-treatment and 4 months follow-up. Waiting list group was invited to recieved the intervention 8 months later. Therefore, 4 months follow-up was extracted.* • Sources of funding *Not stated* **Inclusion criteria** • Fourth to sixth grade student • Parental interest in trial • Sub-threshold depression *Based on DSM-III-R criteria (depressive symptoms on screening questionnaire and/or T-score on parent measure above cut-off and at least one criteria of major depressive disorder, without other apparent axis 1 problems)* **Exclusion criteria** • None reported **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *20* • Split between study groups	**Blinding of participants and personnel** • High risk of bias *No details of blinding (assume unblinded)* **Blinding of outcome assessment** • High risk of bias *No details of blinding (assume unblinded)* **Incomplete outcome data** • High risk of bias *At 4 months follow-up 4 questionnaires were invalid and not included (which questionnaires and group not specified)* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • High

Author (year)	Title	Study characteristics	Risk of bias and directness
		CBT: 9 Waiting list control: 11 • Loss to follow-up *2 participants in the CBT group declined to participate following randomisation. At 4 months follow up 4 questionnaires were invalid and not included* • Sex (M/F) *5/15* • Mean age (SD) *10 (9-11)* • Family origin or ethnicity *All children were white* **Interventions** • CBT *CBT treatment programme 'Taking action'. 16 weekly sessions of 1 hr + booster session 1 and 4 months after treatment. - Parents were invited to participate in individual session with therapist half way through treatment - Treatment aimed to treat affective disturbances, teach problem solving, treat faulty information processing and change children's negative self-evaluations* **Comparisons** • Waiting list *Participants were told that they would be invited to participate in the programme 8 months later, at the start of the new school year* **Outcome measure(s)** • Depressive symptoms *Child depression inventory*	**Directness** • Directly applicable
Diamond (2002)	Attachment-based family therapy for depressed adolescents: a treatment	**Data extraction (intervention)** • Additional comments *HAM-D and suicidal ideation were not measured at same time point*	**Random sequence generation** • Unclear risk of bias *Unclear method of*

Author (year)	Title	Study characteristics	Risk of bias and directness
	development study.	*for both groups.* • Antidepressants use *None: One of the exclusion criteria was already receiving antidepressant treatment or psychotherapy* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Not reported* • Study dates *Not reported* • Duration of treatment and follow-up *12 weeks treatment without additional follow-up (only post-treatment assessment)* • Sources of funding *National alliance of research on schizophrenia and depression, American suicide foundation, National institute of mental health* **Inclusion criteria** • Age *13-17* • Major depressive disorder *DSM-III-R primary diagnosis of major depressive disorder (score of 16 or more on beck depression inventory on two occasions and following structured interview)* **Exclusion criteria** • Substance misuse disorder *>13 days of substance misuse in past 90 days*	*randomisation* **Allocation concealment** • Unclear risk of bias *Unclear allocation concealment* **Blinding of participants and personnel** • High risk of bias *Participants and treating clinicians were not blinded* **Blinding of outcome assessment** • Low risk of bias *Assessors were blinded to treatment condition* **Incomplete outcome data** • Low risk of bias *No attrition was reported* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Other treatment for depression *Already receiving antidepressant treatment or psychotherapy* • Not meeting criteria above • Need higher level care • Other exclusion criteria *Not specified* **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *32* • Split between study groups *Family therapy: 16 Waiting list control: 16* • Loss to follow-up *Attrition: none reported* • Sex (M/F) *Not reported separately for each group: 7/25* • Mean age (SD) *Not reported separately for each group: 14.9 (1.5)* • Family origin or ethnicity *Not reported separately for each group: 22 African-American 10 White* **Interventions** • Family therapy *Attachment-based family therapy (ABFT) has 2 overarching goals: repairing attachment and promoting autonomy. These goals are achieved through 5 specific treatment tasks: 1) the rational frame task, 2) the adolescent alliance-building task, 3) the parent alliance-building task, 4) the attachment task, and 5) the competence promoting task.* **Comparisons**	**Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Attention control *Participants received weekly 15-minute telephone calls for 6 weeks to monitor for clinical deterioration with a BDI. After the 6 weeks waiting list, participants still meeting the eligibility criteria were offered the intervention. This control was reported originally as waiting list and then reclassified for this evidence review as attention control* **Outcome measure(s)** • Depressive symptoms *Beck depression inventory Hamilton depression rating scale* • Suicidal ideation *Suicidal ideation questionnaire* • Remission *Beck depression inventory in the non-clinical range ≤9*	
Diamond (2010)	Attachment-based family therapy for adolescents with suicidal ideation: a randomized controlled trial.	**Data extraction (intervention)** • Additional comments *Participants could stay on antidepressant medication if they had started taking it at least 12 weeks before randomisation* • Antidepressants use *Yes: Upon study entry, 6 pts were stable (>12 weeks) being treated with antidepressants: Family therapy (3 of 35 participants [8.5%]) Usual care (3 of 31 participants [9.6%])* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Hospital*	**Random sequence generation** • Low risk of bias *Randomisation using adaptive 'urn' procedure overseen by a statistician* **Allocation concealment** • Low risk of bias *Allocation concealment explicitly described* **Blinding of participants and personnel** • High risk of bias *No mention of blinding (assume no blinding of clinicians or patients)*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Study dates *Not reported* • Duration of treatment and follow-up *3 months treatment + post-treatment and 6 months follow-up* • Sources of funding *Centre for Disease Control and Prevention* **Inclusion criteria** • Age *12-17* • Beck depression inventory *Score above 20 (moderate depression) on the beck depression inventory (BDI-II)* • Suicidal ideation questionnaire *Score above 31* • Scores remained above these thresholds at second screening (around 2 days later) **Exclusion criteria** • Psychotic disorder • Mental retardation • Hospitalisation *Needed psychiatric hospitalisation* • Psychiatric hospital *Recently discharged* • Intellectual functioning *History of borderline intellectual functioning* **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *66* • Split between study groups	**Blinding of outcome assessment** • Low risk of bias *Assessors needed knowledge of risk circumstances and available services to assess safety* **Incomplete outcome data** • Low risk of bias *There were no significant differences in attrition across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • High risk of bias *Direction of change on scale for suicidal ideation appears to oppose that on the suicidal ideation questionnaire* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Family therapy: 35 Enhanced usual care: 31 • Loss to follow-up *2 in family therapy group and 4 in usual care group dropped out before 6 week assessment. Further 1 in family therapy group and 2 in usual care group dropped out before 12-week assessment. Further 3 in usual care group dropped out before 24-week assessment* • Sex (M/F) *Family therapy: 3/32 Enhanced usual care: 8/23* • Mean age (SD) *Family therapy: 15.11 (1.41) Enhanced usual care: 15.29 (1.83)* • Family origin or ethnicity *Not reported* **Interventions** • Family therapy *Attachment-based family therapy. Semi-structured treatment with 5 tasks with associated goals: relational reframe task with family members and adolescent, adolescent alliance task with adolescent alone, parent alliance task with parents alone, reattachment task with family members and adolescent. Number of sessions and treatment timescale not explicitly stated* **Comparisons** • Usual care *Enhanced usual care – ongoing clinical monitoring (further details not provided)* **Outcome measure(s)** • Depressive symptoms *Beck depression inventory BDI-II* • Suicidal ideation *Suicidal ideation questionnaire – Junior Scale for suicidal ideation* • Remission	

Author (year)	Title	Study characteristics	Risk of bias and directness
		Remission from depressive disorder (Beck depression inventory <=9)	
Dietz (2015)	Family-based interpersonal psychotherapy for depressed preadolescents: examining efficacy and potential treatment mechanisms.	**Data extraction (intervention)** • Additional comments *Preadolescents on a stable dose of selective serotonin reuptake inhibitor (SSRI) medication for at least 2 months were included in the study, providing they met diagnostic criteria and would remain on the same stable dose of SSRI (n=2). Preadolescents with comorbid attention-deficit/hyperactivity disorder (ADHD) were included in this study, providing they met diagnostic criteria and were on a stable dose of stimulant medication for at least 1 month (n=12).* • Antidepressants use *Yes: Selective serotonin reuptake inhibitor (SSRI) augmentation: Family therapy (2 of 29 participants [6.8%]) NDST (4 of 13 participants [30.7%]) These numbers are reported as percentages by the paper as 33% and 66% respectively* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Outpatient psychotherapy* • Study dates *Not reported* • Duration of treatment and follow-up *14 weeks treatment without additional follow-up (only post-treatment assessment)* • Sources of funding *This research was supported in part by grants from the National*	**Random sequence generation** • Unclear risk of bias *Method of randomisation was not reported* **Allocation concealment** • Unclear risk of bias *Method of allocation concealment was not reported* **Blinding of participants and personnel** • High risk of bias *There was lack of blinding in the fidelity coding for both treatments* **Blinding of outcome assessment** • High risk of bias *The majority of post-treatment CDRS-R interviews were conducted by a trained independent evaluator who was blind to treatment condition; however, study therapists administered and coded post-treatment CDRS-R interviews to 40% of participants.*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Institute of Mental Health **Inclusion criteria** • Age *7-12* • Depression *Diagnosed with a current depressive disorder (major depressive disorder, dysthymia, depressive disorder not otherwise specified)* • Consent *Provided informed consent to be contacted about ongoing research* **Exclusion criteria** • Bipolar disorder • Pervasive disorder *Pervasive developmental disorder* • Obsessive compulsive disorder • Post-traumatic stress disorder **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *42* • Split between study groups *Family-based interpersonal psychotherapy: 29 Child-centred therapy: 13* • Loss to follow-up *Family-based interpersonal psychotherapy: 4 Child-centred therapy: 0* • Sex (M/F) *Family-based interpersonal psychotherapy: 11/18 Child-centered therapy: 3/10* • Mean age (SD) *Family-based interpersonal psychotherapy: 10.6 (1.2) Child-*	**Incomplete outcome data** • Low risk of bias *Low rate of attrition <15% and no significant differences in attrition across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		centered therapy: 11.1 (1.1) • Family origin or ethnicity *Ethnic/Racial Minority Family-based interpersonal psychotherapy: 6* *Child-centred therapy: 3* **Interventions** • Family therapy *Family-Based Interpersonal Psychotherapy (FB-IPT) included the preadolescent and one parent in a 14-session treatment, although it was not uncommon for 2 parents or the preadolescent's second parent to attend at least 1 treatment session. Treatment was divided into 3 phases: a) initial: In meetings with preadolescents, therapists linked changes in preadolescents' depressive symptoms to negative experiences in family and peer relationships and guided preadolescents in constructing the Closeness Circle, an interactive mapping of preadolescents' relationships, and the Interpersonal Inventory. Parent meetings focused on psychoeducation about depression, ways to help preadolescents maintain routines and reasonable expectations for their performance, and parenting strategies for responding to preadolescents with depression ("Parenting Tips"); b) middle: In meetings with preadolescents, therapists introduced and role-played communication skills relevant to the identified problem area. During dyadic sessions, preadolescents and parents role-played communication skills and/or engaged in problem solving as facilitated by therapists to help parent-child dyads negotiate solutions. Dyadic sessions also focused on increasing preadolescents' positive experiences with peers. Preadolescents were coached to initiate social experiences with peers, and rehearsed communication skills for approaching peers with both therapists and parents. Parents engaged in problem solving with preadolescents regarding how to increase opportunities for peer interaction; with preadolescents' approval, parents were enlisted to help initiate social activities with peers; c) termination: these sessions were used to consolidate skills, discuss maintenance strategies, and establish a plan for depression recurrence.* • Family based IPT	

Author (year)	Title	Study characteristics	Risk of bias and directness
		Family-Based Interpersonal Psychotherapy (FB-IPT) included the preadolescent and one parent in a 14-session treatment, although it was not uncommon for 2 parents or the preadolescent's second parent to attend at least 1 treatment session. Treatment was divided into 3 phases: a) initial: In meetings with preadolescents, therapists linked changes in preadolescents' depressive symptoms to negative experiences in family and peer relationships and guided preadolescents in constructing the Closeness Circle, an interactive mapping of preadolescents' relationships, and the Interpersonal Inventory. Parent meetings focused on psychoeducation about depression, ways to help preadolescents maintain routines and reasonable expectations for their performance, and parenting strategies for responding to preadolescents with depression ("Parenting Tips"); b) middle: In meetings with preadolescents, therapists introduced and role-played communication skills relevant to the identified problem area. During dyadic sessions, preadolescents and parents role-played communication skills and/or engaged in problem solving as facilitated by therapists to help parent-child dyads negotiate solutions. Dyadic sessions also focused on increasing preadolescents' positive experiences with peers. Preadolescents were coached to initiate social experiences with peers, and rehearsed communication skills for approaching peers with both therapists and parents. Parents engaged in problem solving with preadolescents regarding how to increase opportunities for peer interaction; with preadolescents' approval, parents were enlisted to help initiate social activities with peers; c) termination: these sessions were used to consolidate skills, discuss maintenance strategies, and establish a plan for depression recurrence. **Comparisons** • Non-directive supportive therapy *Child-Centred Therapy (CCT) is based on a Rogerian model of treatment, whereby changes in children's mood and behaviour are initiated through their experience of a therapeutic relationship marked by unconditional positive regard, empathic understanding, and therapeutic genuineness. Specific techniques included listening*	

Author (year)	Title	Study characteristics	Risk of bias and directness
		and attending skills, and demonstrating acceptance through reflection, clarification, paraphrasing, and summarizing statements. CCT therapists also used nondirective problem solving, helping children to consider alternative responses to a problem without making specific recommendations or offering solutions. Although parents did not participate in sessions, they were invited to join the first 10 minutes of each session to check in about their preadolescents' symptoms. CCT has been successfully employed as a manualized comparison treatment in efficacy studies of youth depression (under the name of 'non-directive supportive therapy'). **Outcome measure(s)** • Depressive symptoms *Childhood depression rating scale-revised Mood and feelings questionnaire, parent or child report* • Remission *Post-treatment CDRS-R scores ≤ 28 were used to create a dichotomous index of remission*	
Dobson (2010)	The Prevention of Depression and Anxiety in a Sample of High-Risk Adolescents: A Randomized Controlled Trial	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *Iran* • Study setting *School* • Study dates	**Random sequence generation** • Low risk of bias *Randomisation was via a computer-generated list* **Allocation concealment** • High risk of bias *Allocation concealment was not likely to have been maintained (researchers would have known what group the next participant would be assigned to)* **Blinding of participants and**

Author (year)	Title	Study characteristics	Risk of bias and directness
		Not reported • Duration of treatment and follow-up *15 sessions treatment + post-treatment and 6 months follow-up* • Sources of funding *Alberta heritage foundation for medical research* **Inclusion criteria** • Age *13-18* • Centre for epidemiologic studies depression scale *Scored 24 or more* **Exclusion criteria** • Major depressive disorder or dysthymia *Meeting criteria for major depressive disorder or dysthymia for current or past episode according to DSM-IV* **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *46* • Split between study groups *Group CBT: 25 Attention control: 21* • Loss to follow-up *No dropouts in either group for the treatment phase. By 6 months post-treatment, 11 from the CBT group and 7 from the control group had dropped out* • Sex (M/F) *Group CBT: 8/17 Attention control: 6/15* • Mean age (SD) *Group CBT: 15.08 (1.12) Attention control: 15.48 (1.08)* • Family origin or ethnicity *Not reported*	**personnel** • High risk of bias *No details of blinding – likely unblinded* **Blinding of outcome assessment** • High risk of bias *No details of blinding – likely unblinded* **Incomplete outcome data** • Low risk of bias *There were no significant differences in attrition across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Interventions • Group CBT *Fifteen 45 minute sessions of 'Adolescent coping with stress course'* **Comparisons** • Attention control *Fifteen sessions of 'let's talk' course designed to be behaviourally inert. Sessions included topics of general interest to adolescents (for example, role models, confidence, and drugs and alcohol)* **Outcome measure(s)** • Depressive symptoms *Center for epidemiological studies depression scale. Mood and anxiety symptom questionnaire – depression scale* • Discontinuation for any reason	
Duong (2016)	Twelve-Month Outcomes of a Randomized Trial of the Positive Thoughts and Action Program for Depression Among Early Adolescents.	**Data extraction (intervention)** • Associated references *McCarty (2013): No additional data was extracted from McCarty 2013 (only reports baseline and post-treatment)* • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting	**Random sequence generation** • Unclear risk of bias *Method of randomisation was not reported* **Allocation concealment** • Unclear risk of bias *Method of allocation concealment was not reported* **Blinding of participants and personnel** • High risk of bias *Parents, youth, and interventionists were not blinded*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Public schools • Study dates *Not reported* • Duration of treatment and follow-up *12 weeks treatment + post-treatment, 6 and 12 months follow-up* • Sources of funding *This study was funded by the National Institute of Mental Health* **Inclusion criteria** • Mood and feelings questionnaire *Score ≥14* • School grades *7th and 8th grades* **Exclusion criteria** • Suicidal idea *Current suicidal ideation* • Major depressive disorder or dysthymia *Symptoms consistent with probable major depressive disorder based on responses to the Patient Health Questionnaire (PHQ-9)* • Other treatment for depression *Currently enrolled in mental health treatment for depression or to cope with stressors* • Intellectual functioning *Student was deemed to be inappropriate for a group-based intervention due to clear intellectual disability or behavioral problems* • Language *Parents did not understand English* **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *120*	*to allocation* **Blinding of outcome assessment** • Low risk of bias *Trained interviewers blinded to intervention status conducted structured interviews and administered self-report questionnaires* **Incomplete outcome data** • Low risk of bias *Low rate of attrition <20% and no significant differences between groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *Dose of intervention was not equal* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Split between study groups *Positive thoughts and actions: 58 Individual support program: 62* • Loss to follow-up *Positive thoughts and actions: 11 Individual support program: 7* • Sex (M/F) *Positive thoughts and actions: 20/38 Individual support program: 27/35* • Mean age (SD) *Positive thoughts and actions: 12.8 (0.69) Individual support program: 12.7 (0.77)* • Family origin or ethnicity *Positive thoughts and actions White: 28 African-American: 5 Asian: 11 Native American: 7 Native Hawaiian/Pacific Islander: 2 Other/Multiracial: 5 Individual support program White: 38 African-American: 3 Asian: 9 Native American: 5 Native Hawaiian/Pacific Islander: 1 Other/Multiracial: 5* **Interventions** • CBT *Positive thoughts and actions (PTA) is a manualized, developmentally tailored program focused on cognitive-behavioural skills, including coping, cognitive style, and problem-solving, with application of skills to broader areas including school functioning, interpersonal relations, and health behaviour. This intervention took place at school during or after school. Groups consisted of 50-minute sessions once a week for 12 weeks with groups of four to six students. PTA also promotes parent involvement and support through the inclusion of two home visits with parents and students together, and two separate parent workshops, conducted in the evenings at the school. Topics addressed during parent sessions included setting personal goals for students and parents, adolescent development, teaching parents cognitive and behavioural skills, and communication skills.* **Comparisons**	

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Non-directive supportive therapy *Individual support program (ISP) is a modified version of the Measurement for Adolescent Potential for Suicide intervention (MAPS). MAPS was modified to involve removal of modules on suicide risk (because youth with suicidal ideation were excluded during recruitment), and adapting questions to a middle school population. The ISP intervention consisted of a 45–90 minute supportive interview regarding the student's stressors, depression and anxiety, personal control/hopelessness, coping strategies, and support resources. The interviewer summarized and empathized with the student's perspective, and formulated an overall sense of the youth's areas of strength and need. The student and interventionist worked together on a brief action plan to address problems, and the student was asked to follow up with a school counsellor or teacher that they chose for future support. The interventionist called the youth's parent to discuss the student's plan and any areas of need in which the parent could be helpful, and also contacted the student's chosen supportive school staff member.* **Outcome measure(s)** • Depressive symptoms *Mood and feelings questionnaire*	
Feehan (1996)	Cognitive-Behavioural Therapy for Depressed Children: Children's and Therapists' Impressions	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location	**Random sequence generation** • Unclear risk of bias *No details of randomisation* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and**

Author (year)	Title	Study characteristics	Risk of bias and directness
		UK • Study setting *Secondary care* • Study dates *Not reported* • Duration of treatment and follow-up *5 months treatment without additional follow-up (only post-treatment assessment)* • Sources of funding *Merk research fund* **Inclusion criteria** • Age *8-16* • IQ *Normal IQ* • Depression *Meet DSM-IIIR criteria for depression (based on K-SADS interview)* **Exclusion criteria** • Chronic physical illness **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *57* • Split between study groups *CBT: 29 Non-directive supportive therapy: 28* • Loss to follow-up *None reported* • Sex (M/F) *CBT: 12/17 Non-directive supportive therapy: not reported* • Mean age (SD)	**personnel** • Unclear risk of bias *No description of blinding* **Blinding of outcome assessment** • Low risk of bias *Assessment by rater blind to initial diagnosis or treatment group* **Incomplete outcome data** • Low risk of bias *No attrition reported* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		CBT: 12.6 (8-16) Non-directive supportive therapy: not reported • Family origin or ethnicity *Not reported* **Interventions** • CBT *Nine sessions over the course of a maximum of 5 months (sessions roughly every 2 weeks)* **Comparisons** • Non-directive supportive therapy *Details not specified* **Outcome measure(s)** • Remission *Remission from depressive disorder (judged by blinded rater)*	
Fleming (2012)	A pragmatic randomized controlled trial of computerized CBT (SPARX) for symptoms of depression among adolescents excluded from mainstream education.	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *New Zealand* • Study setting *School* • Study dates *2009 - 2010*	**Random sequence generation** • Low risk of bias *Randomisation was by a computer generated sequence, stratified by study site* **Allocation concealment** • Low risk of bias *Allocation concealment was ensured by giving each participant a unique code before they met the researcher, and group assignment was revealed following agreement to participate by opening a sealed*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Duration of treatment and follow-up *5 weeks treatment without additional follow-up (only post-treatment assessment)* • Sources of funding *New Zealand Ministry of Health* **Inclusion criteria** • Children's depression rating scale *Score of >=30 (children with scores <30 were allowed to participate and were randomised, but their data was not analysed or reported)* **Exclusion criteria** • None reported **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *32* • Split between study groups *CBT: 20 Waiting list: 12* • Loss to follow-up *1 from the Computer CBT group was lost to follow up before post-treatment assessment, 1 from the waiting list group broke randomisation* • Sex (M/F) *18/14* • Mean age (SD) *14.9 (0.79)* • Family origin or ethnicity *Not reported* **Interventions**	*envelope prepared in advance by a research assistant* **Blinding of participants and personnel** • High risk of bias *Participants were not blinded and researchers were unblinded after baseline assessment* **Blinding of outcome assessment** • Low risk of bias *10% of interviews were audio recorded and scored by a second blinded researcher. No significant deviation between the scores was found by an independent statistician* **Incomplete outcome data** • Low risk of bias *There were no significant differences in attrition across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Computer-based CBT *Completed during school time. Seven modules of approximately 30 minutes each* **Comparisons** • Waiting list *Participants were assessed at 5 weeks* **Outcome measure(s)** • Depressive symptoms *Children's depression rating scale Reynolds adolescent depression scale* • Remission *Children's depression rating scale<30 or 30% or more decrease in raw score* • Quality of life *PQ-LES-Q*	**Overall risk of bias** • Low **Directness** • Directly applicable
Fristad (2016)	Pilot Randomized Controlled Trial of Omega-3 and Individual-Family Psychoeducational Psychotherapy for Children and Adolescents With Depression	**Data extraction (intervention)** • Additional comments *This study compared PEP, omega 3, combination treatment and placebo capsules for the treatment of depression in children. Only PEP and placebo arms are extracted here.* • Antidepressants use *None: One of the exclusion criteria was psychosis warranting antipsychotic medication* **Study type** • Randomised controlled trial **Study details** • Study location	**Random sequence generation** • Low risk of bias *Randomisation was done in sequential blocks* **Allocation concealment** • Low risk of bias *Lab personnel not directly involved in the study generated the random allocation sequence and assigned participants a number linked with a treatment condition. These staff provided study capsules to the family and notified the family if there were*

Author (year)	Title	Study characteristics	Risk of bias and directness
		US • Study setting *Not reported* • Study dates *2011 - 2014* • Duration of treatment and follow-up *12 weeks of treatment without additional follow-up (only post-treatment assessment)* • Sources of funding *National Institute of Mental Health and National Centre for Research Resources* **Inclusion criteria** • Age *7-14* • Depression *Diagnosis of major depresssive disorder, dysthymic disorder, or depressive disorder with DSM-IV-TR* • Depressive symptoms *Clinically significant symptom severity on the children's depression rating scale-revised* • School grades *Elementary/middle school* • Caregiver *Youth with at least one caregiver completed the screening assessment and were willing and able to participate in follow-up procedures* **Exclusion criteria** • Suicide symptoms *Active suicidal concern (suicidal plans or recent attempt, passive suicidal ideation without plans/intent was permitted)* • Intellectual functioning *Intellectual disability (IQ <70 and impaired adaptive functioning)* • Psychosis	*randomised to participate in family therapy.* **Blinding of participants and personnel** • High risk of bias *Participants were notified if they were randomised to participate in PEP* **Blinding of outcome assessment** • Low risk of bias *Interviewers completing study assessments were masked to which participants were assigned to PEP* **Incomplete outcome data** • Low risk of bias *Low rate of attrition <20% and no significant differences across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • High risk of bias *It is possible that the effect of pill placebo compared to a psychological intervention might be different in trials including an*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Psychosis warranting antipsychotic medication • Already receiving mental health care *Psychotherapy or pharmacotherapy other than stable medication for attention deficit/hyperactivity disorder or a sleep aid or omega 3 in the month preceding randomisation* • Autism *DSM-IV-TR autistic disorder* • Inability to swallow capsules the size of the study supplement • Major medical disorder • Lack of access to a phone **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *72* • Split between study groups *PEP: 19 Pill placebo: 18* • Loss to follow-up *PEP: 2 Pill placebo: 3* • Sex (M/F) *PEP: 9/10 Pill placebo: 13/5* • Mean age (SD) *PEP: 11.7 (2.1) Pill placebo: 11.1 (2.4)* • Family origin or ethnicity *PEP White: 11 Black/African-American: 5 Asian: 0 Biracial: 3 Hispanic: 2 Pill placebo White: 12 Black/African-American: 4 Asian: 0 Biracial: 2 Hispanic: 1* **Interventions** • Family psychoeducation with CBT *Individual-family psychoeducational psychotherapy (PEP) is a family-based therapy incorporating psychoeducation and CBT techniques into weekly parent and youth individual sessions, each lasting 45-50 minutes. Parents join the beginning and end of each*	*active drug* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		session to review the prior week and take-home project and to learn the coming week's project. Content of sessions for children include symptom identification, awareness of strengths, emotion recognition and regulation, understanding treatment components (medication, identifying school-based resources), development of coping strategies (including deep breathing and imagery), cognitive restructuring, problem-solving skills, and verbal and nonverbal communication. Parent sessions cover parallel content to the child sessions (at an adult level) and include coverage of school advocacy, symptom management, and self-care. **Comparisons** • Pill placebo *Placebo groups received 2 placebo capsules twice daily matched to the omega 3 for odour and appearance. All participants were given a daily multivitamin/mineral tablet to standardise micro-nutrition; no other nutritional supplements were permitted the month prior to randomisation or during study enrolment.* **Outcome measure(s)** • Depressive symptoms *Child depression rating scale-revised* • Remission *Child depression rating scale-revised cut-off ≤28*	
Gaete (2016)	Indicated school-based intervention to improve depressive symptoms among at risk Chilean adolescents: a randomized controlled trial	**Data extraction (intervention)** • Additional comments *The revised child anxiety and depression scale was also reported but the paper only included the subscales of social phobia, panic disorder, and generalised anxiety disorder. The depression sub-scale was excluded.* • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper*	**Random sequence generation** • Low risk of bias *A computer-generated list of random numbers was used* **Allocation concealment** • Low risk of bias *An independent statistician,*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Study type • Randomised controlled trial **Study details** • Study location *Chile* • Study setting *Secondary schools* • Study dates *Not reported* • Duration of treatment and follow-up *8 weeks treatment + 3 months follow-up (3 months post-treatment)* • Sources of funding *The Wellcome Trust* **Inclusion criteria** • Beck depression inventory *Score ≥10 among boys Score ≥15 among girls* • School grades *Adolescents attending 2° Medio in a municipal school participating as control schools in a previous study assessing the effectiveness of a school-based, universal psychological intervention to reduce depressive symptoms among adolescents from low-income families* **Exclusion criteria** • None reported **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *342*	*using a computer-generated list of random numbers, allocated students to intervention and control groups in each school using a ratio of 2:1. After individuals were randomly allocated to arms, an independent person formed the intervention groups within the active arm trying to maintain a reasonable balance by sex.* **Blinding of participants and personnel** • High risk of bias *No details of blinding of participants and personnel (assume unblinded)* **Blinding of outcome assessment** • High risk of bias *No details of blinding of assessors (assume unblinded)* **Incomplete outcome data** • Low risk of bias *Low attrition <20% and no significant differences across groups* **Selective reporting** • Low risk of bias

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Split between study groups *CBT: 229 No treatment: 113* • Loss to follow-up *CBT: 42 No treatment: 21* • Sex (M/F) *CBT: 108/121 No treatment: 62/51* • Mean age (SD) *CBT: 15.9 (0.9) No treatment: 15.9 (0.9)* • Family origin or ethnicity *Not reported* **Interventions** • CBT *The intervention was a modified version of the CBT-based program YPSA - I (Yo), Think (Pienso), Feel (Siento), Act (Actuo). The revised program (YPSA-R) consisted of 8 weekly sessions each lasting 45 min. There was an introductory session, 3 sessions dealing with thought restructuring, 3 sessions on problem solving skills and 1 closing session with a revision of the previous learning and planning for the future. Two trained psychologists (facilitators) for each group delivered the intervention. If more than one group took place in a given school, the same facilitators delivered the intervention for all groups in that school, for practical and logistical reasons. Facilitators had a detailed manual specifying key learning points and objectives for each session and received 2 days of training that covered the identification and management of mental health problems, group management techniques as well as training to deliver the specific intervention. The intervention was fully manualised. The size of each of the intervention groups was between 8 and 15, trying to achieve a balance in sex ratios in each group.* **Comparisons** • No treatment *The control group received nothing other than the normal teaching*	**Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		activities and assessments. **Outcome measure(s)** • Depressive symptoms *Beck depression inventory II* • Remission *The recovery rate was defined as the proportion of students with BDI-II score <10 for boys or <15 for girls, three months after the intervention was completed.*	
Goodyer (2017)	Cognitive behavioural therapy and short-term psychoanalytical psychotherapy versus a brief psychosocial intervention in adolescents with unipolar major depressive disorder (IMPACT): a multicentre, pragmatic, observer-blind, randomised controlled superiority trial.	**Data extraction (intervention)** • Associated references *Goodyer (2017b)* • Additional comments *The following outcomes were only reported at baseline: quality of life using the EuroQol-5D, recent suicide attempts, lifetime suicide attempts, and lifetime non-suicidal self-injury.* • Antidepressants use *Yes: SSRI prescribed before trial entry (excludes five patients with missing information): Baseline CBT (21%) Psychodynamic psychotherapy (18%) Psychosocial intervention (19%) <36 weeks Citalopram CBT (4.2%) Psychodynamic psychotherapy (2.5%) Psychosocial intervention (2.5%) Fluoxetine CBT (22.5%) Psychodynamic psychotherapy (18.9%) Psychosocial intervention (23.8%) Sertraline CBT (2.5%) Psychodynamic psychotherapy (7.4%) Psychosocial intervention (2.5%) Any antidepressant CBT (27.5%) Psychodynamic psychotherapy (26.2%) Psychosocial intervention (27.9%) =>36 weeks Citalopram CBT (7.2%) Psychodynamic psychotherapy (4.8%) Psychosocial intervention (7.2%) Fluoxetine CBT (24.0%) Psychodynamic psychotherapy (19.4%) Psychosocial intervention (28.8%) Sertraline CBT (4.0%) Psychodynamic psychotherapy (10.5%) Psychosocial intervention (9.6%) Any antidepressant CBT (34.4%) Psychodynamic psychotherapy (34.7%) Psychosocial intervention (40.0%) All follow-up Any antidepressant CBT (40.1%) Psychodynamic psychotherapy*	**Random sequence generation** • Low risk of bias *Patients were randomly assigned (1:1:1), via a web-based randomisation service, to receive either CBT or short-term psychoanalytical therapy versus the brief psychological intervention.* **Allocation concealment** • Low risk of bias *Randomisation was done by the trial coordinator via a web-based randomisation service* **Blinding of participants and personnel** • High risk of bias *No blinding of participants and clinicians*

Author (year)	Title	Study characteristics	Risk of bias and directness
		(36.5%) Psychosocial intervention (40.9%) **Study type** • Randomised controlled trial **Study details** • Study location *UK* • Study setting *child and adolescent mental health service (CAMHS) clinics* • Study dates *2010 - 2013* • Duration of treatment and follow-up *Short-term psychoanalytical psychotherapy: 30 weeks treatment CBT: 30 weeks treatment Brief psychosocial intervention: 20 weeks treatment Assessment were at post-treatment (36 weeks) and follow-ups at 4 months (52 weeks), and 12 months (86 weeks)* • Sources of funding *National Institute for Health Research (NIHR) Health Technology Assessment (HTA) programme, and the Department of Health* **Inclusion criteria** • Age *11-17* • Major depressive disorder *A diagnosis of DSM-IV unipolar major depressive disorder* **Exclusion criteria** • Bipolar disorder • Eating disorder • Schizophrenia • Other treatment for depression *Current use of another medication that could interact with an SSRI*	**Blinding of outcome assessment** • Low risk of bias *Allocation was concealed from outcome assessors* **Incomplete outcome data** • Low risk of bias *Attrition was around 20% and no significant differences across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Low **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Intellectual functioning *Generalised learning difficulties* • Substance abuse *Current substance or alcohol abuse disorders* • Pregnant • Autism *Pervasive developmental disorder* • Previous completion of one of the study treatments **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *470* • Split between study groups *Brief psychosocial intervention (BPI): 158 Cognitive behavioural therapy (CBT): 155 Short-term psychoanalytical psychotherapy (STPP): 157* • Loss to follow-up *BPI: 35 CBT: 25 STPP: 38* • Sex (M/F) *BPI: 40/115 CBT: 40/114 STPP: 37/119* • Mean age (SD) *Median age (range) BPI: 15 (11-17) CBT: 15 (12-17) STPP: 15 (11-17)* • Family origin or ethnicity *White BPI: 121 of 147 CBT: 131 of 152 STPP: 130 of 151* **Interventions** • CBT *CBT was based on the classic form originally developed for adults with depression. The intervention was adapted to include parental involvement, focused on engagement in therapy, and emphasised the use of behavioural techniques. The focus of CBT is to identify the behaviours and information processing biases that maintain*	

Author (year)	Title	Study characteristics	Risk of bias and directness
		depression and low mood, and to amend these through a process of collaborative empiricism between the therapist and patient. CBT comprised a planned programme of up to 20 sessions over 30 weeks. CBT therapists were routine CAMHS clinicians and were either clinical psychologists or other clinicians who had received post-qualification training in CBT. • Individual psychodynamic psychotherapy *Short-term psychoanalytical psychotherapy comprised a planned programme of 28 sessions over 30 weeks, with parents or carers offered up to seven additional sessions by a separate parent worker. The techniques of this intervention are based on close and detailed observation of the relationship the child or young person makes with their therapist. The therapist introduces the therapeutic task to the young person as one of understanding feelings and difficulties in their life. The therapist is non-judgmental and enquiring, and conveys the value of self-understanding. Therapists were CAMHS clinicians with child and adolescent psychoanalytical psychotherapy training.* • Psychosocial intervention *The brief psychosocial intervention has an emphasis on the importance of psychoeducation about depression, in addition to action-oriented, goal-focused, and interpersonal activities as therapeutic strategies. Neither self-understanding nor cognition change are components of the programme. The programme consists of 12 individual sessions, including up to four family or marital sessions delivered over 20 weeks. Therapists were drawn from routine CAMHS clinics.* **Outcome measure(s)** • Depressive symptoms *Mood and feelings questionnaire* • Remission *Diagnostic remission* • Quality of life *Health of the nation outcome scale for children and adolescents*	

Author (year)	Title	Study characteristics	Risk of bias and directness
Gunlicks-Stoessel (2016)	Innovations in Practice: a pilot study of interpersonal psychotherapy for depressed adolescents and their parents	**Data extraction (intervention)** • Antidepressants use *None: One of the exclusion criteria was concurrent treatment with psychotropic medication for a psychiatric diagnosis other than ADHD* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Not reported* • Study dates *Not reported* • Duration of treatment and follow-up *16 weeks treatment without additional follow-up (only post-treatment assessment)* • Sources of funding *Klingenstein Third Generation Foundation Fellowship* **Inclusion criteria** • Age *12-17* • Major depressive disorder *DSM-IV diagnosis of major depressive disorder* • Beck depression inventory *Version II ≥14* • Parental interest in trial *At least one parent/caregiver willing to participate in therapy* • Depression	**Random sequence generation** • Unclear risk of bias *No details of randomisation* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *No details of blinding of participants and personnel (assume unblinded)* **Blinding of outcome assessment** • Low risk of bias *Evaluators were blinded* **Incomplete outcome data** • Low risk of bias *Low rate of attrition around 20% and no significant differences across groups* **Selective reporting** • Low risk of bias

Author (year)	Title	Study characteristics	Risk of bias and directness
		Dysthymic disorder, depressive disorder not otherwise specified or adjustment disorder with depressed mood (K-SADS-PL) • Children's depression rating scale *Revised version ≥36* • Language *English fluency* • Children's global assessment scale *≤65* • Conflict behaviour questionnaire *T score ≥65* **Exclusion criteria** • Bipolar disorder • Eating disorder • Conduct disorder • Other treatment for depression *Concurrent treatment for depression* • Intellectual functioning *Intellectual disability disorder* • Substance abuse • Psychosis • Children's depression rating scale *Total score ≥85* • Suicide *Current significant risk for suicide (active suicidal ideation with plan or intent; active suicidal ideation without a plan if unable to contract for safety)* • Parents with psychotic disorder or severe personality disorder *Parent psychiatrically hospitalised within the past 3 months* • Already receiving mental health care *Concurrent treatment with psychotropic medication for a psychiatric diagnosis other than attention-deficit/hyperactivity disorder (ADHD) or not on a stable dose of medication for ADHD (<3 months)* • Physical illness *Medical illness likely to interfere with treatment*	**Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Sample characteristics • Depression severity *Depressive disorder diagnosis* • Sample size *15* • Split between study groups *Interpersonal psychotherapy for adolescents (IPT-A): 6* *Interpersonal psychotherapy for adolescents and parents (IPT-AP): 9* • Loss to follow-up *IPT-A: 1 IPT-AP: 2* • Sex (M/F) *Not reported for each group separately: 2/13* • Mean age (SD) *Not reported for each group separately: 15.2* • Family origin or ethnicity *Not reported for each group separately: 14 were Latino* **Interventions** • IPT-A *Interpersonal psychotherapy for depressed adolescents is an evidence-based psychotherapeutic intervention that aims to decrease depressive symptoms by addressing 1 or more of 4 interpersonal problem areas: grief, role disputes, role transitions, or interpersonal deficits. This is accomplished through psychoeducation about the adolescent's depression and its link to interpersonal relationships, review of the adolescent's significant relationships, identification of interpersonal problem areas on which to focus the treatment, development of interpersonal problem-solving and communication skills, and role-playing to practice these skills. Adolescents randomised to individual interpersonal psychotherapy (IPT-A) received individual therapy with parents joining only for part of the first session to receive psychoeducation about depression and IPT-A, and part of the last session to discuss*	

Author (year)	Title	Study characteristics	Risk of bias and directness
		relapse prevention. Individual IPT-A included twelve 45-min sessions schedule over the course of 16 weeks. • IPT-A plus additional parent sessions *Interpersonal psychotherapy for depressed adolescents and parents (IPT-AP) consists of 14 sessions: 6 individual adolescent sessions, 2 individual parent sessions, and 6 conjoint parent-adolescent sessions. One individual parent session is used to obtain information about parents' perceptions of the parent-adolescent relationship and assess parents' communication and relationship patterns that may be contributing to the relationship problems. The other individual parent session is used to teach parents communication and relationship-building skills. In session 1 of the conjoint parent-adolescent sessions, parents and adolescents learn about depression and IPT-AP treatment. During session 4, the therapist presents a summary of the nature of the specific parent-adolescent communication and relationship problems and works collaboratively with the family to develop specific goals for resolving their difficulties. The 3 conjoint parent-adolescent sessions in the middle phase of treatment are used to provide the adolescent and parent (s) with the opportunity to practice new interpersonal skills with the therapist present to help facilitate the interaction. Parents also attend one session with their adolescent during the termination phase of treatment to review improvements in the adolescent's depressive symptoms and in the adolescent's and the parents' communication skills and relationship functioning, and to discuss relapse prevention.* **Outcome measure(s)** • Depressive symptoms *Children's depression rating scale-revised* • Functional status *Global assessment scale for children*	
Hayes (2011)	Acceptance and Commitment Therapy for the Treatment of	**Data extraction (intervention)** • Antidepressants use	**Random sequence generation** • Low risk of bias

Author (year)	Title	Study characteristics	Risk of bias and directness
	Adolescent Depression: A Pilot Study in a Psychiatric Outpatient Setting	*Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *Australia* • Study setting *Psychiatric service* • Study dates *Not reported* • Duration of treatment and follow-up *Unclear treatment period + post-treatment and 3 months follow-up* • Sources of funding *Beyondblue: the national depression initiative* **Inclusion criteria** • Age *12-18* • Depressive symptoms *Experiencing moderate to severe depressive symptoms (assessed using clinical interview)* **Exclusion criteria** • Schizophrenia *Active* • Intellectual functioning *Intellectual disability* • Being suicidal *Being actively suicidal (recent suicide attempt or current plan)* • Substance abuse	*Randomisation was via a concealed random number table* **Allocation concealment** • High risk of bias *The principal researcher advised the clinician of the treatment condition for their participant* **Blinding of participants and personnel** • High risk of bias *Details of blinding of participants not clear, researchers were not blinded* **Blinding of outcome assessment** • Unclear risk of bias *Details of blinding not clear* **Incomplete outcome data** • High risk of bias *High rate of attrition, particularly at follow-up* **Selective reporting** • Low risk of bias **Other sources of bias** • High risk of bias

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Psychosis *Active* • Chronic illness **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *38* • Split between study groups *Mindfulness based CBT: 22 Treatment as usual: 16* • Loss to follow-up *6 from the mindfulness group and 7 from the treatment as usual group were excluded or dropped out after randomisation but before the start of treatment. 1 from the mindfulness and 5 from the treatment as usual group dropped out before the post-treatment assessment. A further 11 from the mindfulness group and 7 from the treatment as usual group dropped out before the follow up measure* • Sex (M/F) *Mindfulness based CBT: 4/18 Treatment as usual: 7/9* • Mean age (SD) *Mindfulness based CBT: 14.61 (3.1) Treatment as usual: 15.49 (1.35)* • Family origin or ethnicity *Not reported* **Interventions** • Mindfulness-based cognitive therapy *Acceptance commitment therapy based on published treatment manuals. Individual sessions. Length of sessions and duration of treatment unclear. Follows principles of CBT* **Comparisons** • Usual care	*Clinic interview to see whether participants met inclusion criteria was carried out after allocation, and 6 from the mindfulness group and 7 from the treatment as usual group were excluded at this point, leading to potential risk of bias (e.g. criteria for exclusion from the 2 groups could be unconsciously different depending on prior beliefs of researcher). Unclear treatment period –not clear if matched across interventions. Treatment as usual included active intervention (CBT)* **Overall risk of bias** • High **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Usual care was approved psychotherapy provided by psychiatric service comprising manualised CBT. Not clear how long treatment period was **Outcome measure(s)** • Depressive symptoms *Reynolds adolescent depression scale - 2*	
Hogberg (2018)	Mood regulation focused CBT based on memory reconsolidation, reduced suicidal ideation and depression in youth in a randomised controlled study	**Data extraction (intervention)** • Additional comments *Only reports mean and range of depressive symptoms without standard deviation. Therefore, data was not extracted for the pair-wise meta-analysis.* • Antidepressants use *Yes: Selective serotonin reuptake inhibitor administration during treatment CBT (1 of 15 participant [6.6%]) Usual care (4 of 12 participant [33.3%])* **Study type** • Randomised controlled trial **Study details** • Study location *Stockholm* • Study setting *Outpatient units of BUP Child Psychiatric Clinic* • Study dates *2012 - 2015* • Duration of treatment and follow-up *Median treatment period (interquartile range) Mood-regulation focused cognitive behavioural therapy: 8 months (7-11) Treatment as usual: 8.5 months (5.5-11) No additional follow-up (only post-treatment assessment)*	**Random sequence generation** • Low risk of bias *An assistant at the unit picked an envelope from an even number of sealed envelopes containing either MR-CBT treatment or TAU.* **Allocation concealment** • High risk of bias *There was no blinding of allocation* **Blinding of participants and personnel** • High risk of bias *There was no blinding of treatment* **Blinding of outcome assessment** • High risk of bias *There was no blinding of treatment*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Sources of funding *Not reported* **Inclusion criteria** • Mood and feelings questionnaire *Depression according to the short version of the mood and feelings questionnaire score* **Exclusion criteria** • Language *Need of a translator* • Refugees lacking a residency permit **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *32* • Split between study groups *Cognitive behavioural therapy (MR-CBT): 17 Treatment as usual (TAU): 15* • Loss to follow-up *MR-CBT: 2 TAU: 3* • Sex (M/F) *Not reported for each group separately: 7/19* • Mean age (SD) *MR-CBT: 14.2 (1.1) TAU: 15.2 (0.9)* • Family origin or ethnicity *Not reported* **Interventions** • CBT *Mood regulation focused cognitive behavioural therapy (MR-CBT) is*	**Incomplete outcome data** • Low risk of bias *Low rate of attrition <20% and no significant differences across groups* **Selective reporting** • Unclear risk of bias *Only reports mean and range of depressive symptoms without standard deviation. Data could not be extracted for depressive symptoms* **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • High **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		based on the mechanism of memory reconsolidation, meaning that with evoked activated memories a new affective response can be learned during a short timeframe. The focus is on regulation of moods, with charting a mood map at the start, and on problem solving, with training in keeping positive affect and letting go of negative affect. The proposed aim is to increase the capacity to retain good emotions and to let go of negative emotions by systematically strengthen positive emotions and diminishing negative emotions from autobiographical memories. The protocol can be applied to different technical treatment modalities, for instance talk, art and play therapy, and is also trans-diagnostic, as mood regulation is a core issue in different psychiatric conditions. The treatment was given without any defined frequency but followed clinical needs. **Comparisons** • Usual care *The treatment given as usual care was considered good standard practice in child psychiatry* **Outcome measure(s)** • Depressive symptoms *Short version of the mood and feelings questionnaire* • Suicidal ideation *The Columbia suicide severity rating scale was dichotomised in this study into 0=no suicidal event and 1=suicidal event based on suicidal ideation grade (3) or higher, and/or a suicide attempt* • Remission *Partial remission was set at >50% decrease in the total SMFQ score combined with a final score <8.*	
Ip (2016)	Effectiveness of a culturally attuned Internet-based depression prevention program	**Data extraction (intervention)** • Antidepressants use *None: One of the exclusion criteria was "on antidepressants or*	**Random sequence generation** • Low risk of bias *Randomisation was done using*

Author (year)	Title	Study characteristics	Risk of bias and directness
	for Chinese adolescents: A randomized controlled trial	*psychotropic medications"* **Study type** • Randomised controlled trial **Study details** • Study location *China* • Study setting *Secondary schools* • Study dates *2013 - 2015* • Duration of treatment and follow-up *Unclear treatment period Post-treatment and 12 months follow-up* • Sources of funding *Lotteries Fund for Pilot Cyber Youth Outreaching Project* **Inclusion criteria** • Age *13-17* • Centre for epidemiologic studies depression scale *Revised version score ≥12* • School grades *Forms 1 to 4 (equivalent to grades 7 to 10) in 3 secondary schools* **Exclusion criteria** • Bipolar disorder • Suicide attempt *Risk of hospitalisation due to suicide attempts* • Major depressive disorder or dysthymia • Schizophrenia • Other treatment for depression *Antidepressants or psychotropic medications*	*computer generated random numbers by R statistical software* **Allocation concealment** • Low risk of bias *Participants received sealed opaque envelopes with the access information to the intervention website or the attention control website. Participants recruitment and randomisation were done by independent research assistants.* **Blinding of participants and personnel** • High risk of bias *Participants were not blinded* **Blinding of outcome assessment** • Low risk of bias *Outcome assessors were blinded to group allocation* **Incomplete outcome data** • Low risk of bias *Low rate of attrition <10% and no significant differences across groups*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Substance abuse *For example, drug or alcohol* • Center for epidemiologic studies depression scale *Revised version score <12* • Disability *Reading impairment, intellectual disability, visual impairment, or developmental disability* **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *257* • Split between study groups *Computer-based CBT: 130 Attention control: 127* • Loss to follow-up *Computer-based CBT: 7 Attention control: 0* • Sex (M/F) *Computer-based CBT: 39/91 Attention control: 43/84* • Mean age (SD) *Computer-based CBT: 14.6 (0.89) Attention control: 14.6 (0.72)* • Family origin or ethnicity *Not reported* **Interventions** • Computer-based CBT *The intervention 'competent adulthood transition with cognitive behavioural humanistic and interpersonal training' (CATCH-IT) incorporates CBT, behavioural activation, and interpersonal psychotherapy. CATCH-IT was translated and modified for Chinese populations and named as 'grasp the opportunity'. The intervention mainly composed of an internet-based programme with 10 modules and included monthly reminders by phone call or by messages through social media such as WhatsApp and Facebook. The 10 modules were designed to improve negative cognition, reduce*	**Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Low **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		negative behaviours, strengthen resiliency, and reinforce positive behaviours. The interpersonal psychotherapy modules and motivational interview-brief advice in the CATCH-IT were not included. **Comparisons** • Attention control *The control group had access to an anti-smoking website without mental health prevention components. The control antismoking website was an online multiple-choice quiz game (a total of 1,200 quiz questions) designed to promote a smoke-free attitude among Chinese adolescents.* **Outcome measure(s)** • Depressive symptoms *Center for epidemiologic studies depression scale revised Depression anxiety stress scale 21 items depression subscale*	
Israel (2013)	Feasibility of Attachment Based Family Therapy for depressed clinic-referred Norwegian adolescents	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: One adolescent was on antidepressant medication at randomisation (no details of which group was this adolescent)* **Study type** • Randomised controlled trial **Study details** • Study location *Norway* • Study setting *Outpatient clinics*	**Random sequence generation** • Low risk of bias *An independent statistician, not connected to the study, prepared a randomisation table* **Allocation concealment** • Low risk of bias *An independent statistician, not connected to the study, prepared treatment assignment that was sealed in envelopes and numbered. After pre-treatment evaluation, the research assistant opened the*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Study dates *2008 - 2009* • Duration of treatment and follow-up *Unclear duration of treatment 12 week post-treatment assessment without additional follow-up* • Sources of funding *This research was supported by a post-doctoral grant from the Norwegian Research Council to the first author* **Inclusion criteria** • Hamilton rating scale for depression *Score ≥14 points* • Age *13-17* • Kiddie-Schedule for affective disorders and schizophrenia *Meeting diagnostic criteria for major depression* **Exclusion criteria** • Bipolar disorder • Eating disorder • Mania/hypomania • Mental retardation • Schizophrenia • Hospitalisation *In need of hospitalisation (for example, acute suicidal behavior)* • Pregnant • Substance dependence disorder • Autism *Pervasive developmental disorder* • Major medical disorder *Significant medical/neurological disorders* • Abuse *Current sexual/physical abuse* • Youth on probation • Youth court referred	*appropriate envelope to designate treatment assignment.* **Blinding of participants and personnel** • High risk of bias *No details of blinding of participants and personnel (assume unblinded)* **Blinding of outcome assessment** • Low risk of bias *All post-treatment assessments with the Hamilton depression inventory were administered by two treatment blind-raters* **Incomplete outcome data** • High risk of bias *High rate of attrition in the treatment as usual group (44.4%) compared to 18% in the family therapy group* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Short-term foster care **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *20* • Split between study groups *Attachment based family therapy: 11 Treatment as usual: 9* • Loss to follow-up *Attachment based family therapy: 2 Treatment as usual: 4* • Sex (M/F) *Not reported for each group separately: 9/11* • Mean age (SD) *Not reported for each group separately: 15.6 (0.99)* • Family origin or ethnicity *Not reported* **Interventions** • Family therapy *Attachment Based Family Therapy (ABFT) consists of 5 treatment tasks. Task 1 (one session): the relational reframe sets the foundation for therapeutic work. Task II (2 to 3 sessions). During the alliance-building session with the adolescent, the therapist helps the adolescent identify what gets in the way of him/her talking to his/her parents when he/she is feeling depressed. The therapist aims to motivate and prepare the adolescent to talk with his/her parents about those barriers. Task III (2 to 3 sessions): through the alliance-building session with the parent(s), the therapist helps parents build empathy for their child, partially through a reflection of their own experiences. Task IV (3 to 4 sessions): the reattachment task builds on the previous sessions where the therapist facilitates in vivo family conversations about past attachment ruptures, guiding the family members to be honest, share vulnerable emotions, use respectful speech, and active listening. Task V (4 to 6 sessions): as*	**Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		attachment needs are being met more effectively, therapy focuses on promoting competency. **Comparisons** • Usual care *Staff therapists provided outpatient treatment in the host clinics. In general, treatment provided to youth in Norwegian outpatient clinics is individually focused* **Outcome measure(s)** • Depressive symptoms *Hamilton depression inventory Beck depression inventory-II* • Remission *Clinical recovery with a cut-off of <9 in the Hamilton depression inventory*	
Jacob (2016)	Effectiveness of taking in the good based-bibliotherapy intervention program among depressed Filipino female adolescents	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *Philippines* • Study setting *High schools* • Study dates *Not reported* • Duration of treatment and follow-up	**Random sequence generation** • Unclear risk of bias *Method of randomisation was not reported* **Allocation concealment** • Unclear risk of bias *Method of allocation concealment was not reported* **Blinding of participants and personnel** • High risk of bias *No details of blinding of participants and personnel (assume unblinded)*

Author (year)	Title	Study characteristics	Risk of bias and directness
		6 weeks treatment + 1 week follow-up after the conclusion of the intervention • Sources of funding *Not reported* **Inclusion criteria** • Age *13-16* • Beck depression inventory *Version II score >14* • School grades *7 to 10* • Sex *Female* • Asian adolescent depression scale *>61* • Kutcher adolescent depression scale *Version 11-item score >12* • Not participating in any other intervention programme for 6 months **Exclusion criteria** • Parents did not consent adolescents' participation **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *30* • Split between study groups *Bibliotherapy: 15 No treatment: 15* • Loss to follow-up *Not reported* • Sex (M/F) *All females*	**Blinding of outcome assessment** • High risk of bias *No details of blinding of assessors (assume unblinded)* **Incomplete outcome data** • Low risk of bias *No attrition reported* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Mean age (SD) *Not reported for each group separately: 13.9* • Family origin or ethnicity *Not reported* **Interventions** • Guided self-help *One week after the completion of the pre-test, researcher started to administer the taking in the good based-bibliotherapy intervention programme to the experimental group. Intervention was a 6-week programme that included 8 modules and the duration of each module was 90 min. Each module included a session, focused mainly on 'taking in the good' theory of Rick Hanson (2013), explanation of the principles of bibliotherapy and the vicarious experience of the life stories of other people.* **Comparisons** • No treatment *While experiment group took place in the treatment intervention, the control group continued their usual class activities. The researcher gave a summary of the intervention programme to the control group after conducting the post-test to fulfil the ethical principle.* **Outcome measure(s)** • Depressive symptoms *Beck depression inventory-II Asian adolescent depression scale Kutcher adolescent depression scale 11-items*	
Jeong (2005)	Dance movement therapy improves emotional responses and modulates neurohormones in adolescents with mild	**Data extraction (intervention)** • Antidepressants use *None: One of the exclusion criteria was "not using medication or any other therapeutic treatment for depression"*	**Random sequence generation** • Unclear risk of bias *Method of randomisation was not reported*

Author (year)	Title	Study characteristics	Risk of bias and directness
	depression	**Study type** • Randomised controlled trial **Study details** • Study location *Korea* • Study setting *Middle school* • Study dates *Not reported* • Duration of treatment and follow-up *12 weeks treatment without additional follow-up (only post-treatment assessment)* • Sources of funding *Not reported* **Inclusion criteria** • Beck depression inventory *Higher depression scores (no specific score was reported)* **Exclusion criteria** • Other treatment for depression *Using prescription medication or any other therapeutic treatment for depression* • Psychiatric disorder *Past or present* • Parents did not consent adolescents' participation • Internal illness *Past or present* • Neuroendocrine disorder • Exercise *No history of regular exercise within the past 6 months*	**Allocation concealment** • Low risk of bias *A secretary, who was blind to the experimental procedures, randomly assigned participants to either the dance-movement group or the control group.* **Blinding of participants and personnel** • High risk of bias *No details of blinding of participants or personnel (assume unblinded)* **Blinding of outcome assessment** • High risk of bias *No details of blinding of assessors (assume unblinded)* **Incomplete outcome data** • Low risk of bias *No attrition reported* **Selective reporting** • Low risk of bias **Other sources of bias** • High risk of bias *The main inclusion criteria was*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Smoking • Drinking **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *40* • Split between study groups *Dance-movement: 20 No treatment: 20* • Loss to follow-up *None reported* • Sex (M/F) *All females* • Mean age (SD) *Dance-movement: 16.0 No treatment: 16.0* • Family origin or ethnicity *Not reported* **Interventions** • Arts/creative psychotherapies *The treatment group participated in a 45-min dance-movement therapy session 3 times a week for 12 weeks. The sessions were designed around 4 major themes: 1) awareness of the body, the room, and the group 2) movement expression and symbolic quality of movement 3) movement, feeling, images, and words 4) differentiation and integration of feelings Each of these themes included various sub-themes: a) setting limits and outer, inner, and personal space b) body language, the reflecting process, polarity, and inward and outward expression c) playing, drawing, and verbalisation d) the inner sense, quality of movement, and expression of feelings.* **Comparisons**	*higher depression scores in the Beck depression inventory but 'higher depression scores' were not defined.* **Overall risk of bias** • High **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• No treatment *The control group did not participate in the dance-movement therapy but were invited to participate in a similar programme after the end of the study.* **Outcome measure(s)** • Depressive symptoms *Depression dimension of the symptom check list-90-revision*	
Kahn (1990)	Comparison of cognitive-behavioral, relaxation, and self-modeling interventions for depression among middle-school students.	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *School* • Study dates *Not reported* • Duration of treatment and follow-up *Approximately 8 weeks treatment + post-treatment and 1 month follow-up* • Sources of funding *Not specified* **Inclusion criteria** • Child depression inventory	**Random sequence generation** • Unclear risk of bias *Randomisation was stratified by grade and sex. Further details of randomisation not reported* **Allocation concealment** • Unclear risk of bias *Further details of allocation concealment not reported* **Blinding of participants and personnel** • Unclear risk of bias *No description of blinding of participants and personnel* **Blinding of outcome assessment** • Low risk of bias *Half of the Bellevue inventory for depression interviewers were blind to group allocation, half*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Score of =>15 on two occasions, 1 month apart • Reynolds adolescent depression scale *Score of =>72 on two occasions, 1 month apart* • Bellevue inventory for depression *Score of =>20* **Exclusion criteria** • Receiving outpatient psychiatric/psychological services **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *68* • Split between study groups *Group CBT: 17 Relaxation: 17 Self-modelling: 17 Waiting list: 17* • Loss to follow-up *No participants dropped out before the post-treatment outcome assessment. No attrition reported at 1 month follow up* • Sex (M/F) *33/35* • Mean age (SD) *Not reported* • Family origin or ethnicity *Not reported* **Interventions** • Relaxation *Relaxation treatment: Treatment focused on identification of anxiety-arousing situations, and learning techniques to promote relaxation. Twelve sessions of 50 minutes over 6-8 weeks* • Group CBT *Based on a downscaled version of 'Coping with depression-adolescent version'. Twelve 50 minute sessions over 6-8 weeks*	*were not. There was no significant difference between scores for blind and non-blind raters* **Incomplete outcome data** • Low risk of bias *No participants dropped out before the post-treatment outcome assessment. No attrition reported at 1 month follow up* **Selective reporting** • Unclear risk of bias *Mean and standard deviation for CDI at post-treatment were reported as 7.29 (66.03) which seems to be an unlike SD* **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Self-modelling *Subjects were coached to produce a video tape of themselves behaving in a non-depression manner. Participants then watched the tape 10-12 minute individual sessions twice weekly for 6-8 weeks* **Comparisons** • Waiting list *Participants were assessed at post-treatment and 1-month follow-up. Waiting list group started treatment after 1-month follow-up assessment* **Outcome measure(s)** • Depressive symptoms *Reynolds adolescent depression scale Child depression inventory Bellevue index of depression*	
Kobak (2015)	Integrating technology into cognitive behavior therapy for adolescent depression: a pilot study.	**Data extraction (intervention)** • Associated references *Kobak (2016): This erratum clarifies that data was reported at 12 weeks.* • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting	**Random sequence generation** • High risk of bias *Method of randomisation was not reported* **Allocation concealment** • High risk of bias *Method of allocation concealment was not reported* **Blinding of participants and personnel** • High risk of bias *No details of blinding of clinicians or adolescents*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Not reported • Study dates *Not reported* • Duration of treatment and follow-up *12 weeks treatment without additional follow-up (only post-treatment assessment)* • Sources of funding *This study was supported in part by a Grant from the National Institute of Mental Health, National Institutes of Health, Department of Health and Human Services, under Small Business Innovation Research Grant* **Inclusion criteria** • Age *12-17* • Mood disorder *DSM-5 mood disorder (major depressive disorder, persistent depressive disorder, both major and persistent depressive disorders, other specified depressive disorder, unspecified depressive disorder* • Quick inventory of depressive symptomatology adolescent-patient report *A minimum score of 11* **Exclusion criteria** • Bipolar disorder • Conduct disorder *Severe conduct disorder* • Hospitalisation *Severe suicidal/homicidal ideation or behaviour requiring inpatient treatment* • Language *Non-English speakers* • Substance dependence disorder • Autism *Pervasive developmental disorders*	*(assume unblinded)* **Blinding of outcome assessment** • High risk of bias *No details of blinding of assessors (assume unblinded)* **Incomplete outcome data** • Low risk of bias *Low rate of attrition <20% and no significant differences across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • High risk of bias *Randomisation was done at the clinician level and clinicians recruited adolescents from their clinical practice but there are no details on how adolescents were selected.* **Overall risk of bias** • High **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Lack of access to a phone *Adolescents without daily access to a cell phone* • Thought disorder **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *76* • Split between study groups *Technology-enhanced CBT: 39 Treatment as usual: 37* • Loss to follow-up *Technology-enhanced CBT: 4 Treatment as usual: 7* • Sex (M/F) *Not reported for each group separately: 33/43* • Mean age (SD) *Not reported for each group separately: 15.4 (1.52)* • Family origin or ethnicity *Not reported for each group separately Caucasian: 27 African-American: 24 American-Indian: 3 Asian: 1 Biracial: 5 Other: 5 Hispanic: 10* **Interventions** • CBT *Technology-enhanced CBT. Clinicians in the CBT arm completed a pre-test on CBT knowledge and then took the online tutorial on CBT treatment for adolescent depression. After completing the tutorial, clinicians took a post-test, then received an iPad containing a link to the online CBT interactive teaching materials and text-messaging system. A brief (1 h) orientation session was held with each clinician to review how to use the iPad for teaching CBT concepts to patients and for setting up text messages. Each patient was treated for 12 weeks, using the skills learned in the tutorial, and the in-session teaching tools. Individualized text messages were integrated into treatment.*	

Author (year)	Title	Study characteristics	Risk of bias and directness
		Comparisons • Usual care *Participants were treated for 12 weeks by clinicians using usual care* **Outcome measure(s)** • Depressive symptoms *Quick inventory of depressive symptomatology adolescent version*	
Lewinsohn (1990)	Cognitive-behavioral treatment for depressed adolescents	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Not reported* • Study dates *Not reported* • Duration of treatment and follow-up *7 weeks treatment + post-treatment, 1, 6, 12 and 24 months follow-up* • Sources of funding *National institute for mental health* **Inclusion criteria** • Age	**Random sequence generation** • Unclear risk of bias *No details of method of randomisation* **Allocation concealment** • Unclear risk of bias *No details of method of allocation concealment* **Blinding of participants and personnel** • High risk of bias *No mention of blinding (presume unblinded)* **Blinding of outcome assessment** • High risk of bias *No mention of blinding (presume unblinded)*

Author (year)	Title	Study characteristics	Risk of bias and directness
		14-18 • Major depressive disorder *Diagnosis major depressive disorder according to DSM-III criteria* • Depression *Diagnosis of minor or intermittent depression according to research diagnostic criteria (RDC)* • School grades *Currently in grades 9-12* **Exclusion criteria** • Bipolar disorder *DSM-III or RDC diagnosis of current episode or bipolar disorder with mania, bipolar disorder with hypomania* • Panic disorder *DSM-III or RDC diagnosis of panic disorders* • Generalized anxiety disorder *DSM-III or RDC diagnosis of generalized anxiety disorder* • Conduct disorder *DSM-III or RDC diagnosis of conduct disorder* • Mental retardation • Schizophrenia *History of schizophrenia* • Other treatment for depression *Need for immediate treatment* • Hospitalisation *Need for hospitalisation* • Being suicidal *Actively suicidal* • Alcoholism *DSM-III or RDC diagnosis of alcoholism* • Drug use disorder *DSM-III or RDC diagnosis of drug use disorder* • Major depressive/psychotic subtype *DSM-III or RDC diagnosis of major depressive/psychotic subtype* • Organic brain syndrome *DSM-III or RDC diagnosis of organic brain syndrome*	**Incomplete outcome data** • Unclear risk of bias *Attrition was not specified separately for each group* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Sample characteristics • Depression severity *Depressive disorder diagnosis* • Sample size *59* • Split between study groups *Group CBT: 19 Group CBT with parent sessions: 21 Waiting list control: 19* • Loss to follow-up *3, 2 and 5 from the group CBT, group CBT + parent and waiting list, respectively dropped out before or during treatment. 75% of participants were available for the 6 month assessment and 50% for the 24 month assessment* • Sex (M/F) *Group CBT: 9/10 Group CBT with parent sessions: 8/13 Waiting list control: 6/13* • Mean age (SD) *Group CBT: 16.26 (1.17) Group CBT with parent sessions: 16.15 (0.98) Waiting list control: 16.28 (1.17)* • Family origin or ethnicity *Not reported* **Interventions** • Group CBT *Fourteen two hour sessions, twice a week for 7 weeks. 'Coping with depression course for adolescents' described by Clarke and Lewinsohn 1986)* • Group CBT + parent sessions *Fourteen two hour sessions, twice a week for 7 weeks. Additional separate seven 2hr parent sessions once per week* **Comparisons** • Waiting list	

Author (year)	Title	Study characteristics	Risk of bias and directness
		At the conclusion of the waiting period (7-8 weeks), participants completed the post-treatment measures and subsequently received the intervention **Outcome measure(s)** • Depressive symptoms *Center for epidemiological studies depression scale Beck depression inventory* • Remission *No longer meeting criteria for depressive disorder assessed using the Kiddie Schedule for Affective Disorders and Schizophrenia epidemiological version (K-SADS-E) interview*	
Liddle (1990)	Cognitive—Behaviour Therapy with Depressed Primary School Children: A Cautionary Note	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *Australia* • Study setting *School* • Study dates *Not reported* • Duration of treatment and follow-up *8 weeks treatment + post-treatment and 3 months follow-up* • Sources of funding *Not specified*	**Random sequence generation** • Unclear risk of bias *No details of method of randomisation* **Allocation concealment** • Unclear risk of bias *No details of method of allocation concealment* **Blinding of participants and personnel** • High risk of bias *No mention of blinding (presume unblinded)* **Blinding of outcome assessment** • High risk of bias

Author (year)	Title	Study characteristics	Risk of bias and directness
		Inclusion criteria • Child depression inventory *Score of =>19* • Age *7-12* • Major depressive disorder *Meet DSM-III criteria for major depressive episode (assessed using the Children's Depression rating scale score =>40)* • Enrolled in mainstream classes • Language *Fluent in English* **Exclusion criteria** • Intellectual functioning *Intellectual handicap* **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *31* • Split between study groups *Group CBT: 11 Attention control: 10 Waiting list control: 10* • Loss to follow-up *Not reported* • Sex (M/F) *21/10* • Mean age (SD) *9.2 (1.15)* • Family origin or ethnicity *Not reported*	*No mention of blinding (presume unblinded)* **Incomplete outcome data** • Low risk of bias *No attrition reported* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Interventions • Group CBT *Eight weekly, 1 hour group sessions. Aimed to teach overt social skills, cognitive restructuring and interpersonal problem solving. Homework tasks were set each week* • Attention control *Eight weekly, 1 hour group sessions. Drama programme. Included homework assignments* **Comparisons** • Waiting list *Participants in the waiting list did not take part in any 'special activities'. They were assessed at post-treatment and follow-up* **Outcome measure(s)** • Depressive symptoms *Children's depression inventory*	
Listug-Lunde (2013)	A cognitive-behavioral treatment for depression in rural American Indian middle school students	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Middle school* • Study dates	**Random sequence generation** • Unclear risk of bias *Method of randomisation was not reported* **Allocation concealment** • Unclear risk of bias *Method of allocation concealment was not reported* **Blinding of participants and personnel** • High risk of bias *No details of blinding of*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Not reported • Duration of treatment and follow-up *7 weeks treatment and 2 booster sessions held within 1 month post-intervention + post-treatment and 3 months follow-up* • Sources of funding *Not reported* **Inclusion criteria** • Child depression inventory *Scores ≥15* • School grades *6 to 8 middle school* **Exclusion criteria** • None reported **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *16* • Split between study groups *CBT: 8 Usual care: 8* • Loss to follow-up *None* • Sex (M/F) *CBT: 5/3 Usual care: 5/3* • Mean age (SD) *CBT: 12.3 (0.92) Usual care: 12.5 (1.07)* • Family origin or ethnicity *All were American-Indian* **Interventions**	*clinicians or participants (assume unblinded)* **Blinding of outcome assessment** • High risk of bias *No details of blinding of assessors (assume unblinded)* **Incomplete outcome data** • Low risk of bias *Low rate of attrition <15% and no significant differences across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *Participants in the usual care group (5 out of 8) received some level of individualised counselling services during the year. Specific interventions provided to these students were not evaluated. Therapists involved in the CBT intervention provided some of the individualised services to students in the usual care group.*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• CBT *CBT was a culturally adapted version of the 'coping with depression course for adolescents (CWD-A)' which was modified to be used with American-Indian middle school students. The CWD-A course is a CBT intervention; therefore, it is structured and time-limited. The course is based on cognitive self-control, behavioural, interpersonal, and social skills treatment approaches, with a strong focus on skill development. The intervention was delivered in 13 sessions of 35 to 40 minutes each, held twice each week for 7 weeks, followed by 2 booster sessions held within 1 month post-intervention.* **Comparisons** • Usual care *Participants were offered services in the community, either at their local Indian health service clinic or with the school counsellor* **Outcome measure(s)** • Depressive symptoms *Children's depression inventory*	**Overall risk of bias** • Moderate **Directness** • Directly applicable
March (2004)	Fluoxetine, cognitive-behavioral therapy, and their combination for adolescents with depression: Treatment for Adolescents With Depression Study (TADS) randomized controlled trial.	**Data extraction (intervention)** • Associated references *Emslie (2006) Kennard (2006) Vitiello (2006) Kennard (2009) Vitiello (2009)* • Antidepressants use *None: This paper compared cognitive behavioural therapy, fluoxetine, combination treatment and pill placebo for the treatment of depression in adolescents. Only cognitive behavioural therapy and placebo arms extracted here.* **Study type** • Randomised controlled trial	**Random sequence generation** • Low risk of bias *Randomisation was by computer to ensure equal allocation to each group, with stratification by study site and sex* **Allocation concealment** • Unclear risk of bias *Unclear allocation concealment*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Study details • Study location *US* • Study setting *Academic and community clinics* • Study dates *2000 - 2003* • Duration of treatment and follow-up *12 weeks treatment without additional follow-up (only post-treatment assessment). Further follow up took place, but placebo group was not included in follow up after 12 weeks (only comparison between CBT and placebo reported here)* • Sources of funding *National institute of mental health* **Inclusion criteria** • Age *12 - 17* • Major depressive disorder *Mild to severe major depressive disorder according to DSM-IV criteria (Child depression rating scale - revised version score >=45)* • IQ *Full scale IQ >=80* • Impairment from depression *Demonstrated impairment from depression in at least two settings (at home and school and with peers) for at least 6 weeks before study entry* **Exclusion criteria** • Other treatment for depression *Taking antidepressants at study entry Failed CBT or two selective serotonin reuptake inhibitor trials Already engaged in psychotherapy or taking other psychotropic medications (medication for attention*	**Blinding of participants and personnel** • High risk of bias *Patients in the CBT group were not blinded. Patients in the placebo group were blind to whether they were taking fluoxetine (fluoxetine group not extracted here)* **Blinding of outcome assessment** • Unclear risk of bias *Assessors for primary outcome measures (Children's depression rating scale – revised version and Clinical Global Impressions improvement score) were blind to group allocation. No details of blinding for other outcomes (presume unblinded)* **Incomplete outcome data** • Low risk of bias *No significant differences for discontinuation between the groups* **Selective reporting** • Low risk of bias **Other sources of bias**

Author (year)	Title	Study characteristics	Risk of bias and directness
		deficit hyperactivity disorder was permitted) • Comorbid condition *Requiring alternative treatment* • Language *Participant or parent not English speaking* • Pregnant *Or sexually active and refusing to use appropriate contraception* • Considered dangerous to self or others **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *223* • Split between study groups *CBT: 111 Placebo: 112* • Loss to follow-up *Discontinuation for any reason: CBT: 15/107 Placebo: 23/112* • Sex (M/F) *CBT: 50/61 Placebo: 53/59* • Mean age (SD) *CBT: 14.62 (1.5) Placebo: 14.51 (1.62)* • Family origin or ethnicity *Not reported* **Interventions** • CBT *Fifteen sessions (50-60 min) over the 12 weeks. Approach required skill building & optional or modular sessions, which allowed flexible tailoring of the treatment & integrated parent & family sessions with individual sessions* **Comparisons** • Pill placebo	• High risk of bias *It is possible that the effect of pill placebo compared to a psychological intervention might be different in trials including an active drug* **Overall risk of bias** • High **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Placebo pill (adjusted from starting dose 10 mg/d to 40 mg/d) with clinical management (6 physician visits lasting 20-30 minutes to monitor clinical status and medication effects **Outcome measure(s)** • Depressive symptoms *Children's depression rating scale – revised version Reynolds adolescent depression scale* • Suicidal ideation *Suicidal ideation questionnaire – Junior high version* • Functional status *Children's global assessment scale* • Discontinuation for any reason *Included those terminated because they needed out of protocol treatment* • Suicide-related adverse events • Quality of life *PQ-LES-Q HoNOSCA These were reported by Vitiello (2006)*	
McCauley (2016)	The Adolescent Behavioral Activation Program: Adapting Behavioral Activation as a Treatment for Depression in Adolescence	**Data extraction (intervention)** • Additional comments *Assessments were planned for 6 and 12 months but this paper only reports end of treatment outcomes* • Antidepressants use *Yes: Antidepressant medication at baseline Behavioural activation (37%) Usual care (36%)* **Study type** • Randomised controlled trial **Study details** • Study location *US*	**Random sequence generation** • Low risk of bias *Randomisation was done using a computerised programme* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment were given* **Blinding of participants and personnel** • High risk of bias *No details of blinding of*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Study setting *Not reported* • Study dates *Not reported* • Duration of treatment and follow-up *12 weeks treatment without additional follow-up (only post-treatment assessment)* • Sources of funding *The National Institutes of Mental Health; the University of Washington/Seattle Children's Hospital ITHS Pediatric Clinical Research Centre; and the National Centre for Research Resources, a component of the National Institutes of Health* **Inclusion criteria** • Age *12-18* • Parental interest in trial *One parent/guardian willing to participate* • Depression *Primary DSM-IV diagnosis of major depression, depression not otherwise specified, or dysthymia* • Children's depression rating scale *Revised version raw score of ≥45 (T score of ≥65)* • Consent *Willingness to be randomised to treatment condition* • Mood and feelings questionnaire *Short version self-report score of ≥11* **Exclusion criteria** • Suicide symptoms *Suicidality requiring immediate, intensive treatment* • Substance abuse *Acute substance use* • Psychosis *Psychotic or manic symptoms*	*participants and personnel (assume unblinded)* **Blinding of outcome assessment** • High risk of bias *No details of blinding of assessors (assume unblinded)* **Incomplete outcome data** • High risk of bias *High rate of attrition: behavioural activation 23% and usual care 36%* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • High **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Unable to complete questionnaires • Acute medical illness **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *60* • Split between study groups *Adolescent behavioural activation programme: 35 Evidence-based practice for depression: 25* • Loss to follow-up *Adolescent behavioural activation programme: 8 Evidence-based practice for depression: 9* • Sex (M/F) *Adolescent behavioural activation programme: 13/22 Evidence-based practice for depression: 9/16* • Mean age (SD) *Adolescent behavioural activation programme: 15.1 (1.5) Evidence-based practice for depression: 14.5 (1.4)* • Family origin or ethnicity *Non-Hispanic White Adolescent behavioural activation programme: 23 Evidence-based practice for depression: 17* **Interventions** • Behavioural activation *The adolescent behavioural activation programme was a modification of behavioural therapy for use with depressed adolescents. This programme was defined as a behavioural treatment based on a functional conceptualisation of each individual case. The programme used a structured psychoeducational format early in the treatment process, with a more flexible approach as treatment progressed. Treatment began with 2 sessions devoted to reviewing the assessment-based case conceptualisation and introducing the behavioural activation model to the adolescent alone*	

Author (year)	Title	Study characteristics	Risk of bias and directness
		and then in the second session with the adolescent and parent together, followed by a series of sessions introducing particular skills. Four additional sessions were scheduled, either as needed to extend the skill modules or after introduction of all the skills, to allow for individualised practice and application. The treatment ended with 2 sessions devoted to termination relapse prevention. **Comparisons** • Usual care *Evidence-based practice for depression represented standard care offered in an academically affiliated outpatient clinic setting which might include CBT or interpersonal therapy. Although no specified manual was prescribed, all therapists had prior formal training in one of both of these therapeutic techniques and routinely employed one of these therapies as part of their standard care. To ensure consistent dose of treatment between conditions, the study provided up to 14 sessions of therapy. Therapists had the option to include parents in treatment 'as needed' but could not engage parents in independent treatments.* **Outcome measure(s)** • Depressive symptoms *Children's depression rating scale revised Short moods and feelings questionnaire* • Functional status *Children's global assessment scale*	
Merry (2012)	The effectiveness of SPARX, a computerised self help intervention for adolescents seeking help for depression: randomised controlled non-inferiority trial.	**Data extraction (intervention)** • Antidepressants use *None: One of the exclusion criteria was "had had (in past 3m) or was having tx with antidepressants"* **Study type**	**Random sequence generation** • Low risk of bias *Randomisation was using a computer generated randomisation sequence prepared before any participants were randomised. Allocation*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Randomised controlled trial **Study details** • Study location *New Zealand* • Study setting *Primary care setting (multicentre – youth clinics, GPs, school-based counselling services)* • Study dates *2009 - 2010* • Duration of treatment and follow-up *4 to 7 weeks treatment + post-treatment and 3 months follow-up* • Sources of funding *New Zealand ministry of health* **Inclusion criteria** • Age *12 - 19 years on the date of consent* • Depressive symptoms *Presented for treatment with symptoms indicative of mild to moderate depressive disorder* • Consent *Provided written consent or, if under age 16, written parental consent* • Attended a clinical service or school based counselling service that was a study site • Achieved a minimum of one year of schooling in English • Computer *Had access to a computer to use SPARX* **Exclusion criteria** • Severe depressive disorder *A clinician assessed that the depression was too severe to make a self-help resource a viable option*	*was stratified by study site and arranged in permuted blocks of 4* **Allocation concealment** • Low risk of bias *To ensure allocation concealment, once eligibility had been confirmed, the participant was given an opaque sealed envelope containing the randomised allocation. The young person took this to a local investigator who opened the envelope, informed the young person of the allocation, and organised access to SPARX or treatment as usual* **Blinding of participants and personnel** • High risk of bias *Patients and clinicians were not blinded* **Blinding of outcome assessment** • Low risk of bias *Assessors were blind to intervention group allocation. Those analysing data were blind to treatment allocation*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Other treatment for depression *Had had (in past three months) or was having treatment with cognitive behavioural therapy, interpersonal therapy, or antidepressant* • Intellectual functioning *Intellectual disability or physical limitations precluded the use of the computer program* • Being suicidal *Scored 7 on item 12 (morbid ideation) or 5 or higher on item 13 (suicidal ideation) on the children's depression rating scale-revised* • Suicide or self-harm *A clinician assessed the adolescent to be at high risk of self-harm or suicide* • Children's depression rating scale *Raw score was less than 30 on children's depression rating scale-revised* • Another major mental health disorder *Had another major mental health disorder where the primary focus was not depression* **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *187* • Split between study groups *Computer-based CBT: 94 Treatment as usual: 93* • Loss to follow-up *For the computerised CBT group, 2 did not receive the randomised intervention, 9 did not complete the post-treatment assessment (2 discontinued treatment) and a further 2 did not complete the follow up assessment. In the treatment as usual group, 8 did not complete the post-treatment assessment (1 discontinued treatment)* • Sex (M/F) *Computer-based CBT: 35/59 Treatment as usual: 29/64* • Mean age (SD)	**Incomplete outcome data** • Low risk of bias *No significant differences for discontinuation between the groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Low **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Computer-based CBT: 15.55 (1.54) Treatment as usual: 15.58 (1.66) • Family origin or ethnicity *New Zealand European/Maori/Pacific/Asian/Other Computer-based CBT: 55/24/8/4/3 Treatment as usual: 56/21/7/8/1* **Interventions** • Computer-based CBT *SPARX, an interactive fantasy game designed to deliver CBT. Consists of 7 modules* **Comparisons** • Usual care *Primarily face-to-face counselling by clinical psychologists or trained counsellors* **Outcome measure(s)** • Depressive symptoms *Children's depression rating scale - revised version Reynolds adolescent depression scale - second edition Mood and feelings questionnaire* • Discontinuation for any reason • Quality of life *PQ-LES-Q*	
Mufson (1999)	Efficacy of interpersonal psychotherapy for depressed adolescents	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial	**Random sequence generation** • Low risk of bias *Randomisation was implemented by drawing 100 random numbers from a uniform distribution, the lowest 5 numbers within each block of 10 were assigned interpersonal*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Study details • Study location *US* • Study setting *Secondary care* • Study dates *1993 - 1996* • Duration of treatment and follow-up *12 weeks treatment without additional follow-up (only post-treatment assessment)* • Sources of funding *Not specified* **Inclusion criteria** • Hamilton rating scale for depression *Score of =>15* • Age *12-18* • Major depressive disorder *Meet DSM-III-R criteria for major depressive episode (assessed using the Children's Depression rating scale score =>40)* **Exclusion criteria** • Bipolar disorder *Bipolar I or II* • Substance misuse disorder *Substance abuse disorder* • Obsessive compulsive disorder • Eating disorder *Current eating disorder* • Conduct disorder • Other treatment for depression *Receiving other treatment for major depressive disorder*	*psychotherapy, the highest to clinical monitoring* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *No blinding of participants* **Blinding of outcome assessment** • Low risk of bias *Blinded assessor assessed whether participants should be removed from the study at 8 weeks due to worsening symptoms and outcomes measures were assessed by blinded assessor* **Incomplete outcome data** • High risk of bias *High attrition in clinical monitoring group* **Selective reporting** • Low risk of bias

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Being suicidal *Actively suicidal* • Psychosis • Chronic illness *Chronic medical illness* **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *48* • Split between study groups *Interpersonal psychotherapy: 24 Clinical monitoring: 24* • Loss to follow-up *3 did not complete treatment in the interpersonal therapy group and 13 from the clinical monitoring group (includes those who were removed from the study due to worsening symptoms)* • Sex (M/F) *Interpersonal psychotherapy: 7/17 Clinical monitoring: 6/18* • Mean age (SD) *Interpersonal psychotherapy: 15.9 (1.7) Clinical monitoring: 15.7 (1.4)* • Family origin or ethnicity *Not reported* **Interventions** • IPT-A *Twelve weekly sessions + telephone contact for first 4 weeks. Adapted for adolescents from adult interpersonal psychotherapy. Addressed separation from parents, exploration of authority, development of dyadic interpersonal relationships, death of a friend, peer pressure and single parent families* **Comparisons**	**Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Monitoring *Monthly sessions for 30 minutes with option for extra session within month if needed. Manual based. No advice or skills training was given, reviewed depressive symptoms, school attendance and suicidality* **Outcome measure(s)** • Depressive symptoms *Hamilton rating scale for depression Beck depression inventory* • Discontinuation for any reason *Including those removed by trial staff due to suicidality, non-compliance, school refusal or psychotic symptoms*	
Mufson (2004)	A randomized effectiveness trial of interpersonal psychotherapy fordepressed adolescents	**Data extraction (intervention)** • Antidepressants use *None: One of the exclusion criteria was "taking antidepressant medication"* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *School* • Study dates *1999 - 2002* • Duration of treatment and follow-up *12 to 16 weeks treatment without additional follow-up (only post-treatment assessment)* • Sources of funding *Substance abuse and mental health administration and the national*	**Random sequence generation** • Low risk of bias *Randomisation was done using random number tables at the level of the student for 4 schools, and at the level of the therapist for one school (n=7)* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *Patients and treating clinicians were unblinded*

Author (year)	Title	Study characteristics	Risk of bias and directness
		institute of mental health **Inclusion criteria** • Hamilton rating scale for depression *Score of =>10 at initial intake and baseline* • Age *12-18* • Depression *Diagnosis of major depression, dysthymia, adjustment disorder with depressed mood or depressive disorder not otherwise specified according to DSM-IV criteria* • Language *English speaking students were accepted at all 5 schools. In 2 schools, monolingual Spanish-speaking students were accepted as well* • Children's global assessment scale *Score of 65 or lower at initial intake and baseline* **Exclusion criteria** • Mental retardation • Schizophrenia • Other treatment for depression *Currently in treatment for depression or taking antidepressant medication* • Being suicidal *Actively suicidal* • Substance abuse • Psychosis • Life- threatening medical illness **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size	**Blinding of outcome assessment** • Low risk of bias *Assessors were blind to group allocation* **Incomplete outcome data** • Low risk of bias *No significant differences for discontinuation between the groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		63 • Split between study groups *Interpersonal psychotherapy: 34 Treatment as usual: 29* • Loss to follow-up *In the interpersonal psychotherapy group 4 discontinued the intervention (2 were withdrawn for non-compliance, 1 changed school, 1 could not maintain contact with guardian). In the treatment as usual group 2 discontinued the intervention (1 referred to ED [emergency department?], 1 changed schools)* • Sex (M/F) *Interpersonal psychotherapy: 3/31 Treatment as usual: 7/22* • Mean age (SD) *Interpersonal psychotherapy: 15.3 (2.1) Treatment as usual: 14.9 (1.7)* • Family origin or ethnicity *Hispanic Interpersonal psychotherapy: 26 Treatment as usual: 19* **Interventions** • IPT-A *Delivered as 12 sessions during a 12- to 16-week period. Therapists provided 8 consecutive 35-min weekly sessions followed by 4 sessions scheduled at any frequency during the ensuing 8 weeks* **Comparisons** • Usual care *Whatever psychological treatment would have been received in the school-based clinic if the study had not been in place. The psychotherapy varied but closely resembled supportive counselling. Most got individual psychotherapy, 8 also got family psychotherapy and 5 received group psychotherapy* **Outcome measure(s)** • Depressive symptoms *Hamilton rating scale for depression*	

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Functional status *Children's global assessment scale* • Discontinuation for any reason	
Noel (2013)	Depression Prevention among Rural Preadolescent Girls: A Randomized Controlled Trial	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *School* • Study dates *Not reported* • Duration of treatment and follow-up *12 weeks treatment without additional follow-up (only post-treatment assessment)* • Sources of funding *Not specified* **Inclusion criteria** • Age *13-15* • Centre for epidemiologic studies depression scale *Scored =>10* • School grades *Enrolled in seventh or eighth grade* • Sex	**Random sequence generation** • Low risk of bias *Randomisation was done using a random number table by a research assistant who was not involved in the assessments* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • Unclear risk of bias *No details of blinding (presume unblinded)* **Blinding of outcome assessment** • Unclear risk of bias *No details of blinding (presume unblinded)* **Incomplete outcome data** • Unclear risk of bias *No details of attrition reported for either group*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Female • Kiddie-Schedule for affective disorders and schizophrenia *Participants endorsed question 1 or 3 (depressed mood or anhedonia) as moderate or severe for the current month* **Exclusion criteria** • Kiddie-Schedule for affective disorders and schizophrenia *Met formal criteria for depression on Kiddie-Schedule for affective disorders and schizophrenia interview* **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *34* • Split between study groups *Group CBT: 20 Waiting list: 14* • Loss to follow-up *No details reported* • Sex (M/F) *Group CBT: 0/20 Waiting list: 0/14* • Mean age (SD) *Group CBT: 13.64 (0.842) Waiting list: 13.85 (0.898)* • Family origin or ethnicity *African American/non-Hispanic white/Hispanic Group CBT: 16/3/1 Waiting list: 12/1/1* **Interventions** • Group CBT *Twelve 90-minute peer-led sessions guided by CBT principles. Peer facilitators were from an older year group and teachers were also present. Peer facilitators received 3 days of training and briefing and debriefing before and after each session*	**Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Comparisons • Waiting list *Participants in the waiting list were assessed after the last session in the intervention group took place* **Outcome measure(s)** • Depressive symptoms *Kiddie-schedule for affective disorders and schizophrenia*	
O'Shea (2015)	Group versus individual interpersonal psychotherapy for depressed adolescents	**Data extraction (intervention)** • Antidepressants use *None: One of the exclusion criteria was "undergoing pharmacological treatment for depression currently or in the past month"* **Study type** • Randomised controlled trial **Study details** • Study location *Australia* • Study setting *IPT-A was conducted at the School of Psychology Clinic, University of Queensland. Group IPT was conducted in the counseling services facilities of a State High School.* • Study dates *Not reported* • Duration of treatment and follow-up *12 weeks treatment + post-treatment and 12 months follow-up* • Sources of funding *Not reported*	**Random sequence generation** • Unclear risk of bias *Method of randomisation was not reported* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *No details of blinding of participants and personnel (assume unblinded)* **Blinding of outcome assessment** • Low risk of bias *Interviewers were blind to the experimental condition of the*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Inclusion criteria • Major depressive disorder *Determined by the schedule for affective disorders and schizophrenia for school-age children - epidemiological version, 5th edition* **Exclusion criteria** • Bipolar disorder *Bipolar I or II diagnosis* • Suicidal idea *Currently reporting suicidal intentions or severe ideation* • Other treatment for depression *Undergoing psychological or pharmacological treatment for depression currently or in the past month* • Chronic physical illness • Psychosis • Significant developmental delay **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *39* • Split between study groups *Group IPT: 20 Individual IPT: 19* • Loss to follow-up *Group IPT: 1 Individual IPT: 7* • Sex (M/F) *Not reported for each group separately: 6/33* • Mean age (SD) *Not reported for each group separately: 15.3 (1.3), range 13 to 19* • Family origin or ethnicity *Not reported for each group separately Aboriginal: 1 Caucasian: 38*	*participants* **Incomplete outcome data** • High risk of bias *High rate of attrition for IPT-A 37% compared to group IPT 5%* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Interventions • IPT-A *The intervention comprised 12 sessions, conducted once per week over 12 weeks, with sessions lasting 50 to 60 minutes, with one therapist to each client. Four maintenance sessions were provided during the 12-month follow-up period. The intervention included 3 main phases: 1) 4 sessions; first 2 sessions aimed to identify and clarify the adolescent's interpersonal difficulties in one or more principal problem areas; sessions focused on identifying links between specific interpersonal situations and low mood and depression, clarifying the principal problem area(s), identifying the communication patterns of those involved, and beginning to discuss alternative ways of responding 2) sessions 5 to 9 focused on the particular interpersonal problems identified by participants, exploring the adolescent's perceptions and expectations relating to those situations, and assisting the young person to develop strategies and skills for more effective management of interpersonal problem situations 3) sessions 10 to 12 were focused on the termination phase, including anticipating future problems, putting in place contingency plans for future treatment, and encouraging the young person to feel a sense of mastery over the targeted problems, in addition to consolidation of skills for managing interpersonal issues.* • Group interpersonal psychotherapy *The content of the group IPT sessions closely mirrored the individual IPT sessions but was adapted for group delivery. Sessions lasted approximately 90 minutes to accommodate group discussion of individual group member issues. Each session was conducted with groups of 6–8 adolescents. The first two sessions were conducted on an individual basis.* **Outcome measure(s)** • Depressive symptoms *Beck depression inventory – II* • Remission	

Author (year)	Title	Study characteristics	Risk of bias and directness
		No longer met criteria for major depressive disorder diagnosis as determined by the schedule for affective disorders and schizophrenia for school-age children - epidemiological version, 5th edition • Functional status *Children's global assessment of functioning*	
Poole (2018)	A Randomized Controlled Trial of the Impact of a Family-Based Adolescent Depression Intervention on both Youth and Parent Mental Health Outcomes.	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *Australia* • Study setting *Clinical interventions were conducted in several community settings* • Study dates *2012 - 2014* • Duration of treatment and follow-up *8 weeks treatment + post-treatment and 3 months follow-up* • Sources of funding *Australian Research Council* **Inclusion criteria** • Age *12-18* • Depression *Currently meeting DSM-IV criteria for a depressive disorder (major depressive disorder, minor depressive disorder, or dysthymic*	**Random sequence generation** • Low risk of bias *Block randomisation was done using an online random number sequence and tossing a coin to allocate intervention and control* **Allocation concealment** • Low risk of bias *Sequentially numbered, opaque, sealed envelopes were used to store the allocations, kept with the trial manager. Those allocating to treatment condition (intake workers) were blinded to the randomisation sequence and the overall study hypotheses.* **Blinding of participants and personnel** • Low risk of bias *Therapists were blinded to the content of the alternate interventions, in that they were not informed as to whether they were delivering the experimental*

Author (year)	Title	Study characteristics	Risk of bias and directness
		disorder) as assessed on the structured clinical interview for DSM-IV childhood diagnoses (KID-SCID) **Exclusion criteria** • Bipolar disorder • Psychotic disorder *On the KID-SCID* • Pervasive disorder *Pervasive developmental disorder including Autism* • Mania/hypomania • Hospitalisation *When severity of psychiatric presentation required an acute inpatient admission* • Intellectual functioning *Intellectual disability or a severe mental illness requiring inpatient treatment or otherwise impairing their ability to participate in a group program* • Drug use disorder *Drug dependence other than alcohol nicotine or cannabis use* • Language *Unable to understand spoken English* • Pregnant • Unable to complete questionnaires *Unwilling to undertake the minimum requirements for entry to the study including completion of the consent form, telephone KID-SCID interview, and the baseline questionnaire, where there was an insufficient address for follow-up or an unwillingness to be followed-up* • Involved in a current child protection investigation • Exclusion of families *If the parent(s) or caregiver(s) were unwilling or unable to participate in the program* **Sample characteristics** • Depression severity	*or control condition in the study and had no knowledge of the content of the alternate intervention.* **Blinding of outcome assessment** • Low risk of bias *Those assessing clients and collecting and entering data were also blind to the participant intervention status.* **Incomplete outcome data** • Low risk of bias *Low rate of attrition around 20% and no significant differences across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Low **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Depressive disorder diagnosis • Sample size *64* • Split between study groups *Family-based intervention for adolescent depression (BEST MOOD): 31 Treatment as usual supportive parenting program (PAST): 33* • Loss to follow-up *Family-based intervention for adolescent depression: 6 Treatment as usual supportive parenting program: 8* • Sex (M/F) *Family-based intervention for adolescent depression: 8/23 Treatment as usual supportive parenting program: 9/24* • Mean age (SD) *Family-based intervention for adolescent depression: 15.0 (1.3) Treatment as usual supportive parenting program: 15.3 (1.4)* • Family origin or ethnicity *Not reported* **Interventions** • Family therapy *Family therapy (BEST MOOD) was structured so that the first four sessions were exclusively for parents, with young people and their siblings invited to attend from week five through to eight. BEST MOOD is a family systems therapy focused on parent-child communication, stress reduction, psychoeducation and elements of attachment theory such as parental sensitivity, responses to grief and loss, and the understanding of stressful or frightening family environments. It was designed to address both individual and family-related factors in the treatment of adolescent depression.* **Comparisons** • Usual care *Usual care (PAST) program was a fully manualised treatment that sought to approximate a treatment-as-usual condition. PAST*	

Author (year)	Title	Study characteristics	Risk of bias and directness
		contained supportive counselling to assist parents to acknowledge and express concerns about their young person, general psychoeducation to enhance parents' knowledge and understanding about adolescent depression, and support group options. **Outcome measure(s)** • Depressive symptoms *Short moods and feelings questionnaire* • Functional status *Strengths and difficulties questionnaire*	
Poppelaars (2016)	A randomized controlled trial comparing two cognitive-behavioral programs for adolescent girls with subclinical depression: A school-based program (Op Volle Kracht) and a computerized program (SPARX).	**Data extraction (intervention)** • Additional comments *T0 was taken as baseline (entry assessment for eligibility)* • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *Netherlands* • Study setting *Secondary education* • Study dates *2012 - 2013* • Duration of treatment and follow-up *8 weeks treatment + post-treatment, 3, 6, and 12 months follow-up* • Sources of funding *Behavioural Science Institute, Radboud University Nijmegen*	**Random sequence generation** • Low risk of bias *Randomisation was done at school level using random number generation* **Allocation concealment** • Low risk of bias *An independent researcher randomly assigned participants to one of the 4 groups* **Blinding of participants and personnel** • High risk of bias *Due to clear differences in programme delivery models, it was not possible for participants, researchers, and therapists to be blinded to intervention assignment.*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Inclusion criteria • Age *11-16* • Reynolds adolescent depression scale *Score ≥70th percentile on depressive symptoms within the sample (RADS-2 score ≥59, n=297)* • Sex *Female* • School grades *First or second grade of secondary education* **Exclusion criteria** • Suicidal idea *Suicidal ideation (score 2 on children's depression inventory item 9)* • Currently receiving mental health care **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *208* • Split between study groups *Group CBT (Op Volle Kratch [OVK]): 50 Computer-based CBT (SPARX): 51 Combined OVK and SPARX: 56 Monitoring control: 51* • Loss to follow-up *Group CBT: 5 Computer-based CBT: 7 Combined: 4 Monitoring control: 1* • Sex (M/F) *All were females* • Mean age (SD) *Group CBT: 13.4 (0.74) Computer-based CBT: 13.2 (0.81) Combined: 13.4 (0.61) Monitoring control: 13.2 (0.64)* • Family origin or ethnicity	**Blinding of outcome assessment** • Low risk of bias *Questionnaires were filled out digitally* **Incomplete outcome data** • Low risk of bias *Low rate of attrition <15% and no significant differences across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Low **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Not reported **Interventions** • Group CBT *Group CBT (OVK) was based on a depression prevention programme adapted for Dutch adolescents from the Penn Resiliency Programme. In this study only the first 8 lessons teach CBT principles and the last 8 lessons focus on social problem solving. In the current study only the first 8 lessons were provided to decrease the length of the programme and to provide a better match to the SPARX programme.* • Computer-based CBT *Computer-based CBT was based on SPARX which is a CBT-based treatment for clinical depression in the form of an interactive fantasy game intended for adolescents. The programme consists of 7 levels in which balance needs to be restored in a fantasy world plague by negative thoughts. CBT principles are introduced and practiced through challenges, educational interactions with a guide, and real-life homework tasks.* • Combined interventions *The combined OVK and SPARX condition consisted of both the 8 sessions of OVK and weekly use of SPARX.* **Comparisons** • Attention control *The active monitoring control group received no formalised programme but rated their depressive symptoms digitally every week. This control was reported originally as monitoring and then reclassified for this evidence review as attention control* **Outcome measure(s)** • Depressive symptoms *Reynolds adolescent depression scale second edition* • Suicidal ideation	

Author (year)	Title	Study characteristics	Risk of bias and directness
		Children's depression inventory item 9 score 2 'I want to end my life'	
Puskar (2003)	Effect of the Teaching Kids to Cope (TKC) program on outcomes of depression and coping among rural adolescents.	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *School* • Study dates *Not reported* • Duration of treatment and follow-up *10 weeks treatment + 6 and 12 months follow-up* • Sources of funding *National institute of health, National institute of nursing research* **Inclusion criteria** • Age *At least 13* • Reynolds adolescent depression scale *Score at least 60* • Live in a rural area • No history of a death of a family member or friend *in the last year* **Exclusion criteria**	**Random sequence generation** • Low risk of bias *Permuted block randomisation was used within school sites with equal allocation to control and intervention* **Allocation concealment** • Unclear risk of bias *There were no details of how allocation concealment was ensured* **Blinding of participants and personnel** • High risk of bias *No discussion of blinding – presume unblinded* **Blinding of outcome assessment** • High risk of bias *No discussion of blinding – presume unblinded* **Incomplete outcome data** • Low risk of bias *No significant differences for attrition between the groups*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• None reported **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *89* • Split between study groups *Group CBT: 46 No treatment: 43* • Loss to follow-up *10 group CBT and 8 no treatment subjects dropped out at some point during the study (further details not provided)* • Sex (M/F) *16/73* • Mean age (SD) *16 (0.95)* • Family origin or ethnicity *Not reported* **Interventions** • Group CBT *'Teaching kids to cope' programme. Group CBT 45 minute sessions in school time for 10 weeks (frequency of sessions not reported)* **Comparisons** • No treatment *Participants were assessed at post-treatment, 6 and 12 months follow-up* **Outcome measure(s)** • Depressive symptoms *Reynolds adolescent depression scale*	**Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
Reynolds (1986)	A comparison of cognitive-behavioral therapy and relaxation training for the treatment of depression in adolescents.	**Data extraction (intervention)** • Antidepressants use *None: One of the exclusion criteria was concurrent use of medication for depression* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *School* • Study dates *Not reported* • Duration of treatment and follow-up *5 weeks treatment + post-treatment and 1 month follow-up* • Sources of funding *Wisconsin Alumni research foundation* **Inclusion criteria** • Beck depression inventory *Score of =>12* • Reynolds adolescent depression scale *Score of =>72* • Bellevue inventory for depression *Score of =>20* **Exclusion criteria** • Mental retardation • Other treatment for depression *Receiving other treatment for major depressive disorder* • Intellectual functioning	**Random sequence generation** • Low risk of bias *Randomisation was by computer-generated random number, blocked by gender and school* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *Participants presumed unblinded* **Blinding of outcome assessment** • Low risk of bias *Assessors were blinded to the condition that participants were allocated to* **Incomplete outcome data** • Low risk of bias *No significant differences for attrition between the groups* **Selective reporting** • Low risk of bias

Author (year)	Title	Study characteristics	Risk of bias and directness
		Learning disabilities • Emotional disturbance *Other than affective disorder* **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *30* • Split between study groups *Group CBT: 9 Group Relaxation: 11 Waiting list Control: 10* • Loss to follow-up *1 participant broke randomisation and moved from the CBT group to the relaxation group. 3 subjects from each of the CBT and relaxation groups dropped out of treatment. A further 2 from the relaxation group and 1 from the waitlist group did not participate in follow up* • Sex (M/F) *11/19* • Mean age (SD) *15.65* • Family origin or ethnicity *Non-White: 0* **Interventions** • Relaxation *Group relaxation: Ten 50min group sessions over 5 weeks. Progressive muscle relaxation exercises with relaxation tasks to complete at home* • Group CBT *Ten 50 min group sessions over 5 weeks* **Comparisons** • Waiting list *Participants waited 10 weeks to start treatment. They were*	**Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		assessed at the same time as the intervention groups **Outcome measure(s)** • Depressive symptoms *Beck depression inventory Bellevue index of depression Reynolds adolescent depression scale*	
Rickhi (2015)	Evaluation of a spirituality informed e-mental health tool as an intervention for major depressive disorder in adolescents and young adults - a randomized controlled pilot trial	**Data extraction (intervention)** • Antidepressants use *Yes: Antidepressants at baseline (younger sample [12 to 18 years]) Online guided self-help (3 participants of 18 [16.6%]) Waiting list (2 participants of 13 [15.3%])* **Study type** • Randomised controlled trial **Study details** • Study location *Canada* • Study setting *Canadian Institute of Natural and Integrative Medicine* • Study dates *2010 - 2012* • Duration of treatment and follow-up *8 weeks treatment. Also reported outcomes at week 24 follow-up for comparison between intervention and waiting list group, but after the waiting list group had also received treatment. However this element of the study does not match the review protocol (comparator did not match review protocol).* • Sources of funding *SickKids Foundation; Dr. Rogers Prize; Alberta Health Services; Alberta Centre for Child, Family & Community Research; Viewpoint Charitable Foundation; and, private donors.*	**Random sequence generation** • Low risk of bias *A randomisation list was generated* **Allocation concealment** • Low risk of bias *The randomisation list was generated by a statistician and maintained by an administrator who had no other involvement in the trial* **Blinding of participants and personnel** • High risk of bias *Participants were not blinded to the intervention* **Blinding of outcome assessment** • Low risk of bias *The outcomes assessor was blinded to the participants' allocation*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Inclusion criteria • Age *13-24* • Major depressive disorder *Confirmed diagnosis on the DSM-IV-TR (mild to moderate severity)* • Children's depression rating scale *Revised version raw baseline score of 40 to 70* • Depressive symptoms *Suspicion he/she might be suffering from depression* • Medication *Stabilized on anti-depressants, if applicable* • Study participation *Agreement to committing 2 to 3 hours per week to complete each module and attending four to five in-person study visits. Agreeable to having the study team contact the health professional prior to enrolment, at completion of study and if it was evident additional support was needed for the participant during the course of the study. Interested in study participation.* • Health care *Currently under the care of a health care professional* **Exclusion criteria** • Bipolar disorder • Psychotic disorder *or psychotic episodes* • Suicide attempt *History of multiple suicide attempts* • Other treatment for depression *Change in use of pharmacotherapy or herbal treatment for depression (St. John's Wort) in the last 3 months OR during the first 2 months of trial participation (Eligible if no change in medication or dosage in the last 3 months and it is foreseeable that their current treatment will continue unchanged for the first 2 months of participation). History of treatment resistance to ≥ 2 antidepressant*	**Incomplete outcome data** • High risk of bias *Higher rate of attrition in the intervention group 33.3% compared to the control group 7.6%* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		medications when treated for an adequate period with a therapeutic dose. Patients currently undergoing a specific psychotherapeutic treatment that has been shown to be effective for depression (such as CBT or IPT) or planning to start such therapy in the next 2 months • Suicide *High suicide risk* • Substance dependence disorder *DSM-IV-TR diagnosis of substance dependence (except nicotine and caffeine) within the past 12-months* • Attention deficit hyperactivity disorder *History of Attention Deficit Hyperactivity disorder (permitted if stabilized for at least 2 months on a long-acting medication, signs/symptoms/behaviours are well controlled, and participant agrees to continue)* • Recent death in the family • Personality disorder *traits that may impede participation in the study* • Medical condition *Uncontrolled medical conditions in the last 3 months (assessed by qualified physician)* • Medication *Change in the use of medications that have mood altering effects in the last 3 months OR during the first 2 months of trial participation* **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *Younger group (13 to 18 years): 31* • Split between study groups *Younger group Online guided self-help (online non-faith based spirituality program: LEAP): 18 Waiting list: 13* • Loss to follow-up *Younger group Online guided self-help: 6 Waiting list: 1* • Sex (M/F)	

Author (year)	Title	Study characteristics	Risk of bias and directness
		Younger group Online guided self-help: 4/14 Waiting list: 1/12 • Mean age (SD) *Mean age (range) Younger group Online guided self-help: 15.3 (12 to 18) Waiting list: 15.2 (13 to 17)* • Family origin or ethnicity *Not reported* **Interventions** • Online guided self-help *The trial intervention was an 8-week online program called the LEAP Project (LEAP). It aims to treat and/or manage depression by empowering depressed youth with new perspectives and practical strategies to better manage life's challenges. The label, LEAP, aims to capture the idea of leaping or moving forward in one's life. This is achieved by guiding participants through an exploration of spiritually informed principles (for example: forgiveness, gratitude, compassion).* **Comparisons** • Waiting list *The waitlist control arm commenced the intervention 8 weeks after recruitment* **Outcome measure(s)** • Depressive symptoms *Children's depression rating scale revised*	
Rossello (1999)	The efficacy of cognitive-behavioral and interpersonal treatments for depression in Puerto Rican adolescents.	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper*	**Random sequence generation** • Unclear risk of bias *No details of randomisation procedure*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Study type • Randomised controlled trial **Study details** • Study location *Puerto Rico* • Study setting *Research setting* • Study dates *Not reported* • Duration of treatment and follow-up *3 months treatment + post-treatment and 3 months follow-up (interpersonal psychotherapy and CBT groups only)* • Sources of funding *National institute of mental health, University of Puerto Rico* **Inclusion criteria** • Age *13-18* • Major depressive disorder *Diagnosis of major depressive disorder, dysthymia, or both (DSM-III criteria)* **Exclusion criteria** • Bipolar disorder • Conduct disorder • Other treatment for depression *Receiving other treatment for depression* • Psychosis *Psychotic features* • Alcoholism • Drug use disorder • Organic brain syndrome *Organic brain disease*	**Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *No mention of blinding (presume unblinded)* **Blinding of outcome assessment** • High risk of bias *No mention of blinding (presume unblinded)* **Incomplete outcome data** • High risk of bias *High discontinuation rates* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Suicide *Serious suicide risk* • Hyper-aggression • Acute care *Need for acute care* **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *71* • Split between study groups *Interpersonal psychotherapy: 23 CBT: 25 Waiting list control: 23* • Loss to follow-up *3 months treatment period + 3 months follow up (interpersonal psychotherapy and CBT groups only)* • Sex (M/F) *33/38* • Mean age (SD) *14.70 (1.40)* • Family origin or ethnicity *Not reported* **Interventions** • CBT *Twelve 1 hour weekly individual sessions. Inc. how thoughts influence mood, how daily activity influence mood and how interactions with others affect mood* • IPT-A *Twelve 1 hour weekly individual sessions* **Comparisons** • Waiting list *Participants were assessed at post-treatment (12 weeks) and*	**Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		received treatment after that **Outcome measure(s)** • Depressive symptoms *Children's depression inventory* • Discontinuation for any reason *Note: participants were paid $45 for completing the study*	
Shirk (2014)	Cognitive behavioral therapy for depressed adolescents exposed to interpersonal trauma: an initial effectiveness trial.	**Data extraction (intervention)** • Antidepressants use *Unclear if psychotropic medication included antidepressants: Percentage prescribed psychotropic medication CBT (58.30%) Usual care (22.22%)* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Community clinics* • Study dates *Not reported* • Duration of treatment and follow-up *16 weeks treatment without additional follow-up (only post-treatment assessment)* • Sources of funding *National institute for mental health* **Inclusion criteria** • Major depressive disorder	**Random sequence generation** • Unclear risk of bias *Randomisation was stratified by sex. No further details of randomisation method* **Allocation concealment** • Unclear risk of bias *No further details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *No mention of blinding – presume unblinded* **Blinding of outcome assessment** • High risk of bias *No mention of blinding – presume unblinded* **Incomplete outcome data**

Author (year)	Title	Study characteristics	Risk of bias and directness
		Met DSM-IV criteria for major depressive disorder, dysthymia or depressive disorder not otherwise specified based on structured diagnostic interview • Reported at least one incident of physical, sexual or emotional abuse or witnessing family violence **Exclusion criteria** • Psychotic symptoms • Bipolar disorder • Suicide attempt *Attempted suicide within 3 months of intake* • Other treatment for depression *Receiving current psychological treatment for depression* • Intellectual functioning *Intellectual deficit* • Substance dependence disorder **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *43* • Split between study groups *CBT: 20 Usual care: 23 Note: only report data for female participants 17 ad 19, respectively* • Loss to follow-up *7 participants were missing outcome data at the end of treatment (not clear if dropped out of treatment). Not reported separately for each group* • Sex (M/F) *CBT: 3/17 Usual care: 4/19* • Mean age (SD) *CBT: 15.25 (1.52) Usual care: 15.69 (1.55)* • Family origin or ethnicity *Ethnic minority CBT: 11 Usual care: 11*	• Unclear risk of bias *Not reported separately for each group* **Selective reporting** • Unclear risk of bias *BDI was reported over the course of the treatment only for female participants. This was not described in the methods of the paper* **Other sources of bias** • High risk of bias *Data only analysed for female participants despite collecting data for both sexes – appears to be a post-hoc decision because some data was missing for male participants, but there is no clear rationale for why male and female participants should be considered separately, and this is not mentioned in plan of analysis section* **Overall risk of bias** • Low **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Interventions • CBT *Manual guided individual therapy designed for adolescents with interpersonal trauma history. Emphasised mindfulness strategies. Twelve approximately weekly sessions* **Comparisons** • Usual care *Therapy at choice of therapist, did not follow a manual* **Outcome measure(s)** • Depressive symptoms *Beck depression inventory score*	
Shomaker (2017)	Pilot randomized controlled trial of a mindfulness-based group intervention in adolescent girls at risk for type 2 diabetes with depressive symptoms	**Data extraction (intervention)** • Antidepressants use *None: One of the exclusion criteria was medication use affecting mood (e.g. antidepressants)* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Colorado State University Center for Family and Couple Therapy* • Study dates *2014 - 2015* • Duration of treatment and follow-up *6 weeks treatment + post-treatment and 6 months follow-up*	**Random sequence generation** • Low risk of bias *Randomisation, stratified by age and race/ethnicity, was generated by an electronic program with permuted blocks, and participants were notified by telephone of their group assignment.* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel**

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Sources of funding *The Eunice Kennedy Shriver National Institute of Child Health and Human Development with supplemental support from the Colorado School of Public Health.* **Inclusion criteria** • Age *12-17* • Centre for epidemiologic studies depression scale *Mild-to-moderate depressive symptoms score ≥16* • Sex *Female* • Overweight/obesity *BMI ≥85th percentile* • Diabetes history *Parent-reported type 2 diabetes, prediabetes, or gestational diabetes in ≥1 first-or second-degree relative* • Good general health **Exclusion criteria** • Participation in psychotherapy *Structured weight loss or psychotherapy* • Major depressive disorder or dysthymia • Pregnant • Medical condition *Major medical problem including type 2 diabetes (fasting glucose level >126 mg/dL)* • Medication *Medication use affecting insulin resistance or mood (for example, insulin sensitizers, anti-depressants, stimulants)* **Sample characteristics** • Depression severity *Depression symptoms*	• High risk of bias *No details of blinding of participants and personnel (assume unblinded)* **Blinding of outcome assessment** • High risk of bias *Assessors of psychosocial adjustment were not consistently blinded to group allocation* **Incomplete outcome data** • High risk of bias *Higher rate of attrition 29% in the mindfulness group compared to 6% in the CBT group* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • High **Directness** • Partially applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Sample size *33* • Split between study groups *Group mindfulness: 17 Group CBT: 16* • Loss to follow-up *Group mindfulness: 5 Group CBT: 1* • Sex (M/F) *All were female* • Mean age (SD) *Group mindfulness: 15.0 (1.6) Group CBT: 14.9 (1.7)* • Family origin or ethnicity *Non-Hispanic White/Hispanic/Native American/American Indian* *Group mindfulness: 12/4/1 Group CBT: 11/3/2* **Interventions** • Group CBT *The cognitive-behavioural group was a manualized depression prevention, the Blues Program, consisting of one-hour sessions, once per week, for 6 weeks. Sessions are interactive, activity-based, and include motivational enhancement. Content includes psycho-education, cognitive restructuring, pleasant activities, self-reinforcement, and coping skills. At all sessions, adolescents are assigned homework (for example, daily mood journal, scheduling pleasant activities). They were provided with a homework log and worksheets. The groups were co-facilitated by the same clinical psychologist who led the mindfulness-based group to control for facilitator effects, and was co-facilitated by a counselling psychology graduate student.* • Group mindfulness *The mindfulness-based group intervention was based upon an adolescent mindfulness curriculum, Learning to BREATHE. Adolescents met for 6, one-hour sessions, once per week. Based upon mindfulness-based stress reduction, Learning to BREATHE was created for adolescents by using developmentally appropriate interactive activities and guided discussions to teach standard mindfulness skills. Example mindfulness awareness activities*	*Participants had high risk to develop type 2 diabetes*

Author (year)	Title	Study characteristics	Risk of bias and directness
		include breath awareness, body scanning, mindful eating, sitting meditation, loving kindness practice, and mindful movement (yoga). Brief (~10 minutes/day) homework was assigned to help adolescents practice skills and apply them to daily life. Adolescents were given meditation audio-recordings, a yoga mat, meditation cushion, homework log, and worksheets. The group was led by a clinical psychologist and co-facilitated by one of two graduate students in marriage and family therapy. **Outcome measure(s)** • Depressive symptoms *Center for epidemiologic studies depression scale*	
Smith (2015)	Computerised CBT for depressed adolescents: Randomised controlled trial	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *UK* • Study setting *Secondary schools* • Study dates *2011 - 2013* • Duration of treatment and follow-up *8 weeks treatment + post-treatment assessment Also reported outcomes at 6 months follow-up but only for the intervention group.* • Sources of funding *Grant from the Guy's & St Thomas' Charity, London; financial*	**Random sequence generation** • Low risk of bias *Randomisation was carried out using a minimisation procedure with stratification according to school (three schools), symptom severity (MFQ-C <29 vs MFQ-C score ≥29), age (younger than 14 years old vs 14 years or older), and gender* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *No details of blinding of*

Author (year)	Title	Study characteristics	Risk of bias and directness
		support from the Department of Health via the National Institute for Health Research Biomedical Research Centre and Dementia Unit awarded to South London and Maudsley NHS Foundation Trust in partnership with King's College London and King's College Hospital NHS Foundation Trust **Inclusion criteria** • Age *12-16* • School grades *Years 7 to 11* • Mood and feelings questionnaire *Child report score ≥20* • Completion of a pre-treatment assessment *Able to read and comprehend the screening questionnaire (mood and feelings questionnaire-child report* **Exclusion criteria** • Severe symptoms and/or significant risk requiring immediate intervention **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *112* • Split between study groups *Computer-based CBT (Stressbusters): 55 Waiting list: 57* • Loss to follow-up *Computer-based CBT: 0 Waiting list: 2* • Sex (M/F) *Not reported* • Mean age (SD) *Not reported*	*participants and personnel (assume unblinded)* **Blinding of outcome assessment** • Low risk of bias *Self-reported assessments* **Incomplete outcome data** • Low risk of bias *Low rate of attrition <5% and no significant differences across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Family origin or ethnicity *Not reported* **Interventions** • Computer-based CBT *Stressbusters is a computer-based CBT programme designed specifically for adolescents with mild to moderate depression. Treatment components include: psycho education about depression and its treatment; behavioural activation; identifying and changing negative automatic thoughts; improving problem solving; improving social skills; relapse prevention.* **Comparisons** • Waiting list *Participants were free to seek any non-study intervention during the eight-week waiting list period (for example, school counsellor, GP, referral to child and adolescent mental health services)* **Outcome measure(s)** • Depressive symptoms *Mood and feelings questionnaire child report* • Functional status *Strengths and difficulties questionnaire reported by teachers*	
Stallard (2012)	Classroom based cognitive behavioural therapy in reducing symptoms of depression in high risk adolescents: pragmatic cluster randomised controlled trial.	**Data extraction (intervention)** • Associated references *Stallard (2013)* • Antidepressants use *Unclear: Anti-psychotropic medication i.e. depressants or others was part of the client service receipt inventory but not reported separately*	**Random sequence generation** • Low risk of bias *Randomisation was by year group in a 1:1:1 ratio, balanced for key characteristics (school, year groups, number of students, number of classes, and frequency and timetabling of personal, social, and health*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Study type • Randomised controlled trial **Study details** • Study location *UK* • Study setting *Multisite, school* • Study dates *2009 - 2010* • Duration of treatment and follow-up *6 months treatment duration + post-treatment and 6 months follow-up* • Sources of funding *National Institute of Health Research (UK)* **Inclusion criteria** • Consent *All consenting students were included in the trial, but only data from students with 'high risk' of depression were used for the analysis (only these data are extracted here, included numbers in each trial arm)* • Student at school that had agreed to participate • Mood and feelings questionnaire *'High risk' was defined as a score of 5 or more on the short mood and feelings questionnaire on two separate occasions about two weeks apart (i.e. symptoms of depressive disorder, but not necessarily meeting the criteria for depressive disorder diagnosis)* **Exclusion criteria** • None reported **Sample characteristics**	*education lessons) by calculating an imbalance statistic for a large random sample of possible allocation sequences. A statistician with no other involvement in the study randomly selected one sequence from a subset with the most desirable balance properties* **Allocation concealment** • Unclear risk of bias *Details of allocation concealment are not reported* **Blinding of participants and personnel** • High risk of bias *Participants were not blinded* **Blinding of outcome assessment** • Low risk of bias *Assessors were blind to group allocation when assessing outcomes* **Incomplete outcome data** • Low risk of bias *No significant differences for attrition between the groups*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Depression severity *Depression symptoms* • Sample size *1,064* • Split between study groups *Group CBT: 392 Attention control:374 Usual care: 298* • Loss to follow-up *Outcome data at 12 months was collected from 296/392 of group CBT participants, 308/374 of attention control participants,242/298 of usual care participants (attrition at 6 months not reported)* • Sex (M/F) *Group CBT: 132/260 Attention control: 135/239 Usual care: 197/101* • Mean age (SD) *Group CBT: 14.4 (1.0) Attention control: 14.1 (1.0) Usual care: 13.9 (1.2)* • Family origin or ethnicity *White/non white Group CBT: 314/44 Attention control: 286/64 Usual care: 246/38* **Interventions** • Group CBT *Classroom based program 'the resourceful adolescent'. Nine modules and two booster sessions lasting 50-60 minutes delivered by two trained facilitators working with the class teacher* **Comparisons** • Usual care *Participants in the usual school provision arm took part in the personal social and health education sessions provided by the school, with no assistance from the research team* • Attention control *Delivery of the usual persona, social and health education programme, delivered by the teacher, assisted by two trained facilitators*	**Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Outcome measure(s) • Depressive symptoms *Depression subscale of the revised child anxiety and depression scale* • Quality of life *EQ-5D*	
Stark (1987)	A comparison of the relative efficacy of self-control therapy and a behavioral problem-solving therapy for depression in children	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *School* • Study dates *Not reported* • Duration of treatment and follow-up *5 weeks treatment + post-treatment. Follow-up data not extracted because waiting list group received intervention in this period.* • Sources of funding *Not specified* **Inclusion criteria** • Child depression inventory *Score of >16*	**Random sequence generation** • Unclear risk of bias *No details of randomisation procedure* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *Participants and clinicians were unblinded* **Blinding of outcome assessment** • Low risk of bias *Assessor was blind to treatment allocation* **Incomplete outcome data** • Low risk of bias

Author (year)	Title	Study characteristics	Risk of bias and directness
		• School grades *4th, 5th or 6th grade student* **Exclusion criteria** • None reported **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *18* • Split between study groups *Group CBT: 9 Waiting list: 9* • Loss to follow-up *No attrition before the post-treatment assessment (further follow up assessment data not extracted)* • Sex (M/F) *Group CBT: 5/4 Waiting list: 5/4* • Mean age (SD) *Group CBT: 11.2 Waiting list: 11.3* • Family origin or ethnicity *Not reported* **Interventions** • Group CBT *Twelve 45-50 minute sessions over the course of 5 weeks. Referred to as 'self-control' therapy but included elements of CBT* **Comparisons** • Waiting list *Waiting period was 5 weeks* **Outcome measure(s)**	*No attrition reported* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Depressive symptoms *Children's depression inventory Child depression scale Children's depression rating scale, revised version*	
Stasiak (2014)	A pilot double blind randomized placebo controlled trial of a prototype computer-based cognitive behavioural therapy program for adolescents with symptoms of depression.	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *New Zealand* • Study setting *School* • Study dates *Not reported* • Duration of treatment and follow-up *16 weeks treatment + post-treatment and 1 month follow-up* • Sources of funding *Not specified* **Inclusion criteria** • Age *13-18* • Children's depression rating scale *Score of 30 or more on the children's depression rating scale revised version* • Reynolds adolescent depression scale *Score of 76 or more on the Reynolds' Adolescent depression scale 2nd edition*	**Random sequence generation** • Low risk of bias *Randomisation was via computer-generated numbers* **Allocation concealment** • Low risk of bias *Computer generated passwords that allocated participants to each arm. Passwords were sealed in opaque envelopes and handed to participants after they had consented to participate. Therefore allocation concealment was ensured* **Blinding of participants and personnel** • Low risk of bias *Participants were informed that they would be allocated to one of two interventions, but not told which was the 'active' intervention, and so were blinded (at least to some extent). The researchers were also blinded to treatment allocation*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Exclusion criteria • Other treatment for depression *Currently receiving psychotherapy* • Intellectual functioning *Moderate or severe learning disability* • Language *Limited English language skills* • Suicide *High or moderate suicide risk* • Unable to use a computer **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *34* • Split between study groups *Computerised CBT: 17 Attention control: 17* • Loss to follow-up *1 of the computerised CBT group and 3 of the attention control group did not complete treatment. 3 further computerised CBT participants did not return for the 1 month follow up* • Sex (M/F) *Computerised CBT: 8/9 Attention control: 12/5* • Mean age (SD) *Computerised CBT: 15.47 (1.46) Attention control: 14.88 (1.49)* • Family origin or ethnicity *New Zealand European/Maori/Chinese or Tawanese/Pacific Island/South African/Indian Computerised CBT: 11/0/1/2/2/1 Attention control: 3/2/2/0/0/0* **Interventions** • Computer-based CBT	**Blinding of outcome assessment** • Low risk of bias *School counsellors (assessors) were blind to the assignment of treatment and were instructed not to investigate which intervention the participants received* **Incomplete outcome data** • Low risk of bias *No significant differences for attrition between the groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Low **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Seven 30 minute modules completed on standalone computer in school counsellors office over course of 4-10 weeks **Comparisons** • Attention control *Computerised program with brief psycho-educational content (information on stress reduction, healthy lifestyles). Seven 30 minute modules completed on standalone computer in school counsellors office over course of 4-10 weeks* **Outcome measure(s)** • Depressive symptoms *Child depression rating scale, revised version Reynolds adolescent rating scale* • Remission *Child depression rating scale, revised version score =<29* • Discontinuation for any reason *Note: participants were paid $NZ50 for completing the study* • Quality of life *PEDS-QL*	
Stice (2008)	Brief cognitive-behavioral depression prevention program for high-risk adolescents outperforms two alternative interventions: a randomized efficacy trial.	**Data extraction (intervention)** • Associated references *Stice (2010)* • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details**	**Random sequence generation** • Low risk of bias *Randomisation was by computer-generated random number, blocked by gender and school* **Allocation concealment** • Unclear risk of bias *Allocation concealment unclear*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Study location *US* • Study setting *School* • Study dates *2004 - 2007* • Duration of treatment and follow-up *6 weeks treatment + post-treatment, 6 months, 1 and 2 years follow-up* • Sources of funding *National institute for mental health, National institute of health* **Inclusion criteria** • Age *14-19* • Centre for epidemiologic studies depression scale *Score of =>20* **Exclusion criteria** • Major depressive disorder or dysthymia *Meet criteria for current major depressive disorder* **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *341* • Split between study groups *Group CBT: 89 NDST: 88 Guided self-help: 80 Monitoringl: 84* • Loss to follow-up *Cumulative loss to follow up at 2 year Group CBT: 19 NDST: 23 Guided self-help: 22 Monitoring: 12* • Sex (M/F) *150/191*	**Blinding of participants and personnel** • High risk of bias *Participants presumed unblinded* **Blinding of outcome assessment** • Low risk of bias *Assessors were blinded to the condition that participants were allocated to* **Incomplete outcome data** • Low risk of bias *No significant differences for attrition between the groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Mean age (SD) *15.6 (1.2)* • Family origin or ethnicity *Asian/African American/Caucasian/Hispanic/other: 7/31/157/113/34* **Interventions** • Guided self-help *Bibliotherapy intervention. Participants were given the book 'Feeling good' (Burns 1980), which provides cognitive behavioural techniques for reducing negative mood. Written at a high-school reading level* • Group CBT *Six weekly 1hr sessions based on Clarke et al. 1995 CBT programme. Sessions focussed on building group rapport, increasing involvement in pleasant activities, motivational enhancement, and replacing negative cognitions with positive cognitions. Homework was set* • Non-directive supportive therapy *Six weekly 1hr group sessions based on Brent et al 1997. Focused on building rapport, providing support and helping participants identify and express feelings* **Comparisons** • Monitoring *Monitoring only. Participants were given a brochure with information about depression and treatments, and information about local treatment options. They participated in the same measurements as other groups* **Outcome measure(s)** • Depressive symptoms *Beck depression inventory*	

Author (year)	Title	Study characteristics	Risk of bias and directness
Szigethy (2007)	Cognitive-behavioral therapy for adolescents with inflammatory bowel disease and subsyndromal depression.	**Data extraction (intervention)** • Associated references *Thompson (2012): This paper reports on 9 and 12 months follow-up. Depression symptoms data was not extracted because the paper only reports means without standard deviations.* • Antidepressants use *None: One of the exclusion criteria was antidepressant medications within 2 weeks of assessment* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Hospital* • Study dates *Not reported* • Duration of treatment and follow-up *Post-treatment was done within 3 weeks post-treatment (12 to 14 weeks). This was reported by Szigethy 2007. Follow-up assessments were administered at 6 months and 12 months after treatment completion.* • Sources of funding *National institute of mental health, Wolpow family fund* **Inclusion criteria** • Child depression inventory *Children's depression inventory and/or children's depression inventory- parent version score =>9* • Age *11-17* • Language	**Random sequence generation** • Unclear risk of bias *Randomisation was stratified by depression severity – method of randomisation not reported* **Allocation concealment** • Unclear risk of bias *Details of allocation concealment not reported* **Blinding of participants and personnel** • High risk of bias *Blinding of participants and clinicians not reported (presume unblinded)* **Blinding of outcome assessment** • Low risk of bias *Assessors were blind to group allocation* **Incomplete outcome data** • Unclear risk of bias *No details of attrition in the treatment as usual group are reported* **Selective reporting** • Low risk of bias

Author (year)	Title	Study characteristics	Risk of bias and directness
		English speaking • Inflammatory bowel disease *Confirmed by biopsy* **Exclusion criteria** • Bipolar disorder *By DSM-IV criteria* • Psychotic disorder *By DSM-IV criteria* • Suicide attempt *Within 1 month of enrolment* • Major depressive disorder or dysthymia *By DSM-IV criteria* • Other treatment for depression *Antidepressant medication within 2 weeks of assessment* • Hospitalisation *Depression requiring psychiatric hospitalisation* • Substance abuse *Substance abuse/dependence within 1 month of enrolment* • Failure of previous psychotherapy *Manual-based CBT of at least 8 sessions* **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *41* • Split between study groups *CBT: 22 Usual care: 19* • Loss to follow-up *3 participants did not complete the CBT therapy. No details of attrition in the treatment as usual group are reported* • Sex (M/F) *CBT: 10/12 Usual care: 10/9* • Mean age (SD)	**Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Partially applicable *Participants had inflammatory bowel disease*

Author (year)	Title	Study characteristics	Risk of bias and directness
		CBT: 14.95 (2.33) Usual care: 15.02 (1.83) • Family origin or ethnicity *African American/not African American CBT: 2/20 Usual care: 4/15* **Interventions** • CBT *9-11 1hr sessions. Up to 3 sessions per participant were delivered by telephone. Followed the PASCET-PI manual which specifically focuses on improving cognitions and behaviours related to inflammatory bowel disease* **Comparisons** • Usual care *Usual care was provided for this group was well as an information sheet for their parents about warning signs of major depression and available treatment options* **Outcome measure(s)** • Depressive symptoms *Child depression rating scale, revised version Number of symptoms in the Schedule for affective disorders and schizophrenia for school-age children* • Functional status *Children's global assessment scale*	
Szigethy (2014)	Randomized efficacy trial of two psychotherapies for depression in youth with inflammatory bowel disease.	**Data extraction (intervention)** • Antidepressants use *None: One of the exclusion criteria was antidepressant medications within 1 month of baseline assessment* **Study type** • Randomised controlled trial	**Random sequence generation** • Low risk of bias *Randomised was balanced for age, inflammatory bowel disease type, and depression severity using a block design separately for each of the two sites*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Study details • Study location *US* • Study setting *Hospital* • Study dates *Not reported* • Duration of treatment and follow-up *3 months treatment without additional follow-up (only post-treatment assessment)* • Sources of funding *National institute of mental health* **Inclusion criteria** • Child depression inventory *Children's depression inventory and/or children's depression inventory- parent version score =>10* • Age *9-17* • Depression *Diagnosis of major or minor depression by DSM-IV-TR criteria based on K-SADS-PL interview* • Language *English speaking* • Inflammatory bowel disease **Exclusion criteria** • Bipolar disorder • Psychotic disorder • Suicide attempt *Within 1 month of assessment* • Eating disorder *Requiring hospitalisation (lifetime)*	**Allocation concealment** • Unclear risk of bias *No details on allocation concealment reported* **Blinding of participants and personnel** • High risk of bias *Blinding not discussed – presume unblinded* **Blinding of outcome assessment** • High risk of bias *Blinding not discussed – presume unblinded* **Incomplete outcome data** • Unclear risk of bias *Unclear how missing data dealt with in intention to treat analysis* **Selective reporting** • Unclear risk of bias *Only means without SD were reported at follow-up for CDRS-R (depression symptoms), IMPACT-III (quality of life) and CGAS (functional status).* **Other sources of bias**

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Other treatment for depression *Antidepressant medication within 1 month of assessment Current psychotherapy* • Hospitalisation *Depression requiring psychiatric hospitalisation within 3 months of assessment* • Substance abuse *Within 1 month of enrolment* **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *217* • Split between study groups *CBT: 110 Non-directive supportive therapy: 107* • Loss to follow-up *8 in the CBT group and 17 in the non-directive supportive therapy group did not receive the allocated intervention. 20 from the CBT group and 19 from the non-directive supportive therapy group were lost to follow up at 3 months* • Sex (M/F) *CBT: 54/66 Non-directive supportive therapy: 48/59* • Mean age (SD) *CBT: 14.3 (2.5) Non-directive supportive therapy: 14.3 (2.3)* • Family origin or ethnicity *Not reported* **Interventions** • CBT *Up to twelve 45 minutes sessions over 3 months + 3 parent sessions. >62% of sessions were delivered by telephone. Followed the PASCET-PI manual which specifically focuses on improving cognitions and behaviours related to inflammatory bowel disease*	• Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Partially applicable *Participants had inflammatory bowel disease*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Comparisons • Non-directive supportive therapy *Up to twelve 45 minutes sessions over 3 months. >70% of sessions were delivered by telephone. Sessions involved reflective listening, empathy and encouraging seeking of resources for help, but did not teach new skills* **Outcome measure(s)** • Remission *No longer meet DSM-IV-TR criteria for depressive disorder, assessed by Schedule for Affective disorders and Schizophrenia for school-age children, present and lifetime version interview* • Quality of life *IMPACT-III (paediatric IBD)*	
Tompson (2017)	A Randomized Clinical Trial Comparing Family-Focused Treatment and Individual Supportive Therapy for Depression in Childhood and Early Adolescence	**Data extraction (intervention)** • Antidepressants use *Yes: Antidepressants at baseline Family therapy (6 of 67 participants [8.9%]) NDST (9 of 67 participants [13.4%])* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Not reported* • Study dates *Not reported* • Duration of treatment and follow-up	**Random sequence generation** • Low risk of bias *Randomisation was done using a computerised algorithm* **Allocation concealment** • Unclear risk of bias *Method of allocation concealment was not reported* **Blinding of participants and personnel** • High risk of bias *No details of blinding of participants and personnel (assume unblinded)*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Up to 22 weeks treatment without additional follow-up (only post-treatment assessment) • Sources of funding *National Institute of Mental Health* **Inclusion criteria** • Age *7-14* • Parental interest in trial *Parent/caregiver willing to participate* • Depression *Diagnosis of current major depressive disorder, dysthymic disorder, or depressive disorder-not otherwise specified* • Consent *Willingness to provide informed consent (assent)* **Exclusion criteria** • Psychotic disorder • Pervasive disorder *Pervasive developmental disorder* • Obsessive compulsive disorder *Severe obsessive-compulsive disorder* • Conduct disorder *Threatening the stability of the home environment (for example: recent arrests, juvenile justice, and/or children's protective service involvement)* • Mental retardation • Substance abuse *Active substance abuse/dependence* • Language *Lacked English fluency* **Sample characteristics** • Depression severity	**Blinding of outcome assessment** • Low risk of bias *Assessment staff were masked to treatment allocation* **Incomplete outcome data** • Low risk of bias *Low rate of attrition <20% and no significant differences across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Depressive disorder diagnosis • Sample size *134* • Split between study groups *Family therapy (family-focused treatment for childhood depression [FFT-CD]): 67 Individual supportive psychotherapy: 67* • Loss to follow-up *Family therapy: 13 Individual supportive psychotherapy: 5* • Sex (M/F) *Family therapy: 30/37 Individual supportive psychotherapy: 29/38* • Mean age (SD) *Family therapy: 10.7 (2.1) Individual supportive psychotherapy: 10.9 (2.0)* • Family origin or ethnicity *Caucasian/Latino-or-Hispanic/African-American/Other Family therapy: 37/10/14/6 Individual supportive psychotherapy: 31/10/21/5* **Interventions** • Family therapy *FFT-CD is rooted in cognitive-behavioural and family therapies and designed to assist families in developing skills to combat depression and create ways of interacting that protect the child from some of the negative sequelae of stress. Within a broader psychoeducational framework, interpersonal factors impacting the maintenance and treatment of youth depression are emphasized, using models demonstrating the interplay of mood and interpersonal interactions.* • Non-directive supportive therapy *Individual supportive psychotherapy used client centred therapy, an adaptation of a manualized approach for children exposed to trauma, that controlled for nonspecific factors, specifically therapist characteristics, time, and treatment exposure. IP emphasized individual sessions, with an initial parent session and brief, supportive parent meetings every 3–4 weeks. The IP goal was to help children gain greater understanding of their emotions through empathic listening; techniques included reflecting and clarifying emotions, nondirective problem-solving, positive feedback, and*	

Author (year)	Title	Study characteristics	Risk of bias and directness
		exploring and labelling children's emotional/behavioural reactions. **Outcome measure(s)** • Depressive symptoms *Children's depression rating scale - revised Children's depression inventory* • Remission *Children's depression rating scale - revised ≤28* • Functional status *Children's global assessment scale*	
Topooco (2018)	Chat- and internet-based cognitive-behavioural therapy in treatment of adolescent depression: randomised controlled trial	**Data extraction (intervention)** • Additional comments *Participants with comorbid anxiety disorders were accepted if depression was the primary concern. Those currently taking medication for attention-deficit hyperactivity disorder, anxiety or depression were accepted, if the dose had been fixed during the past month and was kept constant throughout the study.* • Antidepressants use *Unclear if psychotropic medication at baseline (current treatment) included antidepressants Computer CBT (1 of 33 participants [3.0%]) Attention control (5 of 37 participants [13.5%])* **Study type** • Randomised controlled trial **Study details** • Study location *Sweden* • Study setting *Online* • Study dates *2015*	**Random sequence generation** • Low risk of bias *Randomisation was done using a computerised random number service* **Allocation concealment** • High risk of bias *It was not possible for participants or study therapists to be blinded to the treatment allocation, owing to the nature of the interventions.* **Blinding of participants and personnel** • High risk of bias *Participants and study therapists were not blinded to treatment allocation*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Duration of treatment and follow-up *8 weeks treatment + post-treatment assessment. Follow-up was only done for the intervention group (6 months) and it was not extracted because this does not match review protocol.* • Sources of funding *This research was supported by a research scholarship from Queen Silvia's Jubilee Fund and grant from the Swedish Central Bank.* **Inclusion criteria** • Age *15-19 and deemed to have sufficient maturity to participate in research* • Major depressive disorder *Fulfilling diagnosis of major depressive disorder according to the mini-international neuropsychiatric interview (MINI) version 6.0* • Beck depression inventory *Version II score ≥14* • Depressive symptoms *Presenting with at least five symptoms of major depressive disorder* **Exclusion criteria** • Substance misuse disorder *Currently fulfilling the diagnostic criteria for alcohol or substance misuse according to the MINI and the alcohol use disorders identification test* • Suicidal idea *Severe suicidal ideation according to section B of the MINI (cut-off ≤16) or the suicidal ideation item (cut-off ≤1) in the patient health questionnaire 9* • Other treatment for depression *Currently undergoing psychotherapy treatment* • Psychiatric disorder *Severe comorbid psychiatric condition that might interfere with the treatment (for example, bipolar disorder or schizophrenia), assessed using the MINI*	**Blinding of outcome assessment** • High risk of bias *Clinicians administered interviews and were not blinded* **Incomplete outcome data** • Low risk of bias *Low rate of attrition <15% and no significant differences across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • High **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Medical condition *Other medical problems that would require other treatments* **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *71* • Split between study groups *Computer-based CBT: 33 Attention control: 37* • Loss to follow-up *Computer-based CBT: 5 Attention control: 2* • Sex (M/F) *Computer-based CBT: 2/31 Attention control: 2/35* • Mean age (SD) *Computer-based CBT: 17.2 Attention control: 16.9* • Family origin or ethnicity *Not reported* **Interventions** • Computer-based CBT *The online intervention based on CBT (iCBT) programme was highly structured and based on previous iCBT programmes evaluated for adult depression that corresponded to a face-to-face CBT protocol for adult depression. The treatment was delivered over 8 weeks and consisted of eight skill-based modules and eight weekly chat sessions. Modules targeted behavioural and cognitive factors documented to reduce symptoms of depression and anxiety. Techniques included psychoeducation, behavioural activation, cognitive restructuring, affect regulation, anxiety management, and relapse prevention. Modules comprised reading material corresponding to 6 to 10 book pages, educational videos, fictional patient stories, interactive tasks and homework.*	

Author (year)	Title	Study characteristics	Risk of bias and directness
		Comparisons • Attention control *The attention control consisted of monitoring and non-specific counselling to provide a control for time and non-specific treatment factors such as caregiver attention and expectancy. Participants were assigned to a therapist and given restricted access to the treatment platform, and were instructed to fill out a depression questionnaire on a weekly basis. Platform access allowed participants to view their depression score on the treatment platform and to message their therapist. They were informed that their assessments were to be monitored by their therapist, and were instructed to contact the therapist in the event of their symptoms deteriorating. The therapists immediately contacted participants with elevated scores.* **Outcome measure(s)** • Depressive symptoms *Beck depression inventory version II Patient health questionnaire 9* • Remission *No longer meet DSM-IV criteria for major depressive episode confirmed by the MINI*	
Trowell (2007)	Childhood depression: a place for psychotherapy. An outcome study comparing individual psychodynamic psychotherapy and family therapy.	**Data extraction (intervention)** • Associated references *Garoff (2012)* • Antidepressants use *None: One of the inclusion criteria was any antidepressants or other psychotropic medication had to have been stopped at least 4 weeks prior to commencement of therapy* **Study type** • Randomised controlled trial	**Random sequence generation** • Unclear risk of bias *No details of method of randomisation* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and**

Author (year)	Title	Study characteristics	Risk of bias and directness
		Study details • Study location *Multisite: Athens, Helsinki, London* • Study setting *Secondary care setting (referral to study from community clinics)* • Study dates *Not reported* • Duration of treatment and follow-up *9 months treatment + post-treatment and 6 months follow-up* • Sources of funding *Medical Society of Finland* **Inclusion criteria** • Child depression inventory *Score of >13* • Age *9-15* • Major depressive disorder *Meet criteria for major depressive disorder or dysthymia or both (version of DSM not specified)* • Living with at least one biological parent • Medication *Any psychotropic medication stopped at least 4 weeks before study treatment* **Exclusion criteria** • Bipolar disorder • Conduct disorder *Severe conduct disorder* • Hospitalisation *Need for urgent hospitalisation* • Schizoaffective disorder • Parents with psychotic disorder or severe personality disorder	**personnel** • High risk of bias *No details of blinding (presume unblinded)* **Blinding of outcome assessment** • High risk of bias *No details of blinding (presume unblinded)* **Incomplete outcome data** • Low risk of bias *No significant differences for attrition between the groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Sample characteristics • Depression severity *Depressive disorder diagnosis* • Sample size *72* • Split between study groups *Individual psychodynamic psychotherapy: 35 Family therapy: 37* • Loss to follow-up *Individual psychodynamic psychotherapy: 0 Family therapy: 4* • Sex (M/F) *Individual psychodynamic psychotherapy: 26/9 Family therapy: 19/18* • Mean age (SD) *Individual psychodynamic psychotherapy: 11.5 (1.1) Family therapy: 11.9 (1.5)* • Family origin or ethnicity *White/Asian/other/missing Individual psychodynamic psychotherapy: 29/2/3/1 Family therapy: 34/2/1/0* **Interventions** • Individual psychodynamic psychotherapy *Based on manual. 30 weekly 50 minute sessions augmented by 15 bi-weekly separate parent sessions. Treatment was over course of 9 months* **Comparisons** • Systemic family therapy *Maximum of fourteen 90-minute sessions every 2-3 weeks with 2 therapists. Parents were invited to all sessions after the 1st session, and 1 out of 3 sessions was for parents only. Other family members participated occasionally. Treatment was over course of 9 months* **Outcome measure(s)** • Depressive symptoms	

Author (year)	Title	Study characteristics	Risk of bias and directness
		Child depression inventory Mood and feelings questionnaire • Remission *Absence of depressive disorder (major depression or dysthymia)* • Functional status *Children's global assessment scale* • Discontinuation for any reason	
Vostanis (1996a)	A randomised controlled out-patient trial of cognitive-behavioural treatment for children and adolescents with depression: 9-month follow-up.	**Data extraction (intervention)** • Associated references *Vostanis (1996b)* • Additional comments *Depression symptoms (MFQ-C) were reported in a graph without confidence intervals or any data on standard deviations or standard errors* • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *UK* • Study setting *Outpatient* • Study dates *Not reported* • Duration of treatment and follow-up *18 weeks treatment + post-treatment and 9 months follow-up* • Sources of funding *Merck research fund, Queen Elizabeth psychiatric hospital trustees' fund*	**Random sequence generation** • High risk of bias *Allocation to treatment and to therapist by force sequential randomisation* **Allocation concealment** • Unclear risk of bias *Unclear allocation concealment* **Blinding of participants and personnel** • Unclear risk of bias *Unclear blinding* **Blinding of outcome assessment** • Unclear risk of bias *Unclear blinding* **Incomplete outcome data** • Low risk of bias *Only 1 participant was lost to follow-up*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Inclusion criteria • Age *8-17* • Depression *Met DSM-III-R criteria for depressive disorder (based on K-SADS interview)* • Mood and feelings questionnaire *Score of >15* • Treatment completion *Completed at least 2 treatment sessions* **Exclusion criteria** • Refusal to attend regularly • Request for family therapy **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *57* • Split between study groups *CBT: 29 Non-directive supportive therapy: 28* • Loss to follow-up *1 participant in the interpersonal psychotherapy group refused participation in the 9 month follow up and their data was excluded from the study* • Sex (M/F) *25/32* • Mean age (SD) *12.7 (8-17)* • Family origin or ethnicity *Not reported*	**Selective reporting** • Unclear risk of bias *There was inconsistency in how remission was reported for the interpersonal psychotherapy at post-treatment between table and text (24 vs 25)* **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Interventions • CBT *Nine fortnightly sessions. Included recognition and labelling of emotions, enhancement of social skills and changing negative cognitive attributions* **Comparisons** • Non-directive supportive therapy *Non-focused intervention – review of mental state and social activities. No suggestions or interpretations were made* **Outcome measure(s)** • Remission *No longer meeting DSM-III-R criteria for depressive disorder*	
Weisz (1997)	Brief treatment of mild-to-moderate child depression using primary and secondary control enhancement training.	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *School* • Study dates *Not reported* • Duration of treatment and follow-up	**Random sequence generation** • Unclear risk of bias *No details of method of randomisation* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *Participants and treating clinicians presumed unblinded*

Author (year)	Title	Study characteristics	Risk of bias and directness
		8 weeks treatment + post-treatment and 9 months follow-up • Sources of funding *Not specified* **Inclusion criteria** • Child depression inventory *Score of =>11* • Children's depression rating scale *Score of =>34 (revised version)* • School grades *3-6* **Exclusion criteria** • None reported **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *48* • Split between study groups *Group CBT: 16 No treatment: 32* • Loss to follow-up *Follow up at 9 months was possible for 29 (60.4%) of the original sample (not specified separately for each group). No further details reported* • Sex (M/F) *26/22* • Mean age (SD) *9.6* • Family origin or ethnicity *Caucasian/ethnic minority: 30/18*	**Blinding of outcome assessment** • Low risk of bias *Assessors were blinded to group allocation* **Incomplete outcome data** • Unclear risk of bias *Attrition not reported separately for each group* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Interventions • Group CBT *Eight 50-minute sessions, weekly, in small group, led by therapists. Included weekly homework* **Comparisons** • No treatment *No further details were reported about this group* **Outcome measure(s)** • Depressive symptoms *Children's depression inventory Children's depression rating scale – revised*	
Weisz (2009)	Cognitive-behavioral therapy versus usual clinical care for youth depression: an initial test of transportability to community clinics and clinicians.	**Data extraction (intervention)** • Antidepressants use *Yes: Any Depression Medication during treatment phase CBT (2 of 31 participants [6.4%]) Usual care (6 of 24 participants [25.0%])* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Community clinic* • Study dates *1998 - 2005* • Duration of treatment and follow-up *Duration of treatment varied: mean duration of 24 weeks for CBT and 39 weeks for usual care without additional follow-up (only post-*	**Random sequence generation** • Low risk of bias *Both assignment of therapist to treatment, and assignment of participant to treatment were randomised. Block randomisation was used to balance for clinic, gender, and bilingual therapist requirement* **Allocation concealment** • High risk of bias *Assessors were blind to group allocation, clinicians and patients were unblinded* **Blinding of participants and personnel**

Author (year)	Title	Study characteristics	Risk of bias and directness
		treatment assessment) • Sources of funding *National institute of mental health, the John D. and Catherine T. MacArthur Foundation* **Inclusion criteria** • Age *8-15* • Depression *Diagnosis of major depressive disorder, dysthymia or minor depressive disorder according to DSM-IV criteria (assessed by interview) Depressive disorder judged to have 'treatment priority' (diagnostic, symptom, referral problem and severity data used to inform discussion by project staff, senior clinicians and family, who judged treatment priority)* **Exclusion criteria** • Psychotic disorder *No signs of psychotic or developmental disorder* **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *57* • Split between study groups *CBT: 32 Usual care: 25* • Loss to follow-up *Not reported* • Sex (M/F) *25/32* • Mean age (SD) *11.77 (2.14)* • Family origin or ethnicity	• High risk of bias *Clinicians and patients were unblinded to group allocation* **Blinding of outcome assessment** • Low risk of bias *Assessors were blind to group allocation* **Incomplete outcome data** • Low risk of bias *No attrition reported* **Selective reporting** • Low risk of bias **Other sources of bias** • High risk of bias *Treatment period was not defined (as in most other studies); treatment was free to vary in both groups, and was longer in the usual care group. Intention to treat design reported, but way this was achieved is unclear ('participants missing a measure at any time point were excluded from analyses with that measure at that time point')* **Overall risk of bias**

Author (year)	Title	Study characteristics	Risk of bias and directness
		Caucasian/African American/Latino/mixed or other/not reported: 19/15/15/6/2 **Interventions** • CBT *Therapists used the expanded PASCET manual which contains detailed plans for 10 individual sessions and outlines to guide up to 5 more sessions. However, treatment could be extended for participants who need more than 15 sessions. Mean treatment duration was 24 weeks* **Comparisons** • Usual care *Clinicians were asked to use the treatment that they used regularly and believed to be effective in their clinical practice. Analysis showed that more psychodynamic and family approaches were used by therapists in this group. Therapy continued until normal termination (it was not restricted in length for the purposes of the trial). Mean treatment duration was 39 weeks* **Outcome measure(s)** • Depressive symptoms *Children's depression inventory, youth version Children's depression inventory, parent version Diagnostic Interview Schedule for Children-Child report symptom count Diagnostic Interview Schedule for Children-Parent report symptom count*	• High **Directness** • Directly applicable
Wijnhoven (2014)	Randomized controlled trial testing the effectiveness of a depression prevention program ('Op Volle Kracht') among adolescent girls with elevated	**Data extraction (intervention)** • Additional comments *T0 was taken as baseline (entry assessment for eligibility)* • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper*	**Random sequence generation** • Low risk of bias *Randomisation was done by an independent researcher at school level using a random number generator, and was*

Author (year)	Title	Study characteristics	Risk of bias and directness
	depressive symptoms.	**Study type** • Randomised controlled trial **Study details** • Study location *Netherlands* • Study setting *School* • Study dates *Not reported* • Duration of treatment and follow-up *8 weeks treatment + post-treatment, 1 and 6 months follow-up* • Sources of funding *GGz Oost-Brabant and The Olim Foundation* **Inclusion criteria** • Child depression inventory *Score >19* • Age *11-15* • Sex *Female* **Exclusion criteria** • Child depression inventory *Score >19 and score 2 on item 9 (suicidal ideation)* **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *102*	*stratified by baseline CDI score* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *There was no blinding* **Blinding of outcome assessment** • Low risk of bias *Outcomes were by online questionnaire, so blinding of assessors is not relevant for this study* **Incomplete outcome data** • Low risk of bias *No significant differences for attrition between the groups* **Selective reporting** • Low risk of bias **Other sources of bias** • High risk of bias *The baseline characteristics of both groups were not balanced*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Split between study groups *Group CBT: 50 No treatment: 52* • Loss to follow-up *9 from the group CBT and 7 from the not treatment group declined to participate after randomisation (not included in total participant numbers). Two from the group CBT and 2 from the control group were lost to follow up at 6 months* • Sex (M/F) *0/102* • Mean age (SD) *13.30 (0.64)* • Family origin or ethnicity *Not reported* **Interventions** • Group CBT *Eight 50 minute group sessions. Followed the first 8 sessions of 'Op Volle Kracht' – an adapted version of the US Penn resiliency program* **Comparisons** • No treatment *Participants were offered to receive the intervention after final assessments took place* **Outcome measure(s)** • Depressive symptoms *Children's depression inventory. Center for epidemiological studies depression scale*	**Overall risk of bias** • Moderate **Directness** • Directly applicable
Wood (1996)	Controlled trial of a brief cognitive-behavioural intervention in adolescent	**Data extraction (intervention)** • Antidepressants use *None: One of the exclusion criteria was likely to require*	**Random sequence generation** • Unclear risk of bias *No details of randomisation*

Author (year)	Title	Study characteristics	Risk of bias and directness
	patients with depressive disorders.	*antidepressants* **Study type** • Randomised controlled trial **Study details** • Study location *UK* • Study setting *Hospital outpatient* • Study dates *Not reported* • Duration of treatment and follow-up *Treatment duration unclear + post-treatment, 3 and 6 months follow-up* • Sources of funding *Mental health foundation* **Inclusion criteria** • Age *9-17* • Depression *Meet DSM-III-R criteria for major depressive disorder or research diagnostic criteria minor depression* • Mood and feelings questionnaire *Score of 15 or more* **Exclusion criteria** • Psychotic disorder *Inpatients* • Other treatment for depression *Taking or likely to require antidepressants* • Intellectual functioning	*method* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *Patients not blinded* **Blinding of outcome assessment** • Low risk of bias *Assessor was blinded to the intervention group (blinding broken in 3 cases)* **Incomplete outcome data** • Low risk of bias *No significant differences for attrition between the groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Attending special school because of learning problems • Unable to complete questionnaires • Autism • Physical illness *Major physical illness or epilepsy* **Sample characteristics** • Depression severity *Depressive disorder diagnosis* • Sample size *53* • Split between study groups *CBT: 26 Relaxation: 27* • Loss to follow-up *2 dropped out of the CBT group and 3 dropped out of the relaxation therapy group during treatment. A further 2 from each group were loss from the study at 3 months follow up* • Sex (M/F) *CBT: 8/16 Relaxation: 7/17* • Mean age (SD) *CBT: 13.8 (1.7) Relaxation: 14.6 (1.6)* • Family origin or ethnicity *Not reported* **Interventions** • CBT *Included negative styles of thinking, difficulties with social relationships and symptoms of depression. Number of sessions/time scale unclear* **Comparisons** • Relaxation *Relaxation training. Number of sessions/time scale unclear*	**Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Outcome measure(s) • Depressive symptoms *Mood and feelings questionnaire- child version* • Remission *Absence of depressive disorder judged by K-SADS interview* • Functional status *Global assessment scale- child version* • Discontinuation for any reason	
Wright (2017)	Computerised cognitive-behavioural therapy for depression in adolescents: feasibility results and 4-month outcomes of a UK randomised controlled trial	**Data extraction (intervention)** • Antidepressants use *Yes: Reported as a response to the following question Have you ever been prescribed antidepressants? Yes Computer CBT (4 of 45 participants [8.8%]) Attention control (2 of 46 participants [4.3%])* **Study type** • Randomised controlled trial **Study details** • Study location *UK* • Study setting *School, child and adolescent mental health services (CAMHS) site, general practitioner (GP) surgery or community centre* • Study dates *2011 - 2014* • Duration of treatment and follow-up *Duration of treatment varied: mean 54.6 days for CBT and 49.9 days for attention control with 4 months follow-up* • Sources of funding *National Institute for Health Research under its Research for Patient Benefit Programme*	**Random sequence generation** • Low risk of bias *Randomisation was done using remote computerised single allocation* **Allocation concealment** • Low risk of bias *Computerised allocation was provided remotely by the University of York Trials Unit* **Blinding of participants and personnel** • High risk of bias *No details of blinding of participants and personnel (assume unblinded)* **Blinding of outcome assessment** • High risk of bias

Author (year)	Title	Study characteristics	Risk of bias and directness
		Inclusion criteria • Age *12-18* • Depression *Low mood/depression living within the areas covered by a CAMH service in a Northern City in England* • Mood and feelings questionnaire *Score ≥20* **Exclusion criteria** • Psychosis • Suicide *Active suicidality* • Postnatal depression **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *91* • Split between study groups *Computer-based CBT: 45 Attention control: 46* • Loss to follow-up *Computer-based CBT: 20 Attention control: 16* • Sex (M/F) *Computer-based CBT: 12/33 Attention control: 19/27* • Mean age (SD) *Computer-based CBT: 15.5 (1.4) Attention control: 15.2 (1.2)* • Family origin or ethnicity *White Computer-based CBT: 45 Attention control: 45* **Interventions**	*No details of blinding of assessors (assume unblinded)* **Incomplete outcome data** • High risk of bias *High rate of attrition 44% (computer-based CBT) and 35% (attention control)* **Selective reporting** • High risk of bias *Study protocol was registered with mood and feelings questionnaire as primary outcome but current paper reports short Beck depression inventory as the primary outcome* **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • High **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Computer-based CBT *Stressbusters is a CCBT program comprising eight 30-45 min sessions of CBT designed for 12–18-year olds. Each Stressbusters session is an interactive presentation featuring videos, animations, graphics and printouts.* **Comparisons** • Attention control *Participants spent an equivalent time accessing currently available self-help websites. These were chosen by an expert clinical panel, with user and carer involvement, based on them being suitable for use with the participant age range, not being heavily laden with information about self-harm and having no or minimal CBT content. All selected websites provided information about low mood/depression in a combination of texts, narratives and videos.* **Outcome measure(s)** • Depressive symptoms *Beck depression inventory Mood and feelings questionnaire* • Quality of life *EuroQol five dimensions questionnaire-youth (EQ-5D-Y)*	
Young (2006)	Efficacy of Interpersonal Psychotherapy-Adolescent Skills Training: an indicated preventive intervention for depression	**Data extraction (intervention)** • Associated references *Young (2009)* • Antidepressants use *None: No adolescents received medication* **Study type** • Randomised controlled trial **Study details**	**Random sequence generation** • Low risk of bias *Randomisation was done using a table of random numbers* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment*

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Study location *US* • Study setting *School* • Study dates *Not reported* • Duration of treatment and follow-up *12 weeks treatment + post-treatment, 3, 6, and 12 months follow-up* • Sources of funding *A Young Investigator Award from the National Alliance for Research on Schizophrenia and Depression* **Inclusion criteria** • Depressive symptoms *At least 2 subthreshold or threshold depression symptoms on the K-SADS-PL and did not meet criteria for a current depressive episode. Required symptoms were elevated depressed mood, irritability, or anhedonia.* • Children's global assessment scale *Score ≥61* **Exclusion criteria** • Bipolar disorder • Obsessive compulsive disorder • Panic disorder • Conduct disorder • Psychosis • Depression *Current diagnosis of depression or dysthymia* • Post-traumatic stress disorder • Oppositional defiant disorder • Attention deficit hyperactivity disorder *Untreated*	**Blinding of participants and personnel** • High risk of bias *No details of blinding of participants and personnel (assume unblinded)* **Blinding of outcome assessment** • Low risk of bias *Evaluators were blind* **Incomplete outcome data** • Low risk of bias *Low rate of attrition <10% and no significant differences across groups* **Selective reporting** • Low risk of bias **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		Sample characteristics • Depression severity *Depression symptoms* • Sample size *41* • Split between study groups *Interpersonal psychotherapy: 27 School counselling: 14* • Loss to follow-up *Interpersonal psychotherapy: 0 School counselling: 1* • Sex (M/F) *Interpersonal psychotherapy: 5/22 School counselling: 1/13* • Mean age (SD) *Interpersonal psychotherapy: 13.5 (1.3) School counselling: 13.1 (1.1)* • Family origin or ethnicity *Not reported* **Interventions** • Group interpersonal psychotherapy *Interpersonal psychotherapy adolescent skills training (IPT-AST) involved 2 initial individual sessions and 8 weekly 90-minute group sessions. The group focused on psychoeducation and general skill-building that can be applied to different relationships within the framework of 3 interpersonal problem areas: interpersonal role disputes, role transitions, and interpersonal deficits. The psychoeducation component included defining prevention, education members about depression, and discussing the relationship between feelings and interpersonal interactions. The interpersonal skill-building component consisted of 2 stages. First, communication and interpersonal strategies were taught. Once group members understood the skills, there were asked to apply them to different people in their lives, practicing first in group and then at home.* **Comparisons** • Usual care	

Author (year)	Title	Study characteristics	Risk of bias and directness
		Usual care was school counselling using typical school procedures. Sessions were 30 to 45 minute in duration and consisted of supportive counselling provided by school guidance counsellors or social workers **Outcome measure(s)** • Depressive symptoms *Centre for epidemiologic studies depression scale* • Functional status *Children's global assessment scale*	
Young (2010)	Preventing depression: a randomized trial of interpersonal psychotherapy-adolescent skills training.	**Data extraction (intervention)** • Antidepressants use *Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *School* • Study dates *2005 - 2007* • Duration of treatment and follow-up *Unclear treatment period + post-treatment, 6, 12 and 18 months follow-up* • Sources of funding *Not specified*	**Random sequence generation** • Low risk of bias *Randomisation was done using a table of random numbers which was generated so that approximately 2/3 of adolescents in each school would receive interpersonal psychotherapy* **Allocation concealment** • Unclear risk of bias *No details of how allocation concealment was ensured* **Blinding of participants and personnel** • High risk of bias *Participants and clinicians were not blinded to group allocation*

Author (year)	Title	Study characteristics	Risk of bias and directness
		Inclusion criteria • Age *13-17* • Centre for epidemiologic studies depression scale *Score of =>16* • Kiddie-Schedule for affective disorders and schizophrenia *At least two sub-threshold or threshold depression symptoms (present and lifetime version)* • Children's Global Assessment Scale *At least two sub-threshold or threshold depression symptoms* **Exclusion criteria** • Bipolar disorder • Obsessive compulsive disorder • Panic disorder • Conduct disorder • Psychosis • Depression *Meet criteria for a current depressive episode (DSM-IV criteria)* *Current diagnosis of depression, dysthymia* • Children's Global Assessment Scale *Score of =>61* • Post-traumatic stress disorder • Oppositional defiant disorder • Attention deficit hyperactivity disorder *Untreated* **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *57* • Split between study groups *Interpersonal psychotherapy: 36 Non-directive supportive therapy: 21*	**Blinding of outcome assessment** • Low risk of bias *Assessors were blind to group allocation* **Incomplete outcome data** • Low risk of bias *No significant differences for attrition between the groups* **Selective reporting** • Unclear risk of bias *CDRS-R (depression symptoms) data was not reported at post-treatment and follow-up. Reviewer read data from graph assuming that error bars on graph were standard errors* **Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		• Loss to follow-up *Cumulative attrition at 18 months: Interpersonal psychotherapy: 12 Non-directive supportive therapy: 6* • Sex (M/F) *Interpersonal psychotherapy: 16/20 Non-directive supportive therapy: 7/14* • Mean age (SD) *Interpersonal psychotherapy: 13.8 (1.7) Non-directive supportive therapy: 14.6 (1.6)* • Family origin or ethnicity *Not reported* **Interventions** • Group interpersonal psychotherapy *Two individual pre-group sessions, 8 90-minute group sessions and 1 post-group parent/adolescent session* **Comparisons** • Non-directive supportive therapy *School counselling. Frequency determined by adolescent and counsellor. 30-45 minute sessions* **Outcome measure(s)** • Depressive symptoms *Center for epidemiological studies depression scale Children's Depression Rating Scale-Revised* • Functional status *Children's Global Assessment Scale*	
Young (2016)	A Randomized Depression Prevention Trial Comparing Interpersonal Psychotherapy--Adolescent Skills Training to	**Data extraction (intervention)** • Associated references *Young (2018)* • Antidepressants use	**Random sequence generation** • Low risk of bias *Randomisation was done using a computer-generated random*

Author (year)	Title	Study characteristics	Risk of bias and directness
	Group Counseling in Schools	*Unclear use of antidepressants: Antidepressants are not mentioned in the paper* **Study type** • Randomised controlled trial **Study details** • Study location *US* • Study setting *Middle and high schools* • Study dates *Not reported* • Duration of treatment and follow-up *Unclear treatment duration + post-treatment, 6, 12, 18, 24 months follow-up* • Sources of funding *NIMH grant* **Inclusion criteria** • Centre for epidemiologic studies depression scale *Score ≥16* • Depression *At least 2 subthreshold or threshold depression symptoms on the K-SADS-PL, one of which was depressed mood, irritability, or anhedonia* • School grades *7th to 10th* **Exclusion criteria** • Bipolar disorder • Conduct disorder • Intellectual functioning	*number sequence* **Allocation concealment** • Unclear risk of bias *No details of allocation concealment* **Blinding of participants and personnel** • High risk of bias *No details of blinding of participants and personnel (assume unblinded)* **Blinding of outcome assessment** • Low risk of bias *Independent evaluators were blinded to intervention condition throughout the study. When the blind was broken, the case was reassigned to another evaluator.* **Incomplete outcome data** • Low risk of bias *Low rate of attrition <10% and no significant differences across groups* **Selective reporting** • Low risk of bias

Author (year)	Title	Study characteristics	Risk of bias and directness
		Significant cognitive or language impairments • Substance abuse • Psychosis • Suicide or self-harm *Significant suicidal ideation or non-suicidal self-injury* • Depression *Current diagnosis of major depression or dysthymia* **Sample characteristics** • Depression severity *Depression symptoms* • Sample size *186* • Split between study groups *Interpersonal psychotherapy: 95 School counselling: 91* • Loss to follow-up *Interpersonal psychotherapy: 5 School counselling: 6* • Sex (M/F) *Interpersonal psychotherapy: 31/64 School counselling: 31/60* • Mean age (SD) *Interpersonal psychotherapy: 13.5 (1.2) School counselling: 13.4 (1.1)* • Family origin or ethnicity *Racial minority/Hispanic/White, non-minority, non-Hispanic* *Interpersonal psychotherapy: 31/35/35 School counselling: 29/36/36* **Interventions** • Group interpersonal psychotherapy *Interpersonal psychotherapy adolescent skills training (IPT-AST) had 2 individual pre-group sessions (30–50 min each), 8 group sessions (45–90 min each), and 1 individual mid-group session that the parents were invited to attend (30–50 min). During pre-group sessions, the leader provided a framework for the group and reviews the teen's current relationships to identify interpersonal goals for group. In the first 2 group sessions, youth learned about the*	**Other sources of bias** • Low risk of bias *No other biases were identified* **Overall risk of bias** • Moderate **Directness** • Directly applicable

Author (year)	Title	Study characteristics	Risk of bias and directness
		symptoms of depression, discussed the relationship between feelings and interpersonal interactions, and participated in activities that helped them understand the impact of their communication on others. Youth were introduced to different communication and interpersonal strategies in the third group. In sessions 4 to 6, youth applied these interpersonal strategies to their own relationships with the goal of reducing conflict and building support from others. Finally, in the remaining sessions, the group reviewed the strategies learned and identified ways to continue using the skills. Four individual booster sessions were added in the 6 months following group. These booster sessions, lasting between 15 and 50 min, were used to discuss the application of the strategies to current life stressors to solidify the adolescent's skills and address interpersonal problems and increase support to prevent the worsening of depression symptoms. **Comparisons** • Usual care *Usual care was group counselling reflecting the variety of groups run in schools consisting of 1 pre-group session (15–45 min), 8 weekly group sessions (with sessions lasting 45–90 min), a mid-group session (15– 45 min), and four booster sessions (15–45 min). There were 16 counselling groups using cognitive techniques (12 groups) and psychodynamic techniques (4 groups)* **Outcome measure(s)** • Depressive symptoms *Center for epidemiologic studies depression scale* • Functional status *Children's global assessment scale*	

Appendix F – Forest plots

RCTs were divided into those which recruited children and young people with depression symptoms (mild depression), and those which recruited children and young people with a depressive disorder diagnosis (moderate to severe depression). Forest plots show severity of depression based on the recruitment criteria (depression symptoms or depressive disorder diagnosis).

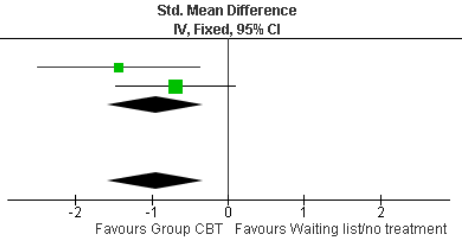
Mild depression

Age 5-11 years

Group CBT v waiting list/no treatment

Figure 1 : Depression symptoms (see footnotes for scales), Post-treatment

Study or Subgroup	Group CBT Mean	SD	Total	Waiting list/no treatment Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
16.2.2 Age 5 to 11, Severity: depression symptoms								
Stark 1987 (1)	-13.22	7.89	9	-3.22	5.07	9	35.4%	-1.44 [-2.50, -0.37]
Weisz 1997 (2)	-12.06	14.155956	10	-3.44	11.04164	19	64.6%	-0.69 [-1.48, 0.10]
Subtotal (95% CI)			**19**			**28**	**100.0%**	**-0.95 [-1.59, -0.32]**
Heterogeneity: Chi² = 1.22, df = 1 (P = 0.27); I² = 18%								
Test for overall effect: Z = 2.95 (P = 0.003)								
Total (95% CI)			**19**			**28**	**100.0%**	**-0.95 [-1.59, -0.32]**
Heterogeneity: Chi² = 1.22, df = 1 (P = 0.27); I² = 18%								
Test for overall effect: Z = 2.95 (P = 0.003)								
Test for subgroup differences: Not applicable								



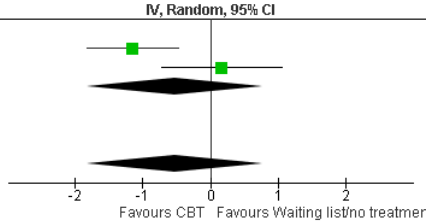
Footnotes
(1) CDRS-R
(2) CDRS-R; mean change and SD were calculated by reviewer

Age 12-18 years

Individual CBT vs waiting list/no treatment

Figure 2: Depression symptoms (see footnotes for scales), Post-treatment

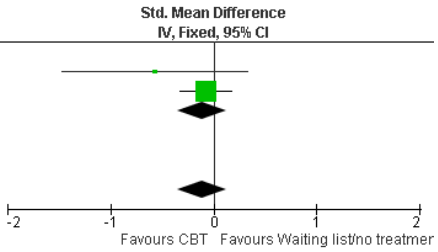
Study or Subgroup	CBT Mean	SD	Total	Waiting list/no treatment Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
1.2.1 Age 12 to 18, Severity: depression symptoms								
Bella-Awusah 2015 (1)	-13.53	8.2	20	-3.05	9.6	20	52.4%	-1.15 [-1.82, -0.48]
De Cuyper 2004 (2)	-2.56	6.0150561	9	-3.54	5.191416	11	47.6%	0.17 [-0.71, 1.05]
Subtotal (95% CI)			**29**			**31**	**100.0%**	**-0.52 [-1.81, 0.77]**
Heterogeneity: Tau² = 0.71; Chi² = 5.42, df = 1 (P = 0.02); I² = 82%								
Test for overall effect: Z = 0.79 (P = 0.43)								
Total (95% CI)			**29**			**31**	**100.0%**	**-0.52 [-1.81, 0.77]**
Heterogeneity: Tau² = 0.71; Chi² = 5.42, df = 1 (P = 0.02); I² = 82%								
Test for overall effect: Z = 0.79 (P = 0.43)								
Test for subgroup differences: Not applicable								



Footnotes
(1) BDI
(2) CDI; mean change and SD were calculated by reviewer

Figure 3: Depression symptoms (see footnotes for scales), ≤6 months

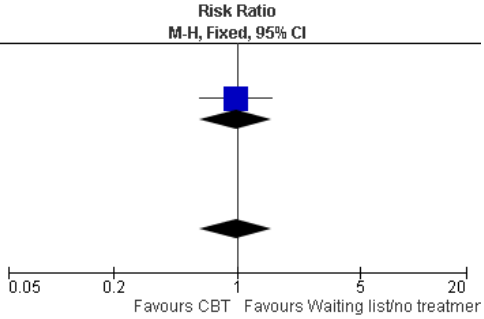
Study or Subgroup	CBT Mean	SD	Total	Waiting list/no treatment Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
1.3.1 Age 12 to 18, Severity: depression symptoms								
De Cuyper 2004 (1)	-6.04	5.5430046	9	-2.52	6.189273	11	7.1%	-0.57 [-1.47, 0.33]
Gaete 2016 (2)	-7.43	9.934104	187	-6.7	9.513653	92	92.9%	-0.07 [-0.32, 0.18]
Subtotal (95% CI)			**196**			**103**	**100.0%**	**-0.11 [-0.35, 0.13]**
Heterogeneity: Chi² = 1.08, df = 1 (P = 0.30); I² = 7%								
Test for overall effect: Z = 0.89 (P = 0.37)								
Total (95% CI)			**196**			**103**	**100.0%**	**-0.11 [-0.35, 0.13]**
Heterogeneity: Chi² = 1.08, df = 1 (P = 0.30); I² = 7%								
Test for overall effect: Z = 0.89 (P = 0.37)								
Test for subgroup differences: Not applicable								



Footnotes
(1) CDI; mean change and SD were calculated by reviewer
(2) BDI-II; mean change and SD were calculated by reviewer

Figure 4: Discontinuation for any reason

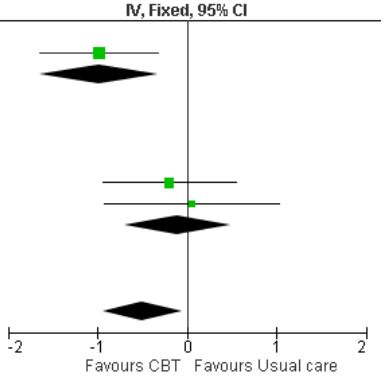
Study or Subgroup	CBT Events	CBT Total	Waiting list/no treatment Events	Waiting list/no treatment Total	Weight	Risk Ratio M-H, Fixed, 95% CI
1.5.1 Age 12 to 18, Severity: depression symptoms						
De Cuyper 2004	0	9	0	11		Not estimable
Gaete 2016	42	229	21	113	100.0%	0.99 [0.62, 1.58]
Subtotal (95% CI)		**238**		**124**	**100.0%**	**0.99 [0.62, 1.58]**
Total events	42		21			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.05 (P = 0.96)						
Total (95% CI)		**238**		**124**	**100.0%**	**0.99 [0.62, 1.58]**
Total events	42		21			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.05 (P = 0.96)						
Test for subgroup differences: Not applicable						



Individual CBT vs usual care

Figure 5: Depression symptoms (see footnotes for scales), Post-treatment

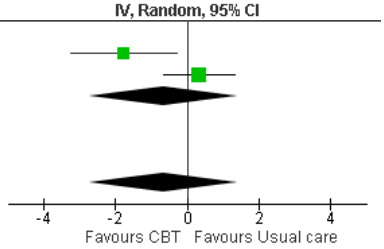
Study or Subgroup	CBT Mean	CBT SD	CBT Total	Usual care Mean	Usual care SD	Usual care Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
2.7.1 With comorbidity, Age 12 to 18, Severity: depression symptoms								
Szigethy 2007 (1)	-15	7.9	21	-5.1	11.6	19	44.6%	-0.99 [-1.65, -0.33]
Subtotal (95% CI)			**21**			**19**	**44.6%**	**-0.99 [-1.65, -0.33]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 2.93 (P = 0.003)								
2.7.2 Without comorbidity, Age 12 to 18, Severity: depression symptoms								
Hayes 2011 (2)	-12.86	14.201056	19	-9.92	14.37115	11	35.1%	-0.20 [-0.95, 0.54]
Listug-Lunde 2013 (3)	-6.62	8.6057713	8	-7.12	8.588358	8	20.3%	0.05 [-0.93, 1.04]
Subtotal (95% CI)			**27**			**19**	**55.4%**	**-0.11 [-0.70, 0.49]**
Heterogeneity: Chi² = 0.17, df = 1 (P = 0.68); I² = 0%								
Test for overall effect: Z = 0.35 (P = 0.72)								
Total (95% CI)			**48**			**38**	**100.0%**	**-0.50 [-0.94, -0.06]**
Heterogeneity: Chi² = 3.94, df = 2 (P = 0.14); I² = 49%								
Test for overall effect: Z = 2.22 (P = 0.03)								
Test for subgroup differences: Chi² = 3.77, df = 1 (P = 0.05), I² = 73.5%								



Footnotes
(1) CDI-CP
(2) RADS-2; SDs were calculated by reviewer
(3) CDI; mean change and SD were calculated by reviewer

Figure 6: Depression symptoms (see footnotes for scales), ≤6 months

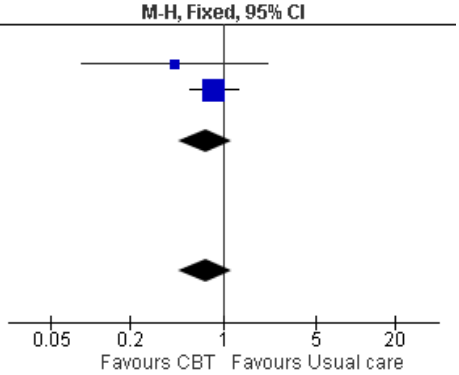
Study or Subgroup	CBT Mean	CBT SD	CBT Total	Usual care Mean	Usual care SD	Usual care Total	Weight	Std. Mean Difference IV, Random, 95% CI
3.8.1 Age 12 to 18, Severity: depression symptoms								
Hayes 2011 (1)	-21.99	13.713074	8	4.62	13.92385	4	46.4%	-1.78 [-3.27, -0.30]
Listug-Lunde 2013 (2)	-6.87	7.1312201	8	-9.12	5.622909	8	53.6%	0.33 [-0.66, 1.32]
Subtotal (95% CI)			**16**			**12**	**100.0%**	**-0.65 [-2.72, 1.42]**
Heterogeneity: Tau² = 1.82; Chi² = 5.41, df = 1 (P = 0.02); I² = 82%								
Test for overall effect: Z = 0.62 (P = 0.54)								
Total (95% CI)			**16**			**12**	**100.0%**	**-0.65 [-2.72, 1.42]**
Heterogeneity: Tau² = 1.82; Chi² = 5.41, df = 1 (P = 0.02); I² = 82%								
Test for overall effect: Z = 0.62 (P = 0.54)								
Test for subgroup differences: Not applicable								



Footnotes
(1) RADS-2; SDs were calculated by reviewer
(2) CDI; mean change and SD were calculated by reviewer

Figure 7: Discontinuation for any reason

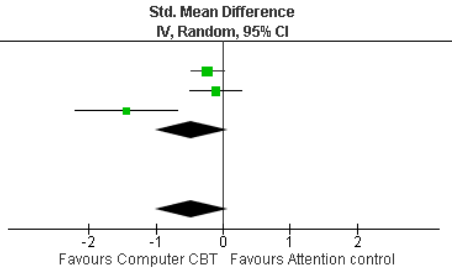
Study or Subgroup	CBT Events	CBT Total	Pill placebo Events	Pill placebo Total	Weight	Risk Ratio M-H, Fixed, 95% CI
3.24.2 Age 12 to 18, Severity: depression symptoms						
Brent 2015	2	145	5	157	25.7%	0.43 [0.09, 2.20]
Hayes 2011	14	22	12	16	74.3%	0.85 [0.56, 1.30]
Hogberg 2018	0	15	0	12		Not estimable
Subtotal (95% CI)		**182**		**185**	**100.0%**	**0.74 [0.47, 1.18]**
Total events	16		17			
Heterogeneity: Chi² = 0.81, df = 1 (P = 0.37); I² = 0%						
Test for overall effect: Z = 1.26 (P = 0.21)						
Total (95% CI)		**182**		**185**	**100.0%**	**0.74 [0.47, 1.18]**
Total events	16		17			
Heterogeneity: Chi² = 0.81, df = 1 (P = 0.37); I² = 0%						
Test for overall effect: Z = 1.26 (P = 0.21)						
Test for subgroup differences: Not applicable						



Computer CBT vs attention control

Figure 8: Depression symptoms (see footnote for scales), Post-treatment

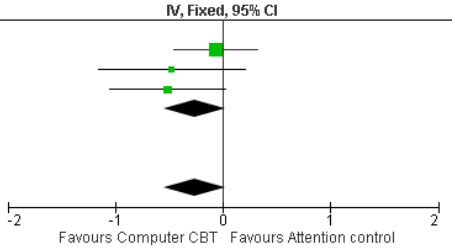
Study or Subgroup	Computer CBT Mean	Computer CBT SD	Computer CBT Total	Attention control Mean	Attention control SD	Attention control Total	Weight	Std. Mean Difference IV, Random, 95% CI
10.1.1 Age 12 to 18, Severity: depression symptoms								
Ip 2016 (1)	-0.89	8.8748465	123	1.29	9.573072	127	40.6%	-0.24 [-0.48, 0.01]
Poppelaars 2016 (2)	-11.45	11.083813	51	-10.28	11.00932	51	36.1%	-0.11 [-0.49, 0.28]
Stasiak 2014 (3)	-17.56	7.225953	17	-6.06	8.330356	17	23.4%	-1.44 [-2.20, -0.68]
Subtotal (95% CI)			**191**			**195**	**100.0%**	**-0.47 [-1.01, 0.07]**
Heterogeneity: Tau² = 0.17; Chi² = 9.74, df = 2 (P = 0.008); I² = 79%								
Test for overall effect: Z = 1.72 (P = 0.09)								
Total (95% CI)			**191**			**195**	**100.0%**	**-0.47 [-1.01, 0.07]**
Heterogeneity: Tau² = 0.17; Chi² = 9.74, df = 2 (P = 0.008); I² = 79%								
Test for overall effect: Z = 1.72 (P = 0.09)								
Test for subgroup differences: Not applicable								



Footnotes
(1) CESD-R; mean change and SD were calculated by reviewer
(2) RADS-2; mean change and SD were calculated by reviewer
(3) CDRS-R; SDs were calculated by reviewer

Figure 9: Depression symptoms (see footnote for scales), ≤6 months

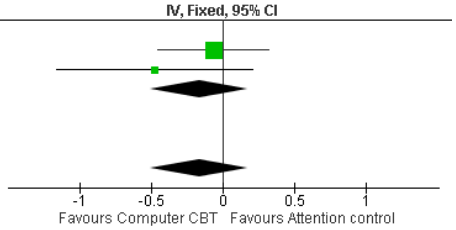
Study or Subgroup	Computer CBT Mean	Computer CBT SD	Computer CBT Total	Attention control Mean	Attention control SD	Attention control Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
10.2.1 Age 12 to 18, Severity: depression symptoms								
Poppelaars 2016 (1)	-11.16	11.197719	51	-10.4	11.61877	51	54.3%	-0.07 [-0.45, 0.32]
Stasiak 2014 (2)	-16.23	7.5861123	17	-11.47	11.47335	17	17.6%	-0.48 [-1.16, 0.21]
Wright 2017 (3)	-2.8	6.6	25	1.2	8.5	30	28.1%	-0.51 [-1.05, 0.03]
Subtotal (95% CI)			**93**			**98**	**100.0%**	**-0.26 [-0.55, 0.02]**
Heterogeneity: Chi² = 2.19, df = 2 (P = 0.34); I² = 9%								
Test for overall effect: Z = 1.81 (P = 0.07)								
Total (95% CI)			**93**			**98**	**100.0%**	**-0.26 [-0.55, 0.02]**
Heterogeneity: Chi² = 2.19, df = 2 (P = 0.34); I² = 9%								
Test for overall effect: Z = 1.81 (P = 0.07)								
Test for subgroup differences: Not applicable								



Footnotes
(1) RADS-2; mean change and SD were calculated by reviewer
(2) CDRS-R; mean and SD were calculated by reviewer
(3) BDI

Figure 10: Sensitivity analysis excluding studies with a high risk of bias: Depression symptoms (see footnotes for scales), ≤6 months

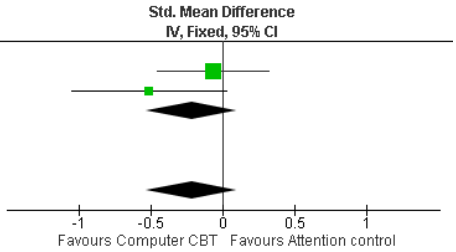
Study or Subgroup	Computer CBT Mean	SD	Total	Attention control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
10.2.1 Age 12 to 18, Severity: depression symptoms								
Poppelaars 2016 (1)	-11.16	11.197719	51	-10.4	11.61877	51	75.6%	-0.07 [-0.45, 0.32]
Stasiak 2012 (2)	-16.23	7.5861123	17	-11.47	11.47335	17	24.4%	-0.48 [-1.16, 0.21]
Subtotal (95% CI)			**68**			**68**	**100.0%**	**-0.17 [-0.50, 0.17]**
Heterogeneity: Chi² = 1.06, df = 1 (P = 0.30); I² = 5%								
Test for overall effect: Z = 0.97 (P = 0.33)								
Total (95% CI)			**68**			**68**	**100.0%**	**-0.17 [-0.50, 0.17]**
Heterogeneity: Chi² = 1.06, df = 1 (P = 0.30); I² = 5%								
Test for overall effect: Z = 0.97 (P = 0.33)								
Test for subgroup differences: Not applicable								



Footnotes
(1) RADS-2; mean change and SD were calculated by reviewer
(2) CDRS-R; mean and SD were calculated by reviewer

Figure 11: Sensitivity analysis excluding studies with a complex attention control: Depression symptoms (see footnotes for scales), ≤6 months

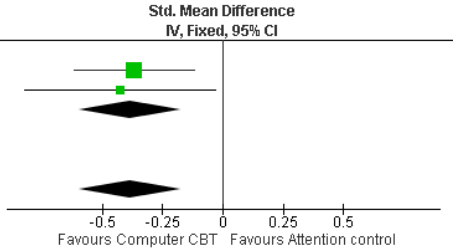
Study or Subgroup	Computer CBT Mean	SD	Total	Attention control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
10.2.1 Age 12 to 18, Severity: depression symptoms								
Poppelaars 2016 (1)	-11.16	11.197719	51	-10.4	11.61877	51	65.9%	-0.07 [-0.45, 0.32]
Wright 2017 (2)	-2.8	6.6	25	1.2	8.5	30	34.1%	-0.51 [-1.05, 0.03]
Subtotal (95% CI)			**76**			**81**	**100.0%**	**-0.22 [-0.53, 0.10]**
Heterogeneity: Chi² = 1.73, df = 1 (P = 0.19); I² = 42%								
Test for overall effect: Z = 1.36 (P = 0.17)								
Total (95% CI)			**76**			**81**	**100.0%**	**-0.22 [-0.53, 0.10]**
Heterogeneity: Chi² = 1.73, df = 1 (P = 0.19); I² = 42%								
Test for overall effect: Z = 1.36 (P = 0.17)								
Test for subgroup differences: Not applicable								



Footnotes
(1) RADS-2; mean change and SD were calculated by reviewer
(2) BDI

Figure 12: Depression symptoms (scale: CESD-R), >6 to ≤18 months

Study or Subgroup	Computer CBT Mean	SD	Total	Attention control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
10.3.1 Age 12 to 18, Severity: depression symptoms								
Ip 2016 (1)	-0.07	8.8999607	123	3.23	9.001105	127	71.1%	-0.37 [-0.62, -0.12]
Poppelaars 2016 (2)	-12.25	12.371067	51	-6.8	13.02467	51	28.9%	-0.43 [-0.82, -0.03]
Subtotal (95% CI)			**174**			**178**	**100.0%**	**-0.38 [-0.60, -0.17]**
Heterogeneity: Chi² = 0.06, df = 1 (P = 0.81); I² = 0%								
Test for overall effect: Z = 3.57 (P = 0.0004)								
Total (95% CI)			**174**			**178**	**100.0%**	**-0.38 [-0.60, -0.17]**
Heterogeneity: Chi² = 0.06, df = 1 (P = 0.81); I² = 0%								
Test for overall effect: Z = 3.57 (P = 0.0004)								
Test for subgroup differences: Not applicable								



Footnotes
(1) Mean change and SD were calculated by reviewer
(2) Mean change and SD were calculated by reviewer

Figure 13: Discontinuation for any reason

Study or Subgroup	Computer CBT Events	Total	Attention control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
10.7.1 Age 12 to 18, Severity: depression symptoms						
Ip 2016	7	130	0	127	10.0%	14.66 [0.85, 253.97]
Poppelaars 2016	4	51	0	50	9.8%	8.83 [0.49, 159.80]
Stasiak 2014	4	17	5	17	32.1%	0.80 [0.26, 2.48]
Wright 2017	20	41	16	42	48.1%	1.28 [0.78, 2.10]
Subtotal (95% CI)		**239**		**236**	**100.0%**	**1.70 [0.62, 4.61]**
Total events	35		21			
Heterogeneity: Tau² = 0.48; Chi² = 6.14, df = 3 (P = 0.10); I² = 51%						
Test for overall effect: Z = 1.04 (P = 0.30)						
Total (95% CI)		**239**		**236**	**100.0%**	**1.70 [0.62, 4.61]**
Total events	35		21			
Heterogeneity: Tau² = 0.48; Chi² = 6.14, df = 3 (P = 0.10); I² = 51%						
Test for overall effect: Z = 1.04 (P = 0.30)						
Test for subgroup differences: Not applicable						

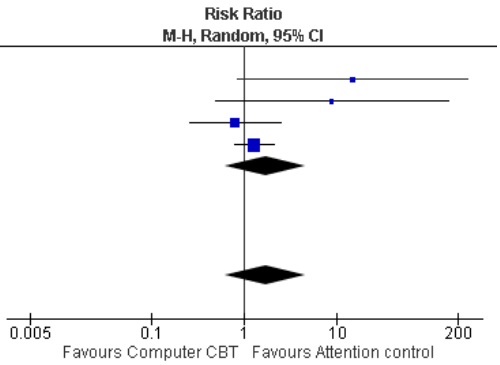


Figure 14: Sensitivity analysis excluding studies with a high risk of bias: Discontinuation for any reason

Study or Subgroup	Computer CBT Events	Computer CBT Total	Attention control Events	Attention control Total	Weight	Risk Ratio M-H, Random, 95% CI
10.7.1 Age 12 to 18, Severity: depression symptoms						
Ip 2016	7	130	0	127	28.2%	14.66 [0.85, 253.97]
Poppelaars 2016	4	51	0	50	27.8%	8.83 [0.49, 159.80]
Stasiak 2012	4	17	5	17	44.0%	0.80 [0.26, 2.48]
Subtotal (95% CI)		**198**		**194**	**100.0%**	**3.54 [0.35, 35.84]**
Total events	15		5			
Heterogeneity: Tau² = 2.84; Chi² = 6.34, df = 2 (P = 0.04); I² = 68%						
Test for overall effect: Z = 1.07 (P = 0.28)						
Total (95% CI)		**198**		**194**	**100.0%**	**3.54 [0.35, 35.84]**
Total events	15		5			
Heterogeneity: Tau² = 2.84; Chi² = 6.34, df = 2 (P = 0.04); I² = 68%						
Test for overall effect: Z = 1.07 (P = 0.28)						
Test for subgroup differences: Not applicable						

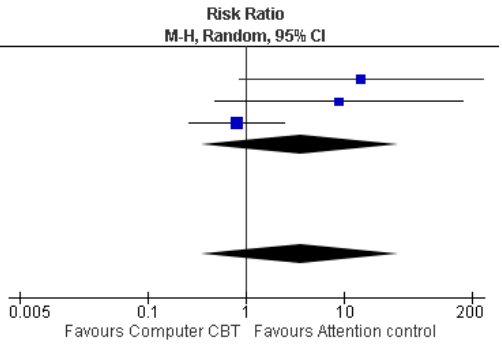
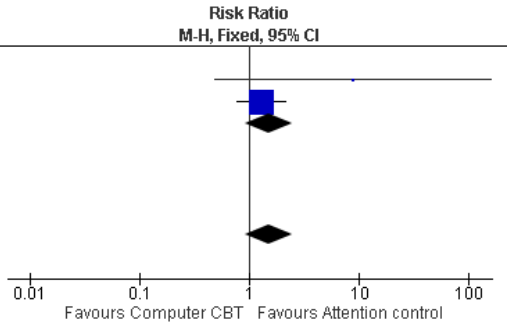


Figure 15: Sensitivity analysis excluding studies with a complex attention control: Discontinuation for any reason

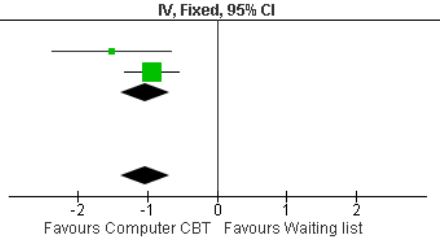
Study or Subgroup	Computer CBT Events	Computer CBT Total	Attention control Events	Attention control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
10.7.1 Age 12 to 18, Severity: depression symptoms						
Poppelaars 2016	4	51	0	50	3.1%	8.83 [0.49, 159.80]
Wright 2017	20	41	16	42	96.9%	1.28 [0.78, 2.10]
Subtotal (95% CI)		**92**		**92**	**100.0%**	**1.51 [0.92, 2.48]**
Total events	24		16			
Heterogeneity: Chi² = 1.86, df = 1 (P = 0.17); I² = 46%						
Test for overall effect: Z = 1.65 (P = 0.10)						
Total (95% CI)		**92**		**92**	**100.0%**	**1.51 [0.92, 2.48]**
Total events	24		16			
Heterogeneity: Chi² = 1.86, df = 1 (P = 0.17); I² = 46%						
Test for overall effect: Z = 1.65 (P = 0.10)						
Test for subgroup differences: Not applicable						



Computer CBT vs waiting list/no treatment

Figure 16: Depression symptoms (see footnotes for scales), Post-treatment

Study or Subgroup	Computer CBT Mean	Computer CBT SD	Computer CBT Total	Waiting list Mean	Waiting list SD	Waiting list Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
11.2.1 Age 12 to 18, Severity: depression symptoms								
Fleming 2012 (1)	-14.7	8.67	19	-1.1	8.8	11	17.5%	-1.52 [-2.37, -0.67]
Smith 2015 (2)	-12.2	12.100826	55	-0.5	12.79531	57	82.5%	-0.93 [-1.32, -0.54]
Subtotal (95% CI)			**74**			**68**	**100.0%**	**-1.03 [-1.39, -0.68]**
Heterogeneity: Chi² = 1.51, df = 1 (P = 0.22); I² = 34%								
Test for overall effect: Z = 5.71 (P < 0.00001)								
Total (95% CI)			**74**			**68**	**100.0%**	**-1.03 [-1.39, -0.68]**
Heterogeneity: Chi² = 1.51, df = 1 (P = 0.22); I² = 34%								
Test for overall effect: Z = 5.71 (P < 0.00001)								
Test for subgroup differences: Not applicable								

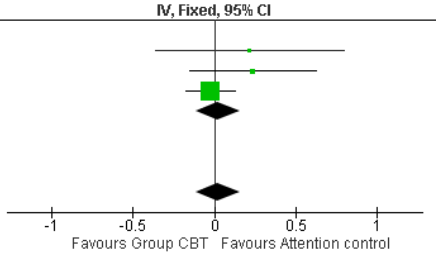


Footnotes
(1) CDRS; SDs were calculated by reviewer
(2) MFQ-C; mean change and SD were calculated by reviewer

Group CBT vs attention control

Figure 17: Depression symptoms (see footnotes for scales), Post-treatment

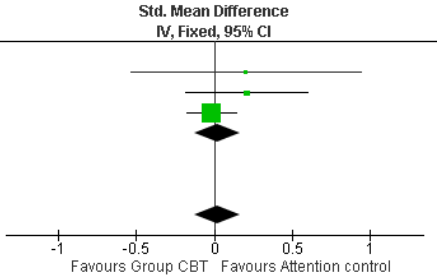
Study or Subgroup	Group CBT Mean	Group CBT SD	Group CBT Total	Attention control Mean	Attention control SD	Attention control Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
15.1.2 Age 12 to 18, Severity: depression symptoms								
Dobson 2010 (1)	-0.25	6.4516122	25	-1.71	6.752266	21	5.6%	0.22 [-0.36, 0.80]
Poppelaars 2016 (2)	-7.61	11.501161	50	-10.28	11.00932	51	12.3%	0.24 [-0.16, 0.63]
Stallard 2012 (3)	-0.44	3.1659596	330	-0.37	3.177656	341	82.2%	-0.02 [-0.17, 0.13]
Subtotal (95% CI)			**405**			**413**	**100.0%**	**0.02 [-0.11, 0.16]**
Heterogeneity: Chi² = 1.90, df = 2 (P = 0.39); I² = 0%								
Test for overall effect: Z = 0.33 (P = 0.74)								
Total (95% CI)			**405**			**413**	**100.0%**	**0.02 [-0.11, 0.16]**
Heterogeneity: Chi² = 1.90, df = 2 (P = 0.39); I² = 0%								
Test for overall effect: Z = 0.33 (P = 0.74)								
Test for subgroup differences: Not applicable								



Footnotes
(1) CDI; mean change and SD were calculated by reviewer
(2) RADS-2; mean change and SD were calculated by reviewer
(3) RCADS depression subscale; mean change and SD were calculated by reviewer

Figure 18: Depression symptoms (see footnotes for scales), ≤6 months

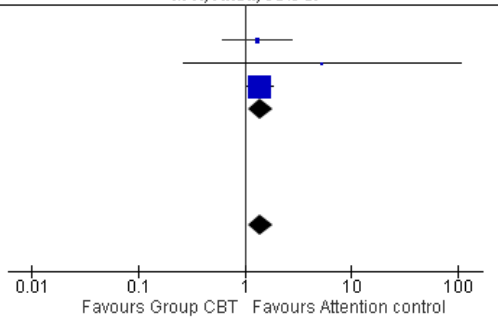
Study or Subgroup	Group CBT Mean	Group CBT SD	Group CBT Total	Attention control Mean	Attention control SD	Attention control Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
15.2.2 Age 12 to 18, Severity: depression symptoms								
Dobson 2010 (1)	-1.62	5.6051673	14	-2.86	6.147292	14	3.8%	0.20 [-0.54, 0.95]
Poppelaars 2016 (2)	-7.96	11.366191	50	-10.4	11.61877	51	13.7%	0.21 [-0.18, 0.60]
Stallard 2012 (3)	-0.7	3.1233316	296	-0.64	3.145966	308	82.5%	-0.02 [-0.18, 0.14]
Subtotal (95% CI)			**360**			**373**	**100.0%**	**0.02 [-0.12, 0.17]**
Heterogeneity: Chi² = 1.38, df = 2 (P = 0.50); I² = 0%								
Test for overall effect: Z = 0.28 (P = 0.78)								
Total (95% CI)			**360**			**373**	**100.0%**	**0.02 [-0.12, 0.17]**
Heterogeneity: Chi² = 1.38, df = 2 (P = 0.50); I² = 0%								
Test for overall effect: Z = 0.28 (P = 0.78)								
Test for subgroup differences: Not applicable								



Footnotes
(1) CDI; mean change and SD were calculated by reviewer
(2) RADS-2; mean change and SD were calculated by reviewer
(3) RCADS depression subscale; mean change and SD were calculated by reviewer

Figure 19 Discontinuation for any reason

Study or Subgroup	Group CBT Events	Group CBT Total	Attention control Events	Attention control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
15.9.1 Age 12 to 18, Severity: depression symptoms						
Dobson 2010	11	25	7	21	10.1%	1.32 [0.62, 2.79]
Poppelaars 2016	2	47	0	50	0.6%	5.31 [0.26, 107.85]
Stallard 2012	96	392	66	374	89.3%	1.39 [1.05, 1.84]
Subtotal (95% CI)		**464**		**445**	**100.0%**	**1.41 [1.08, 1.83]**
Total events	109		73			
Heterogeneity: Chi² = 0.78, df = 2 (P = 0.68); I² = 0%						
Test for overall effect: Z = 2.56 (P = 0.01)						
Total (95% CI)		**464**		**445**	**100.0%**	**1.41 [1.08, 1.83]**
Total events	109		73			
Heterogeneity: Chi² = 0.78, df = 2 (P = 0.68); I² = 0%						
Test for overall effect: Z = 2.56 (P = 0.01)						
Test for subgroup differences: Not applicable						

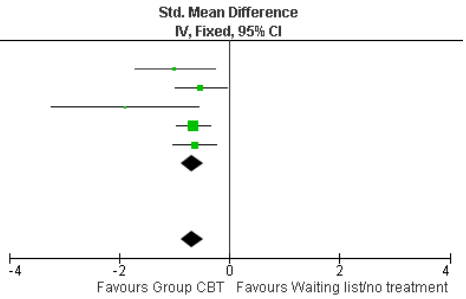


Group CBT vs waiting list/no treatment

Figure 20: Depression symptoms (see footnotes for scales), Post-treatment

Study or Subgroup	Group CBT Mean	Group CBT SD	Group CBT Total	Waiting list/no treatment Mean	Waiting list/no treatment SD	Waiting list/no treatment Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
16.3.4 Age 12 to 18, Severity: depression symptoms								
Noel 2013 (1)	-3.13	2.49	20	-0.17	3.41747	14	7.9%	-1.00 [-1.72, -0.27]
Puskar 2003 (2)	-6.3	11.904272	36	-0.69	9.19881	35	18.7%	-0.52 [-0.99, -0.05]
Reynolds 1986 (3)	-14.75	6.7507407	5	1.41	8.52345	10	2.4%	-1.90 [-3.23, -0.56]
Stice 2008 (4)	-9.26	9.7611526	89	-2.89	9.495278	84	44.6%	-0.66 [-0.96, -0.35]
Wijnhoven 2014 (5)	-7.19	7.3915966	50	-2.78	6.50745	52	26.4%	-0.63 [-1.03, -0.23]
Subtotal (95% CI)			**200**			**195**	**100.0%**	**-0.68 [-0.89, -0.48]**
Heterogeneity: Chi² = 4.44, df = 4 (P = 0.35); I² = 10%								
Test for overall effect: Z = 6.52 (P < 0.00001)								
Total (95% CI)			**200**			**195**	**100.0%**	**-0.68 [-0.89, -0.48]**

Heterogeneity: Chi² = 4.44, df = 4 (P = 0.35); I² = 10%
Test for overall effect: Z = 6.52 (P < 0.00001)
Test for subgroup differences: Not applicable

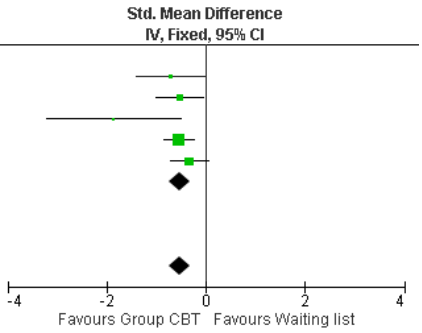


Footnotes
(1) KSADS symptom; mean change and SD were calculated by reviewer
(2) RADS; mean change and SD were calculated by reviewer
(3) BDI; mean change and SD were calculated by reviewer
(4) BDI; mean change and SD were calculated by reviewer
(5) CDI; mean change and SD were calculated by reviewer

Figure 21: Depression symptoms (see footnotes for scales), ≤6 months

Study or Subgroup	Group CBT Mean	Group CBT SD	Group CBT Total	Waiting list Mean	Waiting list SD	Waiting list Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
16.4.2 Age 12 to 18, Severity: depression symptoms								
Kahn 1990 (1)	-17.41	10.518084	17	-5.93	19.61025	17	8.4%	-0.71 [-1.41, -0.02]
Puskar 2003 (2)	-9.26	10.737192	36	-4.16	7.82581	35	18.2%	-0.54 [-1.01, -0.06]
Reynolds 1986 (3)	-19.3	6.7120116	5	-0.89	10.28091	9	2.2%	-1.86 [-3.23, -0.50]
Stice 2008 (4)	-7.85	9.9784818	89	-2.38	10.18695	84	44.4%	-0.54 [-0.84, -0.24]
Wijnhoven 2014 (5)	-4.12	7.5612962	50	-1.54	7.557162	52	26.8%	-0.34 [-0.73, 0.05]
Subtotal (95% CI)			**197**			**197**	**100.0%**	**-0.53 [-0.73, -0.33]**
Heterogeneity: Chi² = 4.87, df = 4 (P = 0.30); I² = 18%								
Test for overall effect: Z = 5.13 (P < 0.00001)								
Total (95% CI)			**197**			**197**	**100.0%**	**-0.53 [-0.73, -0.33]**

Heterogeneity: Chi² = 4.87, df = 4 (P = 0.30); I² = 18%
Test for overall effect: Z = 5.13 (P < 0.00001)
Test for subgroup differences: Not applicable

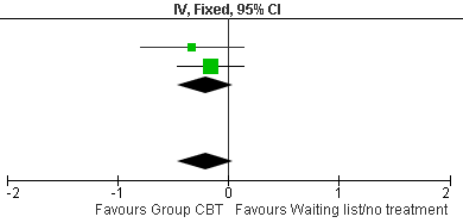


Footnotes
(1) CDI; mean change and SD were calculated by reviewer
(2) RADS; mean change and SD were calculated by reviewer
(3) BDI; mean change and SD were calculated by reviewer
(4) BDI; mean change and SD were calculated by reviewer
(5) CDI; mean change and SD were calculated by reviewer

Figure 22: Depression symptoms (see footnotes for scales), >6 months to ≤18 months

Study or Subgroup	Group CBT Mean	Group CBT SD	Group CBT Total	Waiting list/no treatment Mean	Waiting list/no treatment SD	Waiting list/no treatment Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
16.6.2 Age 12 to 18, Severity: depression symptoms								
Puskar 2003 (1)	-9.04	11.187104	36	-5.4	10.84012	35	28.9%	-0.33 [-0.80, 0.14]
Stice 2008 (2)	-6.79	10.901555	89	-5.15	9.660502	84	71.1%	-0.16 [-0.46, 0.14]
Subtotal (95% CI)			**125**			**119**	**100.0%**	**-0.21 [-0.46, 0.04]**
Heterogeneity: Chi² = 0.35, df = 1 (P = 0.55); I² = 0%								
Test for overall effect: Z = 1.61 (P = 0.11)								
Total (95% CI)			**125**			**119**	**100.0%**	**-0.21 [-0.46, 0.04]**

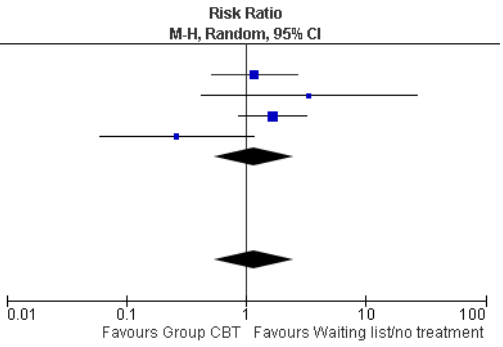
Heterogeneity: Chi² = 0.35, df = 1 (P = 0.55); I² = 0%
Test for overall effect: Z = 1.61 (P = 0.11)
Test for subgroup differences: Not applicable



Footnotes
(1) RADS; mean change and SD were calculated by reviewer
(2) BDI; mean change and SD were calculated by reviewer

Figure 23: Discontinuation for any reason

Study or Subgroup	Group CBT Events	Group CBT Total	Waiting list/no treatment Events	Waiting list/no treatment Total	Weight	Risk Ratio M-H, Random, 95% CI
16.8.1 Age 12 to 18, Severity: depression symptoms						
Puskar 2003	10	46	8	43	32.9%	1.17 [0.51, 2.68]
Reynolds 1986	3	9	1	10	10.8%	3.33 [0.42, 26.58]
Stice 2008	19	80	12	84	38.6%	1.66 [0.86, 3.20]
Wijnhoven 2014	2	50	9	59	17.7%	0.26 [0.06, 1.16]
Subtotal (95% CI)		**185**		**196**	**100.0%**	**1.15 [0.54, 2.47]**
Total events	34		30			
Heterogeneity: Tau² = 0.28; Chi² = 5.95, df = 3 (P = 0.11); I² = 50%						
Test for overall effect: Z = 0.36 (P = 0.72)						
Total (95% CI)		**185**		**196**	**100.0%**	**1.15 [0.54, 2.47]**
Total events	34		30			
Heterogeneity: Tau² = 0.28; Chi² = 5.95, df = 3 (P = 0.11); I² = 50%						
Test for overall effect: Z = 0.36 (P = 0.72)						
Test for subgroup differences: Not applicable						



Group CBT vs usual care

Figure 24: Functional status (scale: GAF), Post-treatment

Study or Subgroup	Group CBT Mean	Group CBT SD	Group CBT Total	Usual care Mean	Usual care SD	Usual care Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
19.1.1 Age 12 to 18, Severity: depression symptoms								
Clark 1995 (1)	3.87	8.3	52	0.36	9.7892799	68	58.1%	0.38 [0.02, 0.74]
Clarke 2001 (2)	4.5	11.274307	39	3.2	9.1831367	45	41.9%	0.13 [-0.30, 0.56]
Subtotal (95% CI)			**91**			**113**	**100.0%**	**0.27 [-0.00, 0.55]**
Heterogeneity: Chi² = 0.78, df = 1 (P = 0.38); I² = 0%								
Test for overall effect: Z = 1.93 (P = 0.05)								
Total (95% CI)			**91**			**113**	**100.0%**	**0.27 [-0.00, 0.55]**
Heterogeneity: Chi² = 0.78, df = 1 (P = 0.38); I² = 0%								
Test for overall effect: Z = 1.93 (P = 0.05)								
Test for subgroup differences: Not applicable								

Footnotes
(1) Mean change and SD were calculated by reviewer
(2) Mean change and SD were calculated by reviewer

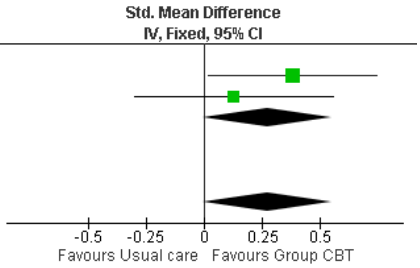


Figure 25: Functional status (scale: GAF), >6 to ≤18 months

Study or Subgroup	Group CBT Mean	Group CBT SD	Group CBT Total	Usual care Mean	Usual care SD	Usual care Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
19.3.1 Age 12 to 18, Severity: depression symptoms								
Clark 1995 (1)	5.66	8.2504545	52	3.91	8.916838	58	60.9%	0.20 [-0.17, 0.58]
Clarke 2001 (2)	8.3	9.0702811	33	4.3	11.321219	39	39.1%	0.38 [-0.09, 0.85]
Subtotal (95% CI)			**85**			**97**	**100.0%**	**0.27 [-0.02, 0.57]**
Heterogeneity: Chi² = 0.35, df = 1 (P = 0.56); I² = 0%								
Test for overall effect: Z = 1.82 (P = 0.07)								
Total (95% CI)			**85**			**97**	**100.0%**	**0.27 [-0.02, 0.57]**
Heterogeneity: Chi² = 0.35, df = 1 (P = 0.56); I² = 0%								
Test for overall effect: Z = 1.82 (P = 0.07)								
Test for subgroup differences: Not applicable								

Footnotes
(1) Mean change and SD were calculated by reviewer
(2) Mean change and SD were calculated by reviewer

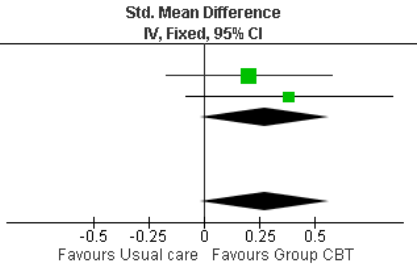
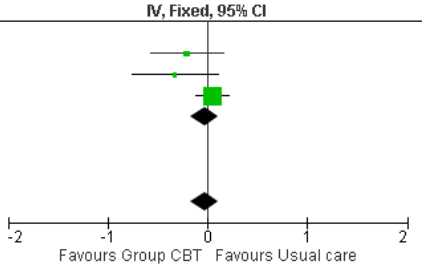


Figure 26: Depression symptoms (see footnotes for scales), Post-treatment

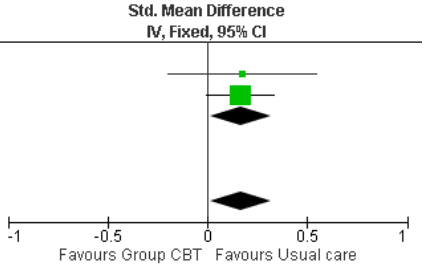
Study or Subgroup	Group CBT Mean	Group CBT SD	Group CBT Total	Usual care Mean	Usual care SD	Usual care Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
19.5.2 Age 12 to 18, Severity: depression symptoms								
Clark 1995 (1)	-1.68	2.9137605	52	-0.95	3.843176	68	14.9%	-0.21 [-0.57, 0.15]
Clarke 2001 (2)	-1.4	2.9715316	39	-0.2	4.084116	45	10.5%	-0.33 [-0.76, 0.10]
Stallard 2012 (3)	-0.44	3.1659596	330	-0.58	3.026103	264	74.6%	0.05 [-0.12, 0.21]
Subtotal (95% CI)			**421**			**377**	**100.0%**	**-0.03 [-0.17, 0.11]**
Heterogeneity: Chi² = 3.61, df = 2 (P = 0.16); I² = 45%								
Test for overall effect: Z = 0.45 (P = 0.65)								
Total (95% CI)			**421**			**377**	**100.0%**	**-0.03 [-0.17, 0.11]**
Heterogeneity: Chi² = 3.61, df = 2 (P = 0.16); I² = 45%								
Test for overall effect: Z = 0.45 (P = 0.65)								
Test for subgroup differences: Not applicable								



Footnotes
(1) HAM-D; mean change and SD were calculated by reviewer
(2) HAM-D; mean change and SD were calculated by reviewer
(3) RCADS depression subscale; mean change and SD were calculated by reviewer

Figure 27: Depression symptoms (see footnotes for scales), ≤6 months

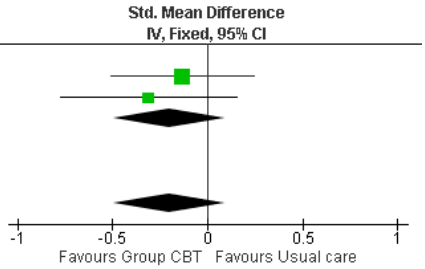
Study or Subgroup	Group CBT Mean	Group CBT SD	Group CBT Total	Usual care Mean	Usual care SD	Usual care Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
19.6.1 Age 12 to 18, Severity: depression symptoms								
Clark 1995 (1)	-1.76	2.884441	52	-2.27	2.882707	60	17.3%	0.18 [-0.20, 0.55]
Stallard 2012 (2)	-0.7	3.1233316	296	-1.21	3.067686	242	82.7%	0.16 [-0.01, 0.33]
Subtotal (95% CI)			**348**			**302**	**100.0%**	**0.17 [0.01, 0.32]**
Heterogeneity: Chi² = 0.00, df = 1 (P = 0.96); I² = 0%								
Test for overall effect: Z = 2.11 (P = 0.04)								
Total (95% CI)			**348**			**302**	**100.0%**	**0.17 [0.01, 0.32]**
Heterogeneity: Chi² = 0.00, df = 1 (P = 0.96); I² = 0%								
Test for overall effect: Z = 2.11 (P = 0.04)								
Test for subgroup differences: Not applicable								



Footnotes
(1) HAM-D; mean change and SD were calculated by reviewer
(2) RCADS depression subscale; mean change and SD were calculated by reviewer

Figure 28: Depression symptoms (scale: HAM-D), >6 to ≤18 months

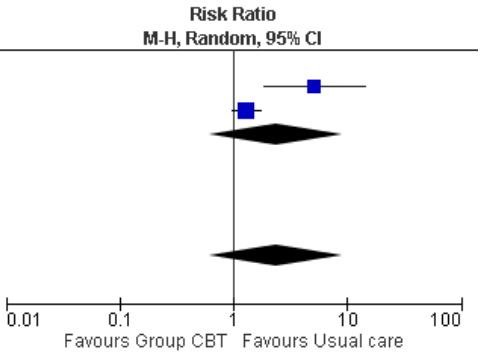
Study or Subgroup	Group CBT Mean	Group CBT SD	Group CBT Total	Usual care Mean	Usual care SD	Usual care Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
19.7.1 Age 12 to 18, Severity: depression symptoms								
Clark 1995 (1)	-2.33	2.787472	52	-1.91	3.439477	58	60.8%	-0.13 [-0.51, 0.24]
Clarke 2001 (2)	-1.7	3.1096624	33	-0.5	4.309292	39	39.2%	-0.31 [-0.78, 0.15]
Subtotal (95% CI)			**85**			**97**	**100.0%**	**-0.20 [-0.49, 0.09]**
Heterogeneity: Chi² = 0.34, df = 1 (P = 0.56); I² = 0%								
Test for overall effect: Z = 1.36 (P = 0.17)								
Total (95% CI)			**85**			**97**	**100.0%**	**-0.20 [-0.49, 0.09]**
Heterogeneity: Chi² = 0.34, df = 1 (P = 0.56); I² = 0%								
Test for overall effect: Z = 1.36 (P = 0.17)								
Test for subgroup differences: Not applicable								



Footnotes
(1) Mean change and SD were calculated by reviewer
(2) Mean change and SD were calculated by reviewer

Figure 29: Discontinuation for any reason

Study or Subgroup	Group CBT Events	Group CBT Total	Usual care Events	Usual care Total	Weight	Risk Ratio M-H, Random, 95% CI
19.14.1 Age 12 to 18, Severity: depression symptoms						
Clark 1995	21	76	4	74	43.5%	5.11 [1.84, 14.18]
Stallard 2012	96	392	56	298	56.5%	1.30 [0.97, 1.75]
Subtotal (95% CI)		**468**		**372**	**100.0%**	**2.36 [0.62, 9.06]**
Total events	117		60			
Heterogeneity: Tau² = 0.81; Chi² = 6.53, df = 1 (P = 0.01); I² = 85%						
Test for overall effect: Z = 1.25 (P = 0.21)						
Total (95% CI)		**468**		**372**	**100.0%**	**2.36 [0.62, 9.06]**
Total events	117		60			
Heterogeneity: Tau² = 0.81; Chi² = 6.53, df = 1 (P = 0.01); I² = 85%						
Test for overall effect: Z = 1.25 (P = 0.21)						
Test for subgroup differences: Not applicable						



Group CBT vs relaxation

Figure 30: Depression symptoms (see footnote for scales), Post-treatment

Study or Subgroup	Group CBT Mean	Group CBT SD	Group CBT Total	Relaxation Mean	Relaxation SD	Relaxation Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
23.1.1 Age 12 to 18, Severity: depression symptoms								
Kahn 1990 (1)	-19.24	61.257097	17	-15.61	12.2388	17	74.3%	-0.08 [-0.75, 0.59]
Reynolds 1986 (2)	-14.75	6.7507407	5	-11.32	5.568626	8	25.7%	-0.53 [-1.67, 0.61]
Subtotal (95% CI)			22			25	100.0%	**-0.20 [-0.78, 0.38]**
Heterogeneity: Chi² = 0.44, df = 1 (P = 0.51); I² = 0%								
Test for overall effect: Z = 0.66 (P = 0.51)								
Total (95% CI)			22			25	100.0%	**-0.20 [-0.78, 0.38]**

Heterogeneity: Chi² = 0.44, df = 1 (P = 0.51); I² = 0%
Test for overall effect: Z = 0.66 (P = 0.51)
Test for subgroup differences: Not applicable

Footnotes
(1) CDI; mean and SD were calculated by reviewer
(2) BDI; mean and SD were calculated by reviewer

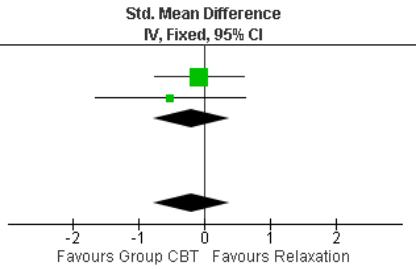
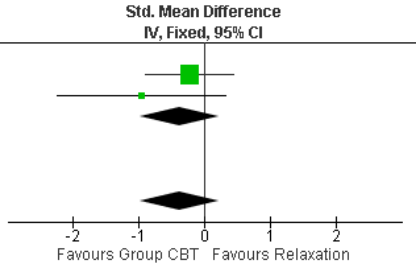


Figure 31: Depression symptoms (see footnote for scales), ≤6 months

Study or Subgroup	Group CBT Mean	Group CBT SD	Group CBT Total	Relaxation Mean	Relaxation SD	Relaxation Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
23.2.1 Age 12 to 18, Severity: depression symptoms								
Kahn 1990 (1)	-17.41	10.518084	17	-14.61	13.36004	17	78.5%	-0.23 [-0.90, 0.45]
Reynolds 1986 (2)	-19.3	6.7120116	5	-12.91	5.510544	6	21.5%	-0.96 [-2.25, 0.33]
Subtotal (95% CI)			22			23	100.0%	**-0.39 [-0.98, 0.21]**
Heterogeneity: Chi² = 0.98, df = 1 (P = 0.32); I² = 0%								
Test for overall effect: Z = 1.26 (P = 0.21)								
Total (95% CI)			22			23	100.0%	**-0.39 [-0.98, 0.21]**

Heterogeneity: Chi² = 0.98, df = 1 (P = 0.32); I² = 0%
Test for overall effect: Z = 1.26 (P = 0.21)
Test for subgroup differences: Not applicable

Footnotes
(1) CDI; mean and SD were calculated by reviewer
(2) BDI; mean and SD were calculated by reviewer



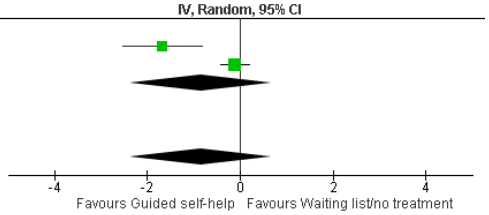
Guided self-help vs waiting list/no treatment

Figure 32: Depression symptoms (see footnote for scales), Post-treatment

Study or Subgroup	Guided self-help Mean	Guided self-help SD	Guided self-help Total	Waiting list/no treatment Mean	Waiting list/no treatment SD	Waiting list/no treatment Total	Weight	Std. Mean Difference IV, Random, 95% CI
36.1.1 Age 12 to 18, Severity: depression symptoms								
Jacob 2016 (1)	-16.2	11.379537	15	1.27	8.703222	15	46.7%	-1.68 [-2.53, -0.83]
Stice 2008 (2)	-3.95	8.3499641	80	-2.89	9.495278	84	53.3%	-0.12 [-0.42, 0.19]
Subtotal (95% CI)			95			99	100.0%	**-0.85 [-2.37, 0.68]**
Heterogeneity: Tau² = 1.11; Chi² = 11.49, df = 1 (P = 0.0007); I² = 91%								
Test for overall effect: Z = 1.09 (P = 0.28)								
Total (95% CI)			95			99	100.0%	**-0.85 [-2.37, 0.68]**

Heterogeneity: Tau² = 1.11; Chi² = 11.49, df = 1 (P = 0.0007); I² = 91%
Test for overall effect: Z = 1.09 (P = 0.28)
Test for subgroup differences: Not applicable

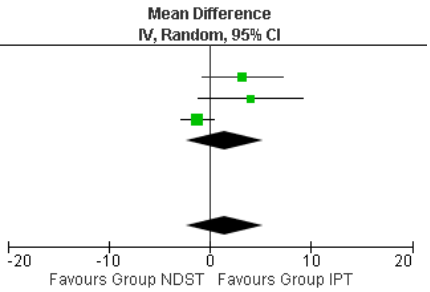
Footnotes
(1) BDI-II; mean change and SD were calculated by reviewer
(2) BDI; mean change and SD were calculated by reviewer



Group IPT vs group non-directive supportive therapy

Figure 33: Functional status (scale: CGAS), Post-treatment

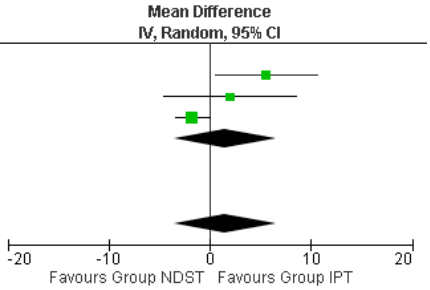
Study or Subgroup	Group IPT Mean	Group IPT SD	Group IPT Total	Group NDST Mean	Group NDST SD	Group NDST Total	Weight	Mean Difference IV, Random, 95% CI
44.1.1 Age 12 to 18, Severity: depression symptoms								
Young 2006 (1)	5.7	6	27	2.5	6.3237647	14	31.0%	3.20 [-0.81, 7.21]
Young 2010 (2)	5	7.8619336	35	1	10.539924	21	25.0%	4.00 [-1.21, 9.21]
Young 2016 (3)	4.7	6.0957444	90	5.96	5.4365798	93	44.0%	-1.26 [-2.94, 0.42]
Subtotal (95% CI)			**152**			**128**	**100.0%**	**1.44 [-2.31, 5.18]**
Heterogeneity: Tau² = 7.56; Chi² = 6.80, df = 2 (P = 0.03); I² = 71%								
Test for overall effect: Z = 0.75 (P = 0.45)								
Total (95% CI)			**152**			**128**	**100.0%**	**1.44 [-2.31, 5.18]**
Heterogeneity: Tau² = 7.56; Chi² = 6.80, df = 2 (P = 0.03); I² = 71%								
Test for overall effect: Z = 0.75 (P = 0.45)								
Test for subgroup differences: Not applicable								



Footnotes
(1) Mean change and SD were calculated by reviewer
(2) Mean change and SD were calculated by reviewer
(3) Mean change and SD were calculated by reviewer; data extracted from Young 2018

Figure 34: Functional status (scale: CGAS), ≤6 months

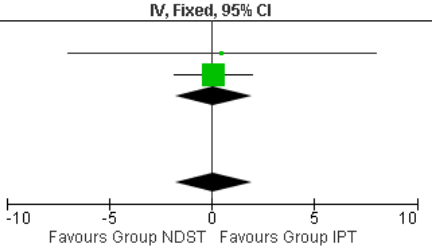
Study or Subgroup	Group IPT Mean	Group IPT SD	Group IPT Total	Group NDST Mean	Group NDST SD	Group NDST Total	Weight	Mean Difference IV, Random, 95% CI
44.3.1 Age 12 to 18, Severity: depression symptoms								
Young 2006 (1)	11.1	5.6044625	27	5.5	8.7429972	14	31.2%	5.60 [0.56, 10.64]
Young 2010 (2)	7	10.133607	34	5	12.144546	18	25.6%	2.00 [-4.56, 8.56]
Young 2016 (3)	6.52	5.5701077	85	8.27	5.9852151	89	43.3%	-1.75 [-3.47, -0.03]
Subtotal (95% CI)			**146**			**121**	**100.0%**	**1.50 [-3.51, 6.51]**
Heterogeneity: Tau² = 14.32; Chi² = 8.06, df = 2 (P = 0.02); I² = 75%								
Test for overall effect: Z = 0.59 (P = 0.56)								
Total (95% CI)			**146**			**121**	**100.0%**	**1.50 [-3.51, 6.51]**
Heterogeneity: Tau² = 14.32; Chi² = 8.06, df = 2 (P = 0.02); I² = 75%								
Test for overall effect: Z = 0.59 (P = 0.56)								
Test for subgroup differences: Not applicable								



Footnotes
(1) Mean change and SD were calculated by reviewer
(2) Mean change and SD were calculated by reviewer
(3) Mean change and SD were calculated by reviewer; data extracted from Young 2018

Figure 35: Functional status (scale: CGAS), >6 to ≤18 months

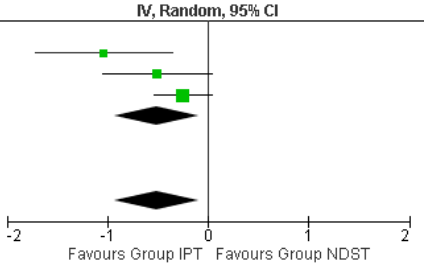
Study or Subgroup	Group IPT Mean	Group IPT SD	Group IPT Total	Group NDST Mean	Group NDST SD	Group NDST Total	Weight	Mean Difference IV, Fixed, 95% CI
44.5.1 Age 12 to 18, Severity: depression symptoms								
Young 2010 (1)	8.5	9.7923439	32	8	11.811435	12	6.0%	0.50 [-6.99, 7.99]
Young 2016 (2)	6.16	5.50705	77	6.09	6.6867331	82	94.0%	0.07 [-1.83, 1.97]
Subtotal (95% CI)			**109**			**94**	**100.0%**	**0.10 [-1.75, 1.94]**
Heterogeneity: Chi² = 0.01, df = 1 (P = 0.91); I² = 0%								
Test for overall effect: Z = 0.10 (P = 0.92)								
Total (95% CI)			**109**			**94**	**100.0%**	**0.10 [-1.75, 1.94]**
Heterogeneity: Chi² = 0.01, df = 1 (P = 0.91); I² = 0%								
Test for overall effect: Z = 0.10 (P = 0.92)								
Test for subgroup differences: Not applicable								



Footnotes
(1) Mean change and SD were calculated by reviewer
(2) Mean change and SD were calculated by reviewer; data extracted from Young 2018

Figure 36: Depression symptoms (see footnotes for scales), Post-treatment

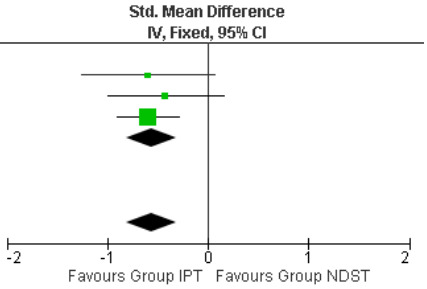
Study or Subgroup	Group IPT Mean	Group IPT SD	Group IPT Total	Group NDST Mean	Group NDST SD	Group NDST Total	Weight	Std. Mean Difference IV, Random, 95% CI
44.7.1 Age 12 to 18, Severity: depression symptoms								
Young 2006 (1)	-17.7	6.1261734	27	-10	9.192932	14	23.2%	-1.04 [-1.72, -0.35]
Young 2010 (2)	-7.5	21.55203	35	2	11.86971	21	29.8%	-0.50 [-1.05, 0.05]
Young 2016 (3)	-4.45	8.5451097	93	-2.24	8.981587	90	47.0%	-0.25 [-0.54, 0.04]
Subtotal (95% CI)			**155**			**125**	**100.0%**	**-0.51 [-0.93, -0.09]**
Heterogeneity: Tau² = 0.08; Chi² = 4.43, df = 2 (P = 0.11); I² = 55%								
Test for overall effect: Z = 2.36 (P = 0.02)								
Total (95% CI)			**155**			**125**	**100.0%**	**-0.51 [-0.93, -0.09]**
Heterogeneity: Tau² = 0.08; Chi² = 4.43, df = 2 (P = 0.11); I² = 55%								
Test for overall effect: Z = 2.36 (P = 0.02)								
Test for subgroup differences: Not applicable								



Footnotes
(1) CES-D; mean change and SD were calculated by reviewer
(2) CDRS-R; mean change and SD were calculated by reviewer
(3) CES-D; mean change and SD were calculated by reviewer; data extracted from Young 2018

Figure 37: Depression symptoms (see footnote for scales), ≤6 months

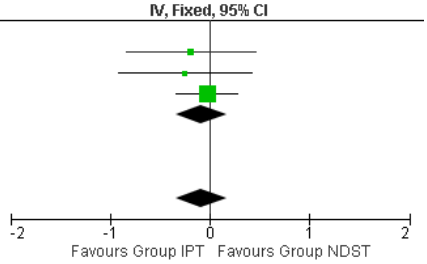
Study or Subgroup	Group IPT Mean	Group IPT SD	Group IPT Total	Group NDST Mean	Group NDST SD	Group NDST Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
44.9.1 Age 12 to 18, Severity: depression symptoms								
Young 2006 (1)	-17.8	6.2856981	27	-13.5	8.359426	14	14.3%	-0.60 [-1.26, 0.06]
Young 2010 (2)	-11.5	20.946599	34	-3.5	12.63685	18	18.6%	-0.42 [-1.00, 0.15]
Young 2016 (3)	-5.97	8.1794682	89	-1.06	8.171726	85	67.1%	-0.60 [-0.90, -0.29]
Subtotal (95% CI)			**150**			**117**	**100.0%**	**-0.57 [-0.81, -0.32]**
Heterogeneity: Chi² = 0.28, df = 2 (P = 0.87); I² = 0%								
Test for overall effect: Z = 4.45 (P < 0.00001)								
Total (95% CI)			**150**			**117**	**100.0%**	**-0.57 [-0.81, -0.32]**
Heterogeneity: Chi² = 0.28, df = 2 (P = 0.87); I² = 0%								
Test for overall effect: Z = 4.45 (P < 0.00001)								
Test for subgroup differences: Not applicable								



Footnotes
(1) CES-D; mean change and SD were calculated by reviewer
(2) CDRS-R; mean change and SD were calculated by reviewer
(3) CES-D; mean change and SD were calculated by reviewer; data extracted from Young 2018

Figure 38: Depression symptoms (see footnote for scales), >6 to ≤18 months

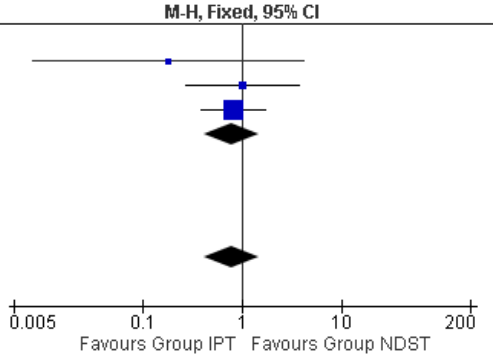
Study or Subgroup	Group IPT Mean	Group IPT SD	Group IPT Total	Group NDST Mean	Group NDST SD	Group NDST Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
44.11.1 Age 12 to 18, Severity: depression symptoms								
Young 2006 (1)	-16.66	7.1686191	27	-15.11	8.975322	14	15.9%	-0.19 [-0.84, 0.45]
Young 2010 (2)	-12	21.377558	32	-7	12.63685	12	15.0%	-0.25 [-0.92, 0.41]
Young 2016 (3)	-5.34	9.9665842	83	-5.08	7.895689	77	69.1%	-0.03 [-0.34, 0.28]
Subtotal (95% CI)			**142**			**103**	**100.0%**	**-0.09 [-0.35, 0.17]**
Heterogeneity: Chi² = 0.48, df = 2 (P = 0.79); I² = 0%								
Test for overall effect: Z = 0.67 (P = 0.50)								
Total (95% CI)			**142**			**103**	**100.0%**	**-0.09 [-0.35, 0.17]**
Heterogeneity: Chi² = 0.48, df = 2 (P = 0.79); I² = 0%								
Test for overall effect: Z = 0.67 (P = 0.50)								
Test for subgroup differences: Not applicable								



Footnotes
(1) CES-D; mean change and SD were calculated by reviewer
(2) CDRS-R; mean change and SD were calculated by reviewer
(3) CES-D; mean change and SD were calculated by reviewer; data extracted from Young 2018

Figure 39: Discontinuation for any reason

Study or Subgroup	Group IPT Events	Group IPT Total	Group NDST Events	Group NDST Total	Weight	Risk Ratio M-H, Fixed, 95% CI
44.13.1 Age 12 to 18, Severity: depression symptoms						
Young 2006	0	27	1	14	10.3%	0.18 [0.01, 4.12]
Young 2010	5	33	3	20	19.7%	1.01 [0.27, 3.78]
Young 2016 (1)	11	95	13	91	70.0%	0.81 [0.38, 1.72]
Subtotal (95% CI)		**155**		**125**	**100.0%**	**0.78 [0.42, 1.47]**
Total events	16		17			
Heterogeneity: Chi² = 1.00, df = 2 (P = 0.61); I² = 0%						
Test for overall effect: Z = 0.76 (P = 0.45)						
Total (95% CI)		**155**		**125**	**100.0%**	**0.78 [0.42, 1.47]**
Total events	16		17			
Heterogeneity: Chi² = 1.00, df = 2 (P = 0.61); I² = 0%						
Test for overall effect: Z = 0.76 (P = 0.45)						
Test for subgroup differences: Not applicable						

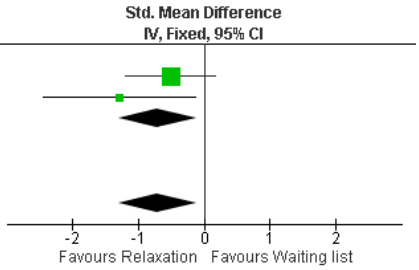


Footnotes
(1) Data extracted from Young 2018

Relaxation vs waiting list/no treatment

Figure 40: Depression symptoms (see footnote for scales), ≤6 months

Study or Subgroup	Relaxation Mean	Relaxation SD	Relaxation Total	Waiting list Mean	Waiting list SD	Waiting list Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
47.2.1 Age 12 to 18, Severity: depression symptoms								
Kahn 1990 (1)	-14.61	13.360045	17	-5.93	19.61025	17	74.3%	-0.51 [-1.19, 0.18]
Reynolds 1986 (2)	-12.91	5.5105444	6	-0.89	10.28091	9	25.7%	-1.29 [-2.46, -0.13]
Subtotal (95% CI)			**23**			**26**	**100.0%**	**-0.71 [-1.30, -0.12]**
Heterogeneity: Chi² = 1.30, df = 1 (P = 0.25); I² = 23%								
Test for overall effect: Z = 2.35 (P = 0.02)								
Total (95% CI)			**23**			**26**	**100.0%**	**-0.71 [-1.30, -0.12]**
Heterogeneity: Chi² = 1.30, df = 1 (P = 0.25); I² = 23%								
Test for overall effect: Z = 2.35 (P = 0.02)								
Test for subgroup differences: Not applicable								



Footnotes
(1) CDI; mean change and SD were calculated by reviewer
(2) BDI; mean change and SD were calculated by reviewer

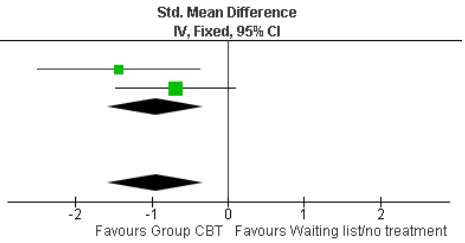
Moderate to severe depression

Age 5-11 years

Group CBT v waiting list/no treatment

Figure 41 : Depression symptoms (see footnotes for scales), Post-treatment

Study or Subgroup	Group CBT Mean	Group CBT SD	Group CBT Total	Waiting list/no treatment Mean	Waiting list/no treatment SD	Waiting list/no treatment Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
16.2.2 Age 5 to 11, Severity: depression symptoms								
Stark 1987 (1)	-13.22	7.89	9	-3.22	5.07	9	35.4%	-1.44 [-2.50, -0.37]
Weisz 1997 (2)	-12.06	14.155956	10	-3.44	11.04164	19	64.6%	-0.69 [-1.48, 0.10]
Subtotal (95% CI)			**19**			**28**	**100.0%**	**-0.95 [-1.59, -0.32]**
Heterogeneity: Chi² = 1.22, df = 1 (P = 0.27); I² = 18%								
Test for overall effect: Z = 2.95 (P = 0.003)								
Total (95% CI)			**19**			**28**	**100.0%**	**-0.95 [-1.59, -0.32]**
Heterogeneity: Chi² = 1.22, df = 1 (P = 0.27); I² = 18%								
Test for overall effect: Z = 2.95 (P = 0.003)								
Test for subgroup differences: Not applicable								



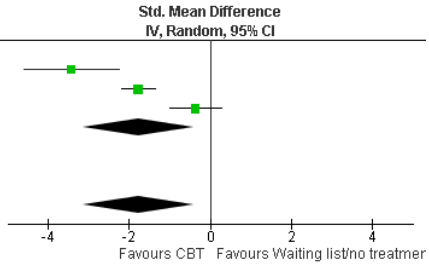
Footnotes
(1) CDRS-R
(2) CDRS-R; mean change and SD were calculated by reviewer

Age 12-18 years

Individual CBT vs waiting list/no treatment

Figure 42: Depression symptoms (see footnote for scales), Post-treatment

Study or Subgroup	CBT Mean	CBT SD	CBT Total	Waiting list/no treatment Mean	Waiting list/no treatment SD	Waiting list/no treatment Total	Weight	Std. Mean Difference IV, Random, 95% CI
1.2.2 Age 12 to 18, Severity: depressive disorder diagnosis								
Alavi 2013 (1)	-16.16	4.7898956	15	5.82	7.415126	15	29.3%	-3.43 [-4.60, -2.25]
Charkhandeh 2016 (2)	-9.52	5.5309764	65	0.03	5.101088	60	36.1%	-1.78 [-2.20, -1.36]
Rosello 1999 (3)	-6.84	7.3024037	21	-4.3	6.451147	18	34.6%	-0.36 [-0.99, 0.28]
Subtotal (95% CI)			**101**			**93**	**100.0%**	**-1.77 [-3.13, -0.41]**
Heterogeneity: Tau² = 1.29; Chi² = 24.47, df = 2 (P < 0.00001); I² = 92%								
Test for overall effect: Z = 2.55 (P = 0.01)								
Total (95% CI)			**101**			**93**	**100.0%**	**-1.77 [-3.13, -0.41]**



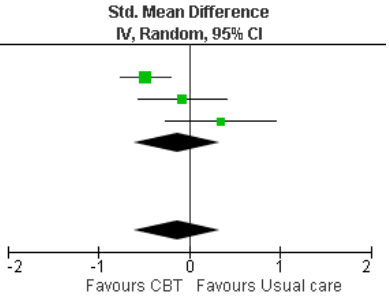
Heterogeneity: Tau² = 1.29; Chi² = 24.47, df = 2 (P < 0.00001); I² = 92%
Test for overall effect: Z = 2.55 (P = 0.01)
Test for subgroup differences: Not applicable

Footnotes
(1) BDI; mean change and SD were calculated by reviewer
(2) CDI; mean change and SD were calculated by reviewer
(3) CDI; mean change and SD were calculated by reviewer

Individual CBT vs usual care

Figure 43: Depression symptoms (see footnote for scales), Post-treatment

Study or Subgroup	CBT Mean	CBT SD	CBT Total	Usual care Mean	Usual care SD	Usual care Total	Weight	Std. Mean Difference IV, Random, 95% CI
3.7.3 Age 12 to 18, Severity: depressive disorder diagnosis								
Clarke 2016 (1)	-18.54	9.447333	106	-13.3	12.1111	106	41.3%	-0.48 [-0.75, -0.21]
Kobak 2015 (2)	-6.09	4.26	35	-5.73	4.71	30	31.8%	-0.08 [-0.57, 0.41]
Shirk 2013 (3)	-8.5	11.127929	20	-12.83	13.23653	23	26.9%	0.35 [-0.26, 0.95]
Subtotal (95% CI)			**161**			**159**	**100.0%**	**-0.13 [-0.61, 0.34]**
Heterogeneity: Tau² = 0.12; Chi² = 6.84, df = 2 (P = 0.03); I² = 71%								
Test for overall effect: Z = 0.54 (P = 0.59)								
Total (95% CI)			**161**			**159**	**100.0%**	**-0.13 [-0.61, 0.34]**

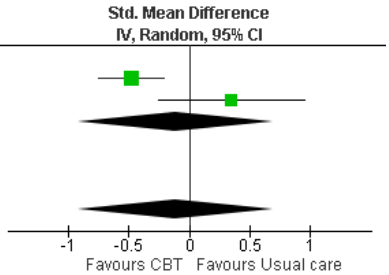


Heterogeneity: Tau² = 0.12; Chi² = 6.84, df = 2 (P = 0.03); I² = 71%
Test for overall effect: Z = 0.54 (P = 0.59)
Test for subgroup differences: Not applicable

Footnotes
(1) CDRS-R; mean change and SD were calculated by reviewer
(2) QIDS-A-Pat; mean changes were inverted to match direction of scale (Kobak 2015 reported positive numbers)
(3) BDI; mean change and SD were calculated by reviewer

Figure 44: Sensitivity analysis excluding studies with a high risk of bias: Depression symptoms (see footnotes for scales), Post-treatment

Study or Subgroup	CBT Mean	CBT SD	CBT Total	Usual care Mean	Usual care SD	Usual care Total	Weight	Std. Mean Difference IV, Random, 95% CI
3.7.3 Age 12 to 18, Severity: depressive disorder diagnosis								
Clarke 2016 (1)	-18.54	9.447333	106	-13.3	12.1111	106	55.5%	-0.48 [-0.75, -0.21]
Shirk 2013 (2)	-8.5	11.127929	20	-12.83	13.23653	23	44.5%	0.35 [-0.26, 0.95]
Subtotal (95% CI)			**126**			**129**	**100.0%**	**-0.11 [-0.92, 0.69]**
Heterogeneity: Tau² = 0.28; Chi² = 5.96, df = 1 (P = 0.01); I² = 83%								
Test for overall effect: Z = 0.28 (P = 0.78)								
Total (95% CI)			**126**			**129**	**100.0%**	**-0.11 [-0.92, 0.69]**



Heterogeneity: Tau² = 0.28; Chi² = 5.96, df = 1 (P = 0.01); I² = 83%
Test for overall effect: Z = 0.28 (P = 0.78)
Test for subgroup differences: Not applicable

Footnotes
(1) CDRS-R; mean change and SD were calculated by reviewer
(2) BDI; mean change and SD were calculated by reviewer

Figure 45: Discontinuation for any reason

Study or Subgroup	CBT Events	CBT Total	Pill placebo Events	Pill placebo Total	Weight	Risk Ratio M-H, Fixed, 95% CI
3.24.3 Age 12 to 18, Severity: depressive disorder diagnosis						
Clarke 2016	9	102	15	106	64.6%	0.62 [0.29, 1.36]
Kobak 2015	4	39	7	37	31.6%	0.54 [0.17, 1.70]
Shirk 2013	1	16	1	21	3.8%	1.31 [0.09, 19.42]
Subtotal (95% CI)		**157**		**164**	**100.0%**	**0.62 [0.33, 1.16]**
Total events	14		23			
Heterogeneity: Chi² = 0.35, df = 2 (P = 0.84); I² = 0%						
Test for overall effect: Z = 1.48 (P = 0.14)						
Total (95% CI)		**157**		**164**	**100.0%**	**0.62 [0.33, 1.16]**
Total events	14		23			
Heterogeneity: Chi² = 0.35, df = 2 (P = 0.84); I² = 0%						
Test for overall effect: Z = 1.48 (P = 0.14)						
Test for subgroup differences: Not applicable						

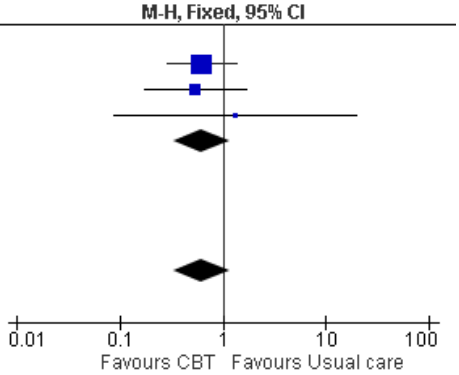
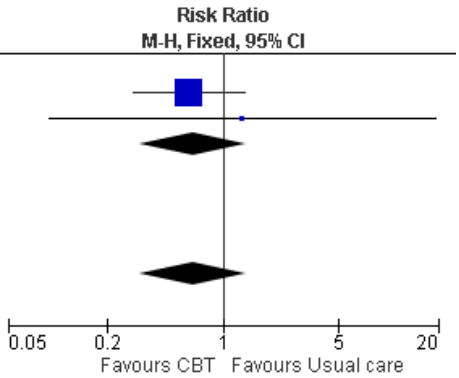


Figure 46: Sensitivity analysis excluding studies with a high risk of bias: Discontinuation for any reason

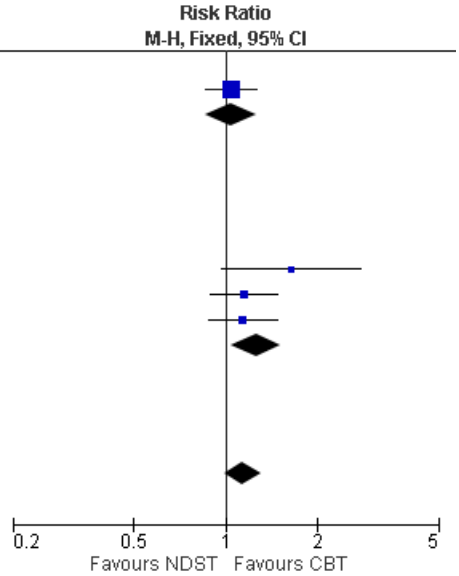
Study or Subgroup	CBT Events	CBT Total	Pill placebo Events	Pill placebo Total	Weight	Risk Ratio M-H, Fixed, 95% CI
3.24.3 Age 12 to 18, Severity: depressive disorder diagnosis						
Clarke 2016	9	102	15	106	94.4%	0.62 [0.29, 1.36]
Shirk 2013	1	16	1	21	5.6%	1.31 [0.09, 19.42]
Subtotal (95% CI)		**118**		**127**	**100.0%**	**0.66 [0.31, 1.40]**
Total events	10		16			
Heterogeneity: Chi² = 0.27, df = 1 (P = 0.60); I² = 0%						
Test for overall effect: Z = 1.08 (P = 0.28)						
Total (95% CI)		**118**		**127**	**100.0%**	**0.66 [0.31, 1.40]**
Total events	10		16			
Heterogeneity: Chi² = 0.27, df = 1 (P = 0.60); I² = 0%						
Test for overall effect: Z = 1.08 (P = 0.28)						
Test for subgroup differences: Not applicable						



Individual CBT vs non-directive supportive therapy

Figure 47: Remission, Post-treatment

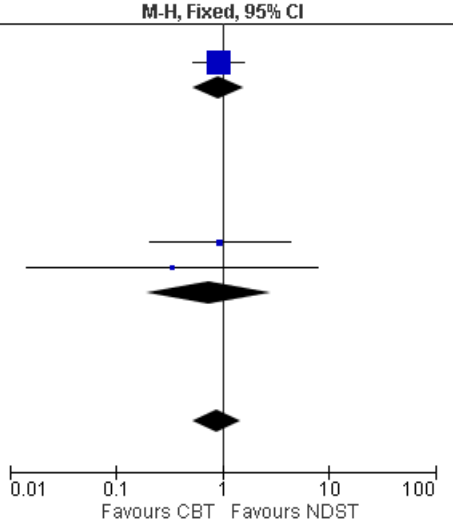
Study or Subgroup	CBT Events	CBT Total	NDST Events	NDST Total	Weight	Risk Ratio M-H, Fixed, 95% CI
5.5.1 With comorbidity, Age 12 to 18, Severity: depressive disorder diagnosis						
Szigethy 2014 (1)	73	110	68	107	55.7%	1.04 [0.86, 1.27]
Subtotal (95% CI)		**110**		**107**	**55.7%**	**1.04 [0.86, 1.27]**
Total events	73		68			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.43 (P = 0.66)						
5.5.2 Without comorbidity, Age 12 to 18, Severity: depressive disorder diagnosis						
Brent 1997 (2)	21	35	12	33	10.0%	1.65 [0.97, 2.79]
Feehan 1996 (3)	25	29	21	28	17.3%	1.15 [0.89, 1.49]
Vostanis 1996 (4)	24	28	21	28	17.0%	1.14 [0.88, 1.49]
Subtotal (95% CI)		**92**		**89**	**44.3%**	**1.26 [1.04, 1.53]**
Total events	70		54			
Heterogeneity: Chi² = 2.03, df = 2 (P = 0.36); I² = 1%						
Test for overall effect: Z = 2.36 (P = 0.02)						
Total (95% CI)		**202**		**196**	**100.0%**	**1.14 [0.99, 1.31]**
Total events	143		122			
Heterogeneity: Chi² = 2.67, df = 3 (P = 0.45); I² = 0%						
Test for overall effect: Z = 1.86 (P = 0.06)						
Test for subgroup differences: Chi² = 1.80, df = 1 (P = 0.18), I² = 44.4%						



Footnotes
(1) No depressive disorder
(2) No longer meet criteria for major depressive disorder and BDI <9 for 3 consecutive sessions
(3) Recovered from depression
(4) No longer meeting DSM-III-R criteria for depressive disorder

Figure 48: Discontinuation for any reason

Study or Subgroup	CBT Events	CBT Total	NDST Events	NDST Total	Weight	Risk Ratio M-H, Fixed, 95% CI
5.8.1 With comorbidity,Age 12 to 18, Severity: depressive disorder diagnosis						
Szigethy 2014	20	102	19	89	81.6%	0.92 [0.52, 1.61]
Subtotal (95% CI)		**102**		**89**	**81.6%**	**0.92 [0.52, 1.61]**
Total events	20		19			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.30 (P = 0.77)						
5.8.2 Without comorbidity, Age 12 to 18, Severity: depressive disorder diagnosis						
Brent 1997	3	37	3	35	12.4%	0.95 [0.20, 4.38]
Vostanis 1996	0	28	1	28	6.0%	0.33 [0.01, 7.85]
Subtotal (95% CI)		**65**		**63**	**18.4%**	**0.75 [0.19, 2.88]**
Total events	3		4			
Heterogeneity: Chi² = 0.34, df = 1 (P = 0.56); I² = 0%						
Test for overall effect: Z = 0.43 (P = 0.67)						
Total (95% CI)		**167**		**152**	**100.0%**	**0.89 [0.53, 1.49]**
Total events	23		23			
Heterogeneity: Chi² = 0.39, df = 2 (P = 0.82); I² = 0%						
Test for overall effect: Z = 0.46 (P = 0.65)						
Test for subgroup differences: Chi² = 0.08, df = 1 (P = 0.78), I² = 0%						



Group CBT vs waiting list/no treatment

Figure 49: Depression symptoms, Post-treatment

Study or Subgroup	Group CBT Mean	Group CBT SD	Group CBT Total	Waiting list/no treatment Mean	Waiting list/no treatment SD	Waiting list/no treatment Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
16.3.5 Age 12 to 18, Severity: depressive disorder diagnosis								
Clarke 1999 (1)	-16.4	9.2536479	37	-8.2	11.00545	27	61.9%	-0.81 [-1.32, -0.29]
Lewisohn 1990 (2)	-11.67	11.635476	19	-3.37	10.90059	19	38.1%	-0.72 [-1.38, -0.06]
Subtotal (95% CI)			**56**			**46**	**100.0%**	**-0.77 [-1.18, -0.37]**
Heterogeneity: Chi² = 0.04, df = 1 (P = 0.84); I² = 0%								
Test for overall effect: Z = 3.74 (P = 0.0002)								
Total (95% CI)			**56**			**46**	**100.0%**	**-0.77 [-1.18, -0.37]**
Heterogeneity: Chi² = 0.04, df = 1 (P = 0.84); I² = 0%								
Test for overall effect: Z = 3.74 (P = 0.0002)								
Test for subgroup differences: Not applicable								

Footnotes
(1) BDI
(2) BDI; mean change and SD were calculated by reviewer

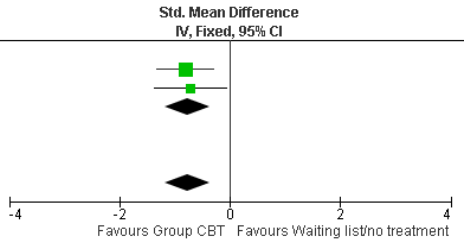
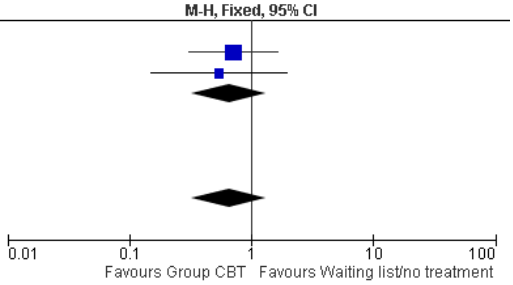


Figure 50: Discontinuation for any reason

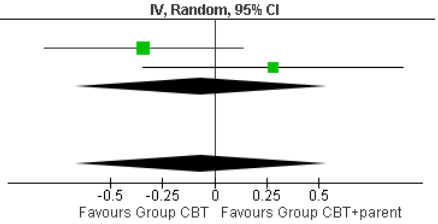
Study or Subgroup	Group CBT Events	Group CBT Total	Waiting list/no treatment Events	Waiting list/no treatment Total	Weight	Risk Ratio M-H, Fixed, 95% CI
16.7.2 Age 12 to 18, Severity: depressive disorder diagnosis						
Clarke 1999	8	45	9	36	65.6%	0.71 [0.31, 1.66]
Lewisohn 1990	3	21	5	19	34.4%	0.54 [0.15, 1.97]
Subtotal (95% CI)		**66**		**55**	**100.0%**	**0.65 [0.32, 1.32]**
Total events	11		14			
Heterogeneity: Chi² = 0.12, df = 1 (P = 0.73); I² = 0%						
Test for overall effect: Z = 1.18 (P = 0.24)						
Total (95% CI)		**66**		**55**	**100.0%**	**0.65 [0.32, 1.32]**
Total events	11		14			
Heterogeneity: Chi² = 0.12, df = 1 (P = 0.73); I² = 0%						
Test for overall effect: Z = 1.18 (P = 0.24)						
Test for subgroup differences: Not applicable						



Group CBT vs group CBT and parent sessions

Figure 51: Depression symptoms (scale : BDI), Post-treatment

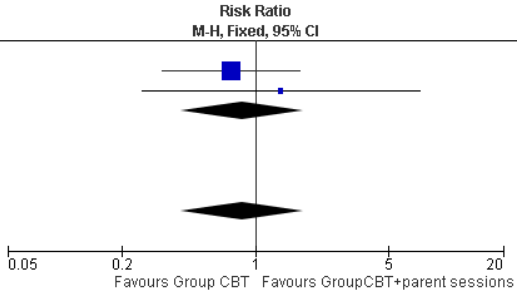
Study or Subgroup	Group CBT Mean	SD	Total	GroupCBT+parent sessions Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
20.2.1 Age 12 to 18, Severity: depressive disorder diagnosis								
Clarke 1999 (1)	-16.4	9.2536479	37	-13.1	9.983486	32	55.5%	-0.34 [-0.82, 0.14]
Lewisohn 1990 (2)	-11.67	11.635476	19	-14.79	10.23562	21	44.5%	0.28 [-0.34, 0.90]
Subtotal (95% CI)			**56**			**53**	**100.0%**	**-0.06 [-0.67, 0.54]**
Heterogeneity: Tau² = 0.11; Chi² = 2.39, df = 1 (P = 0.12); I² = 58%								
Test for overall effect: Z = 0.21 (P = 0.84)								
Total (95% CI)			**56**			**53**	**100.0%**	**-0.06 [-0.67, 0.54]**
Heterogeneity: Tau² = 0.11; Chi² = 2.39, df = 1 (P = 0.12); I² = 58%								
Test for overall effect: Z = 0.21 (P = 0.84)								
Test for subgroup differences: Not applicable								



Footnotes
(1) Mean change and SD were calculated by reviewer
(2) Mean change and SD were calculated by reviewer

Figure 52: Discontinuation for any reason

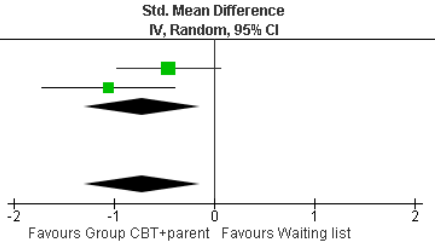
Study or Subgroup	Group CBT Events	Total	GroupCBT+parent sessions Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
20.7.1 Age 12 to 18, Severity: depressive disorder diagnosis						
Clarke 1999	8	45	10	42	83.1%	0.75 [0.33, 1.71]
Lewisohn 1990	3	21	2	19	16.9%	1.36 [0.25, 7.27]
Subtotal (95% CI)		**66**		**61**	**100.0%**	**0.85 [0.41, 1.78]**
Total events	11		12			
Heterogeneity: Chi² = 0.39, df = 1 (P = 0.53); I² = 0%						
Test for overall effect: Z = 0.43 (P = 0.67)						
Total (95% CI)		**66**		**61**	**100.0%**	**0.85 [0.41, 1.78]**
Total events	11		12			
Heterogeneity: Chi² = 0.39, df = 1 (P = 0.53); I² = 0%						
Test for overall effect: Z = 0.43 (P = 0.67)						
Test for subgroup differences: Not applicable						



Group CBT and parent sessions vs waiting list/no treatment

Figure 53: Depression symptoms (scale : BDI), Post-treatment

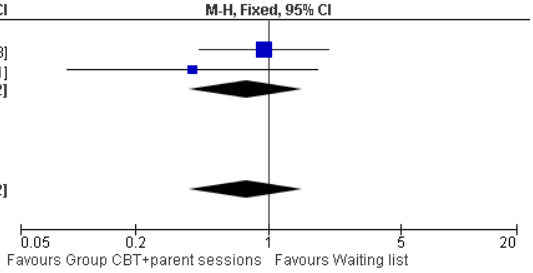
Study or Subgroup	Group CBT+parent sessions Mean	SD	Total	Waiting list Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
28.2.1 Age 12 to 18, Severity: depressive disorder diagnosis								
Clarke 1999 (1)	-13.1	9.9834864	32	-8.2	11.00545	27	56.4%	-0.46 [-0.98, 0.06]
Lewisohn 1990 (2)	-14.79	10.235619	21	-3.37	10.90059	19	43.6%	-1.06 [-1.73, -0.39]
Subtotal (95% CI)			**53**			**46**	**100.0%**	**-0.72 [-1.30, -0.14]**
Heterogeneity: Tau² = 0.09; Chi² = 1.92, df = 1 (P = 0.17); I² = 48%								
Test for overall effect: Z = 2.44 (P = 0.01)								
Total (95% CI)			**53**			**46**	**100.0%**	**-0.72 [-1.30, -0.14]**
Heterogeneity: Tau² = 0.09; Chi² = 1.92, df = 1 (P = 0.17); I² = 48%								
Test for overall effect: Z = 2.44 (P = 0.01)								
Test for subgroup differences: Not applicable								



Footnotes
(1) Mean change and SD were calculated by reviewer
(2) Mean change and SD were calculated by reviewer

Figure 54: Discontinuation for any reason

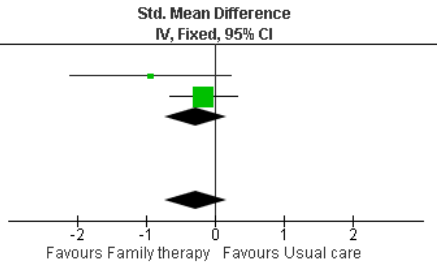
Study or Subgroup	Group CBT+parent sessions Events	Total	Waiting list Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
28.4.1 Age 12 to 18, Severity: depressive disorder diagnosis						
Clarke 1999	10	42	9	36	66.0%	0.95 [0.44, 2.08]
Lewisohn 1990	2	19	5	19	34.0%	0.40 [0.09, 1.81]
Subtotal (95% CI)		**61**		**55**	**100.0%**	**0.76 [0.38, 1.52]**
Total events	12		14			
Heterogeneity: Chi² = 1.01, df = 1 (P = 0.32); I² = 1%						
Test for overall effect: Z = 0.77 (P = 0.44)						
Total (95% CI)		**61**		**55**	**100.0%**	**0.76 [0.38, 1.52]**
Total events	12		14			
Heterogeneity: Chi² = 1.01, df = 1 (P = 0.32); I² = 1%						
Test for overall effect: Z = 0.77 (P = 0.44)						
Test for subgroup differences: Not applicable						



Family therapy vs usual care

Figure 55: Depression symptoms (see footnote for scales), Post-treatment

Study or Subgroup	Family therapy Mean	SD	Total	Usual care Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
32.3.2 Age 12 to 18, Severity: depressive disorder diagnosis								
Israel 2013 (1)	-9.1	10.844814	9	1.5	10.21372	5	15.1%	-0.93 [-2.10, 0.23]
Poole 2018 (2)	-5.57	7.9459235	31	-4.17	8.026163	33	84.9%	-0.17 [-0.66, 0.32]
Subtotal (95% CI)			**40**			**38**	**100.0%**	**-0.29 [-0.74, 0.17]**
Heterogeneity: Chi² = 1.38, df = 1 (P = 0.24); I² = 28%								
Test for overall effect: Z = 1.24 (P = 0.21)								
Total (95% CI)			**40**			**38**	**100.0%**	**-0.29 [-0.74, 0.17]**
Heterogeneity: Chi² = 1.38, df = 1 (P = 0.24); I² = 28%								
Test for overall effect: Z = 1.24 (P = 0.21)								
Test for subgroup differences: Not applicable								



Footnotes
(1) BDI-II; mean change and SD were calculated by reviewer
(2) SMFQ; mean change and SD were calculated by reviewer

Figure 56: Depression symptoms (see footnote for scales), Post-treatment

Study or Subgroup	Family therapy Events	Total	Usual care Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
32.9.1 Age 12 to 18, Severity: depressive disorder diagnosis						
Israel 2013	2	11	4	9	81.2%	0.41 [0.10, 1.75]
Poole 2018	2	27	1	26	18.8%	1.93 [0.19, 19.98]
Subtotal (95% CI)		**38**		**35**	**100.0%**	**0.69 [0.22, 2.22]**
Total events	4		5			
Heterogeneity: Chi² = 1.24, df = 1 (P = 0.27); I² = 19%						
Test for overall effect: Z = 0.61 (P = 0.54)						
Total (95% CI)		**38**		**35**	**100.0%**	**0.69 [0.22, 2.22]**
Total events	4		5			
Heterogeneity: Chi² = 1.24, df = 1 (P = 0.27); I² = 19%						
Test for overall effect: Z = 0.61 (P = 0.54)						
Test for subgroup differences: Not applicable						

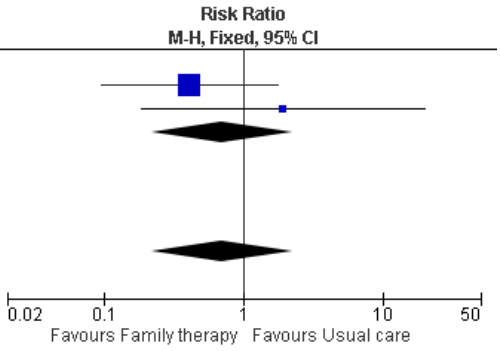
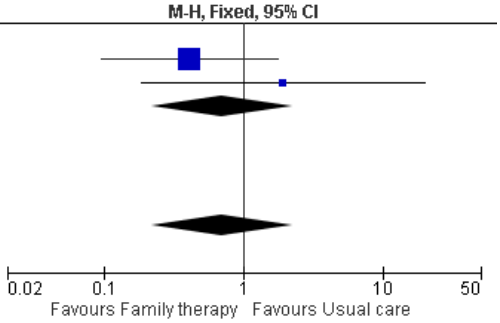


Figure 57: Discontinuation for any reason

Study or Subgroup	Family therapy Events	Total	Usual care Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
32.9.1 Age 12 to 18, Severity: depressive disorder diagnosis						
Israel 2013	2	11	4	9	81.2%	0.41 [0.10, 1.75]
Poole 2018	2	27	1	26	18.8%	1.93 [0.19, 19.98]
Subtotal (95% CI)		**38**		**35**	**100.0%**	**0.69 [0.22, 2.22]**
Total events	4		5			
Heterogeneity: Chi² = 1.24, df = 1 (P = 0.27); I² = 19%						
Test for overall effect: Z = 0.61 (P = 0.54)						
Total (95% CI)		**38**		**35**	**100.0%**	**0.69 [0.22, 2.22]**
Total events	4		5			
Heterogeneity: Chi² = 1.24, df = 1 (P = 0.27); I² = 19%						
Test for overall effect: Z = 0.61 (P = 0.54)						
Test for subgroup differences: Not applicable						



Appendix G - Network meta-analysis results

RCTs were divided into those which recruited children and young people with depression symptoms (mild depression), and those which recruited children and young people with a depressive disorder diagnosis (moderate to severe depression). NMA results show severity of depression as mild depression or moderate to severe depression.

Model fit statistics for all outcomes

Table 12: Model fit statistics

Number of Studies	Outcome		Model	Total model DIC	Total residual deviance	No. of data-points	Between-study SD (95% CrI)	Preferred model
Depression symptoms, post-treatment								
-3	5 to 11 years	Moderate to severe	FE	28.04	5.34	6	-	FE[1]
			RE[2]	-	-		-	
26	12 to 18 years	Mild	FE	276.451	95.56	58	-	RE[1]
			RE	253.101	59.22		0.3391 (0.184, 0.5736)	
22		Moderate to severe	FE	264.91	84.23	49	-	RE
			RE	237.83	48.84		0.539 (0.291, 1.037)	
Depression symptoms, ≤6 months								
22	12 to 18 years	Mild	FE	239.606	67.73	52	-	FE[1]
			RE	239.694	63.2		0.1283 (0.00471, 0.4706)	
5		Moderate to severe	FE	54.63	10.35	11	-	FE
			RE	54.61	10.35		4.996 (0.237, 9.7490)	
Depression symptoms, >6 to ≤18 months								
9	12 to 18 years	Mild	FE	85.04	18.15	22	-	FE

Number of Studies	Outcome		Model	Total model DIC	Total residual deviance	No. of data-points	Between-study SD (95% CrI)	Preferred model
			RE	87.03	18.79		0.12 (0.005, 0.496)	
4		Moderate to severe	FE	39.25	8.36	9	-	FE
			RE	39.24	8.34		4.963 (0.278, 9.746)	
Functional status, post-treatment								
2	5 to 11 years	Moderate to severe	FE	17.33	3.37	4	-	FE
			RE	17.32	3.36		4.976 (0.233, 9.755)	
3	12 to 18 years	Moderate to severe	FE	102.88	19.36	20	-	FE
9			RE	102.91	19.39		4.853 (0.194, 9.727)	
Functional status, ≤6 months								
2	12 to 18 years	Moderate to severe	FE	22.65	3.37	4	-	FE
2			RE	22.64	3.36		4.956 (0.239, 9.746)	
Functional status, >6 to ≤18 months								
3	12 to 18 years	Moderate to severe	FE	17.40	3.37	4	-	FE
2			RE	17.41	3.36		4.978 (0.229, 9.756)	
Remission, post-treatment								
3	5 to 11 years	Moderate to severe	FE	35.50	5.44	6	-	FE
			RE[2]	-	-		-	
2	12 to 18 years	Mild	FE	21.60	11.56	4	-	FE
			RE	21.60	3.47		2.508 (0.126, 4.881)	

Number of Studies	Outcome		Model	Total model DIC	Total residual deviance	No. of data-points	Between-study SD (95% CrI)	Preferred model
8		Moderate to severe	FE	100.68	15.81	18	-	FE
			RE	102.32	16.61		0.5614 (0.024, 3.851)	
Quality of life, post-treatment								
3	12 to 18 years	Moderate to severe	FE	24.56	6.37	7	-	FE
			RE	24.50	6.33		5.051 (0.2653, 9.753)	
Quality of life, ≤6 months								
2	12 to 18 years	Moderate to severe	FE	18.13	4.36	5	-	FE
			RE	18.09	4.34		4.972 (0.241, 9.750)	
	Quality of life, >6 to ≤18 months							
2	12 to 18 years	Moderate to severe	FE	17.62	4.35	5	-	FE
			RE	17.62	4.36		5.028 (0.303, 9.742)	
Suicide ideation (dichotomous), post-treatment								
3	12 to 18 years	Moderate to severe	FE	35.82	6.65	7	-	FE
			RE	35.86	6.683		2.511 (0.122, 4.870)	
Discontinuation for any reason, end point								
3*	5 to 11 years	Moderate to severe	FE	28.58	5.987	6	-	FE[1]
			RE[2]	-	-		-	
22	12 to 18 years	Mild	FE	280.797	74.35	51	-	RE[1]
			RE	272.229	56.33		0.7805 (0.2438, 1.688)	
18		Moderate to severe	FE	197.60	38.64	41	-	FE[1]

Number of Studies	Outcome		Model	Total model DIC	Total residual deviance	No. of data-points	Between-study SD (95% CrI)	Preferred model
			RE	199.52	38.98		0.337 (0.017, 1.445)	

* Continuity correction used (0.5 was added to both arms of studies with zero events in one arm, and 1 was added to the denominator for both groups for these models).

1. Thin of 10 used as autocorrelation observed.

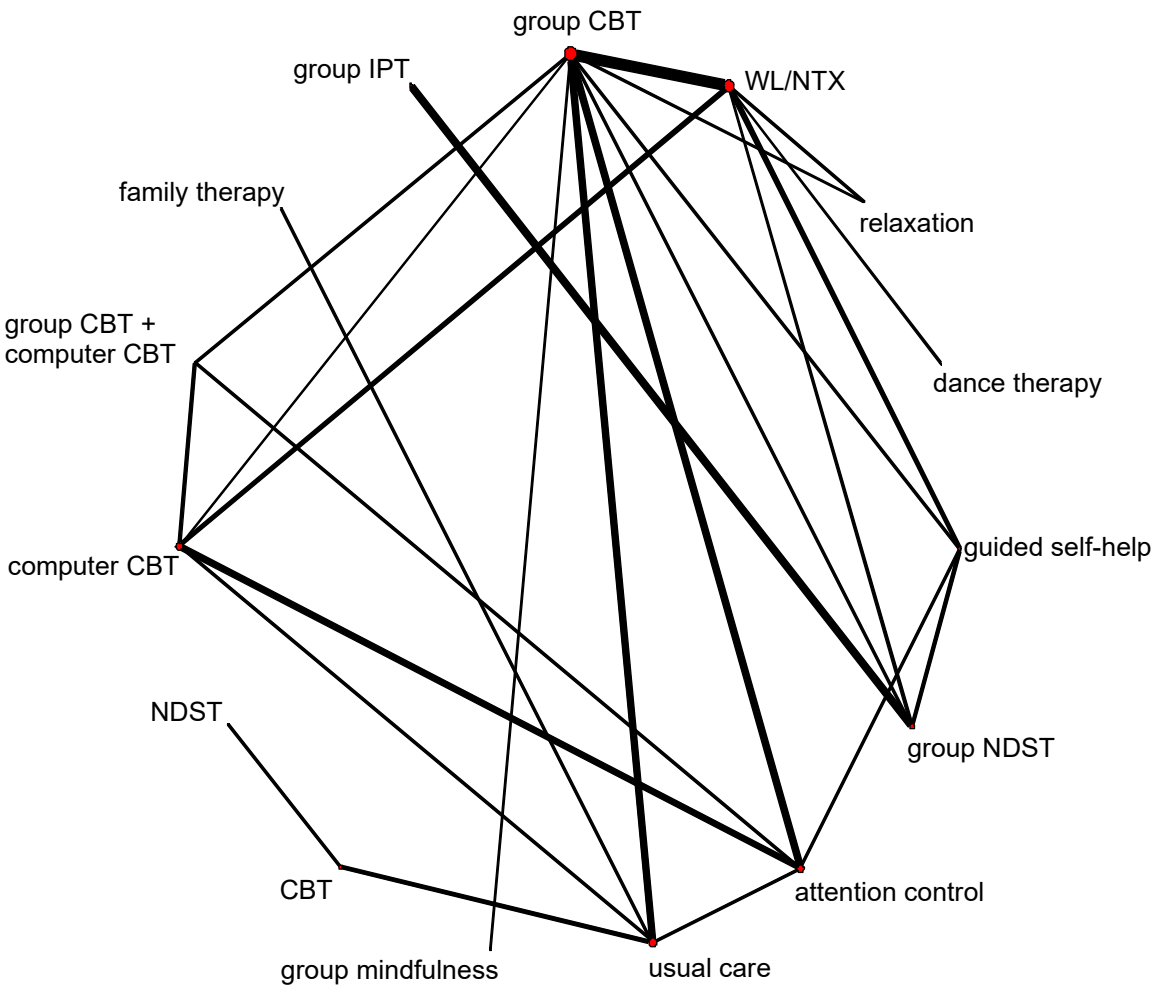
2. Random effects model not appropriate as no data to estimate between study heterogeneity.

Mild depression in 12 to 18 year olds

Depression symptoms, post-treatment on the CDI scale for mild depression in 12 to 18 year olds

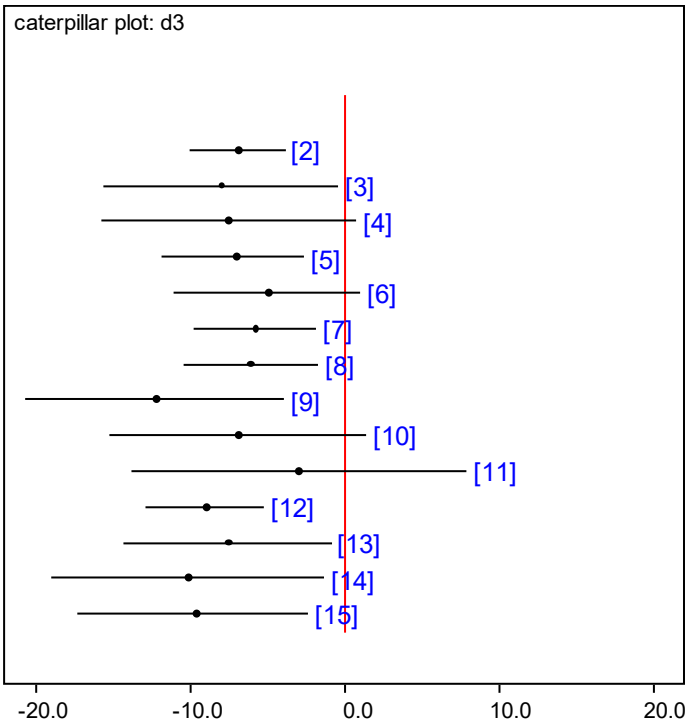
Network diagram

Figure 58: Diagram of the network of studies underlying the NMA for depression symptoms, post-treatment, in mild depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy; IPT: interpersonal psychotherapy; WL/NTX: waiting list/no treatment; NDST: non-directive supportive therapy)



Caterpillar plot

Figure 59: Relative effectiveness of all options versus waiting list/no treatment on the CDI scale for depression symptoms, post-treatment, in mild depression, 12 to 18 year olds. (Mean differences with 95% credible intervals and line of no effect in red; values higher than 0 favour waiting list/no treatment; values lower than 0 favour the other treatments.)



Treatment codes:

1 waiting list/no treatment

2 group CBT

3 relaxation

4 dance therapy

5 guided self-help

6 group NDST

7 attention control

8 usual care

9 group mindfulness

10 CBT

11 NDST

12 computer CBT

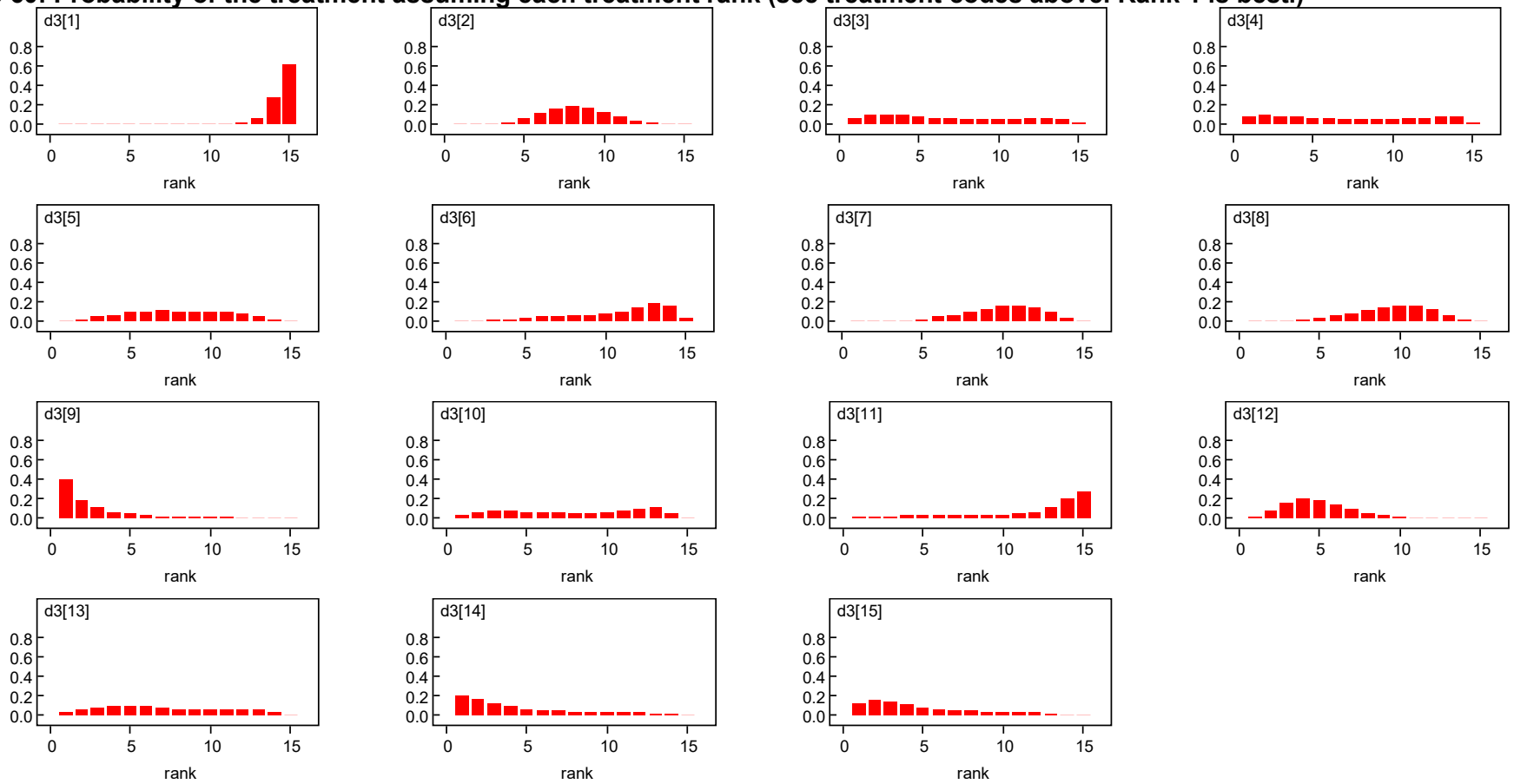
13 groupCBT + computer CBT

14 family therapy

15 group IPT

Rank probability histograms for depression symptoms, post-treatment, in mild depression, 12 to 18 year olds

Figure 60: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 1 is best.)



Relative effectiveness chart

Table 13: Relative effectiveness of all pairwise combinations on the CDI scale for depression symptoms, post-treatment, in mild depression, 12 to 18 year olds. (Upper diagonal: mean difference (MD) with 95% confidence intervals from direct pair-wise meta-analysis. MDs less than 0 favour the column defining treatment, MDs greater than 0 favour the row defining treatment. Lower diagonal: posterior median MD with 95% credible intervals from NMA results, MDs less than 0 favour the row defining treatment. MDs greater than 0 favour the column defining treatment.)

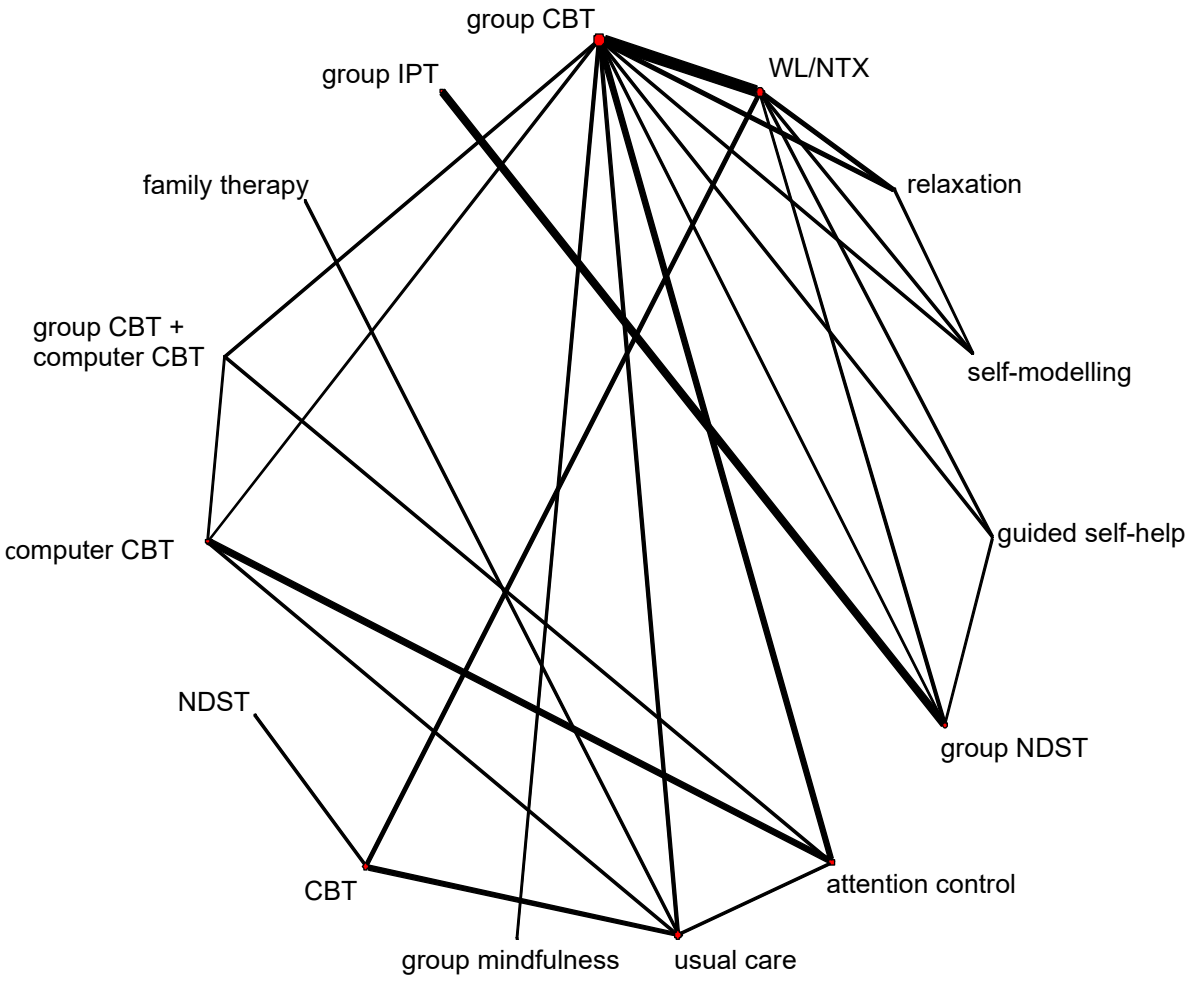
	Waiting list/no treatment	Group CBT	Relaxation	Dance therapy	Guided self-help	Group NDST	Attention control	Usual care	Group mindfulness	CBT	NDST	Computer CBT	Group CBT + computer CBT	Family therapy	Group IPT
Waiting list/no treatment		-5.89 (-7.71, -4.16)	-14.21 (-23.83, -4.59)	-7.54 (-13.17, -1.91)	-7.37 (-20.54, 5.89)	-2.34 (-4.94, 0.26)	-	-	-	-4.51 (-15.69, 6.67)	-	-8.93 (-12.05, -5.89)	-	-	-
Group CBT	-6.80 (-9.97, -3.93)		1.73 (-3.29, 6.76)	-	5.03 (2.34, 7.71)	3.12 (0.61, 5.72)	-0.17 (-1.39, 0.95)	0.26 (-0.95, 1.47)	-6.93 (-13.09, -0.78)	-	-	-2.95 (-6.33, 0.52)	-1.73 (-5.03, 1.65)	-	-
Relaxation	-7.96 (-15.53, -0.45)	-1.13 (-8.65, 6.54)		-	-	-	-	-	-	-	-	-	-	-	-
Dance therapy	-7.49 (-15.68, 0.72)	-0.67 (-9.29, 8.15)	0.45 (-10.68, 11.65)		-	-	-	-	-	-	-	-	-	-	-
Guided self-help	-6.92 (-11.85, -2.74)	-0.11 (-4.98, 4.23)	1.03 (-7.88, 9.29)	0.55 (-9.16, 9.57)		-1.47 (-4.16, 1.13)	-8.80 (-15.02, -2.58)	-	-	-	-	-	-	-	-
Group NDST	-4.83 (-11.03, 0.94)	1.97 (-4.08, 7.89)	3.11 (-6.43, 12.38)	2.66 (-7.69, 12.60)	2.06 (-3.96, 8.67)		-	-	-	-	-	-	-	-	-4.42 (-8.06, -0.78)
Attention control	-5.75 (-9.72, -1.90)	1.04 (-2.10, 4.42)	2.20 (-5.96, 10.28)	1.74 (-7.37, 10.78)	1.16 (-3.53, 6.51)	-0.92 (-7.32, 5.78)		-	-	-	-	-4.07 (-8.75, 0.61)	-0.01 (-3.28, 3.29)	-	-
Usual care	-6.02 (-10.41, -	0.79 (-2.63,	1.95 (-6.41,	1.47 (-7.85,	0.89 (-4.33,	-1.18 (-7.88,	-0.26 (-4.33,		-	-0.95 (-0.61, 4.25)	-	-1.39 (-3.90, 1.04)	-	-3.90 (-8.15, 0.35)	-

	1.75)	4.36)	10.15)	10.64)	6.78)	5.72)	3.76)								
Group mindfulness	-12.18 (-20.60, -4.04)	-5.36 (-13.08, 2.33)	-4.21 (-15.16, 6.46)	-4.67 (-16.56, 6.84)	-5.26 (-14.03, 3.96)	-7.33 (-17.06, 2.41)	-6.42 (-14.92, 1.86)	-6.16 (-14.69, 2.23)		-	-	-	-	-	-
CBT	-6.90 (-15.21, 1.31)	-0.07 (-7.89, 7.85)	1.05 (-9.82, 11.90)	0.58 (-11.12, 12.23)	0.05 (-8.70, 9.26)	-2.04 (-11.70, 7.86)	-1.13 (-9.26, 6.99)	-0.87 (-7.94, 6.19)	5.28 (-5.66, 16.34)		3.99 (0.87, 7.11)	-	-	-	-
NDST	-2.91 (-13.77, 7.82)	3.90 (-6.56, 14.43)	5.06 (-7.86, 17.96)	4.57 (-9.04, 17.98)	4.01 (-7.06, 15.65)	1.93 (-9.90, 14.00)	2.85 (-7.84, 13.54)	3.12 (-6.82, 13.02)	9.26 (-3.65, 22.36)	3.98 (-3.03, 10.98)		-	-	-	-
Computer CBT	-8.94 (-12.79, -5.30)	-2.14 (-5.58, 1.40)	-0.99 (-9.19, 7.05)	-1.46 (-10.53, 7.46)	-2.03 (-6.95, 3.48)	-4.11 (-10.65, 2.61)	-3.19 (-6.55, 0.08)	-2.93 (-7.03, 1.11)	3.23 (-5.20, 11.78)	-2.06 (-10.22, 6.08)	-6.04 (-16.73, 4.65)		0.78 (-2.51, 4.07)	-	-
Group CBT + computer CBT	-7.49 (-14.26, -0.95)	-0.69 (-6.89, 5.60)	0.45 (-9.32, 10.14)	0.00 (-10.70, 10.42)	-0.59 (-7.75, 7.19)	-2.68 (-11.09, 5.91)	-1.74 (-7.99, 4.44)	-1.47 (-8.30, 5.28)	4.67 (-5.19, 14.62)	-0.61 (-10.46, 9.15)	-4.60 (-16.60, 7.33)	1.44 (-4.78, 7.70)		-	-
Family therapy	-10.13 (-18.93, -1.36)	-3.31 (-11.62, 5.16)	-2.18 (-13.49, 9.09)	-2.62 (-14.69, 9.24)	-3.21 (-12.32, 6.58)	-5.29 (-15.38, 5.07)	-4.37 (-13.03, 4.26)	-4.10 (-11.75, 3.59)	2.05 (-9.30, 13.48)	-3.22 (-13.71, 7.18)	-7.21 (-19.75, 5.31)	-1.17 (-9.79, 7.51)	-2.62 (-12.85, 7.66)		-
Group IPT	-9.46 (-17.21, -2.39)	-2.66 (-10.30, 4.58)	-1.54 (-12.16, 8.58)	-1.98 (-13.33, 8.74)	-2.57 (-10.09, 5.23)	-4.64 (-9.17, -0.36)	-3.71 (-11.90, 3.94)	-3.46 (-11.82, 4.40)	2.68 (-8.15, 13.28)	-2.60 (-13.59, 7.92)	-6.57 (-19.53, 5.92)	-0.53 (-8.73, 7.19)	-1.97 (-11.76, 7.34)	0.65 (-10.69, 11.55)	

Depression symptoms, ≤6 months on the CDI scale for mild depression in 12 to 18 year olds

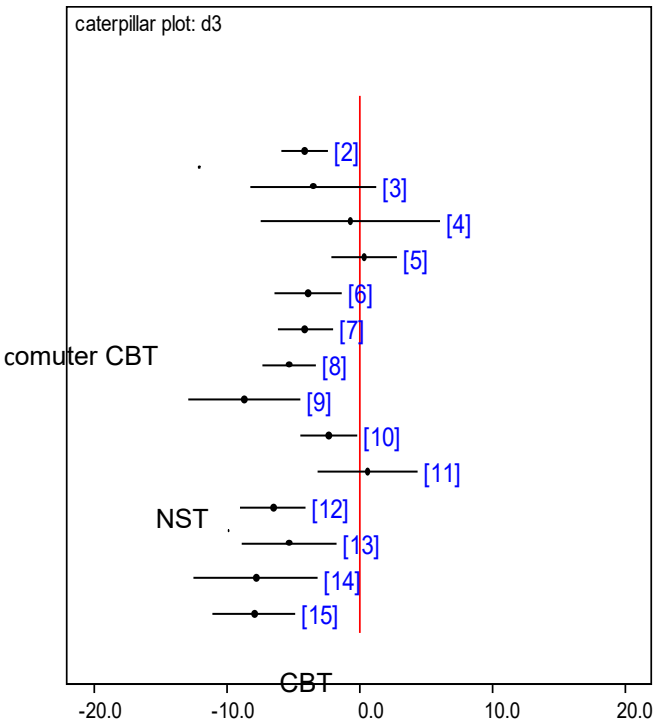
Network diagram

Figure 61: Diagram of the network of studies underlying the NMA for depression symptoms, ≤6 months, in mild depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy; IPT: interpersonal psychotherapy; WL/NTX: waiting list/no treatment; NDST: non-directive supportive therapy)



Caterpillar plot

Figure 62: Relative effectiveness of all options versus waiting list/no treatment on the CDI scale for depression symptoms, ≤6 months, in mild depression, 12 to 18 year olds. (Mean differences with 95% credible intervals and line of no effect in red; values higher than 0 favour waiting list/no treatment; values lower than 0 favour the other treatments.)



Treatment codes:

1 waiting list/no treatment

2 group CBT

3 relaxation

4 self-modelling

5 guided self-help

6 group NDST

7 attention control

8 usual care

9 group mindfulness

10 CBT

11 NDST

12 compCBT

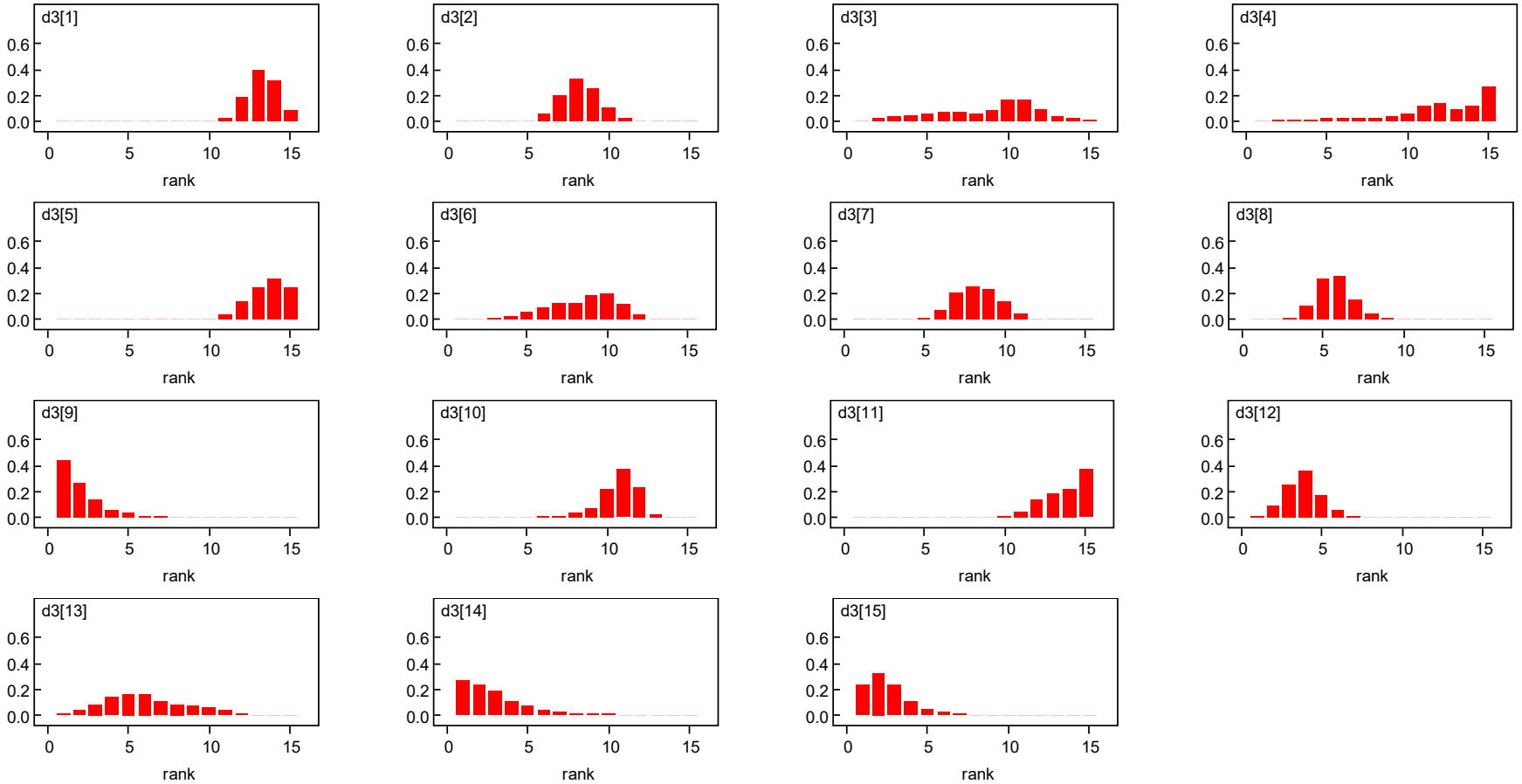
13 group CBT + computer CBT

14 family therapy

15 group IPT

Rank probability histograms for depression symptoms, ≤6 months, in mild depression, 12 to 18 year olds

Figure 63: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 1 is best.)



Relative effectiveness chart

Table 14: Relative effectiveness of all pairwise combinations on the CDI scale for depression symptoms, ≤6 months, in mild depression, 12 to 18 year olds. (Upper diagonal: mean difference (MD) with 95% confidence intervals from direct pair-wise meta-analysis. MDs less than 0 favour the column defining treatment, MDs greater than 0 favour the row defining treatment. Lower diagonal: posterior median MD with 95% credible intervals from NMA results, MDs less than 0 favour the row defining treatment. MDs greater than 0 favour the column defining treatment.)

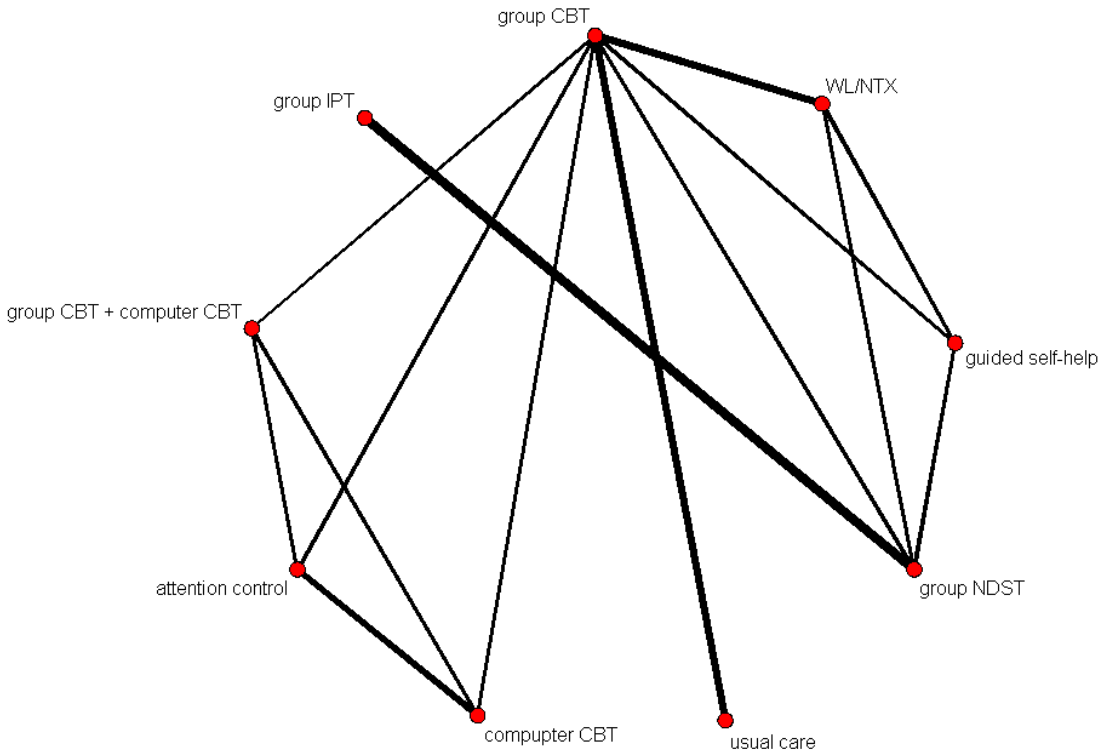
	Waiting list/no treatment	Group CBT	Relaxation	Self-modelling	Guided self-help	Group NDST	Attention control	Usual care	Group mindfulness	CBT	NDST	Computer CBT	Group CBT + computer CBT	Family therapy	Group IPT
Waiting list/no treatment		-4.59 (-6.33, -2.86)	-6.15 (-11.27, -1.04)	-6.24 (-16.99, 4.51)	-0.09 (-2.77, 2.6)	-4.07 (-6.67, -1.47)	-	-	-	-0.95 (-3.03, 1.13)	-	-	-	-	-
Group CBT	-4.12 (-5.76, -2.47)		3.38 (-1.82, 8.49)	5.24 (-2.09, 12.57)	4.77 (2.17, 7.45)	0.61 (-1.99, 3.12)	-0.17 (-1.47, 1.04)	-1.47 (-2.77, -0.09)	-6.93 (-13.09, -0.69)	-	-	-2.43 (-5.81, 0.95)	-1.56 (-4.85, 1.73)	-	-
Relaxation	-3.49 (-8.20, 1.18)	0.62 (-4.00, 5.23)		2.44 (-5.87, 10.75)	-	-	-	-	-	-	-	-	-	-	-
Self-modelling	-0.70 (-7.41, 6.00)	3.42 (-3.21, 10.04)	2.80 (-4.37, 9.94)		-	-	-	-	-	-	-	-	-	-	-
Guided self-help	0.35 (-2.09, 2.79)	4.47 (2.06, 6.88)	3.84 (-1.25, 8.95)	1.05 (-5.96, 8.05)		-4.16 (-6.85, -1.56)	-	-	-	-	-	-	-	-	-
Group NDST	-3.90 (-6.40, -1.41)	0.22 (-2.25, 2.69)	-0.40 (-5.51, 4.72)	-3.20 (-10.20, 3.82)	-4.24 (-6.89, -1.61)		-	-	-	-	-	-	-	-	-4.94 (-7.02, -2.77)
Attention control	-4.09 (-6.10, -2.10)	0.03 (-1.15, 1.21)	-0.60 (-5.33, 4.17)	-3.39 (-10.11, 3.34)	-4.44 (-7.11, -1.78)	-0.19 (-2.91, 2.53)		-	-	-	-	-2.25 (-4.77, 0.17)	0.03 (-3.26, 3.32)	-	-

Usual care	-5.30 (-7.29, -3.32)	-1.19 (-2.41, 0.03)	-1.81 (-6.55, 2.95)	-4.61 (-11.33, 2.12)	-5.66 (-8.33, -2.98)	-1.41 (-4.13, 1.32)	-1.22 (-2.49, 0.06)		-	-5.63 (-23.57, 12.31)	-	-1.13 (-3.64, 1.39)	-	-2.43 (-6.67, 1.73)	-
Group mindfulness	-8.66 (-12.82, -4.52)	-4.55 (-8.35, -0.76)	-5.16 (-11.14, 0.80)	-7.97 (-15.60, -0.30)	-9.01 (-13.52, -4.53)	-4.77 (-9.31, -0.21)	-4.57 (-8.55, -0.60)	-3.36 (-7.35, 0.64)		-	-	-	-	-	-
CBT	-2.30 (-4.34, -0.26)	1.82 (-0.65, 4.29)	1.19 (-3.87, 6.28)	-1.59 (-8.57, 5.38)	-2.65 (-5.75, 0.47)	1.60 (-1.56, 4.75)	1.79 (-0.88, 4.48)	3.00 (0.39, 5.65)	6.36 (1.84, 10.91)		2.95 (-0.17, 6.07)	-	-	-	-
NDST	0.62 (-3.08, 4.30)	4.73 (0.79, 8.66)	4.10 (-1.79, 10.04)	1.31 (-6.33, 8.92)	0.27 (-4.10, 4.62)	4.51 (0.10, 8.89)	4.69 (0.62, 8.77)	5.91 (1.89, 9.96)	9.27 (3.81, 14.75)	2.91 (-0.15, 5.98)		-	-	-	-
Computer CBT	-6.50 (-8.89, -4.09)	-2.37 (-4.16, -0.59)	-3.00 (-7.92, 1.92)	-5.79 (-12.66, 1.07)	-6.84 (-9.82, -3.87)	-2.60 (-5.61, 0.42)	-2.40 (-4.09, -0.70)	-1.19 (-2.89, 0.52)	2.17 (-2.03, 6.36)	-4.19 (-7.20, -1.22)	-7.09 (-11.37, -2.82)		0.52 (-2.77, 3.81)	-	-
Group CBT + computer CBT	-5.27 (-8.78, -1.79)	-1.15 (-4.25, 1.94)	-1.78 (-7.33, 3.77)	-4.59 (-11.89, 2.77)	-5.62 (-9.55, -1.72)	-1.38 (-5.33, 2.58)	-1.18 (-4.28, 1.90)	0.04 (-3.16, 3.20)	3.39 (-1.51, 8.30)	-2.97 (-6.91, 0.95)	-5.89 (-10.87, -0.90)	1.22 (-1.96, 4.39)		-	-
Family therapy	-7.77 (-12.40, -3.18)	-3.65 (-8.01, 0.69)	-4.28 (-10.60, 2.05)	-7.07 (-15.02, 0.82)	-8.12 (-13.09, -3.21)	-3.87 (-8.87, 1.10)	-3.68 (-8.05, 0.68)	-2.46 (-6.65, 1.71)	0.89 (-4.90, 6.71)	-5.47 (-10.39, -0.54)	-8.38 (-14.17, -2.59)	-1.28 (-5.80, 3.24)	-2.50 (-7.74, 2.76)		-
Group IPT	-7.94 (-10.98, -4.89)	-3.82 (-6.82, -0.79)	-4.45 (-9.85, 0.99)	-7.24 (-14.48, 0.00)	-8.29 (-11.45, -5.13)	-4.04 (-5.78, -2.31)	-3.85 (-7.07, -0.62)	-2.63 (-5.86, 0.61)	0.73 (-4.15, 5.58)	-5.64 (-9.26, -2.03)	-8.55 (-13.27, -3.82)	-1.44 (-4.93, 2.05)	-2.66 (-6.98, 1.65)	-0.17 (-5.44, 5.13)	

Depression symptoms, >6 to ≤18 months on the CDI scale for mild depression in 12 to 18 year olds

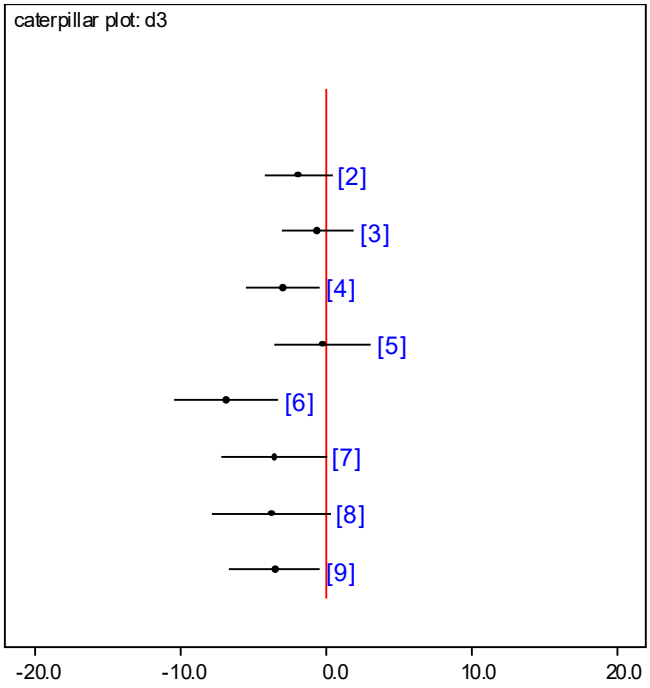
Network diagram

Figure 64: Diagram of the network of studies underlying the NMA for depression symptoms, >6 to ≤18 months, in mild depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy; IPT: interpersonal psychotherapy; WL/NTX: waiting list/no treatment; NDST: non-directive supportive therapy)



Caterpillar plot

Figure 65: Relative effectiveness of all options versus waiting list/no treatment on the CDI scale for depression symptoms, >6 to ≤18 months, in mild depression, 12 to 18 year olds. (Mean differences with 95% credible intervals and line of no effect in red; values higher than 0 favour waiting list/no treatment; values lower than 0 favour the other treatments.)



Treatment codes:

1 waiting list/no treatment

2 group CBT

3 guided self-help

4 group NDST

5 usual care

6 compupter CBT

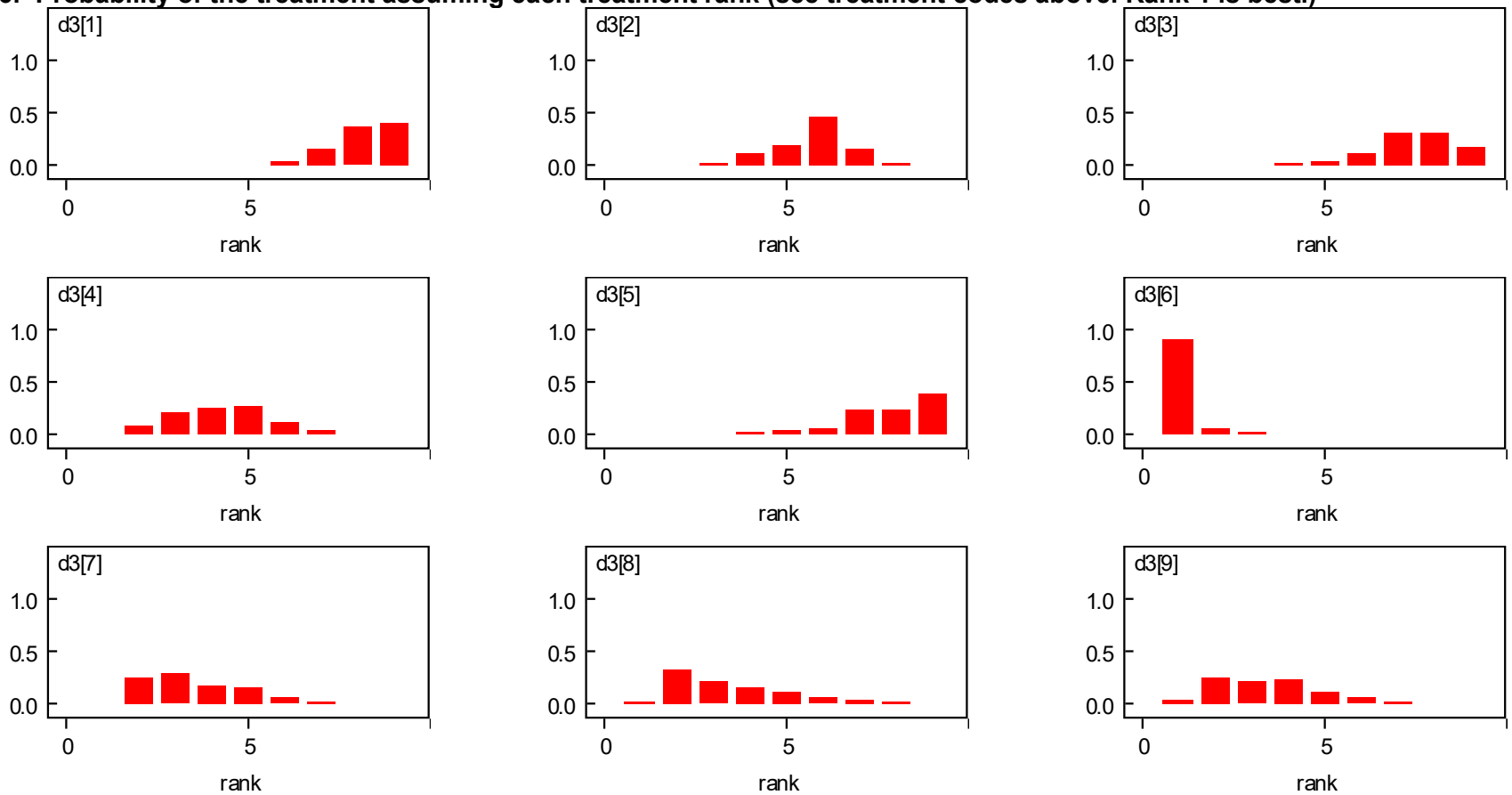
7 attention control

8 group CBT + computer CBT

9 group IPT

Rank probability histograms for depression symptoms, >6 to ≤18 months, in mild depression, 12 to 18 year olds

Figure 66: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 1 is best.)



Relative effectiveness chart

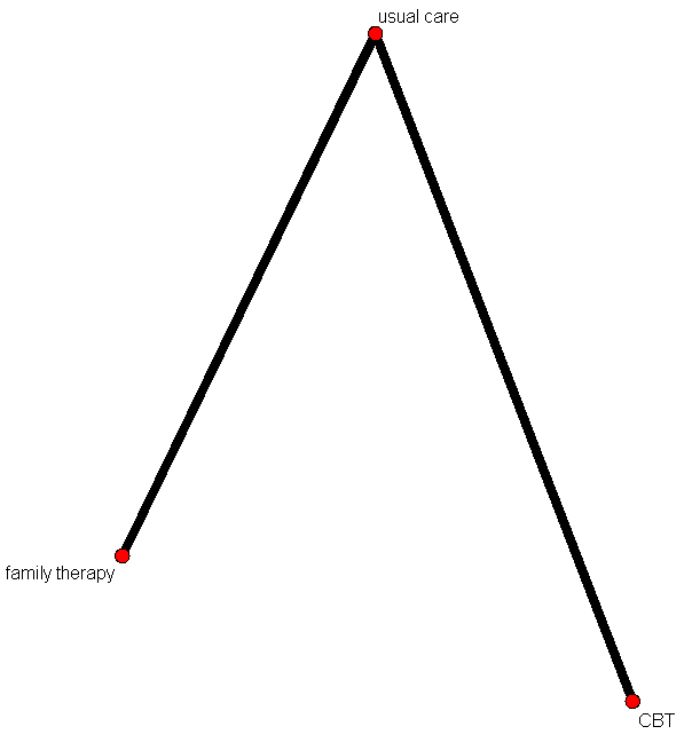
Table 15: Relative effectiveness of all pairwise combinations on the CDI scale for depression symptoms, >6 to ≤18 months, in mild depression, 12 to 18 year olds. (Upper diagonal: mean difference (MD) with 95% confidence intervals from direct pair-wise meta-analysis. MDs less than 0 favour the column defining treatment, MDs greater than 0 favour the row defining treatment. Lower diagonal: posterior median MD with 95% credible intervals from NMA results, MDs less than 0 favour the row defining treatment. MDs greater than 0 favour the column defining treatment.)

	Waiting list/no treatment	Group CBT	Guided self-help	Group NDST	Usual care	Computer CBT	Attention control	Group CBT + computer CBT	Group IPT
Waiting list/no treatment		-1.82 (-3.99, 0.35)	-0.78 (-24.01, 22.53)	-2.77 (-5.37, -0.17)	-	-	-	-	-
Group CBT	-1.88 (-4.10, 0.34)		10.14 (-15.77, 36.05)	-1.21 (-3.81, 1.3)	1.73 (-0.78, 4.25)	-5.63 (-9.19, -2.17)	-1.65 (-5.03, 1.73)	-1.82 (-5.11, 1.47)	-
Guided self-help	-0.61 (-3.03, 1.81)	1.27 (-1.24, 3.79)		-2.43 (-5.11, 0.17)	-	-	-	-	-
Group NDST	-2.95 (-5.40, -0.51)	-1.07 (-3.58, 1.46)	-2.34 (-4.81, 0.13)		-	-	-	-	-0.78 (-3.03, 1.47)
Usual care	-0.22 (-3.52, 3.06)	1.66 (-0.77, 4.08)	0.39 (-3.09, 3.86)	2.74 (-0.77, 6.22)		-	-	-	-
Computer CBT	-6.87 (-10.38, -3.35)	-4.99 (-7.72, -2.26)	-6.27 (-9.95, -2.53)	-3.92 (-7.62, -0.20)	-6.65 (-10.29, -3.01)		-3.29 (-5.2, -1.47)	3.03 (-0.35, 6.33)	-
Attention control	-3.56 (-7.10, -0.03)	-1.68 (-4.44, 1.07)	-2.96 (-6.68, 0.78)	-0.61 (-4.33, 3.11)	-3.34 (-7.00, 0.32)	3.31 (1.53, 5.09)		-0.35 (-3.64, 2.95)	-
Group CBT + computer CBT	-3.77 (-7.79, 0.23)	-1.88 (-5.24, 1.44)	-3.16 (-7.34, 1.00)	-0.82 (-5.02, 3.35)	-3.55 (-7.68, 0.56)	3.10 (-0.13, 6.32)	-0.21 (-3.47, 3.06)		-
Group IPT	-3.49 (-6.54, -0.45)	-1.61 (-4.70, 1.50)	-2.88 (-5.95, 0.19)	-0.54 (-2.38, 1.28)	-3.28 (-7.18, 0.65)	3.38 (-0.76, 7.50)	0.07 (-4.05, 4.21)	0.28 (-4.25, 4.85)	

Remission, post-treatment for mild depression in 12 to 18 year olds

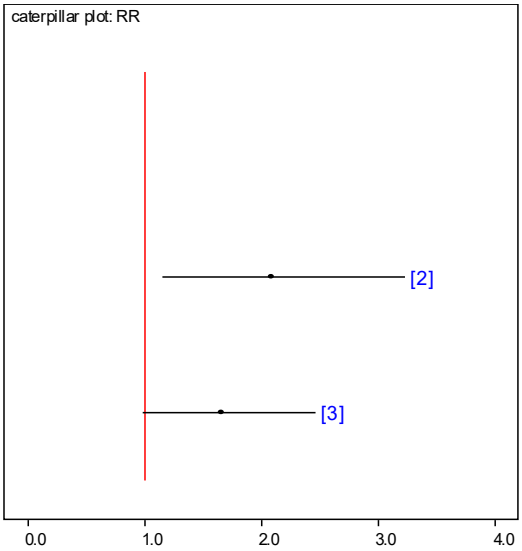
Network diagram

Figure 67: Diagram of the network of studies underlying the NMA for remission, post-treatment, in mild depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy)



Caterpillar plot

Figure 68: Relative effectiveness of all options versus usual care for remission, post-treatment, in mild depression, 12 to 18 year olds. (Relative risk with 95% credible intervals and line of no effect in red; values lower than 1 favour usual care; values higher than 1 favour the other treatments.)

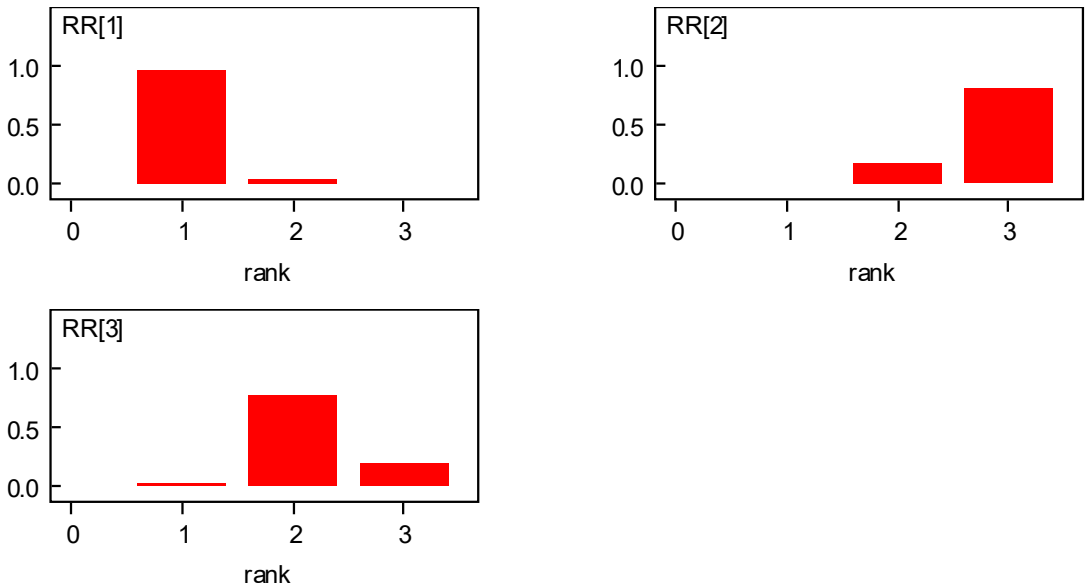


Treatment codes:

1	usual care
2	CBT
3	family therapy

Rank probability histograms for remission, post-treatment, in mild depression, 12 to 18 year olds

Figure 69: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 3 is best.)



Relative effectiveness chart

Table 16: Relative effectiveness of all pairwise combinations for remission, post-treatment, in mild depression, 12 to 18 year olds. (Upper diagonal: risk ratios

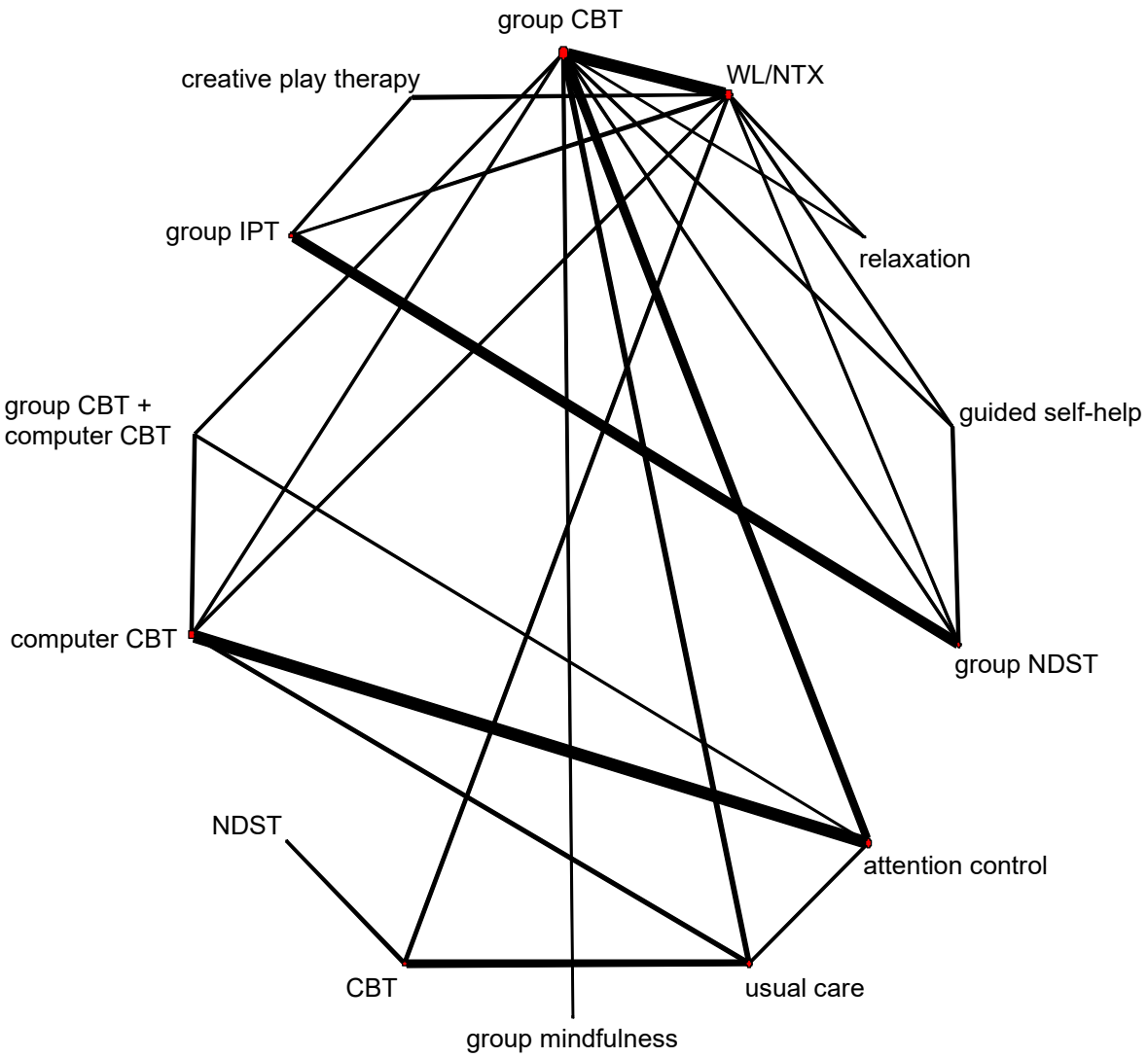
(RR) with 95% confidence intervals from the pair-wise meta-analysis. RRs greater than 1 favour the column defining treatment, RRs less than 1 favour the row defining treatment. Lower diagonal: posterior median RRs with 95% credible intervals from NMA results, RR greater than 1 favour the row defining treatment. RRs less than 1 favour the column defining treatment.)

	Usual care	**CBT**	**Family therapy**
Usual care		2.67 (0.94, 7.57)	1.77 (0.94, 3.32)
CBT	2.54 (1.18, 6.24)		-
Family therapy	1.83 (0.98, 3.63)	0.73 (0.27, 1.79)	

Discontinuation for mild depression in 12 to 18 year olds

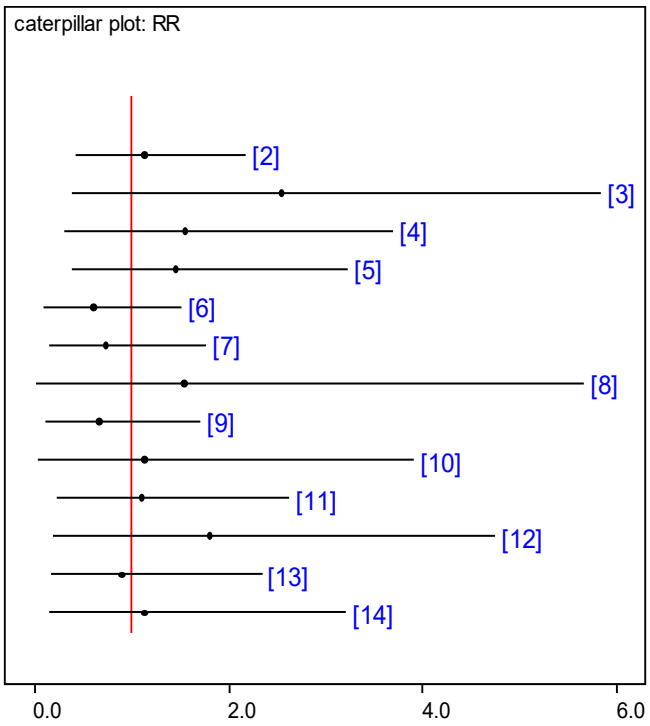
Network diagram

Figure 70: Diagram of the network of studies underlying the NMA for discontinuation, endpoint, in mild depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy; IPT: interpersonal psychotherapy; WL/NTX: waiting list/no treatment; NDST: non-directive supportive therapy)



Caterpillar plot

Figure 71: Relative effectiveness of all options versus waiting list/no treatment for discontinuation, endpoint, in mild depression, 12 to 18 year olds. (Relative risks with 95% credible intervals and line of no effect in red; values higher than 1 favour waiting list/no treatment; values lower than 1 favour the other treatments.)



Treatment codes:

1 WL/NTX

2 group CBT

3 relaxation

4 guided self-help

5 group NDST

6 attention control

7 usual care

8 group mindfulness

9 CBT

10 NDST

11 computer CBT

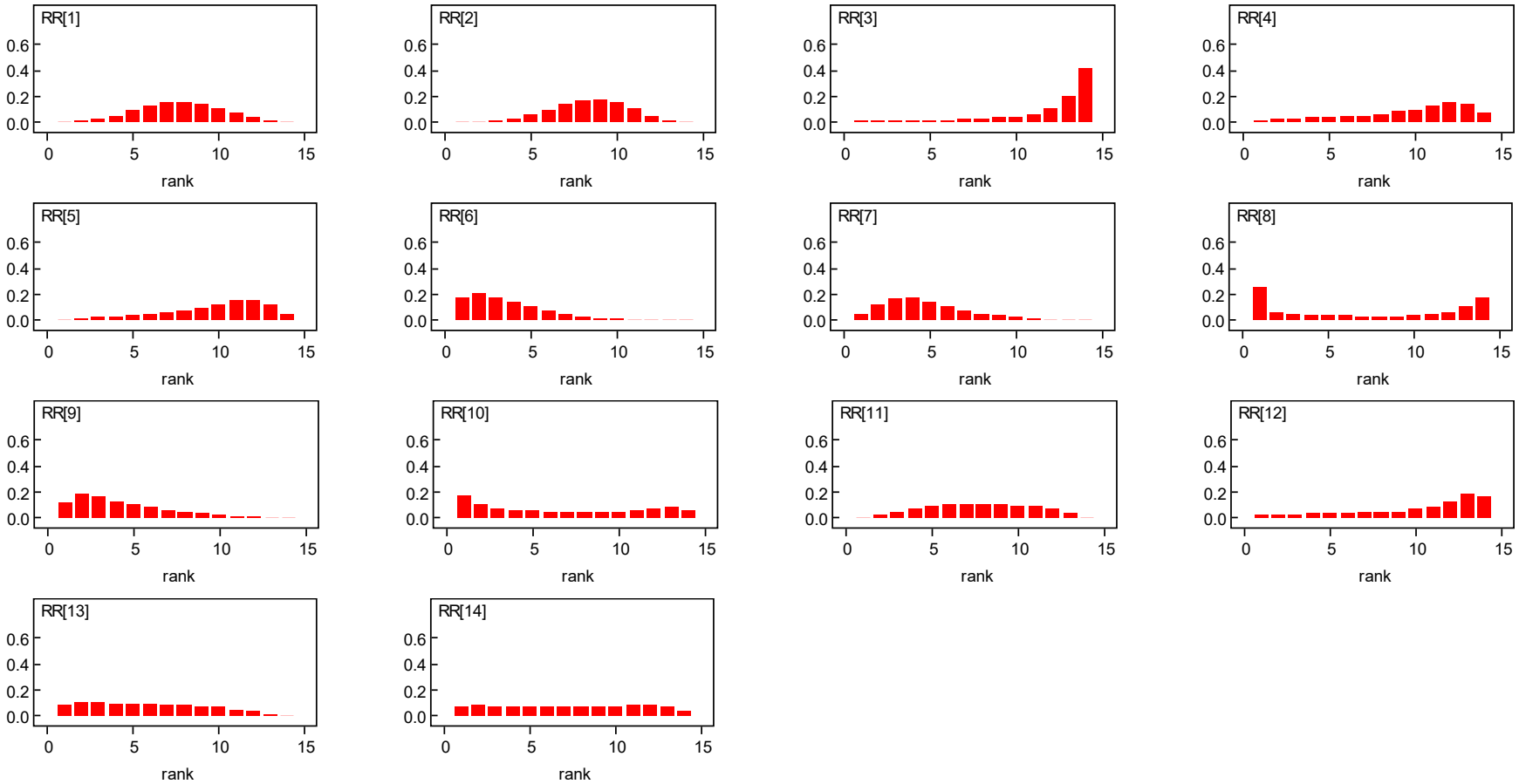
12 group + computer CBT

13 group IPT

14 creative play therapy

Rank probability histograms for discontinuation, endpoint, in mild depression, 12 to 18 year olds

Figure 72: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 1 is best.)



Relative effectiveness chart

Table 17: Relative effectiveness of all pairwise combinations for discontinuation, endpoint, in mild depression, 12 to 18 year olds. (Upper diagonal: risk ratios (RR) with 95% confidence intervals from the pair-wise meta-analysis. RRs less than 1 favour the column defining treatment, RRs greater than 1 favour the row defining treatment. Lower diagonal: posterior median RRs with 95% credible intervals from NMA results, RR less than 1 favour the row defining treatment. RRs greater than 1 favour the column defining treatment.)

	Waiting list/no treatment	Group CBT	Relaxation	Guided self-help	Group NDST	Attention control	Usual care	Group mindfulness	CBT	NDST	Computer CBT	Group + computer CBT	Group IPT	Creative play therapy
Waiting list/no treatment		1.15 (0.54, 2.47)	4.55 (0.63, 32.56)	1.92 (1.02, 3.63)	2.15 (1.15, 4.01)	-	-	-	0.99 (0.62, 1.58)	-	0.21 (0.01, 4.22)	-	0.50 (0.21, 1.18)	0.78 (0.37, 1.63)
Group CBT	1.09 (0.44, 2.16)		1.37 (0.44, 4.17)	1.16 (0.68, 1.96)	1.30 (0.77, 2.17)	0.71 (0.55, 0.93)	0.42 (0.11, 1.61)	0.86 (0.05, 12.5)	-	-	-	1.79 (0.34, 9.09)	-	-
Relaxation	2.37 (0.40, 5.82)	2.12 (0.40, 6.99)		-	-	-	-	-	-	-	-	-	-	-
Guided self-help	1.41 (0.31, 3.69)	1.28 (0.31, 4.14)	0.61 (0.11, 4.07)		1.12 (0.68, 1.82)	1.67 (0.48, 5.88)	-	-	-	-	-	-	-	-
Group NDST	1.34 (0.39, 3.23)	1.23 (0.36, 3.80)	0.58 (0.13, 3.78)	0.96 (0.26, 4.00)		-	-	-	-	-	-	-	0.78 (0.42, 1.47)	-
Attention control	0.54 (0.11, 1.51)	0.50 (0.14, 1.15)	0.24 (0.04, 1.40)	0.39 (0.07, 1.85)	0.41 (0.07, 1.66)		-	-	-	-	1.70 (0.62, 4.61)	8.50 (0.47, 153.95)	-	-
Usual care	0.66 (0.17, 1.77)	0.61 (0.21, 1.45)	0.29 (0.06, 1.75)	0.48 (0.10, 2.36)	0.50 (0.11, 2.08)	1.22 (0.44, 4.39)		-	0.74 (0.47, 1.18)	-	1.14 (0.46, 2.82)	-	-	-
Group mindfulness	0.96 (0.02, 5.65)	0.89 (0.02, 5.83)	0.43 (0.01, 4.84)	0.70 (0.01, 6.92)	0.72 (0.01, 6.36)	1.79 (0.03, 18.54)	1.45 (0.03, 13.02)		-	-	-	-	-	-
CBT	0.59 (0.12, 1.71)	0.55 (0.12, 1.72)	0.26 (0.04, 1.70)	0.43 (0.07, 2.29)	0.45 (0.08, 2.03)	1.10 (0.25, 5.31)	0.90 (0.25, 2.82)	0.61 (0.06, 36.57)		1.39 (0.40 5.00)	-	-	-	-
NDST	0.82 (0.05, 3.90)	0.76 (0.05, 4.19)	0.37 (0.02, 3.34)	0.60 (0.03, 4.79)	0.62 (0.04, 4.39)	1.51 (0.11, 12.51)	1.24 (0.10, 7.63)	0.87 (0.03, 61.58)	1.37 (0.16, 6.76)		-	-	-	-

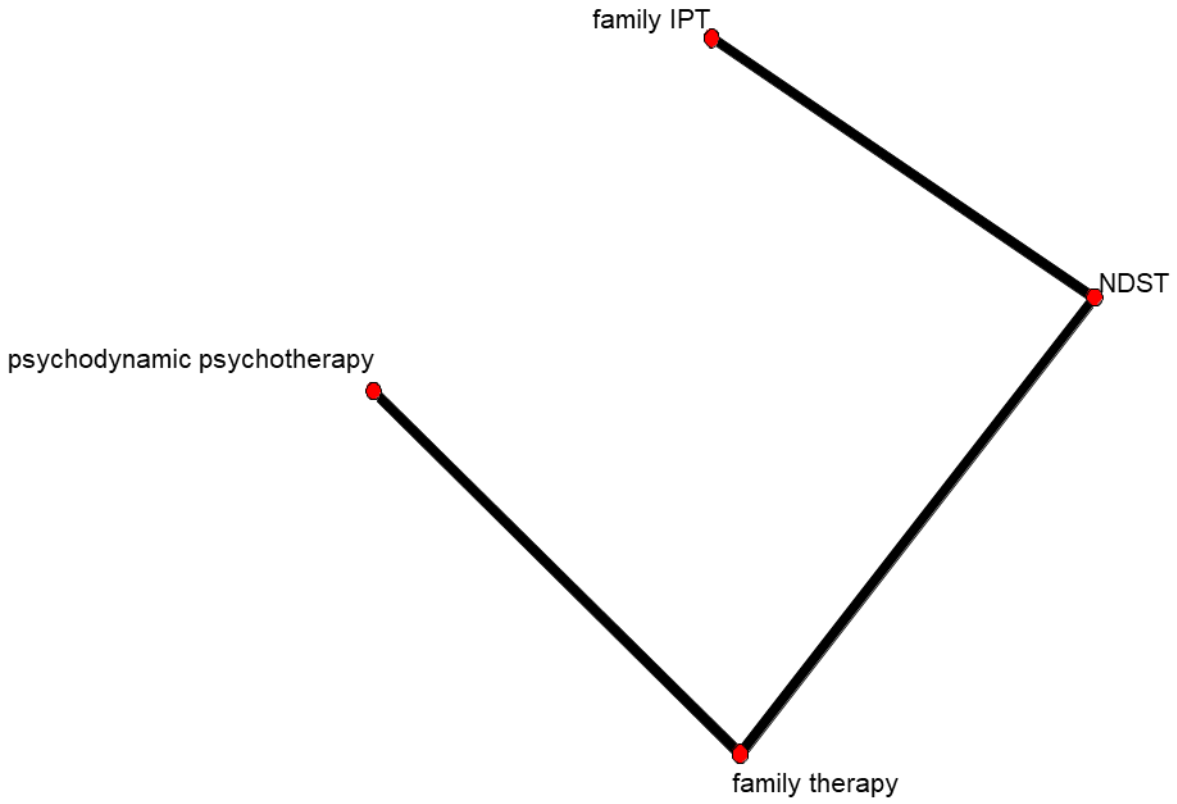
Computer CBT	1.00 (0.24, 2.61)	0.92 (0.29, 2.26)	0.44 (0.08, 2.67)	0.72 (0.14, 3.58)	0.75 (0.15, 3.15)	1.83 (0.80, 5.33)	1.50 (0.49, 4.51)	1.03 (0.11, 56.75)	1.67 (0.40, 7.81)	1.21 (0.17, 17.53)		0.96 (0.25, 3.7)	-	-
Group + Computer CBT	1.57 (0.20, 4.73)	1.44 (0.23, 4.75)	0.69 (0.08, 4.83)	1.11 (0.13, 6.62)	1.16 (0.14, 5.82)	2.81 (0.52, 14.38)	2.31 (0.37, 10.60)	1.56 (0.11, 95.56)	2.57 (0.34, 16.06)	1.84 (0.17, 33.21)	1.53 (0.28, 6.29)		-	-
Group IPT	0.79 (0.18, 2.33)	0.73 (0.16, 2.70)	0.35 (0.06, 2.45)	0.57 (0.12, 2.82)	0.60 (0.19, 1.56)	1.46 (0.29, 9.47)	1.20 (0.23, 6.33)	0.83 (0.08, 51.51)	1.33 (0.24, 8.63)	0.97 (0.11, 16.91)	0.79 (0.15, 4.39)	0.52 (0.08, 4.59)		1.56 (0.63, 3.85)
Creative play therapy	0.95 (0.16, 3.21)	0.88 (0.14, 3.92)	0.42 (0.06, 3.32)	0.69 (0.10, 4.26)	0.72 (0.12, 3.22)	1.74 (0.26, 13.31)	1.43 (0.21, 9.00)	1.00 (0.08, 66.41)	1.59 (0.22, 11.90)	1.15 (0.11, 22.56)	0.95 (0.14, 6.19)	0.62 (0.08, 6.16)	1.19 (0.23, 5.53)	

Moderate to severe depression in 5 to 11 year olds

Depression symptoms, post-treatment on the CDI scale for moderate to severe depression in 5 to 11 year olds

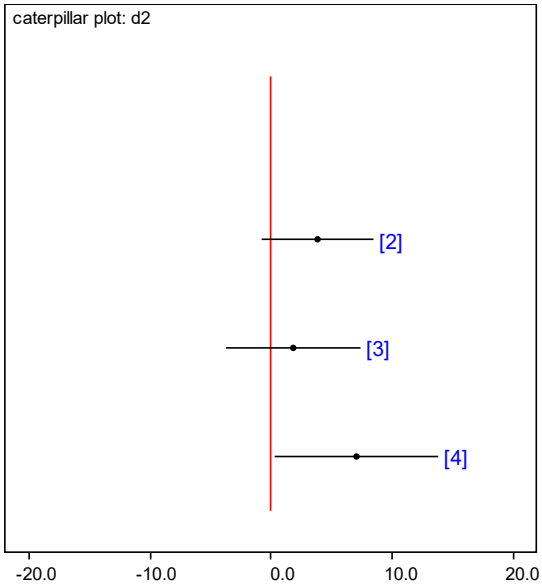
Network diagram

Figure 73: Diagram of the network of studies underlying the NMA for depression symptoms, post-treatment, in moderate to severe depression, 5 to 11 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy; WL/NTX: waiting list/no treatment; NDST: non-directive supportive therapy)



Caterpillar plot

Figure 74: Relative effectiveness of all options versus family based IPT on the CDI scale for depression symptoms, post-treatment, in moderate to severe depression, 5 to 11 year olds. (Mean differences with 95% credible intervals and line of no effect in red; values higher than 0 favour family based IPT; values lower than 0 favour the other treatments.)



Treatment codes:

1 Family based IPT

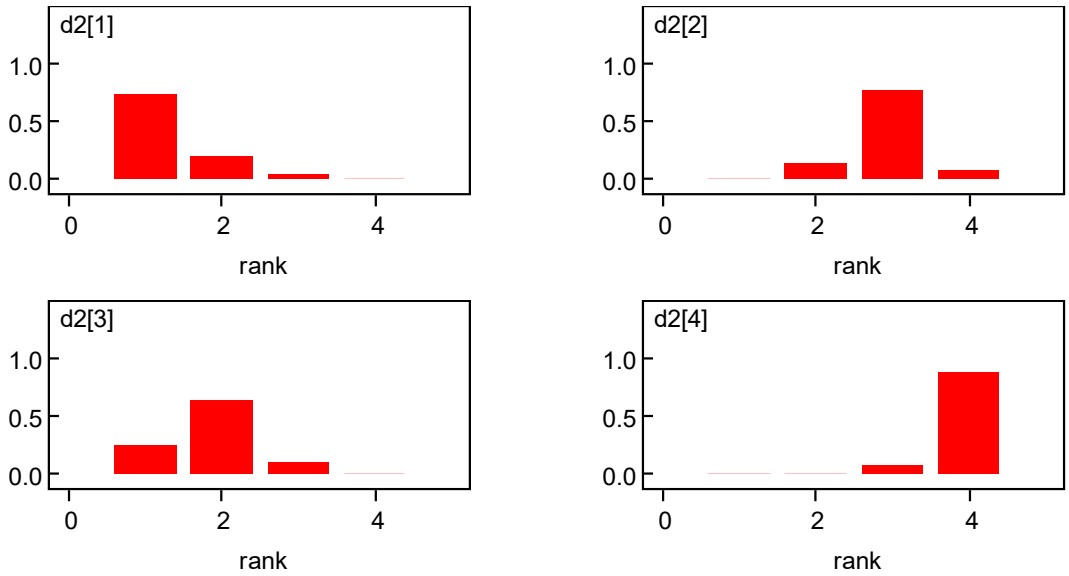
2 NDST

3 family therapy

4 psychodynamic psychotherapy

Rank probability histograms for depression symptoms, post-treatment, in moderate to severe depression, 5 to 11 year olds

Figure 75: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 1 is best.)



Relative effectiveness chart

Table 18: Relative effectiveness of all pairwise combinations on the CDI scale for depression symptoms, post-treatment, in moderate to severe depression, 5

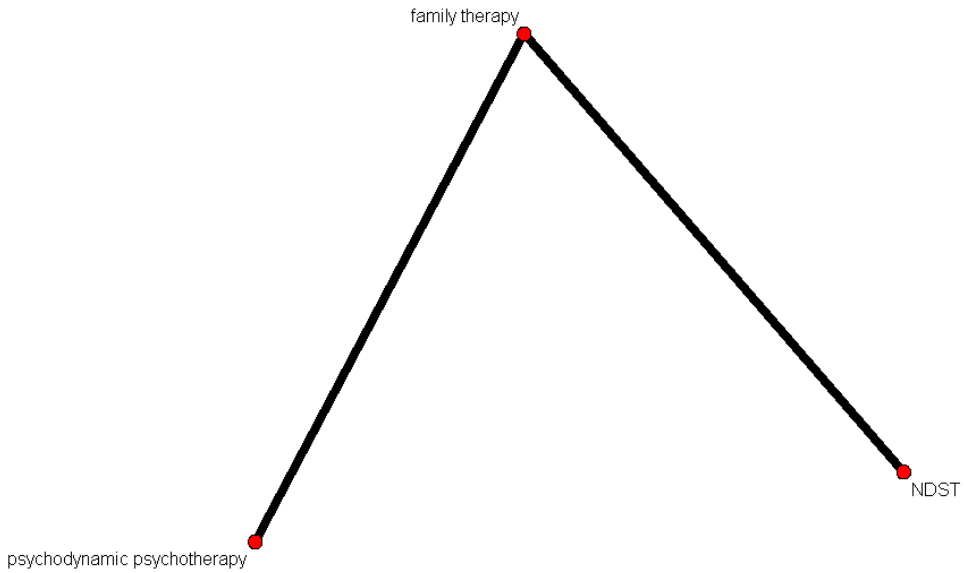
to 11 year olds. (Upper diagonal: mean difference (MD) with 95% confidence intervals from direct pair-wise meta-analysis. MDs less than 0 favour the column defining treatment, MDs greater than 0 favour the row defining treatment. Lower diagonal: posterior median MD with 95% credible intervals from NMA results, MDs less than 0 favour the row defining treatment. MDs greater than 0 favour the column defining treatment.)

	Family based IPT	**NDST**	**Family therapy**	**Psychodynamic psychotherapy**
Family based IPT		4.90 (-0.96, 10.76)	-	-
NDST	3.84 (-0.73, 8.40)		-2.60 (-5.20, 0.09)	-
Family therapy	1.85 (-3.67, 7.37)	-1.99 (-5.08, 1.11)		5.20 (1.45, 8.95)
Psychodynamic psychotherapy	7.05 (0.39, 13.73)	3.22 (-1.62, 8.07)	5.20 (1.46, 8.96)	

Functional status, post-treatment on the CGAS scale for moderate to severe depression in 5 to 11 year olds

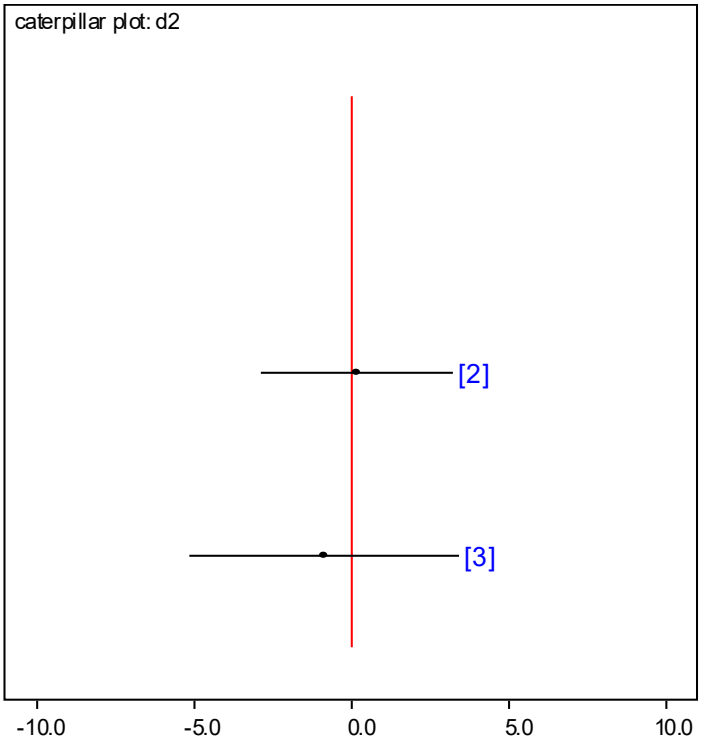
Network diagram

Figure 76: Diagram of the network of studies underlying the NMA for functional status, post-treatment, in moderate to severe depression, 5 to 11 year olds. The thickness of the line represents the number of studies. (NDST: non-directive supportive therapy)



Caterpillar plot

Figure 77: Relative effectiveness of all options versus family therapy on the CGAS scale for functional status, post-treatment, in moderate to severe depression, 5 to 11 year olds. (Mean differences with 95% credible intervals and line of no effect in red; values lower than 0 favour family therapy; values higher than 0 favour the other treatments.)



Treatment codes:

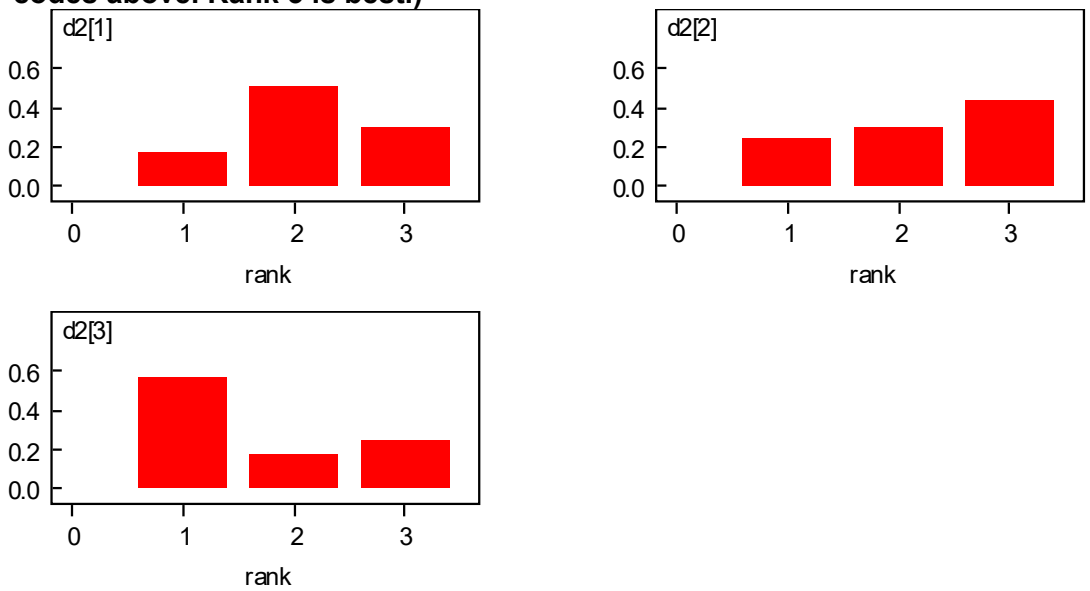
1 family therapy

2 NDST

3 psychodynamic psychotherapy

Rank probability histograms for functional status, post-treatment, in moderate to severe depression, 5 to 11 year olds

Figure 78: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 3 is best.)



Relative effectiveness chart

Table 19: Relative effectiveness of all pairwise combinations on the GCAS scale for functional status, post-treatment, in moderate to severe depression, 5 to 11 year olds. (Upper diagonal: mean difference (MD) with 95% confidence intervals from direct pair-wise meta-analysis. MDs greater than 0 favour the column defining treatment, MDs less than 0 favour the row defining treatment. Lower diagonal: posterior median MD with 95% credible intervals from NMA results, MDs greater than 0 favour the row defining treatment. MDs less than 0 favour the column defining treatment.)

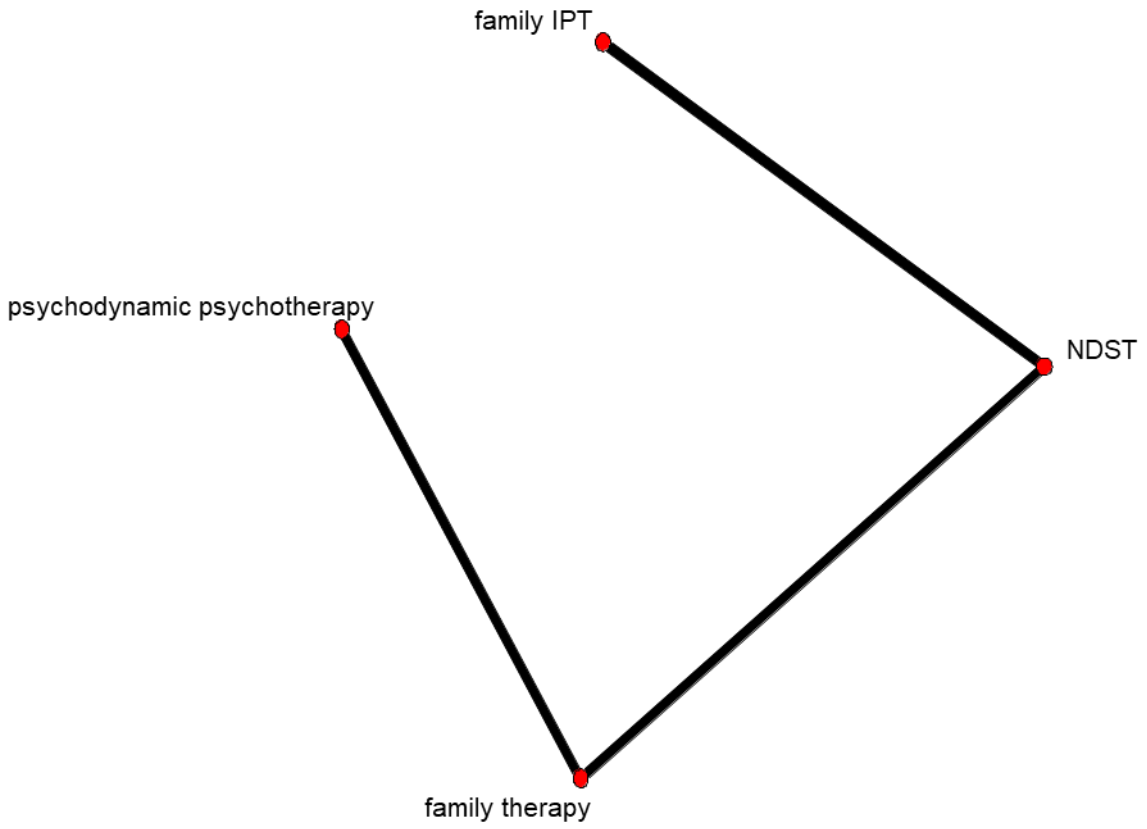
	Family therapy	**NDST**	**Psychodynamic psychotherapy**
Family therapy		0.14 (-2.86, 3.14)	-0.92 (-5.15, 3.31)
NDST	0.15 (-2.87, 3.16)		-
Psychodynamic psychotherapy	-0.92 (-5.15, 3.35)	-1.07 (-6.23, 4.15)	

Remission, post-treatment for moderate to severe depression in 5 to 11 year olds

Network diagram

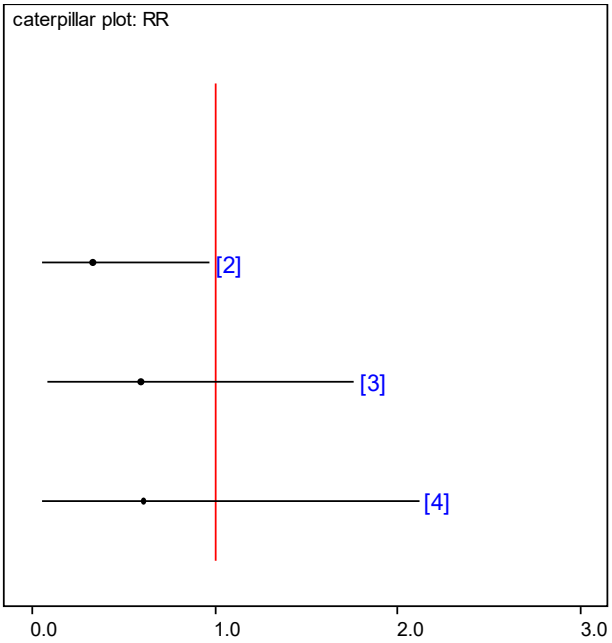
Figure 79: Diagram of the network of studies underlying the NMA for remission, post-treatment, in moderate to severe depression, 5 to 11 year olds. The thickness

of the line represents the number of studies. (NDST: non-directive supportive therapy)



Caterpillar plot

Figure 80: Relative effectiveness of all options versus family based IPT for remission, post-treatment, in moderate to severe depression, 5 to 11 year olds. (Relative risk with 95% credible intervals and line of no effect in red; values lower than 1 favour family based IPT; values higher than 1 favour the other treatments.)

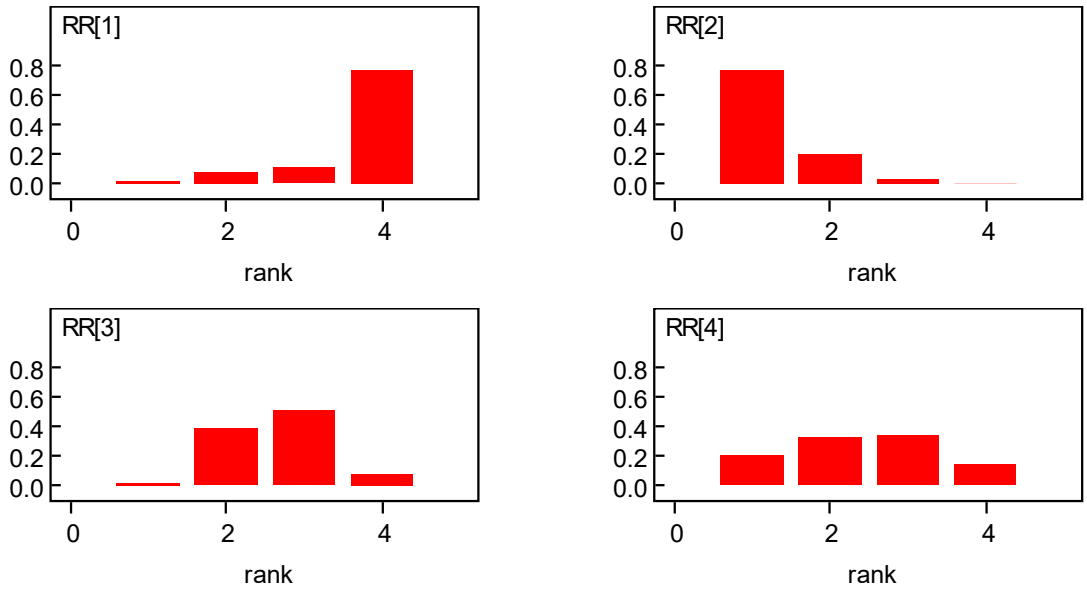


Treatment codes:

1	family based IPT
2	NDST
3	family therapy
4	psychodynamic psychotherapy

Rank probability histograms for remission, post-treatment, in moderate to severe depression, 5 to 11 year olds

Figure 81: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 4 is best.)



Relative effectiveness chart

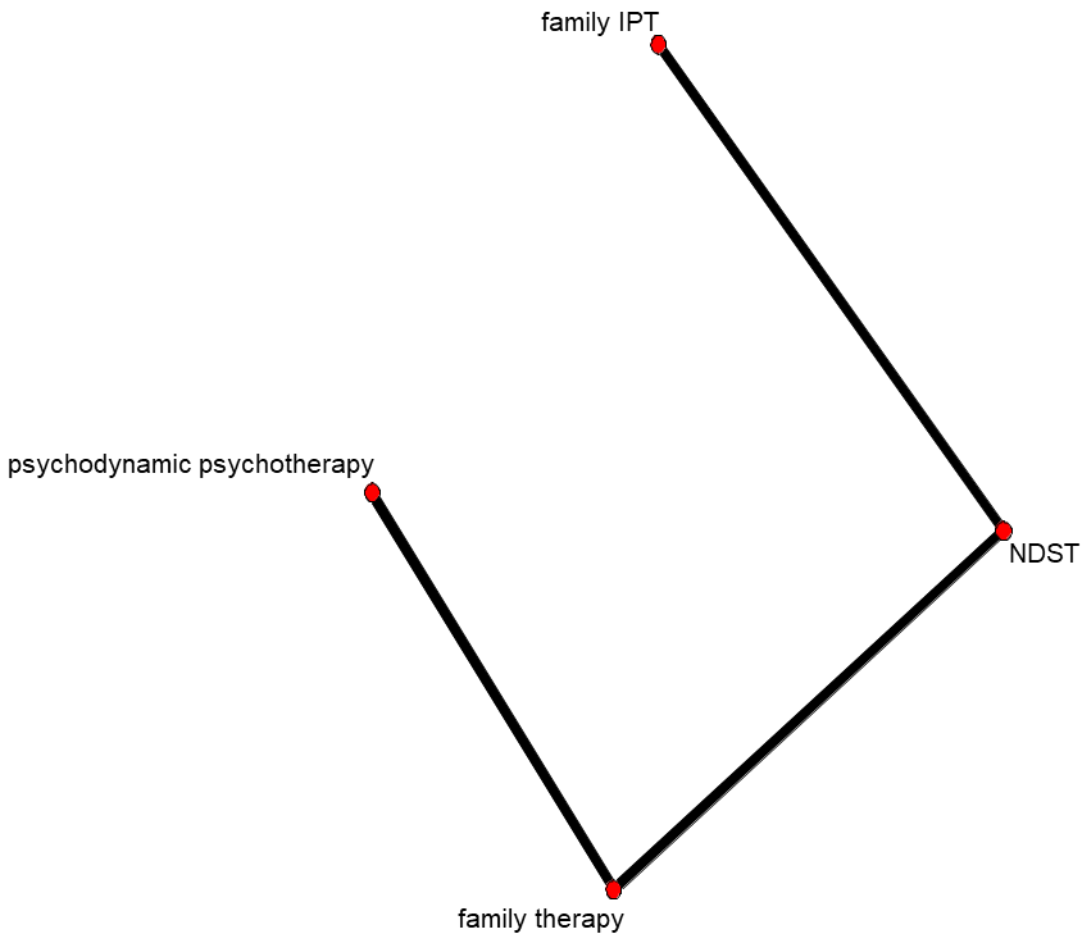
Table 20: Relative effectiveness of all pairwise combinations for remission, post-treatment, in moderate to severe depression, 5 to 11 year olds. (Upper diagonal: risk ratios (RR) with 95% confidence intervals from the pair-wise meta-analysis. RRs greater than 1 favour the column defining treatment, RRs less than 1 favour the row defining treatment. Lower diagonal: posterior median RRs with 95% credible intervals from NMA results, RR greater than 1 favour the row defining treatment. RRs less than 1 favour the column defining treatment.)

	Family IPT	**NDST**	**Family therapy**	**Psychodynamic psychotherapy**
Family IPT		0.48 (0.20, 1.15)	-	-
NDST	0.27 (0.06, 0.96)		1.40 (0.95, 2.06)	-
Family therapy	0.48 (0.09, 1.76)	1.76 (0.93, 3.32)		0.98 (0.75, 1.28)
Psychodynamic psychotherapy	0.45 (0.06, 2.11)	1.65 (0.49, 5.08)	0.94 (0.33, 2.40)	

Discontinuation for moderate to severe depression in 5 to 11 year olds

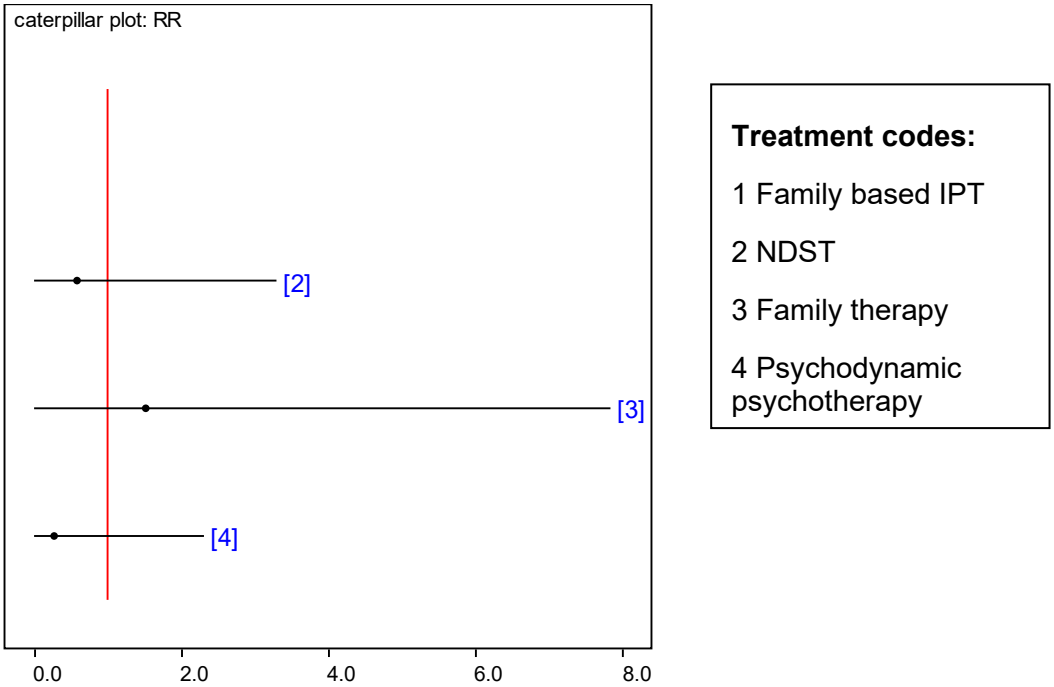
Network diagram

Figure 82: Diagram of the network of studies underlying the NMA for discontinuation, endpoint, in moderate to severe depression, 5 to 11 year olds. The thickness of the line represents the number of studies. (NDST: non-directive supportive therapy)



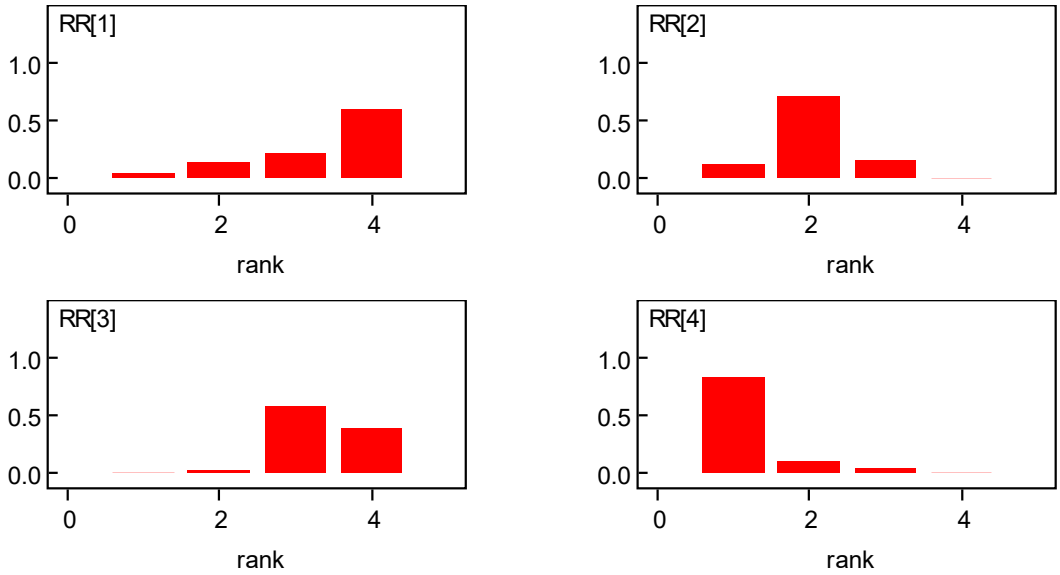
Caterpillar plot

Figure 83: Relative effectiveness of all options versus family based IPT for discontinuation, endpoint, in moderate to severe depression, 5 to 11 year olds. (Relative risks with 95% credible intervals and line of no effect in red; values higher than 1 favour family based IPT; values lower than 1 favour the other treatments.)



Rank probability histograms for discontinuation, endpoint, in moderate to severe depression, 5 to 11 year olds

Figure 84: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 1 is best.



Relative effectiveness chart

Table 21: Relative effectiveness of all pairwise combinations for discontinuation, endpoint, in moderate to severe depression, 5 to 11 year olds. (Upper diagonal: risk ratios (RR) with 95% confidence intervals from the pair-wise meta-analysis. RRs less than 1 favour the column defining treatment, RRs greater than 1 favour the row defining treatment. Lower diagonal: posterior median RRs with 95% credible intervals from NMA results, RR less than 1 favour the row defining treatment. RRs greater than 1 favour the column defining treatment.)

	Family IPT	**NDST**	**Family therapy**	**Psychodynamic psychotherapy**
Family IPT		0.40 (0.02, 7.69)	-	-
NDST	0.22 (0.00, 3.28)		2.60 (0.98, 6.89)	-
Family therapy	0.64 (0.00, 7.82)	2.81 (1.07, 8.80)		0.12 (0.01, 2.10)
Psychodynamic psychotherapy	0.02 (0.00, 2.29)	0.17 (0.00, 2.99)	0.06 (0.00, 0.84)	

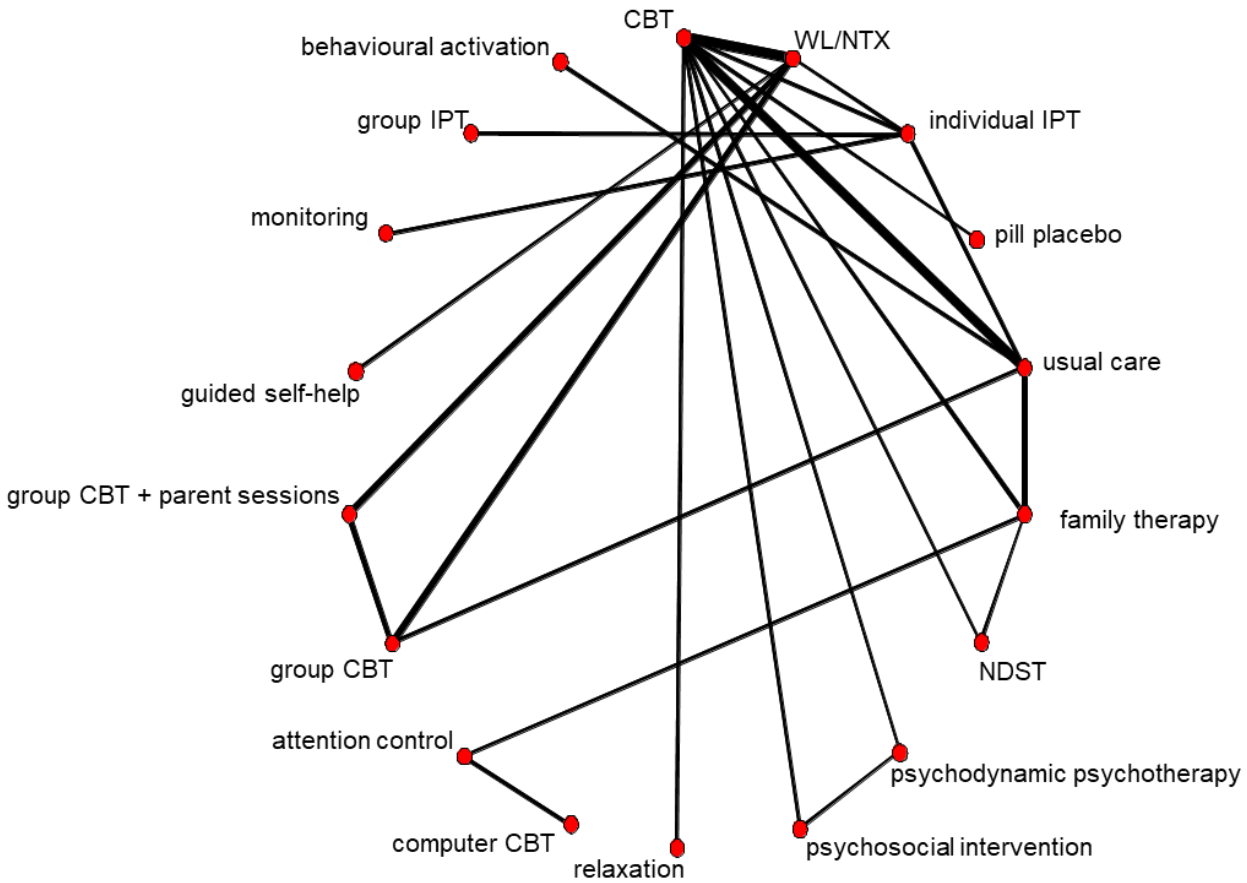
Moderate to severe depression in 12 to 18 year olds

Depression symptoms, post-treatment on the CDI scale for moderate to severe depression in 12 to 18 year olds

Network diagram

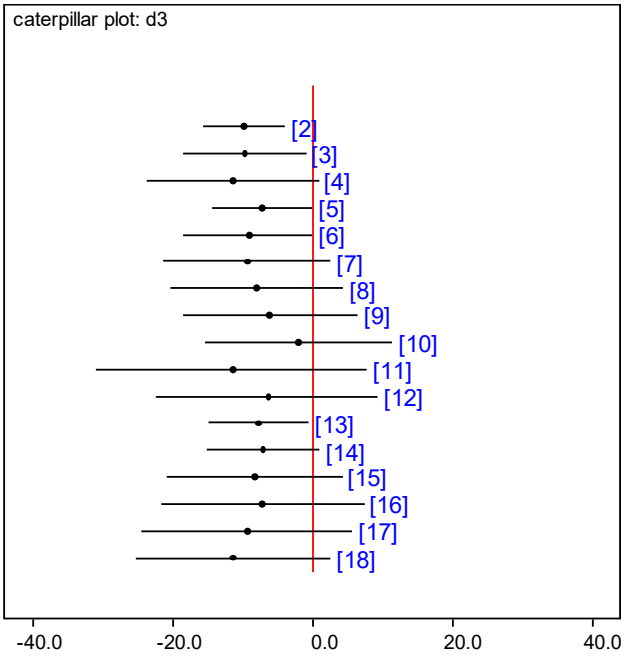
Figure 85: Diagram of the network of studies underlying the NMA for depression symptoms, post-treatment, in moderate to severe depression, 12 to 18 year

olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy; IPT: interpersonal psychotherapy; WL/NTX: waiting list/no treatment; NDST: non-directive supportive therapy)



Caterpillar plot

Figure 86: Relative effectiveness of all options versus waiting list/no treatment on the CDI scale for depression symptoms, post-treatment, in moderate to severe depression, 12 to 18 year olds. (Mean differences with 95% credible intervals and line of no effect in red; values higher than 0 favour waiting list/no treatment; values lower than 0 favour the other treatments.)



Treatment codes:

1 waiting list/no treatment

2 CBT

3 IPT-A

4 pill placebo

5 usual care

6 family therapy

7 NDST

8 psychodynamic psychotherapy

9 psychosocial intervention

10 relaxation

11 computer CBT

12 attention control

13 group CBT

14 group CBT+ parent sessions

15 online guided self- help

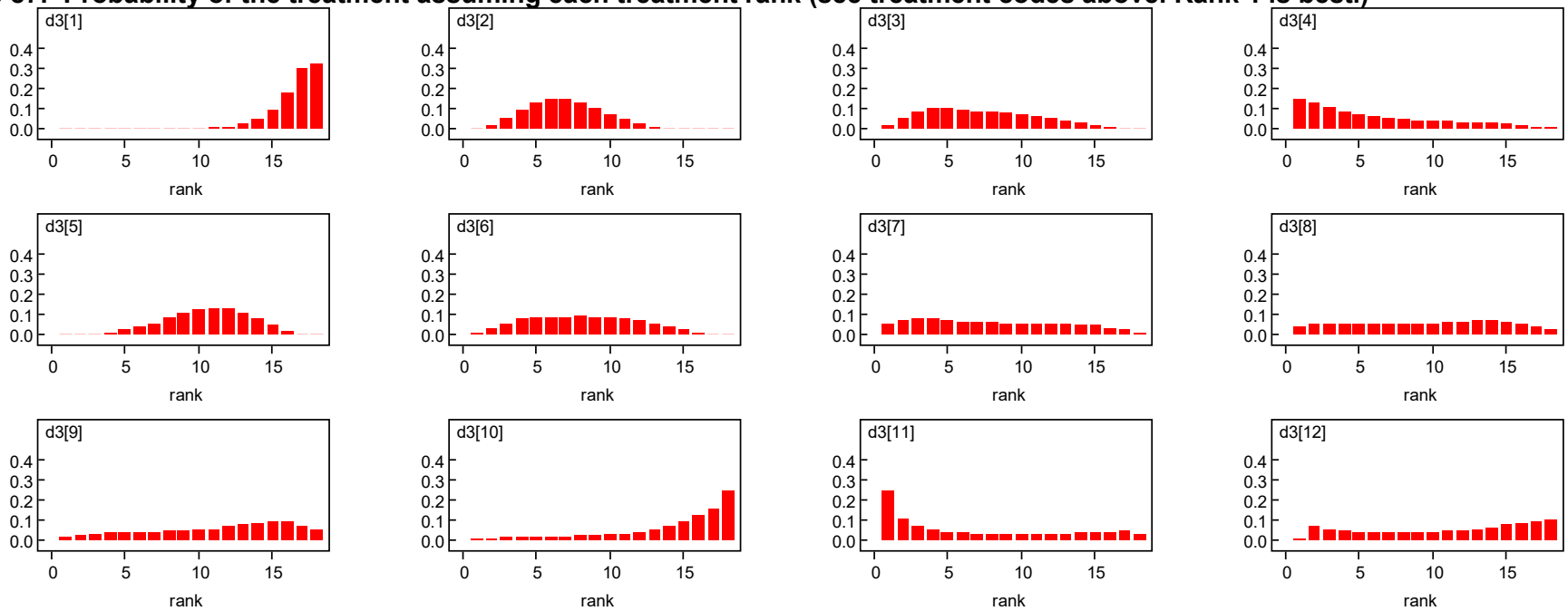
16 monitoring

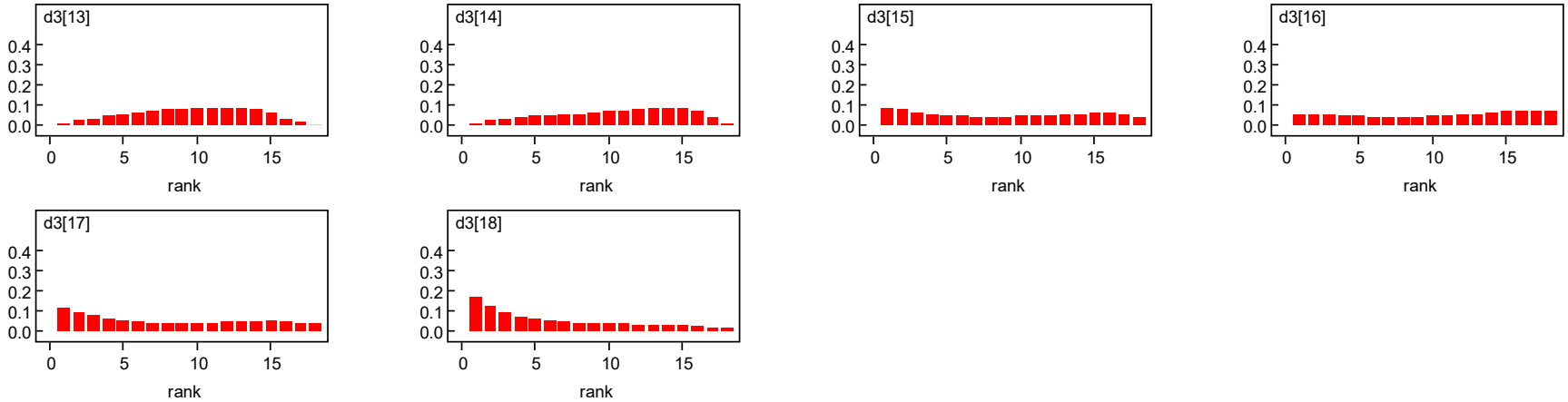
17 group IPT

18 behavioural activation

Rank probability histograms for depression symptoms, post-treatment, in moderate to severe depression, 12 to 18 year olds

Figure 87: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 1 is best.)





Relative effectiveness chart

Table 22: Relative effectiveness of all pairwise combinations on the CDI scale for depression symptoms, post-treatment, in moderate to severe depression, 12 to 18 year olds. (Upper diagonal: mean difference (MD) with 95% confidence intervals from direct pair-wise meta-analysis. MDs less than 0 favour the column defining treatment, MDs greater than 0 favour the row defining treatment. Lower diagonal: posterior median MD with 95% credible intervals from NMA results, MDs less than 0 favour the row defining treatment. MDs greater than 0 favour the column defining treatment.)

-	Waiting list/no treatment	CBT	IPT-A	Pill placebo	Usual care	Family therapy	NDST	Psychodynamic psychotherapy	Psychosocial intevrention	Relaxation	Computer CBT	Attention control	Group CBT	Group CBT+ parent sessions	Online guided self-help	Monitoring	Group IPT	Behavioural activation
Waiting list/no treatment		-15.34 (-27.13, -3.55)	-6.12 (-10.48, -1.76)	-	-	-	-	-	-	-	-	-	-6.67 (-10.23, -3.21)	-6.24 (-11.27, -1.21)	-7.54 (-14.04, -1.04)	-	-	-
CBT	-9.88 (-15.66, -4.02)		-3.58 (-8.04, 0.88)	-2.08 (-4.42, 0.17)	1.13 (-2.95, 5.29)	5.11 (0.78, 9.53)	2.51 (-1.65, 6.67)	1.99 (-0.35, 4.33)	3.99 (1.56, 6.33)	6.15 (1.30, 11.01)	-	-	-	-	-	-	-	-

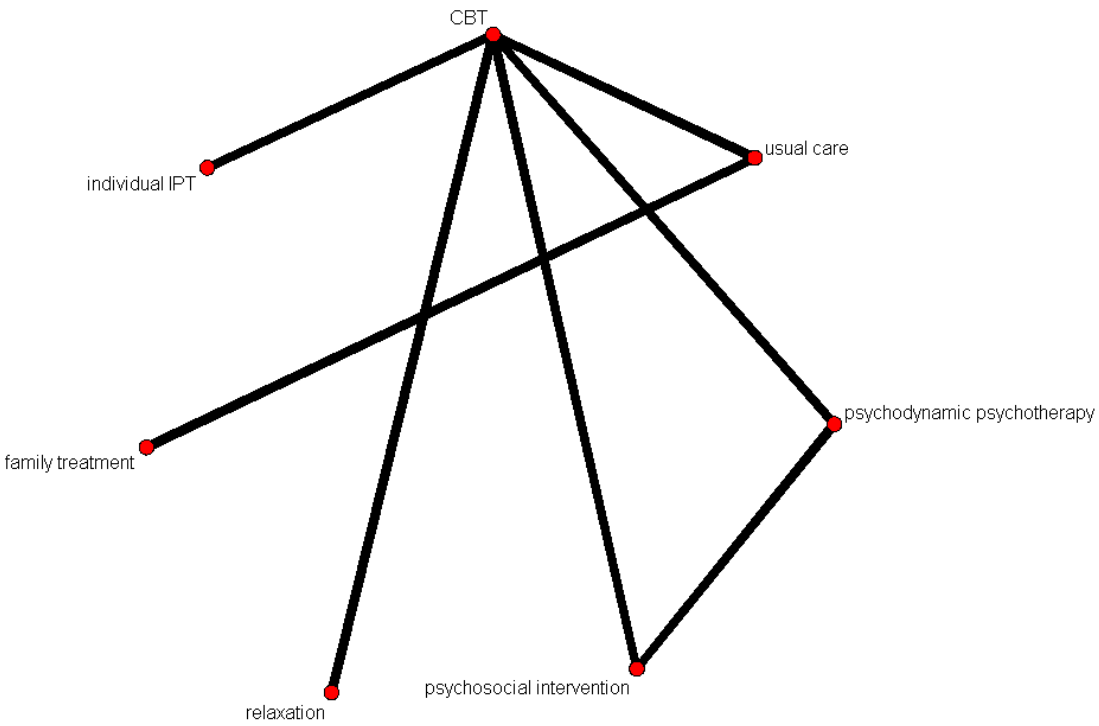
IPT-A	-9.68 (-18.29, -1.12)	0.20 (-7.96, 8.10)		-	2.60 (-1.73, 6.93)	-	-	-	-	-	-	-	-	-	-	2.51 (-2.43, 7.45)	0.26 (-5.20, 5.72)	-
Pill placebo	-11.50 (-23.53, 0.72)	-1.61 (-12.20, 9.03)	-1.81 (-15.00, 11.59)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Usual care	-7.20 (-14.16, -0.26)	2.69 (-2.63, 7.87)	2.50 (-5.49, 10.57)	4.29 (-7.60, 16.08)		-2.51 (-6.41, 1.47)	-	-	-	-	-	-	-1.82 (-5.55, 1.82)	-	-	-	-	-3.12 (-7.63, 1.30)
Family therapy	-8.95 (-18.38, -0.14)	0.94 (-7.03, 8.19)	0.74 (-9.78, 10.69)	2.55 (-10.89, 15.15)	-1.76 (-9.27, 5.16)		-2.17 (-6.5, 2.17)	-	-	-	-	2.08 (-3.90, 8.15)	-	-	-	-	-	-
NDST	-9.22 (-21.15, 2.31)	0.65 (-9.91, 10.82)	0.43 (-12.38, 13.18)	2.24 (-12.77, 16.85)	-2.05 (-13.08, 8.76)	-0.29 (-10.51, 10.30)		-	-	-	-	-	-	-	-	-	-	-
Psychodynamic psychotherapy	-7.97 (-20.09, 4.27)	1.90 (-8.83, 12.67)	1.72 (-11.57, 15.24)	3.50 (-11.65, 18.73)	-0.80 (-12.67, 11.26)	0.96 (-11.77, 14.50)	1.26 (-13.45, 16.39)		1.91 (-0.43, 4.25)	-	-	-	-	-	-	-	-	-
Psychosocial intervention	-6.14 (-18.35, 6.20)	3.75 (-6.96, 14.56)	3.54 (-9.75, 17.10)	5.37 (-9.85, 20.50)	1.05 (-10.88, 13.16)	2.79 (-9.98, 16.45)	3.09 (-11.67, 18.25)	1.83 (-8.91, 12.68)		-	-	-	-	-	-	-	-	-
Relaxation	-2.11 (-15.37, 11.20)	7.75 (-4.21, 19.66)	7.55 (-6.74, 21.96)	9.35 (-6.64, 25.34)	5.07 (-7.98, 18.11)	6.85 (-6.96, 21.39)	7.11 (-8.54, 23.17)	5.85 (-10.23, 21.84)	3.99 (-12.11, 20.06)		-	-	-	-	-	-	-	-

Comnputer CBT	-11.36 (-30.75, 7.58)	-1.49 (-20.24, 16.77)	-1.70 (-21.54, 17.82)	0.12 (-21.44, 21.19)	-4.18 (-22.73, 14.02)	-2.40 (-19.24, 14.48)	-2.14 (-22.08, 17.55)	-3.38 (-25.16, 17.73)	-5.22 (-27.00, 15.86)	-9.23 (-31.59, 12.55)		5.89 (1.65, 10.05)	-	-	-	-	-	-
Attention control	-6.28 (-22.25, 9.15)	3.60 (-11.63, 18.22)	3.41 (-13.19, 19.56)	5.23 (-13.38, 23.15)	0.92 (-14.04, 15.36)	2.68 (-10.17, 15.47)	2.96 (-13.61, 19.38)	1.73 (-17.09, 19.73)	-0.11 (-18.88, 17.86)	-4.14 (-23.64, 14.66)	5.11 (-6.02, 16.09)		-	-	-	-	-	-
Group CBT	-7.74 (-14.80, -0.66)	2.13 (-5.85, 10.23)	1.95 (-8.13, 12.16)	3.76 (-9.54, 17.06)	-0.55 (-8.47, 7.47)	1.21 (-8.64, 11.78)	1.50 (-11.11, 14.46)	0.25 (-13.20, 13.61)	-1.58 (-15.04, 11.80)	-5.62 (-19.95, 8.79)	3.63 (-15.85, 23.56)	-1.48 (-17.53, 15.22)		0.52 (-4.68, 5.81)	-	-	-	-
Group CBT+ parent sessions	-7.06 (-15.04, 0.77)	2.81 (-6.58, 12.09)	2.63 (-8.62, 13.81)	4.44 (-9.86, 18.55)	0.11 (-9.58, 9.73)	1.88 (-9.34, 13.59)	2.16 (-11.49, 15.97)	0.93 (-13.38, 14.95)	-0.92 (-15.26, 13.19)	-4.94 (-20.10, 10.10)	4.30 (-15.97, 24.83)	-0.77 (-17.76, 16.53)	0.68 (-7.28, 8.45)		-	-	-	-
Online guided self-help	-8.32 (-20.64, 4.05)	1.58 (-12.04, 15.17)	1.41 (-13.58, 16.35)	3.19 (-14.22, 20.29)	-1.10 (-15.24, 13.00)	0.67 (-14.50, 16.21)	0.92 (-15.98, 18.04)	-0.32 (-17.75, 16.94)	-2.16 (-19.64, 15.18)	-6.18 (-24.35, 11.93)	3.10 (-19.51, 26.06)	-2.03 (-21.81, 18.23)	-0.56 (-14.79, 13.61)	-1.24 (-15.84, 13.49)		-	-	-
Monitoring	-7.17 (-21.42, 7.17)	2.71 (-11.44, 16.67)	2.50 (-9.05, 14.09)	4.33 (-13.38, 21.86)	0.03 (-14.00, 13.98)	1.80 (-13.38, 17.52)	2.09 (-15.01, 19.35)	0.80 (-16.99, 18.32)	-1.04 (-18.86, 16.49)	-5.04 (-23.56, 13.39)	4.20 (-18.42, 27.25)	-0.89 (-20.67, 19.33)	0.55 (-14.74, 15.91)	-0.12 (-16.12, 16.05)	1.12 (-17.70, 20.03)		-	-
Group IPT	-9.37 (-24.25, 5.45)	0.54 (-14.11, 14.98)	0.34 (-11.77, 12.39)	2.12 (-16.03, 20.13)	-2.17 (-16.69, 12.39)	-0.38 (-15.99, 15.70)	-0.12 (-17.67, 17.60)	-1.40 (-19.49, 16.62)	-3.26 (-21.43, 14.92)	-7.23 (-26.07, 11.40)	1.97 (-20.78, 25.31)	-3.09 (-23.19, 17.68)	-1.63 (-17.52, 14.10)	-2.30 (-18.70, 14.32)	-1.06 (-20.27, 18.25)	-2.18 (-18.85, 14.51)		-
Behavioural activation	-11.31 (-25.10, 2.35)	-1.43 (-14.45, 11.45)	-1.61 (-15.92, 12.61)	0.14 (-16.59, 16.88)	-4.13 (-16.01, 7.73)	-2.37 (-16.05, 11.78)	-2.08 (-18.08, 14.16)	-3.32 (-20.24, 13.35)	-5.19 (-22.05, 11.59)	-9.19 (-26.84, 8.41)	0.05 (-21.61, 22.16)	-5.04 (-23.81, 14.10)	-3.56 (-17.89, 10.51)	-4.24 (-19.49, 10.95)	-2.98 (-21.51, 15.33)	-4.14 (-22.51, 14.13)	-1.92 (-20.71, 16.67)	

Depression symptoms, ≤6 months on the CDI scale for moderate to severe depression in 12 to 18 year olds

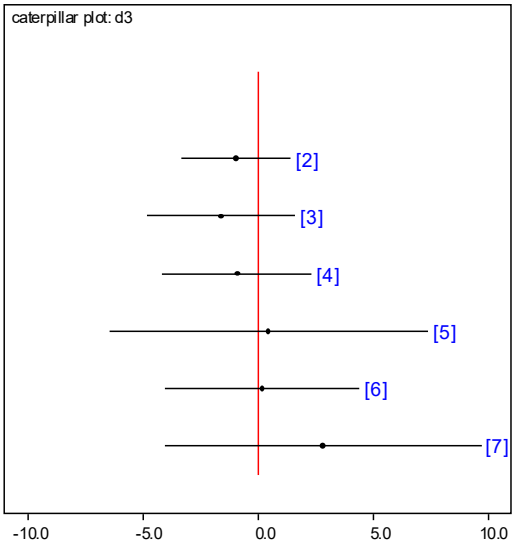
Network diagram

Figure 88: Diagram of the network of studies underlying the NMA for depression symptoms, ≤6 months, in moderate to severe depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy; IPT: interpersonal psychotherapy)



Caterpillar plot

Figure 89: Relative effectiveness of all options versus usual care on the CDI scale for depression symptoms, ≤6 months, in moderate to severe depression, 12 to 18 year olds. (Mean differences with 95% credible intervals and line of no effect in red; values higher than 0 favour usual care; values lower than 0 favour the other treatments.)



Treatment codes:

1 usual care

2 CBT

3 psychodynamic psychotherapy

4 psychosocial intervention

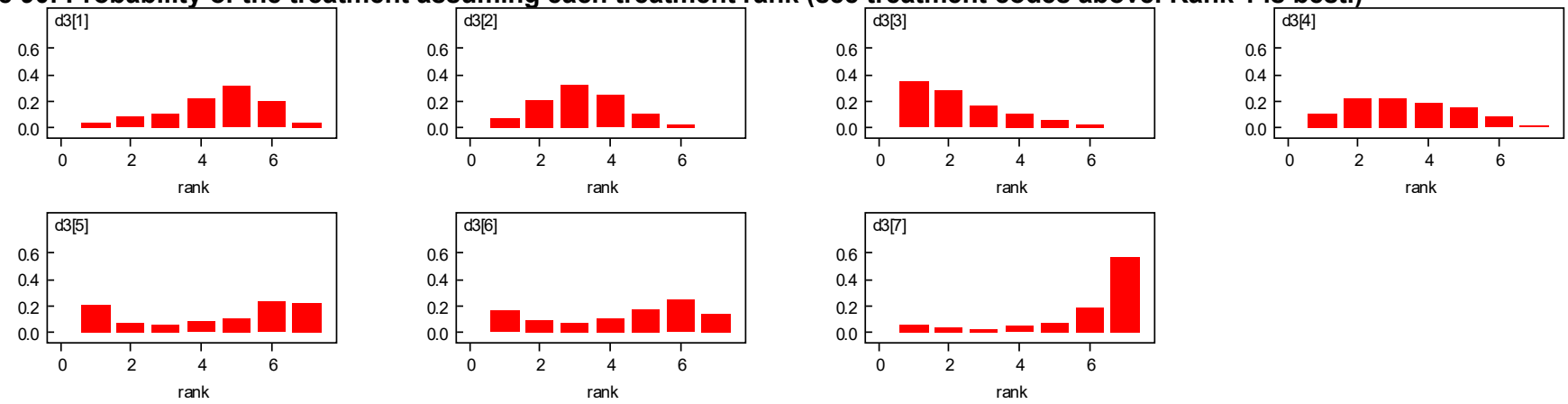
5 relaxation

6 family therapy

7 IPT-A

Rank probability histograms for depression symptoms, ≤6 months, in moderate to severe depression, 12 to 18 year olds

Figure 90: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 1 is best.)



Relative effectiveness chart

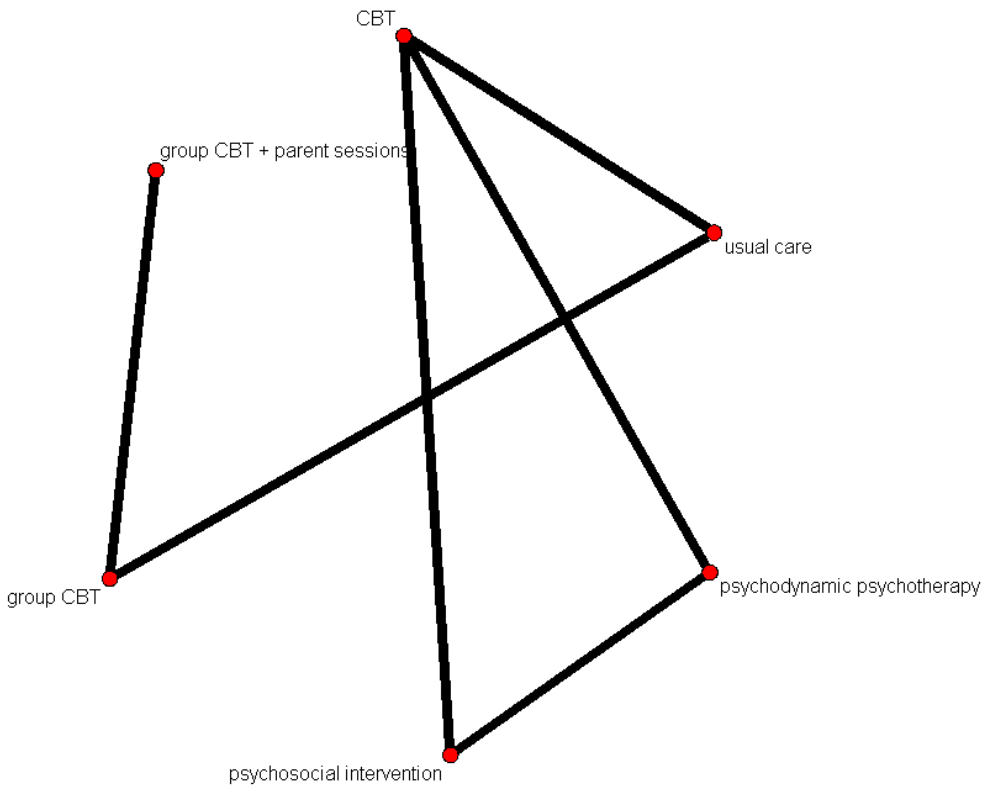
Table 23: Relative effectiveness of all pairwise combinations on the CDI scale for depression symptoms, ≤6 months, in moderate to severe depression, 12 to 18 year olds. (Upper diagonal: mean difference (MD) with 95% confidence intervals from direct pair-wise meta-analysis. MDs less than 0 favour the column defining treatment, MDs greater than 0 favour the row defining treatment. Lower diagonal: posterior median MD with 95% credible intervals from NMA results, MDs less than 0 favour the row defining treatment. MDs greater than 0 favour the column defining treatment.)

	Usual care	**CBT**	**Psychodynamic psychotherapy**	**Psychosocial intervention**	**Relaxation**	**Family therapy**	**IPT-A**
Usual care		-0.95 (-3.29, 1.39)	-	-	-	0.17 (-4.07, 4.42)	-
CBT	-0.95 (-3.28, 1.37)		-0.69 (-2.95, 1.56)	0.09 (-2.25, 2.34)	1.04 (-3.90, 5.98)	-	3.76 (-2.63, 10.15)
Psychodynamic psychotherapy	-1.62 (-4.80, 1.58)	-0.67 (-2.85, 1.52)		0.78 (-1.56, 3.12)	-	-	-
Psychosocial intervention	-0.90 (-4.11, 2.31)	0.05 (-2.17, 2.28)	0.72 (-1.38, 2.83)		-	-	-
Relaxation	0.42 (-6.41, 7.33)	1.38 (-5.06, 7.84)	2.05 (-4.77, 8.88)	1.33 (-5.48, 8.16)		-	-
Family therapy	0.17 (-3.99, 4.35)	1.12 (-3.65, 5.89)	1.79 (-3.44, 7.03)	1.06 (-4.16, 6.32)	-0.26 (-8.31, 7.77)		-
IPT-A	2.80 (-4.01, 9.64)	3.76 (-2.65, 10.16)	4.42 (-2.36, 11.18)	3.70 (-3.08, 10.49)	2.36 (-6.67, 11.48)	2.63 (-5.33, 10.62)	

Depression symptoms, >6 to ≤18 months on the CDI scale for moderate to severe depression in 12 to 18 year olds

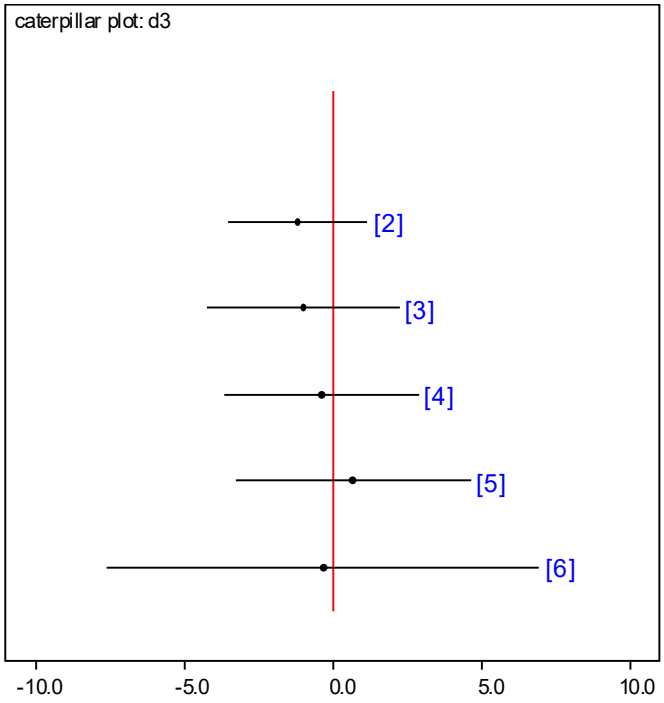
Network diagram

Figure 91: Diagram of the network of studies underlying the NMA for depression symptoms, >6 to ≤18 months, in moderate to severe depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy)



Caterpillar plot

Figure 92: Relative effectiveness of all options versus usual care on the CDI scale for depression symptoms, >6 to ≤18 months, in mild depression, 12 to 18 year olds. (Mean differences with 95% credible intervals and line of no effect in red; values higher than 0 favour usual care; values lower than 0 favour the other treatments.)



Treatment codes:

1 usual care

2 CBT

3 psychodynamic psychotherapy

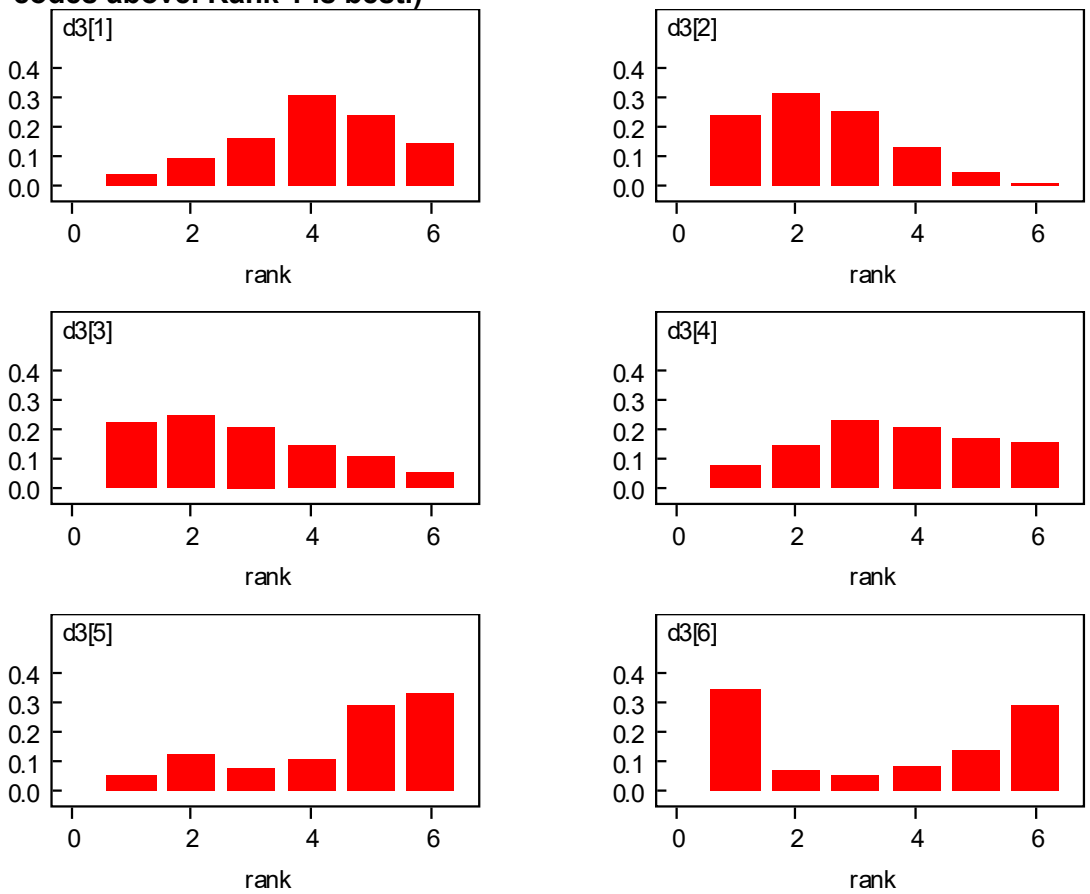
4 psychosocial intervention

5 group CBT

6 group CBT + parent

Rank probability histograms for depression symptoms, >6 to ≤18 months, in mild depression, 12 to 18 year olds

Figure 93: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 1 is best.)



Relative effectiveness chart

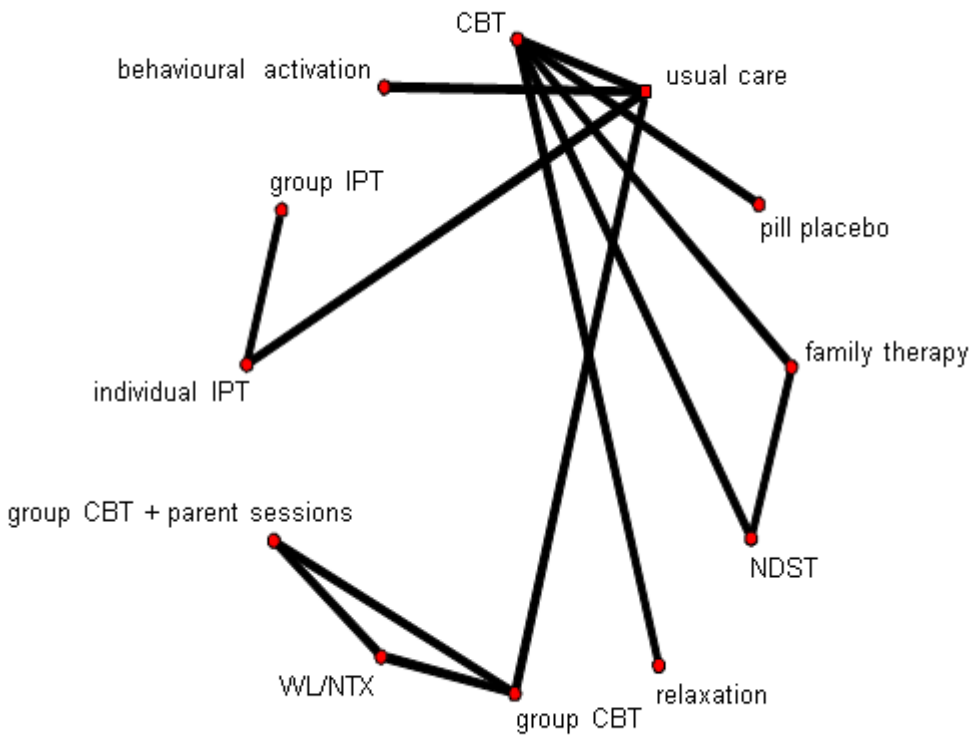
Table 24: Relative effectiveness of all pairwise combinations on the CDI scale for depression symptoms, >6 to ≤18 months, in mild depression, 12 to 18 year olds. (Upper diagonal: mean difference (MD) with 95% confidence intervals from direct pair-wise meta-analysis. MDs less than 0 favour the column defining treatment, MDs greater than 0 favour the row defining treatment. Lower diagonal: posterior median MD with 95% credible intervals from NMA results, MDs less than 0 favour the row defining treatment. MDs greater than 0 favour the column defining treatment.)

	Usual care	**CBT**	**Psychodynamic psychotherapy**	**Psychosocial intervention**	**Group CBT**	**Group CBT + parent sessions**
Usual care		-1.21 (-3.55, 1.13)	-	-	0.69 (-3.29, 4.68)	-
CBT	-1.20 (-3.51, 1.13)		0.17 (-1.99, 2.43)	0.78 (-1.39, 3.03)	-	-
Psychodynamic psychotherapy	-1.00 (-4.20, 2.19)	0.19 (-1.99, 2.36)		0.61 (-1.65, 2.86)	-	-
Psychosocial intervention	-0.38 (-3.60, 2.84)	0.80 (-1.41, 3.02)	0.62 (-1.62, 2.87)		-	-
Group CBT	0.68 (-3.25, 4.59)	1.87 (-2.70, 6.42)	1.68 (-3.40, 6.73)	1.07 (-4.04, 6.13)		-1.04 (-7.37, 5.29)
Group CBT + parent sessions	-0.34 (-7.60, 6.90)	0.86 (-6.76, 8.44)	0.67 (-7.22, 8.55)	0.05 (-7.87, 7.95)	-1.02 (-7.11, 5.05)	

Functional status, post-treatment on the CGAS scale for moderate to severe depression in 12 to 18 year olds

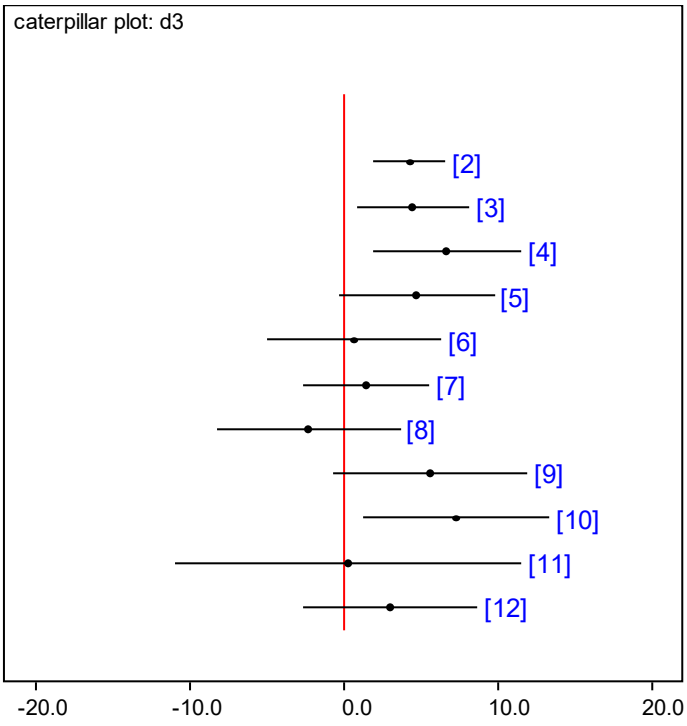
Network diagram

Figure 94: Diagram of the network of studies underlying the NMA for functional status, post-treatment, in moderate to severe depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy; IPT: interpersonal psychotherapy; WL/NTX: waiting list/no treatment; NDST: non-directive supportive therapy)



Caterpillar plot

Figure 95: Relative effectiveness of all options versus usual care on the CGAS scale for functional status, post-treatment, in moderate to severe depression, 12 to 18 year olds. (Mean differences with 95% credible intervals and line of no effect in red; values lower than 0 favour usual care; values higher than 0 favour the other treatments.)



Treatment codes:

1 usual care

2 CBT

3 pill placebo

4 family therapy

5 NDST

6 relaxation

7 group CBT

8 WL/NTX

9 group CBT + parent sessions

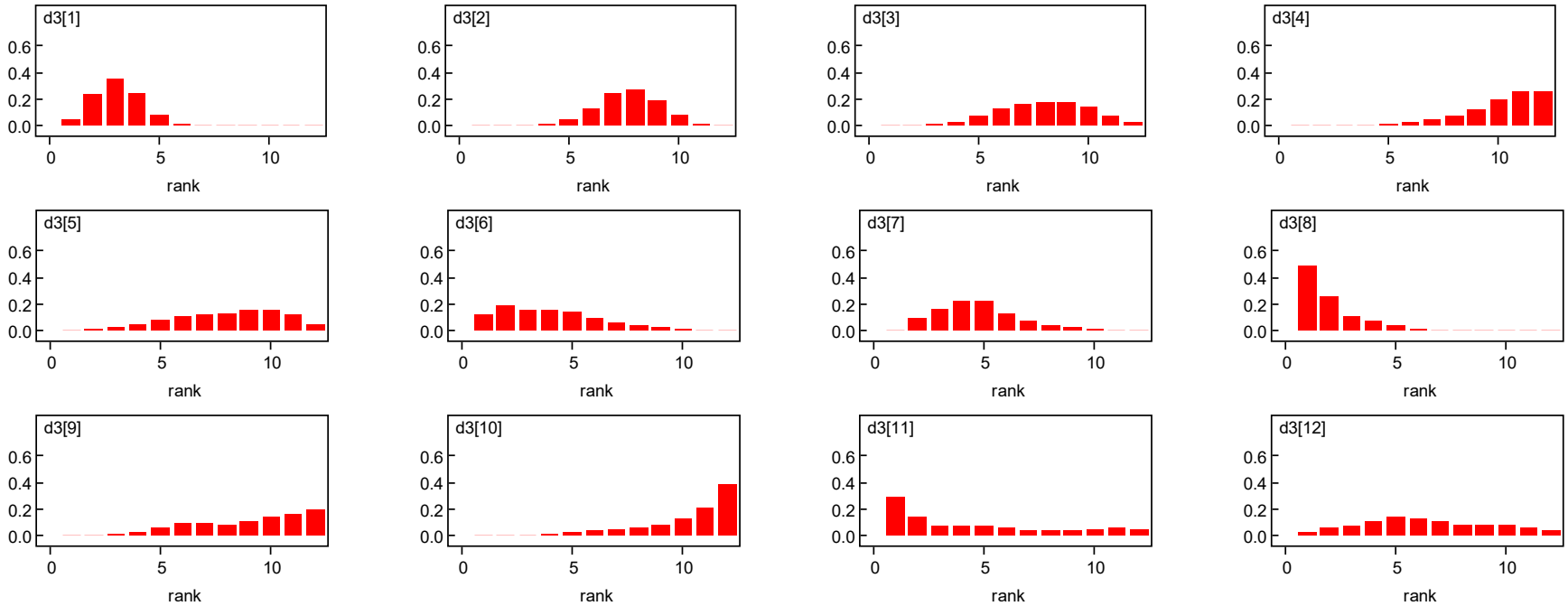
10 IPT-A

11 group IPT

12 behavioural activation

Rank probability histograms for functional status, post-treatment, in moderate to severe depression, 12 to 18 year olds

Figure 96: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 13 is best.)



Relative effectiveness chart

Table 25: Relative effectiveness of all pairwise combinations on the CGAS scale for functional status, post-treatment, in moderate to severe depression, 12 to 18 year olds.(Upper diagonal: mean difference (MD) with 95% confidence intervals from direct pair-wise meta-analysis. MDs greater than 0 favour the column defining treatment, MDs less than 0 favour the row defining treatment. Lower diagonal: posterior median MD with 95% credible intervals from NMA results, MDs greater than 0 favour the row defining treatment. MDs less than 0 favour the column defining treatment.)

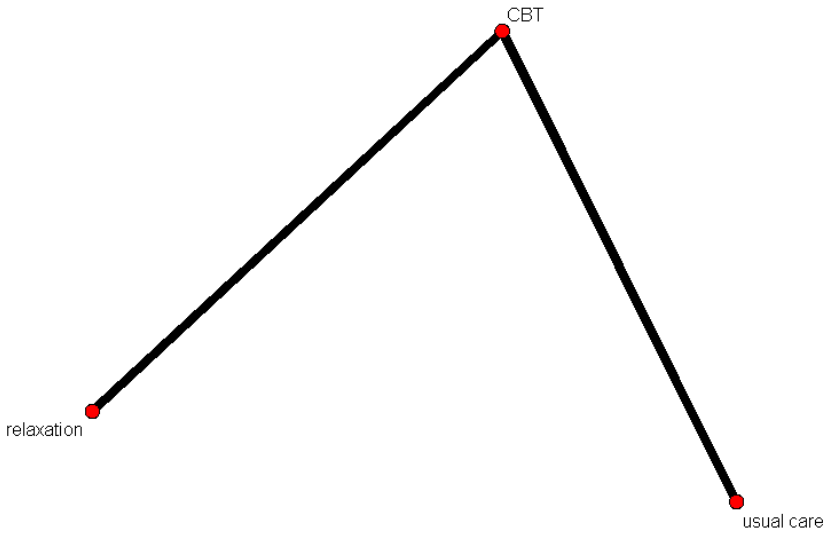
	Usual care	CBT	Pill placebo	Family therapy	NDST	Relaxation	Group CBT	Waiting list/no treatment	Group CBT + parent sessions	IPT-A	Group IPT	Behavioural activation
Usual care		4.27 (1.99, 6.55)	-	-	-	-	1.42 (-2.56, 5.5)	-	-	7.30 (1.37, 13.23)	-	3.00 (-2.61, 8.61)
CBT	4.27 (2.00, 6.55)		0.20 (-2.58, 2.98)	2.40 (-1.81, 6.61)	0.40 (-4.05, 4.85)	-3.6 (-8.81, 1.52)	-	-	-	-	-	-
Pill placebo	4.46 (0.89, 8.04)	0.19 (-2.59, 2.98)		-	-	-	-	-	-	-	-	-
Family therapy	6.67 (1.92, 11.47)	2.40 (-1.80, 6.62)	2.21 (-2.84, 7.26)		-2.00 (-6.29, 2.29)	-	-	-	-	-	-	-
NDST	4.67 (-0.30, 9.69)	0.40 (-4.04, 4.85)	0.21 (-5.07, 5.47)	-2.00 (-6.32, 2.28)		-	-	-	-	-	-	-
Relaxation	0.64 (-4.91, 6.21)	-3.63 (-8.71, 1.45)	-3.83 (-9.60, 1.95)	-6.05 (-12.58, 0.58)	-4.04 (-10.79, 2.72)		-	-	-	-	-	-
Group CBT	1.43 (-2.57, 5.44)	-2.84 (-7.44, 1.78)	-3.03 (-8.37, 2.32)	-5.23 (-11.54, 1.00)	-3.23 (-9.68, 3.18)	0.80 (-6.02, 7.63)		-3.98 (-8.81, 0.76)	3.98 (-0.57, 8.53)	-	-	-
Waiting list/no treatment	-2.30 (-8.20, 3.58)	-6.59 (-12.87, -0.26)	-6.77 (-13.66, 0.12)	-8.97 (-16.60, -1.41)	-6.97 (-14.76, 0.75)	-2.95 (-10.99, 5.15)	-3.75 (-8.03, 0.57)		7.39 (2.37, 12.41)	-	-	-
Group CBT + parent sessions	5.58 (-0.61, 11.81)	1.31 (-5.28, 7.93)	1.11 (-6.03, 8.26)	-1.09 (-8.95, 6.75)	0.91 (-7.09, 8.89)	4.94 (-3.33, 13.22)	4.15 (-0.57, 8.86)	7.89 (2.86, 12.91)		-	-	-
IPT-A	7.30 (1.28, 13.24)	3.02 (-3.38, 9.38)	2.82 (-4.15, 9.72)	0.63 (-7.12, 8.20)	2.63 (-5.19, 10.35)	6.64 (-1.52, 14.80)	5.85 (-1.35, 13.05)	9.59 (1.21, 18.00)	1.69 (-6.90, 10.29)		-6.95 (-16.27, 2.37)	-
Group IPT	0.31 (-10.83,	-3.96 (-15.28,	-4.15 (-15.81,	-6.36 (-18.43,	-4.37 (-16.51,	-0.34 (-12.72,	-1.12 (-12.98,	2.61 (-10.00,	-5.27 (-18.04, 7.53)	-6.96 (-16.35,		-

	11.49)	7.43)	7.54)	5.79)	7.87)	12.11)	10.72)	15.33)		2.43)		
Behavioural activation	2.99 (-2.58, 8.57)	-1.28 (-7.31, 4.73)	-1.47 (-8.10, 5.16)	-3.68 (-11.04, 3.66)	-1.67 (-9.19, 5.83)	2.37 (-5.57, 10.21)	1.55 (-5.29, 8.43)	5.30 (-2.78, 13.40)	-2.58 (-10.89, 5.75)	-4.28 (-12.44, 3.86)	2.68 (-9.84, 15.12)	

Functional status, ≤6 months on the CGAS scale for moderate to severe depression in 12 to 18 year olds

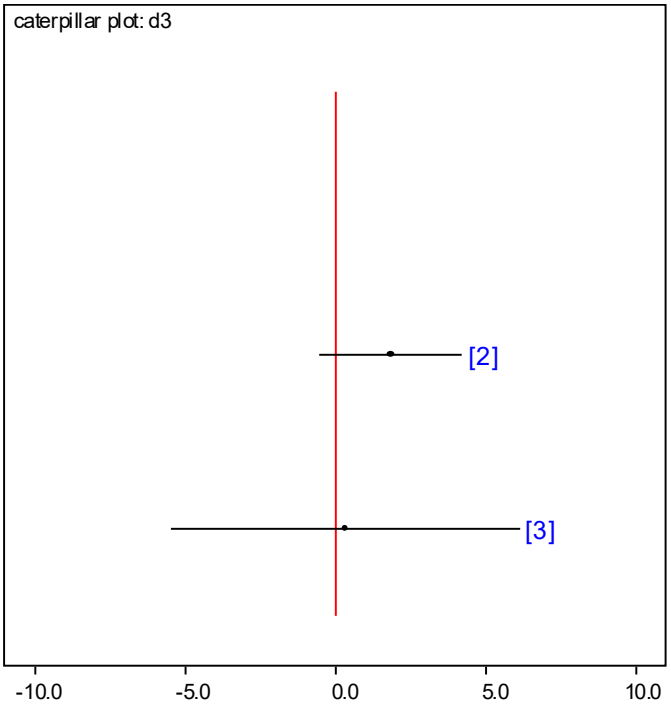
Network diagram

Figure 97: Diagram of the network of studies underlying the NMA for functional status, ≤6 months, in moderate to severe depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy)



Caterpillar plot

Figure 98: Relative effectiveness of all options versus CBT on the CGAS scale for functional status, ≤6 months, in moderate to severe depression, 12 to 18 year olds. (Mean differences with 95% credible intervals and line of no effect in red; values lower than 0 favour CBT; values higher than 0 favour the other treatments).

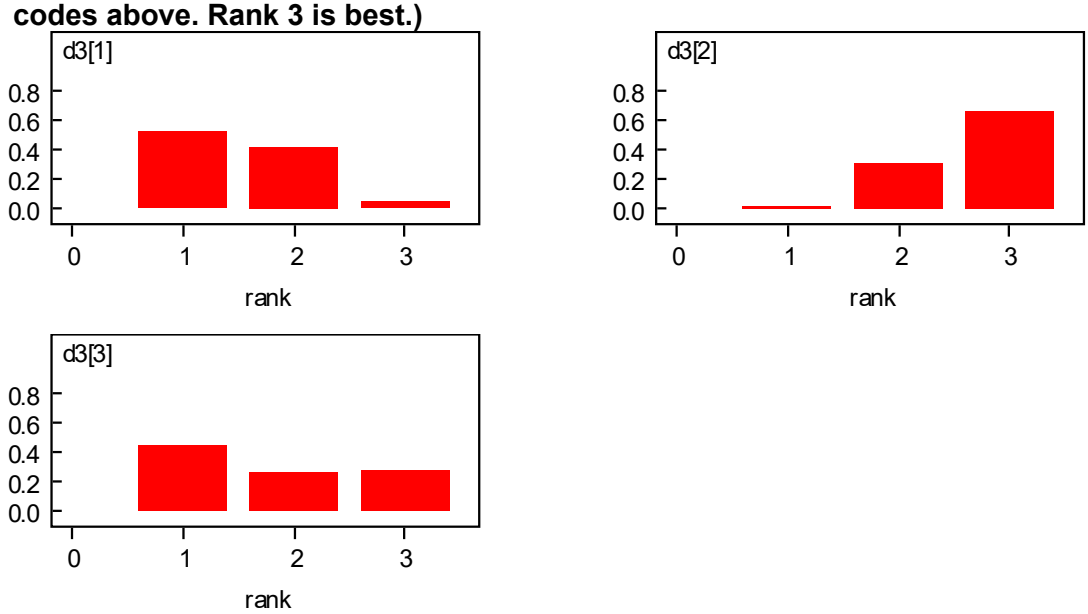


Treatment codes:

1	CBT
2	usual care
3	relaxation

Rank probability histograms for functional status, ≤6 months, in moderate to severe depression, 12 to 18 year olds

Figure 99: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 3 is best.)



Relative effectiveness chart

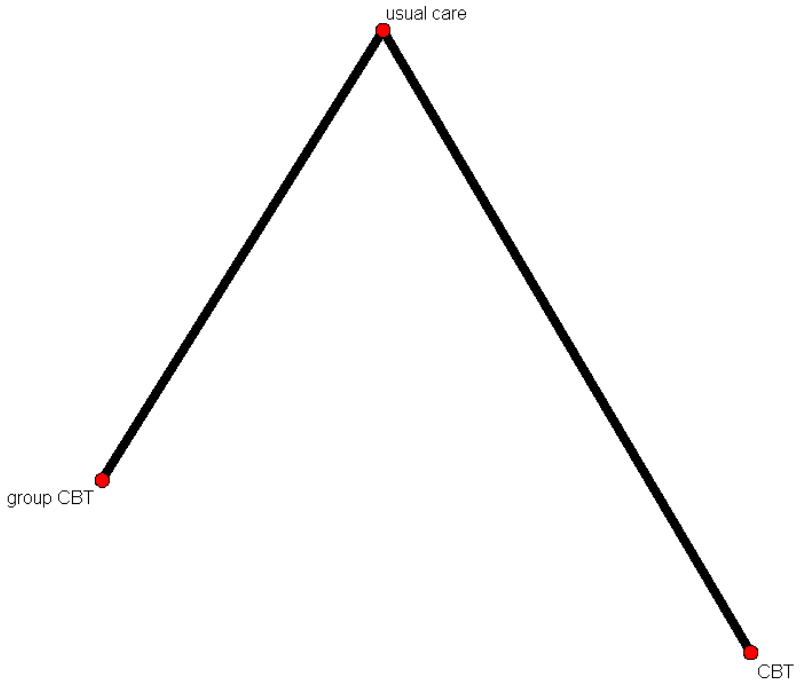
Table 26: Relative effectiveness of all pairwise combinations on the CGAS scale for functional status, ≤6 months, in moderate to severe depression, 12 to 18 year olds. (Upper diagonal: mean difference (MD) with 95% confidence intervals from direct pair-wise meta-analysis. MDs greater than 0 favour the column defining treatment, MDs less than 0 favour the row defining treatment. Lower diagonal: posterior median MD with 95% credible intervals from NMA results, MDs greater than 0 favour the row defining treatment. MDs less than 0 favour the column defining treatment.)

	CBT	**Usual care**	**Relaxation**
CBT		-1.84 (-4.17, 0.49)	-1.52 (-6.92, 3.79)
Usual care	1.83 (-0.50, 4.17)		-
Relaxation	0.30 (-5.47, 6.07)	-1.53 (-6.84, 3.75)	

Functional status, >6 to ≤18 months on the CGAS scale for moderate to severe depression in 12 to 18 year olds

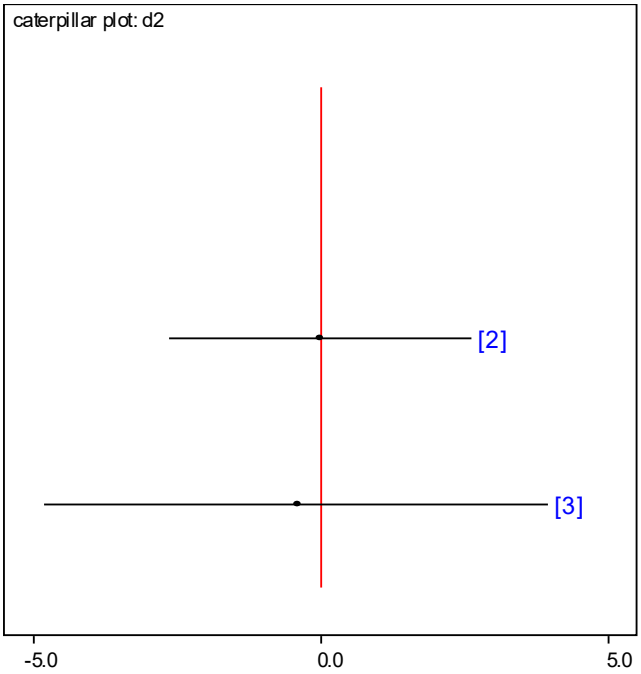
Network diagram

Figure 100: Diagram of the network of studies underlying the NMA for functional status, >6 to ≤18 months, in moderate to severe depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy)



Caterpillar plot

Figure 101: Relative effectiveness of all options versus usual care on the CGAS scale for functional status, >6 to ≤18 months, in moderate to severe depression, 12 to 18 year olds. (Mean differences with 95% credible intervals and line of no effect in red; values lower than 0 favour usual care; values higher than 0 favour the other treatments.)

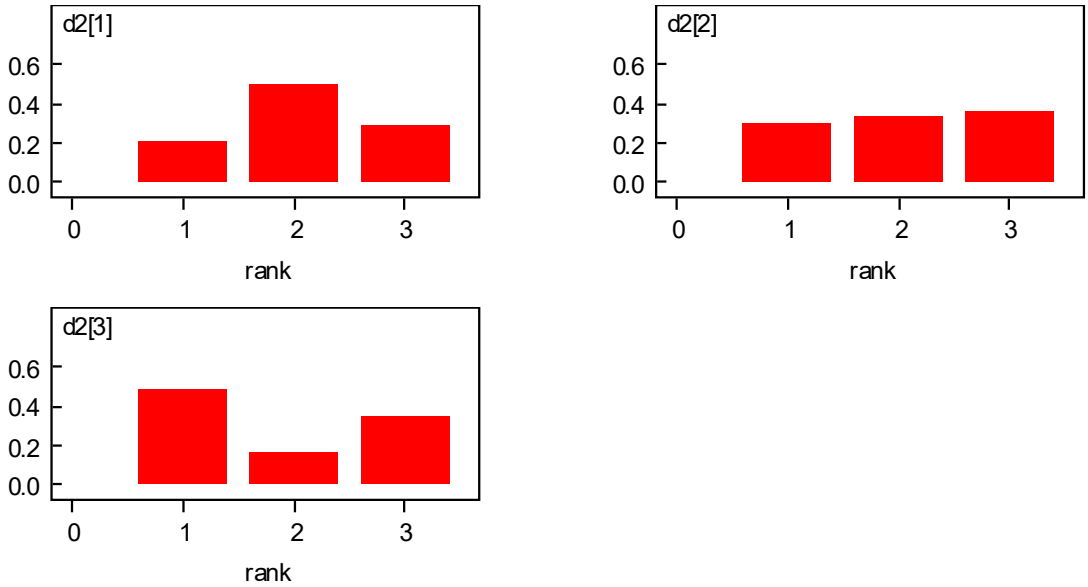


Treatment codes:

1	usual care
2	CBT
3	group CBT

Rank probability histograms for functional status, >6 to ≤18 months, in moderate to severe depression, 12 to 18 year olds

Figure 102: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 3 is best.)



Relative effectiveness chart

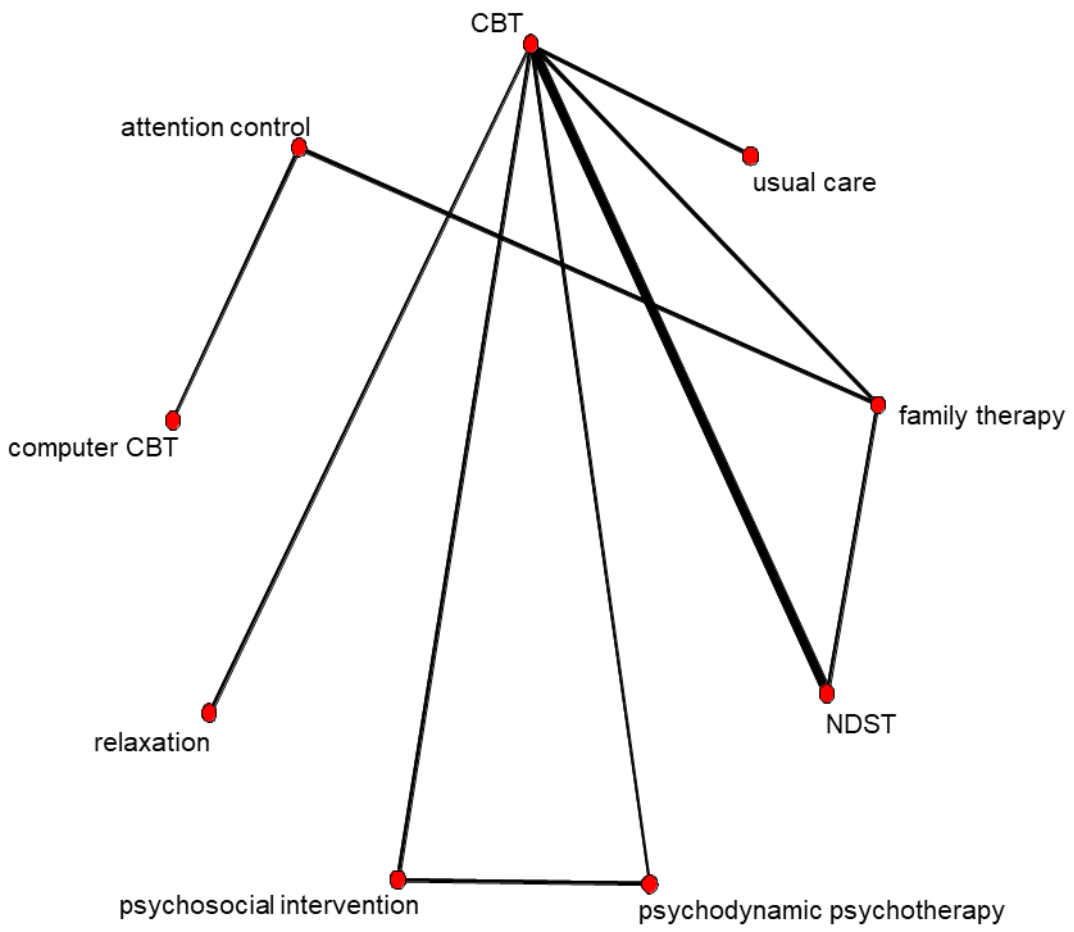
Table 27: Relative effectiveness of all pairwise combinations on the CGAS scale for functional status, >6 to ≤18 months, in moderate to severe depression, 12 to 18 year olds. (Upper diagonal: mean difference (MD) with 95% confidence intervals from direct pair-wise meta-analysis. MDs greater than 0 favour the column defining treatment, MDs less than 0 favour the row defining treatment. Lower diagonal: posterior median MD with 95% credible intervals from NMA results, MDs greater than 0 favour the row defining treatment. MDs less than 0 favour the column defining treatment.)

	Usual care	**CBT**	**Group CBT**
Usual care		-0.03 (-2.62, 2.56)	-0.47 (-4.83, 3.88)
CBT	-0.02 (-2.63, 2.59)		-
Group CBT	-0.42 (-4.80, 3.92)	-0.41 (-5.50, 4.66)	

Remission, post-treatment for moderate to severe depression in 12 to 18 year olds

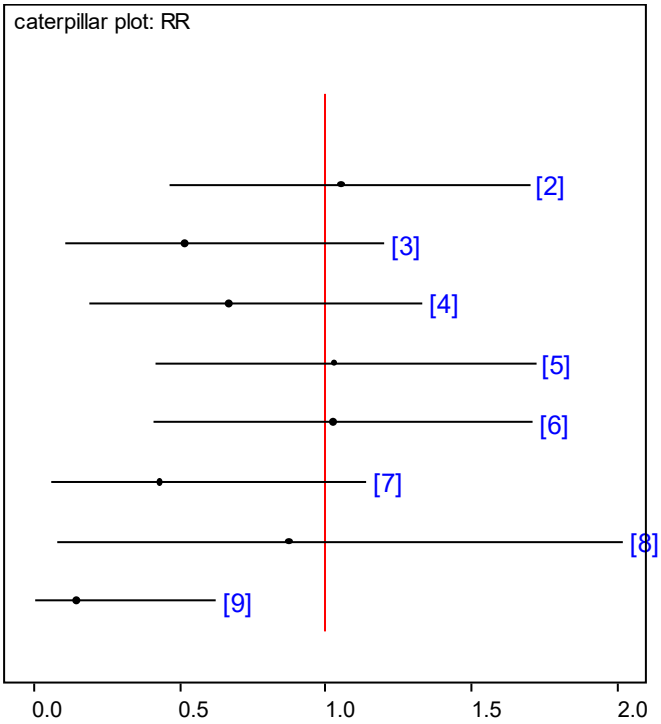
Network diagram

Figure 103: Diagram of the network of studies underlying the NMA for remission, post-treatment, in moderate to severe depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy; NDST: non-directive supportive therapy)


CBT
attention control
usual care
family therapy
computer CBT
NDST
relaxation
psychosocial intervention
psychodynamic psychotherapy

Caterpillar plot

Figure 104: Relative effectiveness of all options versus usual care for remission, post-treatment, in moderate to severe depression, 12 to 18 year olds.(Relative risk with 95% credible intervals and line of no effect in red; values lower than 1 favour usual care; values higher than 1 favour the other treatments.)

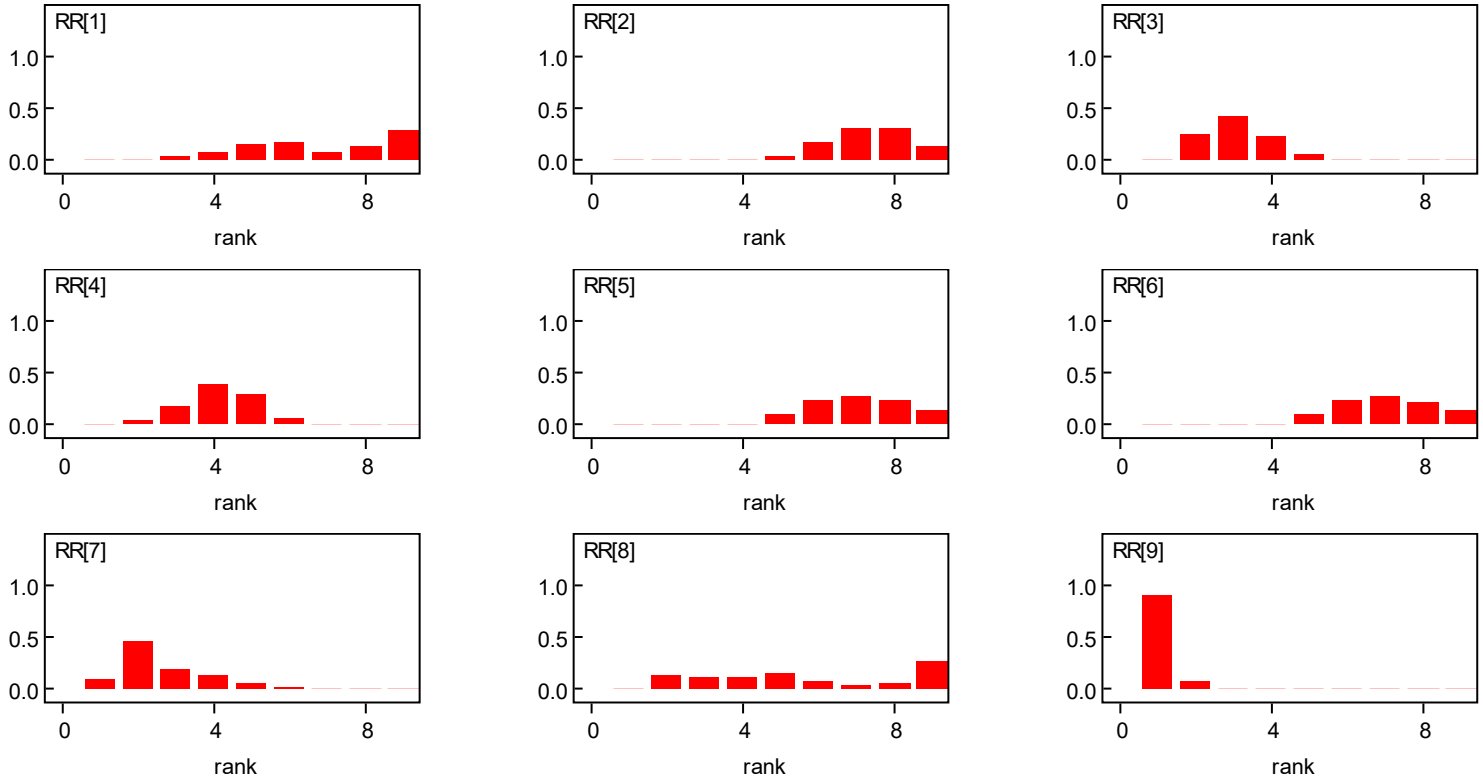


Treatment codes:

1	Usual care
2	CBT
3	family therapy
4	NDST
5	psychodynamic psychotherapy
6	psychosocial intervention
7	relaxation
8	computer CBT
9	attention control

Rank probability histograms for remission, post-treatment, in moderate to severe depression, 12 to 18 year olds

Figure 105: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 9 is best).



Relative effectiveness chart

Table 28: Relative effectiveness of all pairwise combinations for remission, post-treatment, in moderate to severe depression, 12 to 18 year olds. (Upper diagonal: risk ratios (RR) with 95% confidence intervals from the pair-wise meta-analysis. RRs greater than 1

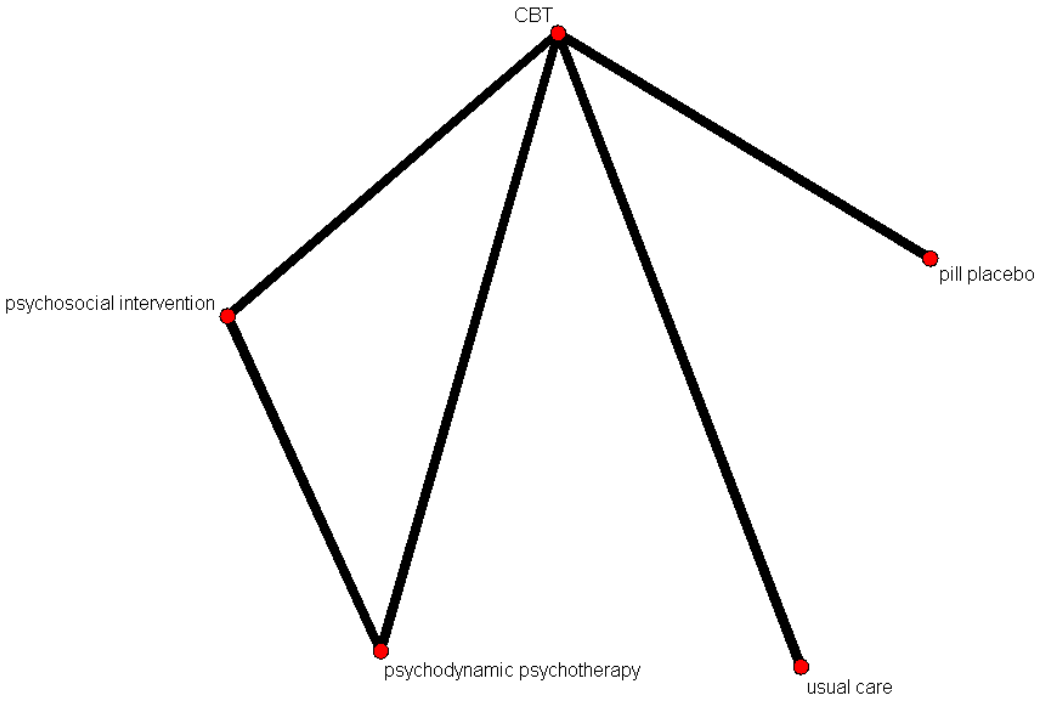
favour the column defining treatment, RRs less than 1 favour the row defining treatment. Lower diagonal: posterior median RRs with 95% credible intervals from NMA results, RR greater than 1 favour the row defining treatment. RRs less than 1 favour the column defining treatment.)

	Usual care	CBT	Family therapy	NDST	Psychodynamic psychotherapy	Psychosocial intervention	Relaxation	Computer CBT	Attention control
Usual care		1.05 (0.57, 1.93)	-	-	-	-	-	-	-
CBT	1.04 (0.47, 1.70)		0.48 (0.26, 0.89)	0.79 (0.65, 0.96)	0.97 (0.69, 1.35)	0.96 (0.69, 1.33)	0.38 (0.16, 0.91)	-	-
Family therapy	0.46 (0.11, 1.20)	0.45 (0.17, 0.88)		1.25 (0.61, 2.56)	-	-	-	-	0.33 (0.11, 1.01)
NDST	0.63 (0.19, 1.33)	0.61 (0.32, 0.93)	1.33 (0.68, 3.16)		-	-	-	-	-
Psychodynamic psychotherapy	1.02 (0.42, 1.72)	0.98 (0.72, 1.24)	2.13 (1.07, 6.02)	1.58 (0.98, 3.25)		0.99 (0.71, 1.39)	-	-	-
Psychosocial intervention	1.02 (0.42, 1.71)	0.97 (0.72, 1.24)	2.12 (1.07, 5.96)	1.57 (0.98, 3.22)	1.00 (0.76, 1.31)		-	-	-
Relaxation	0.36 (0.07, 1.14)	0.36 (0.09, 0.87)	0.80 (0.19, 2.77)	0.60 (0.15, 1.64)	0.37 (0.09, 0.92)	0.37 (0.09, 0.93)		-	-
Computer CBT	0.82 (0.08, 2.01)	0.79 (0.11, 1.98)	1.63 (0.31, 5.49)	1.25 (0.19, 4.07)	0.82 (0.11, 2.16)	0.82 (0.11, 2.17)	2.04 (0.26, 11.99)		0.18 (0.07, 0.47)
Attention control	0.09 (0.01, 0.62)	0.09 (0.01, 0.50)	0.21 (0.03, 0.83)	0.15 (0.02, 0.76)	0.09 (0.01, 0.52)	0.09 (0.01, 0.52)	0.26 (0.03, 1.90)	0.13 (0.04, 0.40)	

Quality of life, post-treatment on the HoNOSCA scale for moderate to severe depression in 12 to 18 year olds

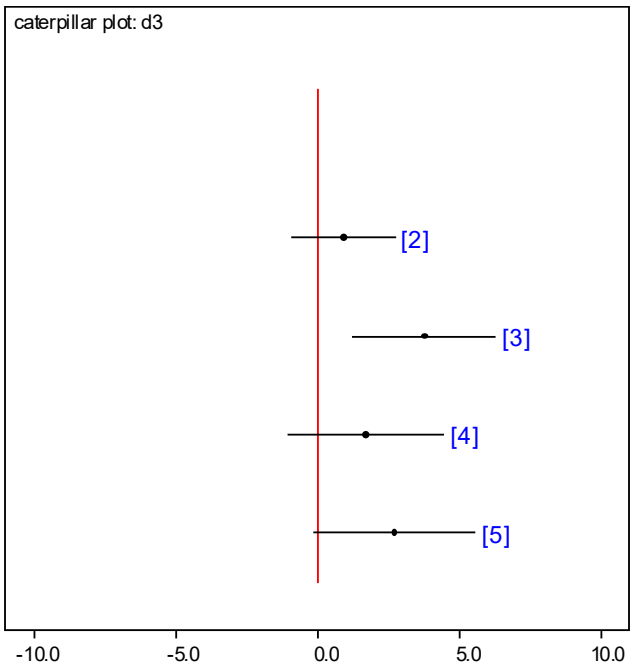
Network diagram

Figure 106: Diagram of the network of studies underlying the NMA for quality of life, post-treatment, in moderate to severe depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy)



Caterpillar plot

Figure 107: Relative effectiveness of all options versus pill placebo on the HoNOSCA scale for quality of life, post-treatment, in moderate to severe depression, 12 to 18 year olds. (Mean differences with 95% credible intervals and line of no effect in red; values higher than 0 favour pill placebo; values lower than 0 favour the other treatments.)



Treatment codes:

1 pill placebo

2 CBT

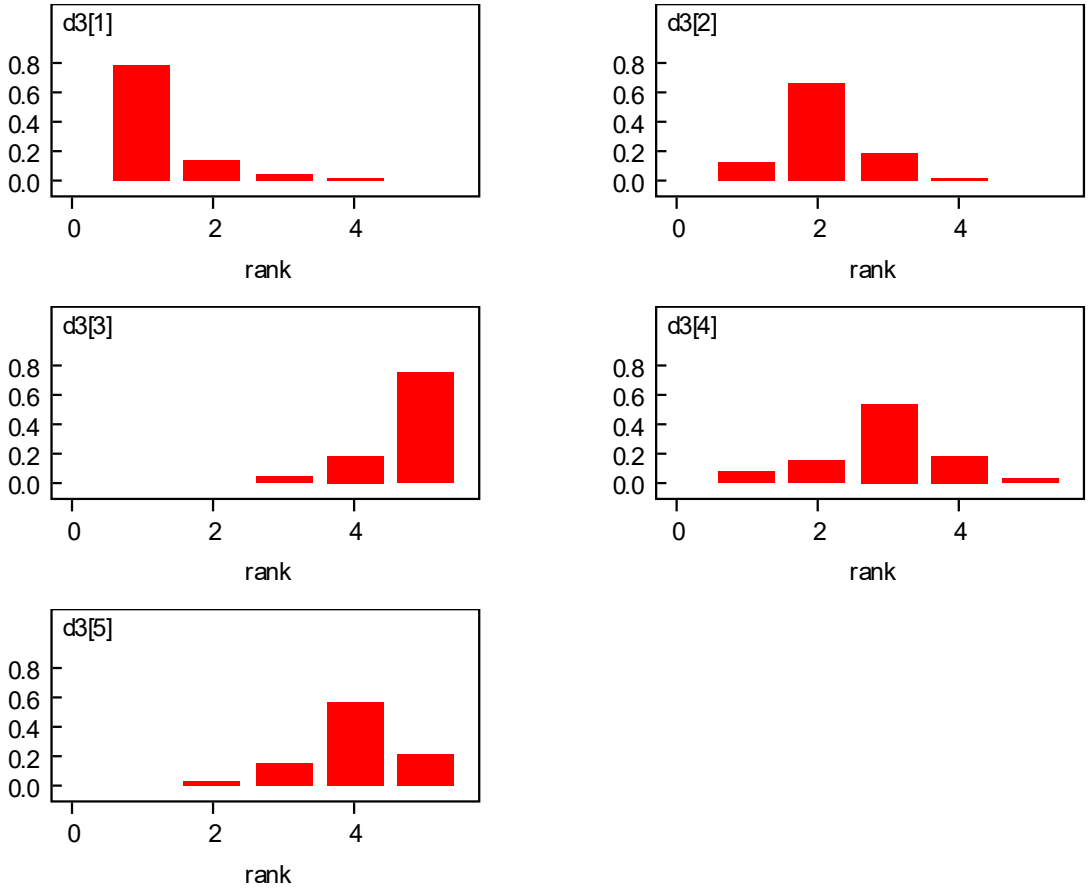
3 usual care

4 psychodynamic psychotherapy

5 psychosocial intervention

Rank probability histograms for quality of life, post-treatment, in moderate to severe depression, 12 to 18 year olds

Figure 108: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 1 is best.)



Relative effectiveness chart

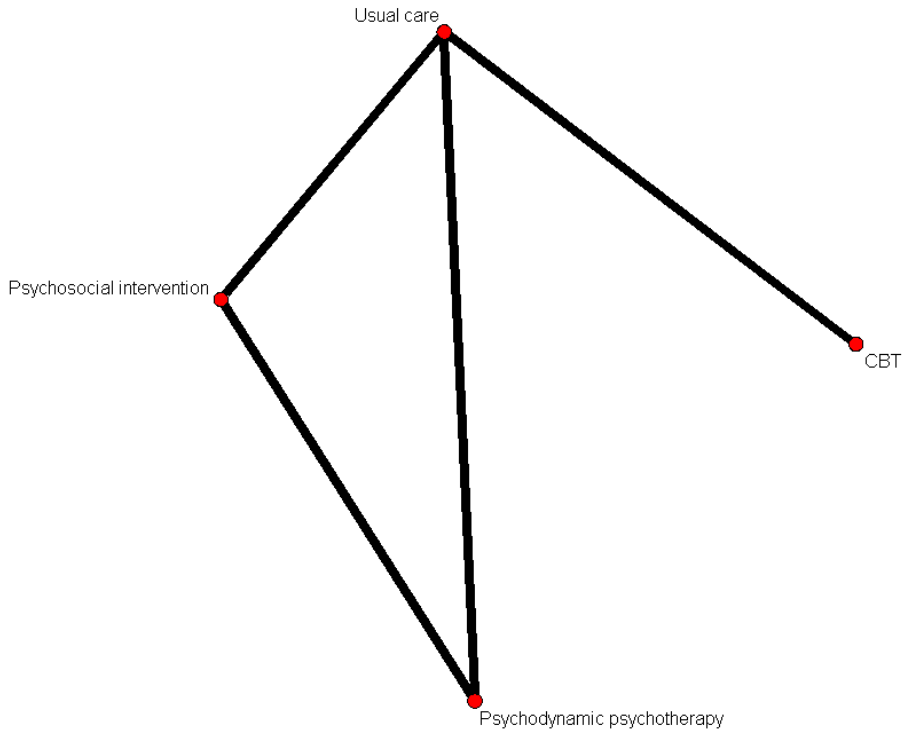
Table 29: Relative effectiveness of all pairwise combinations on the HoNOSCA scale for quality of life, post-treatment, in moderate to severe depression, 12 to 18 year olds. (Upper diagonal: mean difference (MD) with 95% confidence intervals from direct pair-wise meta-analysis. MDs less than 0 favour the column defining treatment, MDs greater than 0 favour the row defining treatment. Lower diagonal: posterior median MD with 95% credible intervals from NMA results, MDs less than 0 favour the row defining treatment. MDs greater than 0 favour the column defining treatment.)

	Pill placebo	**CBT**	**Usual care**	**Psychodynamic psychotherapy**	**Psychosocial intervention**
Pill placebo		0.90 (-0.90, 2.70)	-	-	-
CBT	0.90 (-0.89, 2.71)		2.85 (1.1, 4.6)	0.80 (-1.27, 2.87)	1.80 (-0.37, 3.97)
Usual care	3.75 (1.26, 6.25)	2.85 (1.11, 4.59)		-	-
Psychodynamic psychotherapy	1.71 (-1.04, 4.44)	0.81 (-1.28, 2.88)	-2.04 (-4.76, 0.65)		1.00 (-1,18, 3.18)
Psychosocial intervention	2.70 (-0.12, 5.53)	1.80 (-0.38, 3.98)	-1.05 (-3.83, 1.75)	1.00 (-1.19, 3.18)	

Quality of life, ≤6 months on the HoNOSCA scale for moderate to severe depression in 12 to 18 year olds

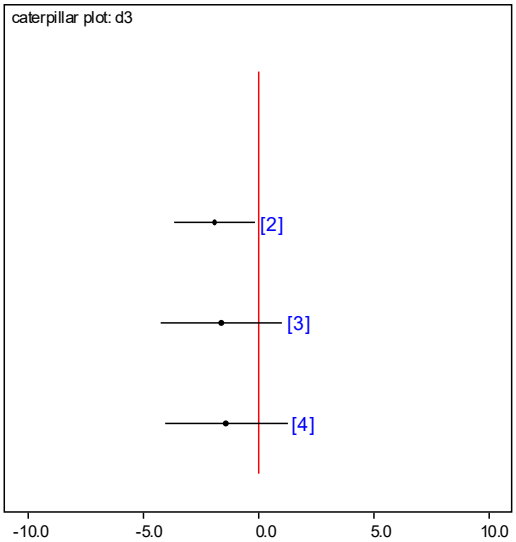
Network diagram

Figure 109: Diagram of the network of studies underlying the NMA for quality of life, ≤6 months, in moderate to severe depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy)



Caterpillar plot

Figure 110: Relative effectiveness of all options versus usual care on the HoNOSCA scale for quality of life, ≤6 months, in moderate to severe depression, 12 to 18 year olds. (Mean differences with 95% credible intervals and line of no effect in red; values higher than 0 favour usual care; values lower than 0 favour the other treatments.)

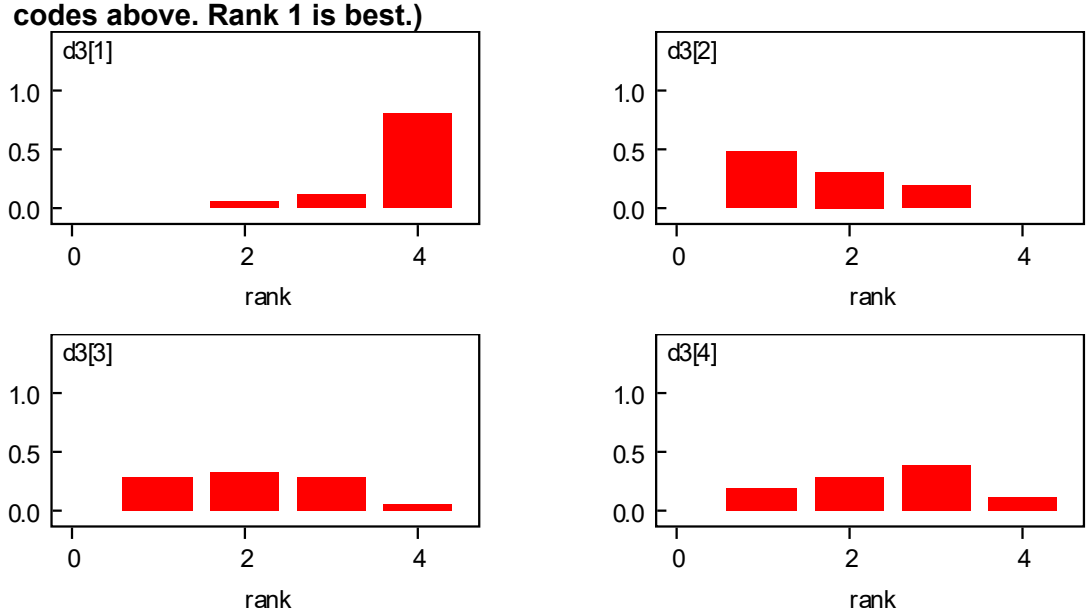


Treatment codes:

1	usual care
2	CBT
3	psychodynamic psychotherapy
4	psychosocial intervention

Rank probability histograms for quality of life, ≤6 months, in moderate to severe depression, 12 to 18 year olds

Figure 111: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 1 is best.)



Relative effectiveness chart

Table 30: Relative effectiveness of all pairwise combinations on the HoNOSCA scale for quality of life, ≤6 months, in moderate to severe depression, 12 to 18 year

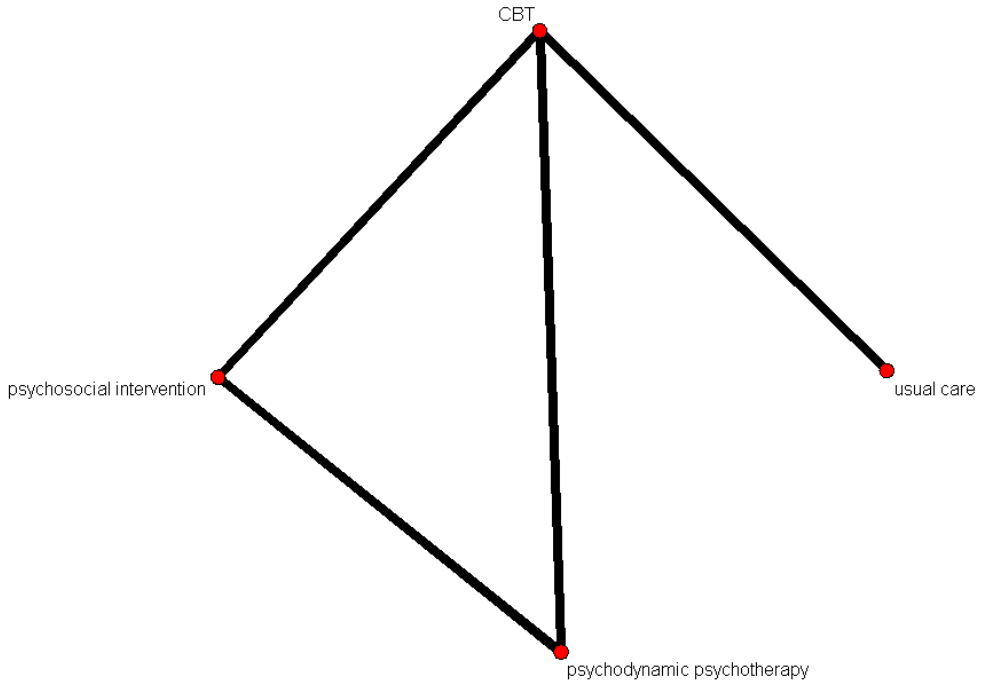
olds. (Upper diagonal: mean difference (MD) with 95% confidence intervals from direct pair-wise meta-analysis. MDs less than 0 favour the column defining treatment, MDs greater than 0 favour the row defining treatment. Lower diagonal: posterior median MD with 95% credible intervals from NMA results, MDs less than 0 favour the row defining treatment. MDs greater than 0 favour the column defining treatment.)

	Usual care	**CBT**	**Psychodynamic psychotherapy**	**Psychosocial intervention**
Usual care		-1.88 (-3.63, -0.13)	-	-
CBT	-1.90 (-3.64, -0.17)		0.30 (-1.63, 2.23)	0.50 (-1.47, 2.47)
Psychodynamic psychotherapy	-1.61 (-4.19, 1.01)	0.29 (-1.64, 2.23)		0.20 (-1.68, 2.08)
Psychosocial intervention	-1.41 (-4.03, 1.22)	0.49 (-1.47, 2.47)	0.20 (-1.68, 2.08)	

Quality of life, >6 to ≤18 months on the HoNOSCA scale for moderate to severe depression in 12 to 18 year olds

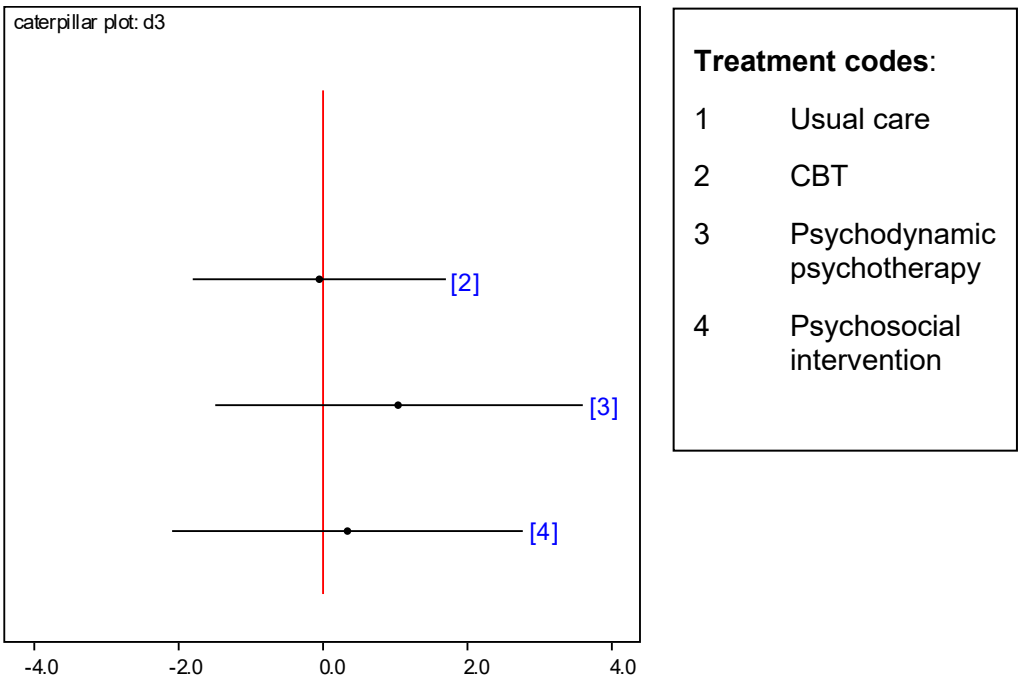
Network diagram

Figure 112: Diagram of the network of studies underlying the NMA for quality of life, >6 to ≤18 months, in moderate to severe depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy)



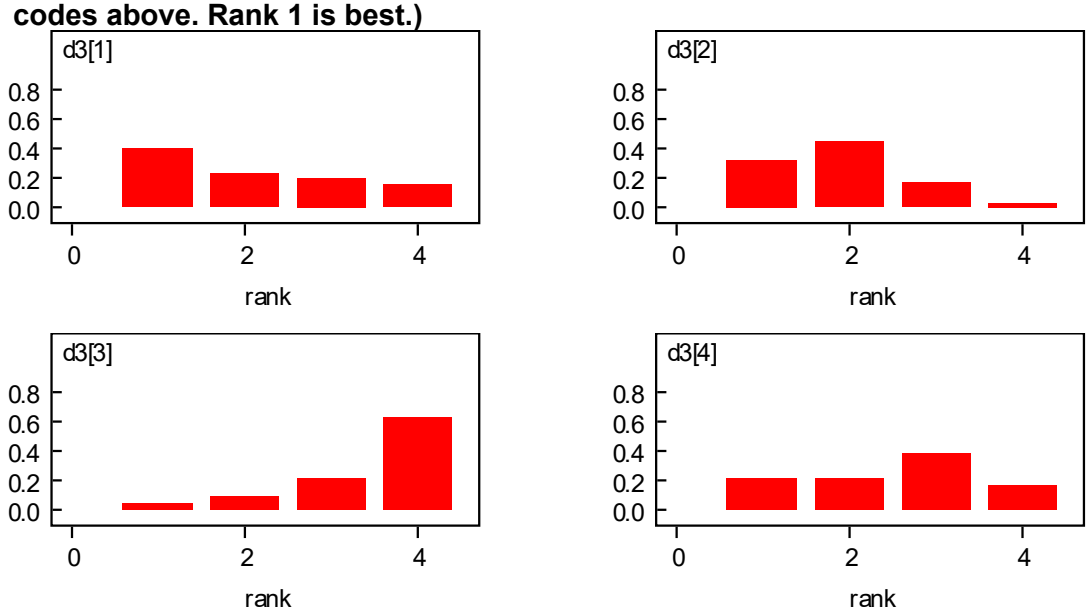
Caterpillar plot

Figure 113: Relative effectiveness of all options versus usual care on the HoNOSCA scale for quality of life, >6 to ≤18 months, in moderate to severe depression, 12 to 18 year olds. (Mean differences with 95% credible intervals and line of no effect in red; values higher than 0 favour usual care; values lower than 0 favour the other treatments.)



Rank probability histograms for quality of life, >6 to ≤18 months, in moderate to severe depression, 12 to 18 year olds

Figure 114: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 1 is best.)



Relative effectiveness chart

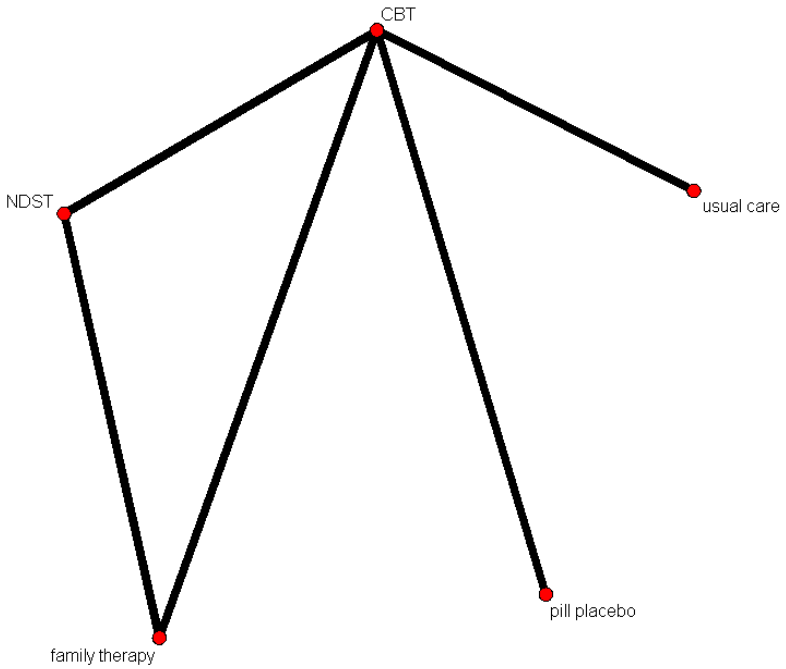
Table 31: Relative effectiveness of all pairwise combinations on the HoNOSCA scale for quality of life, >6 to ≤18 months, in moderate to severe depression, 12 to 18 year olds. (Upper diagonal: mean difference (MD) with 95% confidence intervals from direct pair-wise meta-analysis. MDs less than 0 favour the column defining treatment, MDs greater than 0 favour the row defining treatment. Lower diagonal: posterior median MD with 95% credible intervals from NMA results, MDs less than 0 favour the row defining treatment. MDs greater than 0 favour the column defining treatment.)

	Usual Care	**CBT**	**Psychodynamic psychotherapy**	**Psychosocial intervention**
Usual care		-0.06 (-1.81, 1.68)	-	-
CBT	-0.05 (-1.79, 1.68)		1.10 (-0.75, 2.95)	0.40 (-1.27, 2.07)
Psychodynamic psychotherapy	1.05 (-1.48, 3.59)	1.10 (-0.75, 2.95)		-
Psychosocial intervention	0.35 (-2.07, 2.75)	0.39 (-1.27, 2.07)	-0.70 (-2.58, 1.18)	

Suicide ideation (dichotomous), post-treatment for moderate to severe depression in 12 to 18 year olds

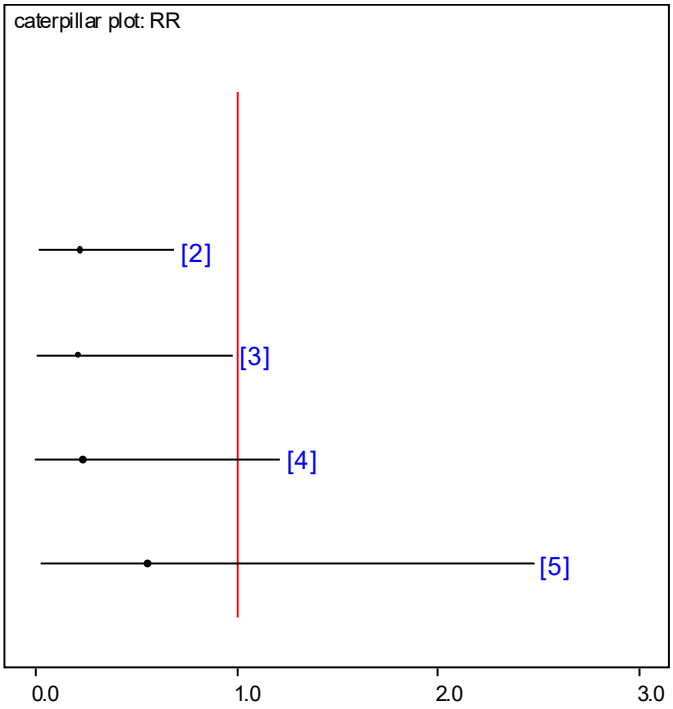
Network diagram

Figure 115: Diagram of the network of studies underlying the NMA for suicide ideation, post-treatment, in moderate to severe depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy; NDST: non-directive supportive therapy)



Caterpillar plot

Figure 116: Relative effectiveness of all options versus usual care for suicide ideation, post-treatment, in moderate to severe depression, 12 to 18 year olds. (Relative risk with 95% credible intervals and line of no effect in red; values higher than 1 favour usual care; values lower than 1 favour the other treatments.)



Treatment codes:

1 usual care

2 CBT

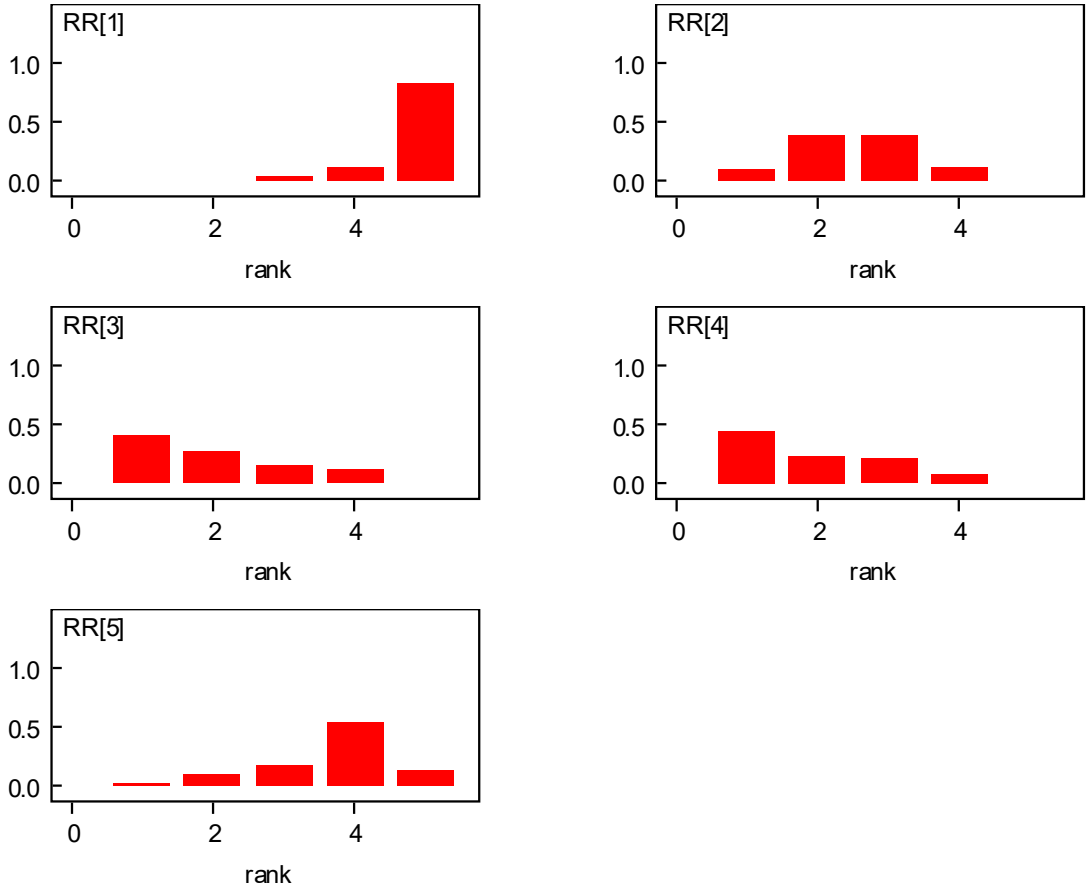
3 pill placebo

4 family therapy

5 NDST

Rank probability histograms for suicide ideation, post-treatment, in moderate to severe depression, 12 to 18 year olds

Figure 117: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 1 is best.)



Relative effectiveness chart

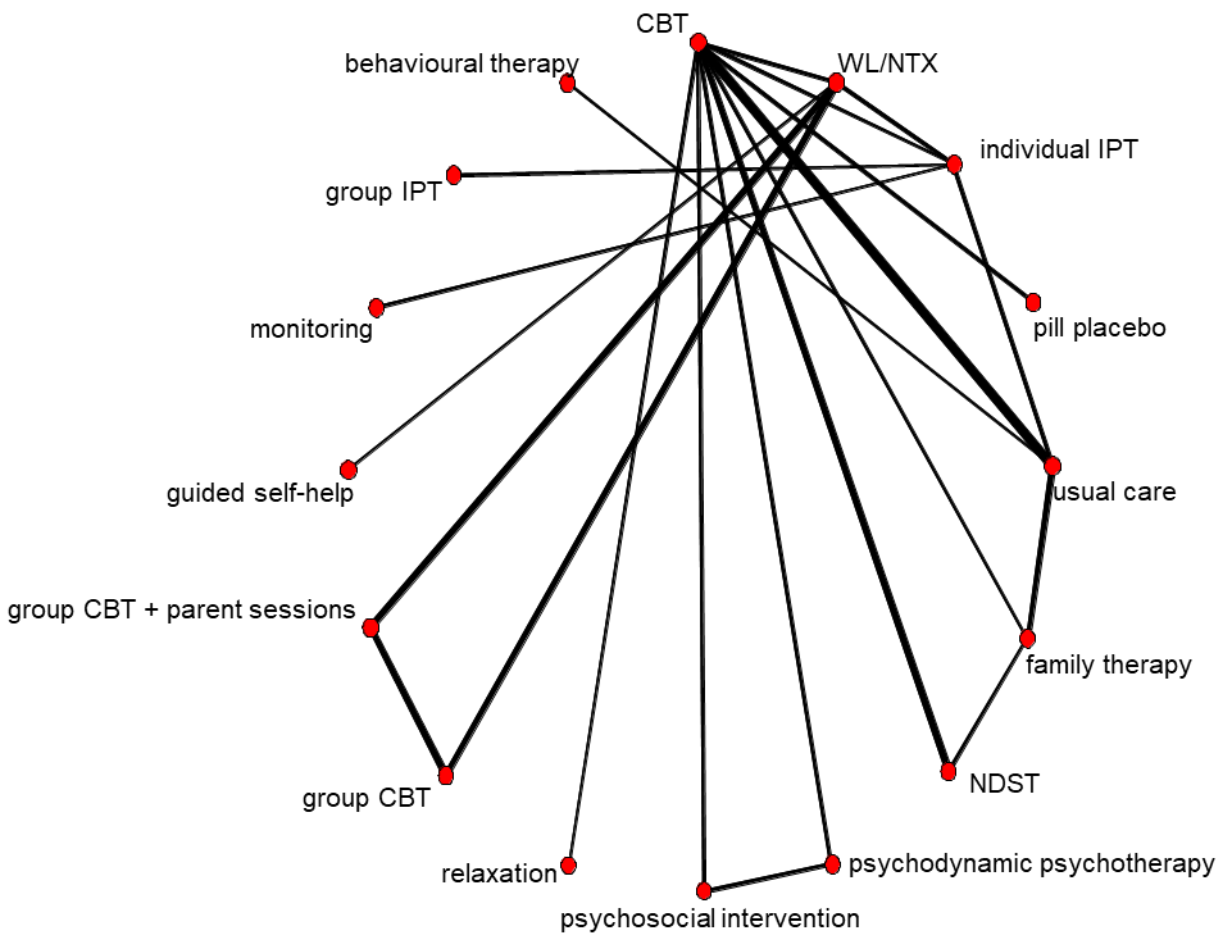
Table 32: Relative effectiveness of all pairwise combinations for suicide ideation, post-treatment, in moderate to severe depression, 12 to 18 year olds. (Upper diagonal: risk ratios (RR) with 95% confidence intervals from the pair-wise meta-analysis. RRs less than 1 favour the column defining treatment, RRs greater than 1 favour the row defining treatment. Lower diagonal: posterior median RRs with 95% credible intervals from NMA results, RR less than 1 favour the row defining treatment. RRs greater than 1 favour the column defining treatment.)

	Usual care	CBT	Pill placebo	Family therapy	NDST
Usual care		0.20 (0.04, 0.89)	-	-	-
CBT	0.17 (0.02, 0.69)		0.74 (0.17, 3.23)	0.75 (0.13, 4.17)	1.75 (0.46, 6.67)
Pill placebo	0.12 (0.01, 0.98)	0.72 (0.13, 3.35)		-	-
Family therapy	0.11 (0.01, 1.21)	0.69 (0.08, 4.52)	0.95 (0.07, 12.05)		2.33 (0.49, 11.11)
NDST	0.33 (0.03, 2.47)	1.95 (0.44, 9.30)	2.73 (0.32, 27.28)	2.79 (0.55, 22.73)	

Discontinuation for moderate to severe depression in 12 to 18 year olds

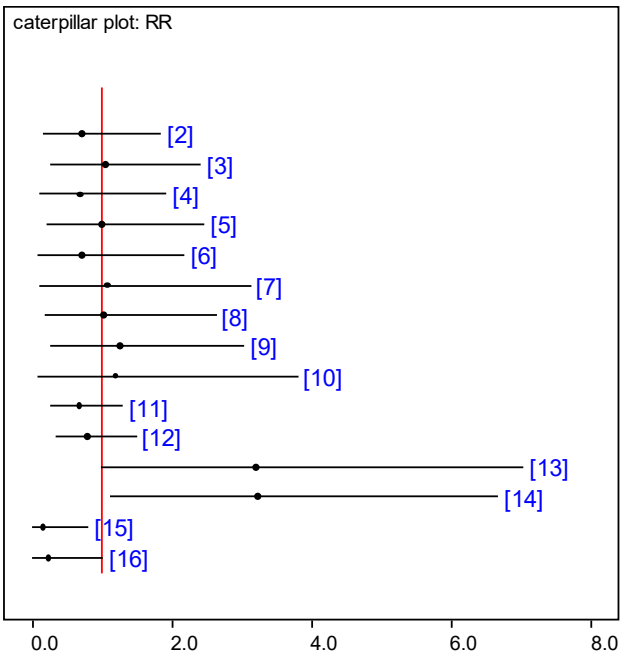
Network diagram

Figure 118: Diagram of the network of studies underlying the NMA for discontinuation, endpoint, in moderate to severe depression, 12 to 18 year olds. The thickness of the line represents the number of studies. (CBT: cognitive behavioural therapy; WL/NTX: waiting list/no treatment; NDST: non-directive supportive therapy; IPT: interpersonal psychotherapy)



Caterpillar plot

Figure 119: Relative effectiveness of all options versus waiting list/no treatment for discontinuation, endpoint, in moderate to severe depression, 12 to 18 year olds. (Relative risks with 95% credible intervals and line of no effect in red; values higher than 1 favour waiting list/no treatment; values lower than 1 favour the other treatments.)

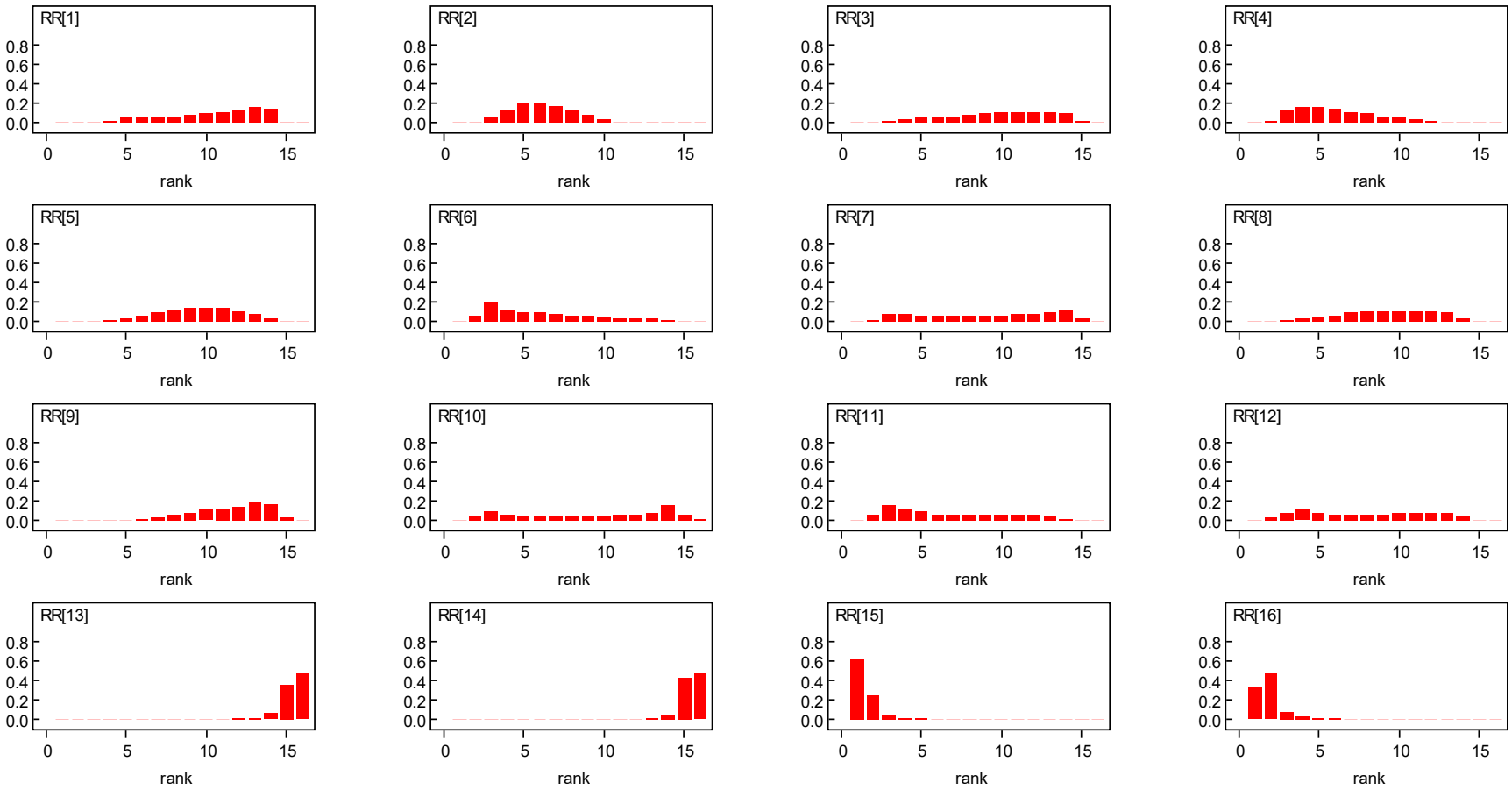


Treatment codes:

1	waiting list/no treatment
2	CBT
3	IPT-A
4	pill placebo
5	usual care
6	family therapy
7	NDST
8	psychodynamic psychotherapy
9	psychosocial intervention
10	relaxation
11	group CBT
12	group CBT + parent sessions
13	online guided self-help
14	monitoring
15	group IPT
16	behavioural activation

Rank probability histograms for discontinuation, endpoint, in moderate to severe depression, 12 to 18 year olds

Figure 120: Probability of the treatment assuming each treatment rank (see treatment codes above. Rank 1 is best.)



Relative effectiveness chart

Table 33: Relative effectiveness of all pairwise combinations for discontinuation, endpoint, in moderate to severe depression, 12 to 18 year olds. (Upper diagonal: risk ratios (RR) with 95% confidence intervals from the pair-wise meta-analysis. RRs less than 1 favour the column defining treatment, RRs greater than 1 favour the row defining treatment. Lower diagonal: posterior median RRs with 95% credible intervals from NMA results, RR less than 1 favour the row defining treatment. RRs greater than 1 favour the column defining treatment.)

	Waiting list/no treatment	CBT	IPT-A	Pill placebo	Usual care	Family therapy	NDST	psychodynamic psychotherapy	psychosocial intervention	Relaxation	Group CBT	group CBT + parent sessions	Online guided self-help	Monitoring	Group IPT	Behavioural activation
Waiting list/no treatment		0.74 (0.22, 2.41)	0.80 (0.25, 2.61)	-	-	-	-	-	-	-	0.65 (0.32, 1.32)	0.76 (0.38, 1.52)	4.33 (0.59, 31.8)	-	-	-
CBT	0.61 (0.15, 1.82)		1.09 (0.31, 3.85)	0.95 (0.57, 1.59)	1.32 (0.86, 2.00)	0.70 (0.13, 4.00)	1.33 (0.35, 5.26)	1.47 (0.74, 2.94)	1.92 (1.01, 3.70)	1.45 (0.26, 7.69)	-	-	-	-	-	-
IPT-A	0.94 (0.28, 2.39)	1.51 (0.58, 4.50)		-	0.58 (0.12, 2.94)	-	-	-	-	-	-	-	-	4.35 (1.41, 12.5)	0.14 (0.02, 1.00)	-
Pill placebo	0.58 (0.12, 1.90)	0.95 (0.53, 1.61)	0.63 (0.18, 1.84)		-	-	-	-	-	-	-	-	-	-	-	-
Usual care	0.88 (0.22, 2.45)	1.42 (0.85, 2.51)	0.94 (0.33, 2.44)	1.50 (0.73, 3.41)		0.69 (0.22, 2.22)	-	-	-	-	-	-	-	-	-	0.21 (0.05, 0.88)
Family therapy	0.54 (0.09, 2.15)	0.90 (0.27, 2.43)	0.59 (0.12, 2.14)	0.95 (0.26, 3.00)	0.63 (0.19, 1.61)		1.49 (0.27, 8.33)	-	-	-	-	-	-	-	-	-

NDST	0.86 (0.12, 3.11)	1.38 (0.35, 4.24)	0.92 (0.16, 3.58)	1.45 (0.34, 5.21)	0.98 (0.23, 3.03)	1.52 (0.39, 6.13)		-	-	-	-	-	-	-	-	-
Psychodynamic psychotherapy	0.88 (0.19, 2.62)	1.41 (0.75, 2.72)	0.94 (0.27, 2.82)	1.50 (0.66, 3.61)	1.00 (0.43, 2.22)	1.58 (0.49, 6.25)	1.02 (0.29, 4.64)		1.30 (0.74, 2.33)	-	-	-	-	-	-	-
Psychosocial intervention	1.13 (0.27, 3.03)	1.78 (1.03, 3.38)	1.18 (0.38, 3.46)	1.89 (0.90, 4.55)	1.25 (0.59, 2.76)	1.99 (0.66, 7.89)	1.28 (0.39, 5.85)	1.25 (0.77, 2.26)		-	-	-	-	-	-	-
Relaxation	0.90 (0.09, 3.79)	1.43 (0.25, 5.99)	0.96 (0.12, 4.63)	1.51 (0.25, 7.18)	1.02 (0.16, 4.39)	1.60 (0.22, 10.36)	1.04 (0.13, 7.44)	1.02 (0.16, 4.71)	0.81 (0.13, 3.46)		-	-	-	-	-	-
Group CBT	0.63 (0.27, 1.28)	1.04 (0.26, 4.92)	0.68 (0.19, 2.73)	1.10 (0.25, 5.91)	0.72 (0.19, 3.39)	1.17 (0.23, 8.34)	0.74 (0.15, 5.88)	0.72 (0.18, 3.80)	0.57 (0.15, 2.75)	0.71 (0.13, 7.50)		1.18 (0.56, 2.44)	-	-	-	-
Group CBT + parent sessions	0.75 (0.34, 1.48)	1.23 (0.32, 5.79)	0.81 (0.23, 3.23)	1.30 (0.31, 6.95)	0.86 (0.23, 3.97)	1.38 (0.28, 9.87)	0.88 (0.19, 6.94)	0.85 (0.22, 4.50)	0.67 (0.18, 3.24)	0.84 (0.16, 8.91)	1.19 (0.54, 2.62)		-	-	-	-
Online guided self-help	2.93 (0.98, 7.02)	4.74 (1.06, 25.92)	3.09 (0.78, 14.39)	5.03 (1.06, 30.76)	3.28 (0.79, 17.61)	5.34 (0.97, 42.76)	3.36 (0.67, 30.17)	3.27 (0.75, 19.65)	2.56 (0.63, 14.24)	3.19 (0.58, 38.55)	4.58 (1.28, 16.22)	3.86 (1.10, 13.38)		-	-	-
Monitoring	2.99 (1.13, 6.65)	4.81 (1.62, 20.03)	3.15 (1.45, 9.04)	5.10 (1.56, 24.16)	3.32 (1.25, 13.53)	5.43 (1.38, 34.61)	3.41 (0.97, 24.75)	3.31 (1.15, 15.62)	2.59 (0.99, 11.32)	3.25 (0.81, 32.26)	4.69 (1.46, 15.76)	3.94 (1.26, 12.84)	1.00 (0.31, 3.62)		-	-
Group IPT	0.07 (0.00, 0.79)	0.12 (0.00, 1.19)	0.08 (0.00, 0.58)	0.13 (0.00, 1.35)	0.09 (0.00, 0.82)	0.14 (0.00, 1.79)	0.09 (0.00, 1.25)	0.09 (0.00, 0.90)	0.07 (0.00, 0.70)	0.09 (0.00, 1.51)	0.12 (0.00, 1.44)	0.10 (0.00, 1.20)	0.03 (0.00, 0.34)	0.02 (0.00, 0.25)		-
Behavioural activation	0.13 (0.01, 1.01)	0.23 (0.03, 1.10)	0.15 (0.01, 0.91)	0.24 (0.03, 1.29)	0.16 (0.02, 0.70)	0.26 (0.03, 1.66)	0.17 (0.01, 1.26)	0.16 (0.02, 0.88)	0.13 (0.01, 0.68)	0.16 (0.01, 1.62)	0.21 (0.02, 1.88)	0.18 (0.01, 1.57)	0.05 (0.00, 0.45)	0.05 (0.00, 0.34)	1.84 (0.08, 82.50)	

NMA Summaries

Note: tables/graphs in this section are best viewed in colour. Colour formatting was added to help the reader to make sense of the large amount of data contained within each table/graph. Numbers in white bold text are where the 95% credible interval does not cross the line of no effect.

The results of the NMAs for depressive symptoms post treatment were chosen to be displayed in this way because these NMAs were populated by the largest amount of studies and included the most statistically significant results.

Pairwise probability more effective

Table 34: Age 12-18, Mild, Depressive Symptoms Post Treatment (pairwise probability more effective)

	group CBT	relaxation	dance therapy	guided self-help	group NDST	attention control	usual care	group mindfulness	CBT	NDST	computer CBT	groupCBT + computer C	family therapy	group IPT
waiting list	1.00	0.98	0.97	1.00	0.95	1.00	1.00	1.00	0.96	0.72	1.00	0.99	0.99	0.99
group CBT		0.63	0.56	0.52	0.24	0.25	0.31	0.91	0.51	0.22	0.90	0.59	0.80	0.78
relaxation	0.37		0.46	0.40	0.25	0.29	0.31	0.79	0.42	0.21	0.60	0.45	0.65	0.62
dance therapy	0.44	0.54		0.46	0.30	0.35	0.37	0.79	0.46	0.24	0.63	0.50	0.68	0.65
guided self-help	0.48	0.60	0.54		0.23	0.31	0.37	0.87	0.50	0.23	0.78	0.56	0.76	0.76
group NDST	0.76	0.75	0.70	0.77		0.62	0.65	0.93	0.67	0.37	0.90	0.74	0.86	0.98
attention control	0.75	0.71	0.65	0.69	0.38		0.57	0.93	0.62	0.29	0.97	0.73	0.86	0.84
usual care	0.69	0.69	0.63	0.63	0.35	0.43		0.93	0.61	0.26	0.93	0.67	0.87	0.82
group mindfulness	0.09	0.21	0.21	0.13	0.07	0.07	0.07		0.17	0.08	0.22	0.17	0.36	0.30
CBT	0.49	0.58	0.54	0.50	0.33	0.38	0.39	0.83		0.12	0.70	0.54	0.74	0.69
NDST	0.78	0.79	0.76	0.77	0.63	0.71	0.74	0.92	0.88		0.87	0.78	0.88	0.86
computer CBT	0.10	0.40	0.36	0.22	0.10	0.03	0.07	0.78	0.30	0.13		0.31	0.62	0.56
groupCBT + computer CBT	0.41	0.55	0.50	0.44	0.26	0.27	0.33	0.83	0.46	0.22	0.69		0.71	0.67
family therapy	0.20	0.35	0.32	0.24	0.14	0.14	0.13	0.64	0.26	0.12	0.38	0.29		0.44
group IPT	0.22	0.38	0.35	0.24	0.02	0.16	0.18	0.70	0.31	0.14	0.44	0.33	0.55	

Each cell in Table 34 shows the probability that the intervention in the column is more effective than the intervention in the row as calculated from the CODA outputs of the NMA. Values of 0.975 or more (in white) are analogous to a statistically significant result at a 95% confidence interval.

Columns with more high values (highlighted green rather than red) indicate that the intervention in that column is more likely to be more effective than a larger number of interventions. Row number 1 shows the probability that the intervention is better than waiting list/no treatment.

Table 35: Age 12-18, Severe. Depressive Symptoms Post Treatment (pairwise probability more effective)

	CBT	individual IPT	pill placebo	usual care	family therapy	NDST	psychodynamic psychotherapy	psychosocial intervention	relaxation	computer CBT	attention control	group CBT	group CBT + parent sessions	guided self-help	monitoring	group IPT	behavioural activation
waiting list	1.00	0.98	0.97	0.98	0.98	0.95	0.92	0.86	0.64	0.89	0.80	0.98	0.97	0.92	0.86	0.90	0.95
CBT		0.48	0.64	0.14	0.40	0.44	0.34	0.21	0.09	0.57	0.30	0.28	0.26	0.41	0.34	0.47	0.60
individual IPT	0.52		0.62	0.25	0.44	0.47	0.38	0.27	0.13	0.57	0.33	0.34	0.30	0.42	0.31	0.47	0.60
pill placebo	0.36	0.38		0.21	0.33	0.37	0.29	0.21	0.11	0.49	0.27	0.27	0.25	0.35	0.29	0.40	0.49
usual care	0.86	0.75	0.79		0.71	0.66	0.55	0.41	0.20	0.69	0.44	0.56	0.49	0.57	0.50	0.62	0.77
family therapy	0.60	0.56	0.67	0.29		0.52	0.43	0.31	0.15	0.62	0.33	0.39	0.36	0.47	0.40	0.52	0.65
NDST	0.55	0.53	0.63	0.34	0.48		0.42	0.31	0.17	0.59	0.35	0.40	0.36	0.45	0.39	0.50	0.61
psychodynamic psychotherapy	0.66	0.62	0.71	0.45	0.57	0.58		0.34	0.21	0.64	0.42	0.48	0.45	0.52	0.46	0.57	0.68
psychosocial intervention	0.79	0.73	0.79	0.59	0.69	0.69	0.66		0.30	0.70	0.51	0.61	0.56	0.62	0.55	0.65	0.75
relaxation	0.91	0.87	0.89	0.80	0.85	0.83	0.79	0.70		0.81	0.68	0.80	0.76	0.77	0.72	0.79	0.86
computer CBT	0.43	0.43	0.51	0.31	0.38	0.41	0.36	0.30	0.19		0.16	0.35	0.33	0.39	0.35	0.43	0.50
attention control	0.70	0.67	0.73	0.56	0.67	0.65	0.58	0.49	0.32	0.84		0.58	0.55	0.59	0.54	0.63	0.72
group CBT	0.72	0.66	0.73	0.44	0.61	0.60	0.52	0.39	0.20	0.65	0.42		0.43	0.54	0.47	0.59	0.71
group CBT + parent sessions	0.74	0.69	0.75	0.51	0.64	0.64	0.55	0.44	0.24	0.67	0.45	0.57		0.57	0.50	0.61	0.72
guided self-help	0.59	0.58	0.65	0.43	0.53	0.55	0.48	0.38	0.23	0.61	0.41	0.46	0.43		0.44	0.54	0.64
monitoring	0.66	0.69	0.71	0.50	0.60	0.60	0.54	0.45	0.28	0.65	0.46	0.53	0.50	0.56		0.61	0.69
group IPT	0.53	0.53	0.60	0.38	0.48	0.50	0.43	0.35	0.21	0.57	0.37	0.41	0.39	0.46	0.39		0.59
behavioural activation	0.40	0.40	0.51	0.23	0.35	0.39	0.32	0.25	0.14	0.50	0.28	0.29	0.27	0.36	0.31	0.41	

Each cell in Table 35 shows the probability that the intervention in the column is more effective than the intervention in the row as calculated from the CODA outputs of the NMA. Values of 0.975 or more (in white) are analogous to a statistically significant result at a 95% confidence interval. Columns with more high values (highlighted green rather than red) indicate that the intervention in that column is more likely to be more effective than a larger number of interventions. Row number 1 shows the probability that the intervention is better than waiting list/no treatment.

Table 36: Age 5-11, Severe. Depressive Symptoms Post Treatment (pairwise probability more effective)

	Family IPT	NDST	Family Therapy	Psychodynamic Psychotherapy
Family IPT		0.05	0.25	0.02
NDST	0.95		0.90	0.10
Family Therapy	0.75	0.10		0.00
Psychodynamic Psychotherapy	0.98	0.90	1.00	

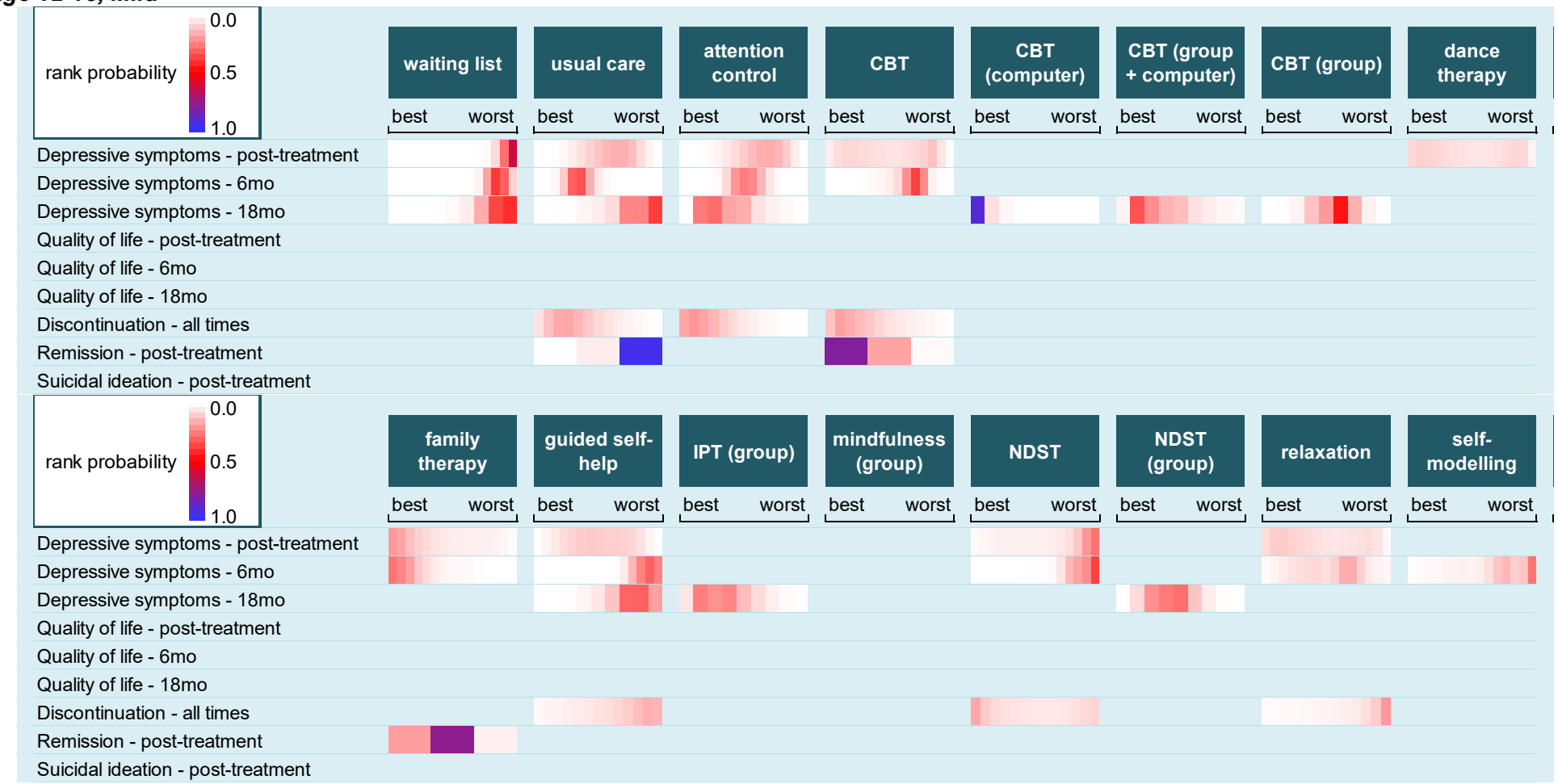
Each cell in Table 36 shows the probability that the intervention in the column is more effective than the intervention in the row as calculated from the CODA outputs of the NMA. Values of 0.975 or more (in white) are analogous to a statistically significant result at a 95% confidence interval. Columns with more high values (highlighted green rather than red) indicate that the intervention in that column is more likely to be more effective than a larger number of interventions. Row number 1 shows the probability that the intervention is better than waiting list/no treatment.

Ranking summaries for all outcomes

The graphs in this section show the probability that each intervention is ranked in each position from best to worst in the NMA for that outcome (the row indicates the outcome in question) and need to be viewed in colour. Note that there are a different number of interventions included in the NMA for each outcome and therefore a different number of total ranks. Unfortunately, due to the number of interventions the results for a single outcome in both 12-18 age groups appear on multiple lines. For example, in the Age 12-18 Mild group there is a ~100% probability that for the NMA of remission post-treatment, usual care was ranked number 3 out of the 3 options (CBT, family therapy and usual care). CBT and family therapy have a roughly 70% and 30% probability of taking rank 1, indicating that there was no significant difference between them but a probability close to 100% that they were better than usual care. In general, the more interventions there are within an NMA, the less likely high probabilities of an intervention holding a particular rank are. For example, for the outcome of depressive symptoms post-treatment in the mild 12-18 group, no intervention holds more than a 50% probability of occupying one of the 15 ranks with the exception of waiting list, which has a 63% probability of being the worst. The reader can interpret the general spread and position of the blocks of colour as indicating the average ranks and their associated uncertainty among other interventions for each NMA although should be careful not to interpret the differences in shading between

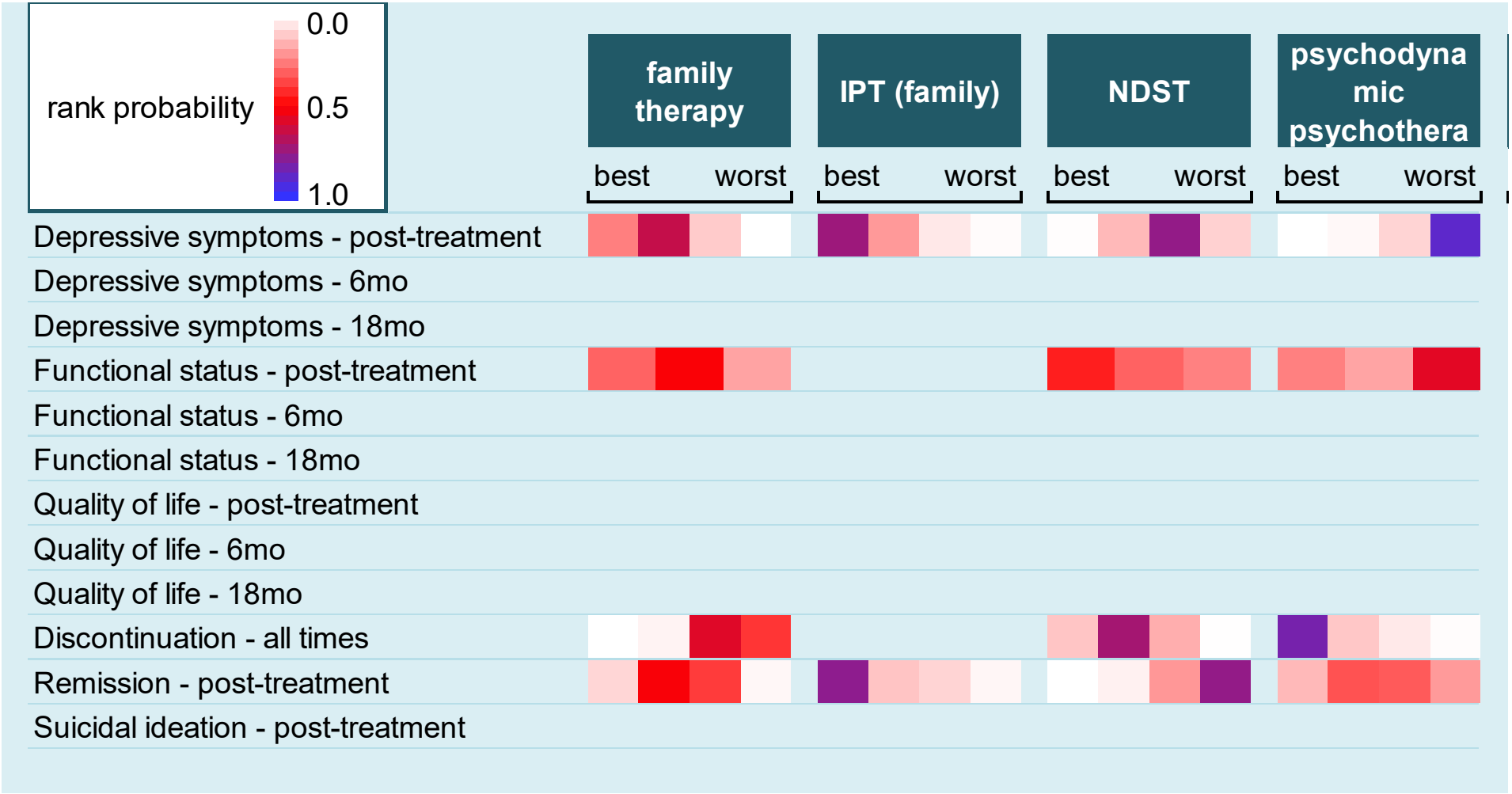
different outcomes, only within them. These plots were produced to help the committee make sense of the very large number of outcomes and interventions and the strengths and limitations of these plots were discussed at the meeting.

Age 12-18, Mild



Age 12-18, Severe

Age 5–11, Severe



Appendix H – GRADE tables

Pair-wise meta-analysis

RCTs were divided into those which recruited children and young people with depression symptoms (mild depression), or those which recruited children and young people with a depressive disorder diagnosis (moderate to severe depression). GRADE tables show severity of depression based on these criteria

Mild depression in 5-11 year olds

Group CBT vs waiting list/no treatment

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms (values lower than 0 favour group CBT) – Post-treatment										
2 (Stark 1987, Weisz 1997)	RCTs	47	SMD -0.95 (-1.59, -0.32)	*CDI scale -8.23 (-13.78, -2.77)	-	-	Serious[1]	Not serious	Not serious	Moderate
Depression symptoms, CDRS-R (values lower than 0 favour group CBT) – >6 to ≤18 months										
1 (Weisz 1997)	RCT	29	SMD -0.62 (-1.41, 0.16)	*CDI scale -5.37 (-12.22, 1.39)	-	-	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Mild depression in 12-18 year olds

Individual CBT vs* waiting *list/no treatment

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms (values lower than 0 favour individual CBT) – Post-treatment										
2 (Bella-Awusah 2015, De Cuyper 2004)	RCT	60	SMD -0.52 (-1.81, 0.77)	*CDI scale -4.51 (-15.69, 6.67)	-	-	Serious[1]	Not serious	Very serious[2]	Very low
Depression symptoms (values lower than 0 favour individual CBT) – ≤6 months										
2 (De Cuyper 2004, Gaete 2016)	RCTs	299	SMD -0.11 (-0.35, 0.13)	*CDI scale -0.95 (-3.03, 1.13)	-	-	Serious[1]	Not serious	Not serious	Moderate
Discontinuation for any reason (values lower than 1 favour individual CBT)										
2** (De Cuyper 2004, Gaete 2016)	RCTs	362	RR 0.99 (0.62, 1.58)	-	19 per 100	18 per 100 (12, 29)	Serious[1]	Not serious	N/A[3]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

** One study had no events in either arm and so only one study contributed to the analysis

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. I^2 is greater than 66.7%
3. Only one study so inconsistency not applicable

Sensitivity analysis excluding studies with a high risk of bias: individual CBT vs waiting list/no treatment

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, BDI (values lower than 0 favour individual CBT) – Post-treatment										
1 (Bella-Awusah 2015)	RCT	40	SMD -1.15 (-1.82, -0.48)	*CDI scale -9.97 (-15.77, -4.16)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI-II (values lower than 0 favour individual CBT) – ≤6 months										
1 (Gaete 2016)	RCT	279	SMD -0.73 (-3.14, 1.68)	*CDI scale -6.33 (-27.21, 14.56)	-	-	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from study at moderate risk of bias
2. Only one study so inconsistency not applicable

Individual CBT vs usual care

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Subgroup: With comorbidity (IBS), Functional status, CGAS (values higher than 0 favour individual CBT) – Post-treatment										
1 (Szigethy 2007)	RCT	40	MD 6.90 (1.89, 11.91)	N/A	-	-	Serious[1]	Serious[3]	N/A[4]	Low
Subgroup: With comorbidity (IBS), Functional status, CGAS (values higher than 0 favour individual CBT) – ≤6 months										
1 (Szigethy 2007)	RCT	35	MD 5.90 (1.93, 9.87)	N/A	-	-	Serious[1]	Serious[3]	N/A[4]	Low
Subgroup: With comorbidity (IBS), Functional status, CGAS (values higher than 0 favour individual CBT) – >6 to ≤18 months										
1 (Szigethy 2007)	RCT	33	MD 3.70 (-0.93, 8.33)	N/A	-	-	Serious[1]	Serious[3]	N/A[4]	Low
Main analysis: Depression symptoms (values lower than 0 favour individual CBT) – Post-treatment										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
3 (Hayes 2011, Listug-Lunde 2013, Szigethy 2007)	RCTs	86	SMD -0.50 (-0.94, -0.06)	*CDI scale MD -4.33 (-8.15, -0.52)	-	-	Very serious[2]	Not serious	Very serious[6]	Very Low
Subgroup: With comorbidity (IBS), Depression symptoms (values lower than 0 favour individual CBT) – Post-treatment										
1 (Szigethy 2007)	RCT	86	SMD -0.99 (-1.65, -0.33)	*CDI scale MD -8.58 (-14.3, -2.86)	-	-	Serious[1]	Not serious	N/A[4]	Moderate
Subgroup: Without comorbidity, Depression symptoms (values lower than 0 favour individual CBT) – Post-treatment										
2 (Hayes 2011, Listug-Lunde 2013)	RCTs	46	SMD -0.11 (-0.07, 0.49)	*CDI scale MD -0.95 (-0.61, 4.25)	-	-	Very serious[2]	Not serious	Not serious	Low
Depression symptoms (values lower than 0 favour CBT) – ≤6 months										
2 (Hayes 2011, Listug-Lunde 2013)	RCTs	28	SMD -0.65 (-2.72, 1.42)	*CDI scale -5.63 (-23.57, 12.31)	-	-	Very serious[2]	Not serious	Very serious[6]	Very low
Remission (values higher than 1 favour individual CBT) – Post-treatment										
1 (Hogberg 2018)	RCT	13	RR 2.67 (0.94, 7.57)	-	25 per 100	67 per 100 (24, 189)	Very serious[2]	Not serious	N/A[4]	Low
Suicide ideation (values lower than 1 favour individual CBT) – Post-treatment										
1 (Hogberg 2018)	RCT	27	RR 0.12 (0.01, 2.05)	-	25 per 100	3 per 100 (0, 51)	Very serious[2]	Not serious	N/A[4]	Low

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Discontinuation for any reason (values lower than 1 favour individual CBT)										
3** (Brent 2015, Hayes 2011, Hogberg 2018)	RCTs	367	RR 0.74 (0.47, 1.18)	-	9 per 100	7 per 100 (4, 11)	Very serious[2]	Not serious	Not serious	Low

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

** One study had no events in either arm and so only two studies contributed to the analysis

IBS: irritable bowel syndrome

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. >33.3% of weighted data from studies at high risk of bias
3. >33.3% of weighted data from studies which are partially directly applicable
4. Only one study so inconsistency not applicable
5. I^2 is greater than 33.3%
6. I^2 is greater than 66.7%

Sensitivity analysis excluding studies with a high risk of bias: individual CBT vs usual care

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms (values lower than 0 favour individual CBT) – Post-treatment										
1 (Listug-Lunde 2013)	RCTs	16	MD 0.50 (-7.92, 8.92)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, CDI (values lower than 0 favour CBT) – ≤6 months										
1 (Listug-Lunde 2013)	RCT	16	MD 2.25 (-4.04, 8.54)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour individual CBT)										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1 (Brent 2015)	RCT	302	RR 0.43 (0.09, 2.20)	-	3 per 100	1 per 100 (0, 7)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)
1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Individual CBT vs non-directive supportive therapy (NDST)

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: NDST	Absolute risk: CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, MFQ (values lower than 0 favour individual CBT) – Post-treatment										
1 (Duong 2016)	RCT	110	SMD -0.46 (-0.82, -0.10)	*CDI scale -3.99 (-7.11, -0.87)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, MFQ (values lower than 0 favour individual CBT) – ≤6 months										
1 (Duong 2016)	RCT	110	SMD -0.34 (-0.70, 0.02)	*CDI scale -2.95 (-6.07, 0.17)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, MFQ (values lower than 0 favour individual CBT) – >6 to ≤18 months										
1 (Duong 2016)	RCT	110	SMD -0.31 (-0.67, 0.05)	*CDI scale -2.69 (-5.81, 0.43)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour individual CBT)										
1 (Duong 2016)	RCT	110	RR 0.72 (0.20, 2.53)	-	10 per 100	7 per 100 (2, 24)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)
1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Individual CBT and family education vs waiting list

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, CDI (values lower than 0 favour individual CBT and family education) – Post-treatment										
1 (Asarnow 2002)	RCT	23	MD -2.79 (-10.21, 4.63)	N/A	-	-	Serious[1]	Not serious	N/A	Moderate
1. >33.3% of weighted data from studies at moderate or high risk of bias										

Computer CBT vs attention control

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms (values lower than 0 favour computer CBT) – Post-treatment										
3 (Ip 2016, Poppelaars 2016, Stasiak 2014)	RCTs	386	SMD -0.47 (-1.01, 0.07)	*CDI scale -4.07 (-8.75, 0.61)	-	-	Not serious	Not serious	Very serious[2]	Low
Depression symptoms (values lower than 0 favour computer CBT) – ≤6 months										
3 (Poppelaars 2016, Stasiak 2014, Wright 2017)	RCTs	191	SMD -0.26 (-0.55, 0.02)	*CDI scale -2.25 (-4.77, 0.17)	-	-	Not serious	Not serious	Not serious	High
Depression symptoms (values lower than 0 favour computer CBT) – >6 to ≤18 months										
2 (Ip 2016, Poppelaars 2016)	RCTs	352	SMD -0.38 (-0.60, -0.17)	*CDI scale -3.29 (-5.2, -1.47)	-	-	Not serious	Not serious	Not serious	High

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Remission (values higher than 1 favour computer CBT) – Post treatment										
1 (Stasiak 2014)	RCT	30	RR 1.40 (0.59, 3.30)	-	36 per 100	50 per 100 (21, 118)	Not serious	Not serious	N/A[3]	High
Quality of life, (scale -EQ-5D-Y) (values lower than 0 favour computer CBT) – ≤6 months										
1 (Wright 2017)	RCT	52	SMD 0.00 (-0.54, 0.54)	***HoNOSCA scale 0.00 (-3.5, 3.5)	-	-	Very serious[1]	Not serious	N/A[3]	Low
Suicide ideation, CDI item 9 score 2 (values lower than 1 favour computer CBT) – Post treatment										
1 (Poppelaars 2016)	RCT	102	RR 1.00 (0.06, 15.56)	-	2 per 100	2 per 100 (0, 31)	Not serious	Not serious	N/A[3]	High
Discontinuation for any reason (values lower than 1 favour computer CBT)										
4 (Ip 2016, Poppelaars 2016, Stasiak 2014, Wright 2017)	RCTs	475	RR 1.70 (0.62, 4.61)	-	9 per 100	15 per 100 (6, 41)	Very serious[1]	Not serious	Serious[4]	Very low

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

*** SMD to MD conversion on HoNOSCA scale using pooled SD for all studies using this scale (6.4787)

1. >33.3% of weighted data from studies at high risk of bias
2. I^2 is greater than 66.7%
3. Only one study so inconsistency not applicable
4. I^2 is greater than 33.3%

Sensitivity analysis excluding studies with a high risk of bias: computer CBT vs attention control

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms (values lower than 0 favour computer CBT) – ≤6 months										
2 (Poppelaars 2016, Stasiak 2014)	RCTs	136	SMD -0.17 (-0.50, 0.17)	*CDI scale -1.47 (-4.33, 1.47)	-	-	Not serious	Not serious	Not serious	High
Discontinuation for any reason (values lower than 1 favour computer CBT)										
3 (Ip 2016, Poppelaars 2016, Stasiak 2014)	RCTs	392	RR 3.54 (0.35, 35.84)	-	3 per 100	9 per 100 (1, 92)	Not serious	Not serious	Very serious	Low

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. I^2 is greater than 66.7%

Sensitivity analysis excluding studies with a complex attention control: computer CBT vs attention control

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, RADS-2 (values lower than 0 favour computer CBT) – Post-treatment										
1 (Poppelaars 2016)	RCT	102	SMD -0.11 (-0.49, 0.28)	*CDI scale -0.95 (-4.25, 2.43)	-	-	Not serious	Not serious	N/A[2]	High
Depression symptoms (values lower than 0 favour computer CBT) – ≤6 months										
2 (Poppelaars 2016, Wright	RCTs	157	SMD -0.22 (-0.53, 0.10)	*CDI scale -1.91 (-4.59, 0.87)	-	-	Very serious[1]	Not serious	Serious	Very low

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
2017)										
Depression symptoms, RADS-2 (values lower than 0 favour computer CBT) – >6 to ≤18 months										
1 (Poppelaars 2016)	RCT	102	SMD -0.43 (-0.82, -0.03)	*CDI scale -3.73 (-7.11, -0.26)	-	-	Not serious	Not serious	N/A[2]	High
Discontinuation for any reason (values lower than 1 favour computer CBT)										
2 (Poppelaars 2016, Wright 2017)	RCTs	184	RR 1.51 (0.92, 2.48)	-	17 per 100	26 per 100 (16, 43)	Very serious[1]	Not serious	Serious[3]	Very low

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at high risk of bias
2. Only one study so inconsistency not applicable
3. I^2 is greater than 33.3%

Computer CBT vs waiting list/no treatment

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms (values lower than 0 favour computer CBT) – Post-treatment										
2 (Fleming 2012, Smith 2015)	RCTs	142	SMD -1.03 (-1.39, -0.68)	*CDI scale -8.93 (-12.05, -5.89)	-	-	Serious[1]	Not serious	Serious[2]	Low
Remission (values higher than 1 favour computer CBT) – Post-treatment										
1 (Fleming 2012)	RCT	30	RR 2.17 (0.96, 4.91)	-	36 per 100	79 per 100 (35, 179)	Not serious	Not serious	N/A[3]	High
Quality of life, PQ-LES-Q (values lower than 0 favour computer CBT) – Post-treatment										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1 (Fleming 2012)	RCT	30	SMD 0.05 (-0.69, 0.80)	0.32 (-4.47, 5.18)	-	-	Not serious	Not serious	N/A[3]	High
Self-harm (values lower than 1 favour computer CBT)										
1 (Fleming 2012)	RCT	30	RR 3.00 (0.16, 57.36)	-	5 per 100	14 per 100 (1, 261)	Not serious	Not serious	N/A[3]	High
Discontinuation for any reason (values lower than 1 favour computer CBT)										
2** (Fleming 2012, Smith 2015)	RCTs	142	RR 0.21 (0.01, 4.22)	-	3 per 100	1 per 100 (0, 12)	Serious[1]	Not serious	N/A[3]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

** One study had no events in either arm and so only one study contributed to the analysis

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. I^2 is greater than 33.3%
3. Only one study so inconsistency not applicable

Computer CBT vs usual care

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, CDRS (values lower than 0 favour computer CBT) – Post-treatment										
1 (Merry 2012)	RCT	187	SMD -0.16 (-0.45, 0.12)	*CDI scale -1.39 (-3.9, 1.04)	-	-	Not serious	Not serious	N/A[1]	High
Depression symptoms, CDRS (values lower than 0 favour computer CBT) – ≤6 months										
1 (Merry 2012)	RCT	187	SMD -0.13 (-0.42, 0.16)	*CDI scale -1.13 (-3.64, 1.39)	-	-	Not serious	Not serious	N/A[1]	High

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Quality of life, PQ-LES-Q (values lower than 0 favour computer CBT) – Post-treatment										
1 (Merry 2012)	RCT	187	SMD -0.23 (-0.51, 0.06)	***HoNOSCA scale -1.49 (-3.3, 0.39)	-	-	Not serious	Not serious	N/A[1]	High
Quality of life, PQ-LES-Q (values lower than 0 favour computer CBT) – ≤6 months										
1 (Merry 2012)	RCT	187	SMD -0.01 (-0.29, 0.28)	***HoNOSCA scale -0.06 (-1.88, 1.81)	-	-	Not serious	Not serious	N/A[1]	High
Suicide-related adverse events – suicide attempt (values lower than 1 favour computer CBT) – Post-treatment										
1 (Merry 2012)	RCT	187	RR 1.98 (0.18, 21.45)	-	1 per 100	2 per 100 (0, 23)	Not serious	Not serious	N/A[1]	High
Discontinuation for any reason (values lower than 1 favour computer CBT)										
1 (Merry 2012)	RCT	185	RR 1.14 (0.46, 2.82)	-	9 per 100	10 per 100 (4, 24)	Not serious	Not serious	N/A[1]	High

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

*** SMD to MD conversion on HoNOSCA scale using pooled SD for all studies using this scale (6.4787)

1. Only one study so inconsistency not applicable

Computer CBT vs group CBT and computer CBT

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: group CBT + computer CBT	Absolute risk: computer CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, RADS-2 (values lower than 0 favour computer CBT) – Post-treatment										
1 (Poppelaa	RCT	107	SMD -0.09 (-0.47, 0.29)	*CDI scale -0.78 (-4.07, 2.51)	-	-	Not serious	Not serious	N/A[1]	High

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: group CBT + computer CBT	Absolute risk: computer CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
rs 2016)										
Depression symptoms, RADS-2 (values lower than 0 favour computer CBT) – ≤6 months										
1 (Poppelaars 2016)	RCT	107	SMD -0.06 (-0.44, 0.32)	*CDI scale -0.52 (-3.81, 2.77)	-	-	Not serious	Not serious	N/A[1]	High
Depression symptoms, RADS-2 (values lower than 0 favour computer CBT) – >6 to ≤18 months										
1 (Poppelaars 2016)	RCT	107	SMD -0.35 (-0.73, 0.04)	*CDI scale -3.03 (-6.33, 0.35)	-	-	Not serious	Not serious	N/A[1]	High
Suicide ideation, CDI item 9 score 2 (values lower than 1 favour computer CBT) – Post-treatment										
1 (Poppelaars 2016)	RCT	107	RR 0.37 (0.04, 3.41)	-	5 per 100	2 per 100 (0, 18)	Not serious	Not serious	N/A[1]	High
Discontinuation for any reason (values lower than 1 favour computer CBT)										
1 (Poppelaars 2016)	RCT	104	RR 1.04 (0.27, 3.94)	-	8 per 100	8 per 100 (2, 30)	Not serious	Not serious	N/A[1]	High

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. Only one study so inconsistency not applicable

Group CBT vs attention control

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms (values lower than 0 favour group CBT) – Post-treatment										
3 (Dobson 2010, Poppelaars 2016,	RCTs	818	SMD 0.02 (-0.11, 0.16)	*CDI scale 0.17 (-0.95, 1.39)	-	-	Serious[1]	Not serious	Not serious	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Stallard 2012)										
Depression symptoms (values lower than 0 favour group CBT) – ≤6 months										
3 (Dobson 2010, Poppelaars 2016, Stallard 2012)	RCTs	733	SMD 0.02 (-0.12, 0.17)	*CDI scale 0.17 (-1.04, 1.47)	-	-	Serious[1]	Not serious	Not serious	Moderate
Depression symptoms, RADS-2 (values lower than 0 favour group CBT) – >6 to ≤18 months										
1 (Poppelaars 2016)	RCT	101	SMD 0.19 (-0.20, 0.58)	*CDI scale 1.65 (-1.73, 5.03)	-	-	Not serious	Not serious	N/A[2]	High
Suicide ideation, CDI item 9 score 2 (values lower than 1 favour group CBT) – Post-treatment										
1 (Poppelaars 2016)	RCT	101	RR 1.02 (0.07, 15.86)	-	2 per 100	2 per 100 (0, 31)	Not serious	Not serious	N/A[2]	High
Self-harm, thoughts yes/no (values lower than 1 favour group CBT) – ≤6 months										
1 (Stallard 2012)	RCT	249	RR 0.93 (0.76, 1.14)	-	34 per 100	31 per 100 (26, 38)	Serious[1]	Not serious	N/A[2]	Moderate
Self-harm, deliberate yes/no (values lower than 1 favour group CBT) – ≤6 months										
1 (Stallard 2012)	RCT	148	RR 1.03 (0.77, 1.38)	-	19 per 100	20 per 100 (15, 26)	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour group CBT)										
3 (Dobson 2010, Poppelaars 2016, Stallard	RCTs	182	RR 1.41 (1.08, 1.83)	-	16 per 100	23 per 100 (18, 30)	Serious[1]	Not serious	Not serious	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
2012)										
* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663) 1. >33.3% of weighted data from studies at moderate or high risk of bias 2. Only one study so inconsistency not applicable										

Group CBT vs waiting list/no treatment

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms (values lower than 0 favour group CBT) – Post-treatment										
5 (Noel 2013, Puskar 2003, Reynolds 1986, Stice 2008, Wijnhoven 2014)	RCTs	395	SMD -0.68 (-0.89, -0.48)	*CDI scale -5.89 (-7.71, -4.16)	-	-	Serious[1]	Not serious	Not serious	Moderate
Depression symptoms (values lower than 0 favour group CBT) – ≤6 months										
5 (Kahn 1990, Puskar 2003, Reynolds 1986, Stice 2008, Wijnhoven 2014)	RCTs	394	SMD -0.53 (-0.73, -0.33)	*CDI scale -4.59 (-6.33, -2.86)	-	-	Serious[1]	Not serious	Not serious	Moderate
Depression symptoms (values lower than 0 favour group CBT) – >6 to ≤18 months										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
2 (Puskar 2003, Stice 2008)	RCTs	144	SMD -0.21 (-0.46, 0.04)	*CDI scale -1.82 (-3.99, 0.35)	-	-	Serious[1]	Not serious	Not serious	Moderate
Discontinuation for any reason (values lower than 1 favour group CBT)										
4 (Puskar 2003, Reynolds 1986, Stice 2008, Wijnhoven 2014)	RCTs	381	RR 1.15 (0.54, 2.47)	-	15 per 100	18 per 100 (8, 38)	Serious[1]	Not serious	Serious[2]	Low

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. I^2 is greater than 33.3%

Group CBT vs usual care

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status (values higher than 0 favour group CBT) – Post-treatment										
2 (Clarke, 1995, Clarke 2001)	RCTs	204	SMD 0.27 (-0.00, 0.55)	**CGAS scale 2.56 (-0.03, 5.21)	-	-	Serious[1]	Not serious	Not serious	Moderate
Functional status, GAF (values higher than 0 favour group CBT) – ≤6 months										
1 (Clarke 1995)	RCT	112	SMD -0.01 (-0.38, 0.36)	**CGAS scale -0.09 (-3.6, 3.41)	-	-	Serious[1]	Not serious	N/A	Moderate
Functional status (values higher than 0 favour group CBT) – >6 to ≤18 months										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
2 (Clarke, 1995, Clarke 2001)	RCTs	182	SMD 0.27 (-0.02, 0.57)	**CGAS scale 2.56 (-0.19, 5.4)	-	-	Serious[1]	Not serious	Not serious	Moderate
Depression symptoms (values lower than 0 favour group CBT) – Post-treatment										
3 (Clarke 1995, Clarke 2001, Stallard 2012)	RCTs	798	SMD -0.03 (-0.17, 0.11)	*CDI scale -0.26 (-1.47, 0.95)	-	-	Serious[1]	Not serious	Serious[2]	Low
Depression symptoms (values lower than 0 favour group CBT) – ≤6 months										
2 (Clarke 1995, Stallard 2012)	RCTs	650	SMD 0.17 (0.01, 0.32)	*CDI scale 1.47 (0.09, 2.77)	-	-	Serious[1]	Not serious	Not serious	Moderate
Depression symptoms (values lower than 0 favour group CBT) – >6 to ≤18 months										
2 (Clarke, 1995, Clarke 2001)	RCTs	182	SMD -0.20 (-0.49, 0.09)	*CDI scale -1.73 (-4.25, 0.78)	-	-	Serious[1]	Not serious	Not serious	Moderate
Suicide ideation, K-SADS (values lower than 0 favour group CBT) – post-treatment										
1 (Clarke 2001)	RCT	84	MD -0.23 (-0.60, 0.14)	-	-	-	Serious[1]	Not serious	N/A[3]	Moderate
Suicide ideation, K-SADS (values lower than 0 favour group CBT) – >6 to ≤18 months										
1 (Clarke 2001)	RCT	72	MD -0.53 (-0.98, -0.08)	-	-	-	Serious[1]	Not serious	N/A[3]	Moderate
Self-harm, thoughts – yes/no (values lower than 1 favour group CBT) – ≤6 months										
1 (Stallard 2012)	RCT	213	RR 1.04 (0.83, 1.30)	-	30 per 100	31 per 100 (25, 39)	Serious[1]	Not serious	N/A[3]	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Self-harm, deliberate– yes/no (values lower than 1 favour group CBT) – ≤6 months										
1 (Stallard 2012)	RCT	128	RR 1.15 (0.83, 1.58)	-	17 per 100	20 per 100 (14, 27)	Serious[1]	Not serious	N/A[3]	Moderate
Discontinuation for any reason (values lower than 1 favour group CBT)										
2 (Clarke 1995, Stallard 2012)	RCTs	840	RR 2.36 (0.62, 9.06)	-	16 per 100	38 per 100 (10, 146)	Serious[1]	Not serious	Very serious[4]	Very low

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

** SMD to MD conversion on CGAS scale using pooled SD for all studies using this scale (9.47517)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. I^2 is greater than 33.3%
3. Only one study so inconsistency not applicable
4. I^2 is greater than 66.7%

Group CBT vs guided self-help

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: guided self-help	Absolute risk: group CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, BDI (values lower than 0 favour group CBT) – Post-treatment										
1 (Stice 2008)	RCT	169	SMD -0.58 (-0.89, -0.27)	*CDI scale -5.03 (-7.71, -2.34)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI (values lower than 0 favour group CBT) – ≤6 months										
1 (Stice 2008)	RCT	169	SMD -0.55 (-0.86, -0.25)	*CDI scale -4.77 (-7.45, -2.17)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI (values lower than 0 favour group CBT) – >6 to ≤18 months										
1 (Stice 2008)	RCT	169	SMD -0.12 (-0.42, 0.19)	*CDI scale -10 (-36.05,	-	-	Serious[1]	Not serious	N/A[2]	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: guided self-help	Absolute risk: group CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
				15.77)						
Discontinuation for any reason (values lower than 1 favour group CBT)										
1 (Stice 2008)	RCT	41	RR 0.86 (0.51, 1.47)	-	28 per 100	24 per 100 (14, 40)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Group CBT vs group non-directive supportive therapy (group NDST)

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: group NDST	Absolute risk: group CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, BDI (values lower than 0 favour group CBT) – Post-treatment										
1 (Stice 2008)	RCT	177	SMD -0.36 (-0.66, -0.07)	*CDI scale -3.12 (-5.72, -0.61)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI (values lower than 0 favour group CBT) – ≤6 months										
1 (Stice 2008)	RCT	177	SMD -0.07 (-0.36, 0.23)	*CDI scale -0.61 (-3.12, 1.99)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI (values lower than 0 favour group CBT) – >6 to ≤18 months										
1 (Stice 2008)	RCT	177	SMD 0.14 (-0.15, 0.44)	*CDI scale 1.21 (-1.3, 3.81)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour group CBT)										
1 (Stice 2008)	RCT	155	RR 0.77 (0.46, 1.30)	-	31 per 100	24 per 100 (14, 40)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Group CBT vs relaxation

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: relaxation	Absolute risk: group CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms (values lower than 0 favour group CBT) – Post-treatment										
2 (Kahn 1990, Reynolds 1986)	RCTs	47	SMD -0.20 (-0.78, 0.38)	*CDI scale -1.73 (-6.76, 3.29)	-	-	Serious[1]	Not serious	Not serious	Moderate
Depression symptoms (values lower than 0 favour group CBT) – ≤6 months										
2 (Kahn 1990, Reynolds 1986)	RCTs	45	SMD -0.39 (-0.98, 0.21)	*CDI scale -3.38 (-8.49, 1.82)	-	-	Serious[1]	Not serious	Not serious	Moderate
Discontinuation for any reason (values lower than 1 favour group CBT)										
1 (Reynolds 1986)	RCT	20	RR 0.73 (0.24, 2.27)	-	45 per 100	33 per 100 (11, 103)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Group CBT vs self-modelling

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: self-modelling	Absolute risk: group CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, CDI (values lower than 0 favour group CBT) – Post-treatment										
1 (Kahn 1990)	RCT	34	MD -6.06 (-35.64, 23.52)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, CDI (values lower than 0 favour group CBT) – ≤6 months										
1 (Kahn 1990)	RCT	34	MD -5.24 (-12.57, 2.09)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: self-modelling	Absolute risk: group CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1. >33.3% of weighted data from studies at moderate or high risk of bias 2. Only one study so inconsistency not applicable										

Group CBT vs computer CBT

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, RADS-2 (values lower than 0 favour group CBT) – Post-treatment										
1 (Poppelaars 2016)	RCT	101	SMD 0.34 (-0.06, 0.73)	*CDI scale 2.95 (-0.52, 6.33)	-	-	Not serious	Not serious	N/A[1]	High
Depression symptoms, RADS-2 (values lower than 0 favour group CBT) – ≤6 months										
1 (Poppelaars 2016)	RCT	101	SMD 0.28 (-0.11, 0.67)	*CDI scale 2.43 (-0.95, 5.81)	-	-	Not serious	Not serious	N/A[1]	High
Depression symptoms, RADS-2 (values lower than 0 favour group CBT) – >6 to ≤18 months										
1 (Poppelaars 2016)	RCT	101	SMD 0.65 (0.25, 1.06)	*CDI scale 5.63 (2.17, 9.19)	-	-	Not serious	Not serious	N/A[1]	High
Suicide ideation, CDI item 9 score 2 (values lower than 1 favour group CBT) – Post-treatment										
1 (Poppelaars 2016)	RCT	101	RR 0.34 (0.04, 3.16)	-	6 per 100	2 per 100 (0, 19)	Not serious	Not serious	N/A[1]	High
* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663) 1. Only one study so inconsistency not applicable										

Group CBT vs group CBT and computer CBT

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: computer CBT	Absolute risk: Group CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, RADS-2 (values lower than 0 favour group CBT) – Post-treatment										
1 (Poppelaars 2016)	RCT	106	SMD 0.20 (-0.19, 0.58)	*CDI scale 1.73 (-1.65, 5.03)	-	-	Not serious	Not serious	N/A[1]	High
Depression symptoms, RADS-2 (values lower than 0 favour group CBT) – ≤6 months										
1 (Poppelaars 2016)	RCT	106	SMD 0.18 (-0.20, 0.56)	*CDI scale 1.56 (-1.73, 4.85)	-	-	Not serious	Not serious	N/A[1]	High
Depression symptoms, RADS-2 (values lower than 0 favour group CBT) – >6 to ≤18 months										
1 (Poppelaars 2016)	RCT	106	SMD 0.21 (-0.17, 0.59)	*CDI scale 1.82 (-1.47, 5.11)	-	-	Not serious	Not serious	N/A[1]	High
Suicide ideation, CDI item 9 score 2 (values lower than 1 favour group CBT) – Post-treatment										
1 (Poppelaars 2016)	RCT	106	RR 1.12 (0.07, 17.44)	-	2 per 100	2 per 100 (0, 31)	Not serious	Not serious	N/A[1]	High
Discontinuation for any reason (values lower than 1 favour group CBT)										
1 (Poppelaars 2016)	RCT	100	RR 0.56 (0.11, 2.94)	-	8 per 100	4 per 100 (1, 22)	Not serious	Not serious	N/A[1]	High

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. Only one study so inconsistency not applicable

Group CBT vs group mindfulness

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: group mindfulness	Absolute risk: group CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, CES-D (values lower than 0 favour group CBT) – Post-treatment										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: group mindfulness	Absolute risk: group CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1 (Shomaker 2017)	RCT	33	SMD 0.80 (0.09, 1.51)	*CDI scale 6.93 (0.78, 13.09)	-	-	Very serious[1]	Serious[2]	N/A[3]	Very low
Depression symptoms, CES-D (values lower than 0 favour group CBT) – ≤6 months										
1 (Shomaker 2017)	RCT	33	SMD 0.80 (0.08, 1.51)	*CDI scale 6.93 (0.69, 13.09)	-	-	Very serious[1]	Serious[2]	N/A[3]	Very low
Discontinuation for any reason (values lower than 0 favour group CBT)										
1 (Shomaker 2017)	RCT	28	RR 1.15 (0.08, 16.67)	-	7 per 100	8 per 100 (1, 100)	Very serious[1]	Serious[2]	N/A[3]	Very low

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at high risk of bias
2. >33.3% of weighted data from studies which are partially directly applicable
3. Only one study so inconsistency not applicable

Group CBT and computer CBT vs attention control

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, RADS-2 (values lower than 0 favour group and computer CBT) – Post-treatment										
1 (Poppelaars 2016)	RCT	107	SMD 0.00 (-0.38, 0.38)	*CDI scale -0.01 (-3.28, 3.29)	-	-	Not serious	Not serious	N/A[1]	High
Depression symptoms, RADS-2 (values lower than 0 favour group and computer CBT) – ≤6 months										
1 (Poppelaars 2016)	RCT	107	SMD 0.00 (-0.38, 0.38)	*CDI scale 0.03 (-3.26, 3.32)	-	-	Not serious	Not serious	N/A[1]	High
Depression symptoms, RADS-2 (values lower than 0 favour group and computer CBT) – >6 to ≤18 months										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1 (Poppelaars 2016)	RCT	107	SMD -0.04 (-0.42, 0.34)	*CDI scale -0.35 (-3.64, 2.95)	-	-	Not serious	Not serious	N/A[1]	High
Suicide ideation, CDI item 9 score 2 (values lower than 1 favour group and computer CBT) – Post-treatment										
1 (Poppelaars 2016)	RCT	107	RR 2.73 (0.29, 25.44)	-	2 per 100	5 per 100 (1, 50)	Not serious	Not serious	N/A[1]	High
Discontinuation for any reason (values lower than 1 favour group and computer CBT)										
1 (Poppelaars 2016)	RCT	103	RR 8.50 (0.47, 153.95)	-	1 per 100	9 per 100 (0, 100)	Not serious	Not serious	N/A[1]	High

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. Only one study so inconsistency not applicable

Family therapy vs usual care

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, BDI-II (values lower than 0 favour family therapy) – Post-treatment										
1 (Diamond 2010)	RCT	66	SMD -0.45 (-0.94, 0.04)	*CDI scale -3.9 (-8.15, 0.35)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI-II (values lower than 0 favour family therapy) – ≤6 months										
1 (Diamond 2010)	RCT	66	SMD -0.28 (-0.77, 0.20)	*CDI scale 2.43 (-6.67, 1.73)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Remission (values higher than 1 favour family therapy) – Post-treatment										
1 (Diamond	RCT	26	RR 1.77 (0.94, 3.32)	-	31 per 100	55 per 100 (29, 103)	Serious[1]	Not serious	N/A[2]	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
2010)										
Remission (values higher than 1 favour family therapy) – <6 months										
1 (Diamond 2010)	RCT	28	RR 1.51 (0.85, 2.67)	-	38 per 100	58 per 100 (33, 103)	Serious[1]	Not serious	N/A[2]	Moderate
Suicide ideation, SIQ-JR (values lower than 0 favour family therapy) – ≤6 months										
1 (Diamond 2010)	RCT	28	MD -14.80 (-22.86, -6.74)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Guided self-help vs attention control

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, CDI (values lower than 0 favour guided self-help) – Post-treatment										
1 (Ackerson 1998)	RCT	14	MD -8.80 (-15.02, -2.58)	-	-	-	Very serious[1]	Not serious	N/A[2]	Low
Discontinuation for any reason (values lower than 1 favour guided self-help)										
1 (Ackerson 1998)	RCT	30	RR 0.60 (0.17, 2.07)	-	33 per 100	20 per 100 (6, 69)	Very serious[1]	Not serious	N/A[2]	Low

1. >33.3% of weighted data from studies at high risk of bias
2. Only one study so inconsistency not applicable

Guided self-help vs waiting list/no treatment

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms (values lower than 0 favour guided self-help) – Post-treatment										
2 (Jacob 2016, Stice 2008)	RCTs	194	SMD -0.85 (-2.37, 0.68)	*CDI scale -7.37 (-20.54, 5.89)	-	-	Serious[1]	Not serious	Very serious[3]	Very low
Depression symptoms, BDI (values lower than 0 favour guided self-help) – ≤6 months										
1 (Stice, 2008)	RCT	164	SMD -0.01 (-0.32, 0.30)	*CDI scale -0.09 (-2.77, 2.6)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI (values lower than 0 favour guided self-help) – >6 to ≤18 months										
1 (Stice, 2008)	RCT	164	SMD -0.05 (-0.36, 0.26)	*CDI scale -0.78 (-24.01, 22.53)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour guided self-help)										
1 (Stice, 2008)	RCT	164	RR 1.92 (1.02, 3.63)	-	14 per 100	27 per 100 (15, 52)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable
3. I^2 is greater than 66.7%

Group IPT vs waiting list

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: group IPT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Discontinuation for any reason (values lower than 1 favour group IPT)										
1 (Bolton 2007)	RCT	209	RR 0.50 (0.21, 1.18)	-	13.46 per 100	6.73 per 100	Serious[1]	Not serious	N/A[2]	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: group IPT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
						(2.83, 15.88)				
1. >33.3% of weighted data from studies at moderate or high risk of bias 2. Only one study so inconsistency not applicable										

Group IPT vs creative play therapy

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: play therapy	Absolute risk: group IPT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Discontinuation for any reason (values lower than 1 favour group IPT)										
1 (Bolton 2007)	RCT	210	RR 0.64 (0.26, 1.58)		10.48 per 100	6.70 per 100 (2.72, 16.55)	Serious[1]	Not serious	N/A[2]	Moderate
1. >33.3% of weighted data from studies at moderate or high risk of bias 2. Only one study so inconsistency not applicable										

Creative play therapy vs waiting list

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Discontinuation for any reason (values lower than 1 favour group IPT)										
1 (Bolton 2007)	RCT	209	RR 0.78 (0.37, 1.63)		13.46 per 100	10.50 per 100 (4.98, 21.94)	Serious[1]	Not serious	N/A[2]	Moderate
1. >33.3% of weighted data from studies at moderate or high risk of bias 2. Only one study so inconsistency not applicable										

Group IPT vs group non-directive supportive therapy (group NDST)

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: group NDST	Absolute risk: group IPT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, CGAS (values higher than 0 favour group IPT) – Post-treatment										
3 (Young	RCTs	280	MD 1.44	-	-	-	Serious[1]	Not serious	Very serious[3]	Very low

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: group NDST	Absolute risk: group IPT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
2006, Young 2010, Young 2016)			(-2.31, 5.18)							
Functional status, CGAS (values higher than 0 favour group IPT) – ≤6 months										
3 (Young 2006, Young 2010, Young 2016)	RCTs	267	MD 1.50 (-3.51, 6.51)	-	-	-	Serious[1]	Not serious	Very serious[3]	Very low
Functional status, CGAS (values higher than 0 favour group IPT) – >6 to ≤18 months										
2 (Young 2010, Young 2016)	RCTs	203	MD 0.10 (-1.75, 1.94)	-	-	-	Serious[1]	Not serious	Not serious	Moderate
Depression symptoms (values lower than 0 favour group IPT) – Post-treatment										
3 (Young 2006, Young 2010, Young 2016)	RCTs	280	SMD -0.51 (-0.93, -0.09)	*CDI scale -4.42 (-8.06, -0.78)	-	-	Serious[1]	Not serious	Serious[2]	Low
Depression symptoms (values lower than 0 favour group IPT) – ≤6 months										
3 (Young 2006, Young 2010, Young 2016)	RCTs	280	SMD -0.57 (-0.81, -0.32)	*CDI scale -4.94 (-7.02, -2.77)	-	-	Serious[1]	Not serious	Not serious	Moderate
Depression symptoms (values lower than 0 favour group IPT) – >6 to ≤18 months										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: group NDST	Absolute risk: group IPT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
3 (Young 2006, Young 2010, Young 2016)	RCTs	245	SMD -0.09 (-0.35, 0.17)	*CDI scale -0.78 (-3.03, 1.47)	-	-	Serious[1]	Not serious	Not serious	Moderate
Discontinuation for any reason (values lower than 1 favour group IPT)										
3 (Young 2006, Young 2010, Young 2016)	RCTs	280	RR 0.78 (0.42, 1.47)	-	14 per 100	11 per 100 (6, 20)	Serious[1]	Not serious	Not serious	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. I^2 is greater than 33.3%.
3. I^2 is greater than 66.7%

Group non-directive supportive therapy vs waiting list/no treatment

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, BDI (values lower than 0 favour group non-directive supportive therapy) – Post-treatment										
1 (Stice 2008)	RCT	172	SMD -0.27 (-0.57, 0.03)	*CDI scale -2.34 (-4.94, 0.26)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI (values lower than 0 favour group non-directive supportive therapy) – ≤6 months										
1 (Stice 2008)	RCT	172	SMD -0.47 (-0.77, -0.17)	*CDI scale -4.07 (-6.67, -1.47)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI (values lower than 0 favour group non-directive supportive therapy) – >6 to ≤18 months										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1 (Stice 2008)	RCT	172	SMD -0.32 (-0.62, -0.02)	*CDI scale -2.77 (-5.37, -0.17)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour group non-directive supportive therapy)										
1 (Stice 2008)	RCT	159	RR 2.15 (1.15, 4.01)	-	14 per 100	31 per 100 (16, 57)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Group non-directive supportive therapy vs guided self-help

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: guided self- help	Absolute risk: group NDST (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, BDI (values lower than 0 favour group non-directive supportive therapy) – Post-treatment										
1 (Stice 2008)	RCT	168	SMD -0.17 (-0.48, 0.13)	*CDI scale -1.47 (-4.16, 1.13)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI (values lower than 0 favour group non-directive supportive therapy) – ≤6 months										
1 (Stice 2008)	RCT	168	SMD -0.48 (-0.79, -0.18)	*CDI scale -4.16 (-6.85, -1.56)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI (values lower than 0 favour group non-directive supportive therapy) – >6 to ≤18 months										
1 (Stice 2008)	RCT	168	SMD -0.28 (-0.59, 0.02)	*CDI scale -2.43 (-5.11, 0.17)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour group non-directive supportive therapy)										
1 (Stice 2008)	RCT	45	RR 1.12 (0.68, 1.82)	-	28 per 100	31 per 100 (19, 50)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: guided self- help	Absolute risk: group NDST (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1. >33.3% of weighted data from studies at moderate or high risk of bias 2. Only one study so inconsistency not applicable										

Relaxation vs waiting list/no treatment

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, BDI (values lower than 0 favour relaxation) – Post-treatment										
1 (Reynolds 1986)	RCT	18	SMD -1.64 (-2.75, -0.53)	*CDI scale -14.21 (-23.83, -4.59)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms (values lower than 0 favour relaxation) – ≤6 months										
2 (Kahn 1990, Reynolds 1986)	RCTs	49	SMD -0.71 (-1.30, -0.12)	*CDI scale -6.15 (-11.27, -1.04)	-	-	Serious[1]	Not serious	Not serious	Moderate
Discontinuation for any reason (values lower than 1 favour relaxation)										
1 (Reynolds 1986)	RCT	21	RR 4.55 (0.63, 32.56)	-	10 per 100	46 per 100 (6, 100)	Serious[1]	Not serious	N/A[2]	Moderate
* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663) 1. >33.3% of weighted data from studies at moderate or high risk of bias 2. Only one study so inconsistency not applicable										

Relaxation vs self-modelling

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: self-modelling	Absolute risk: relaxation (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, CDI (values lower than 0 favour relaxation) – Post-treatment										
1 (Kahn	RCT	34	MD -2.43	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: self-modelling	Absolute risk: relaxation (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1990)			(-10.23, 5.37)							
Depression symptoms, CDI (values lower than 0 favour relaxation) – ≤6 months										
1 (Kahn 1990)	RCT	34	MD -2.44 (-10.75, 5.87)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
1. >33.3% of weighted data from studies at moderate or high risk of bias 2. Only one study so inconsistency not applicable										

Self-modelling vs waiting list/no treatment

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, CDI (values lower than 0 favour self-modelling) – ≤6 months										
1 (Kahn 1990)	RCT	34	MD -6.24 (-16.99, 4.51)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
1. >33.3% of weighted data from studies at moderate or high risk of bias 2. Only one study so inconsistency not applicable										

Dance therapy vs waiting list/no treatment

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, SCL-90-R (values lower than 0 favour dance therapy) – Post-treatment										
1 (Jeong 2005)	RCT	40	SMD -0.87 (-1.52, -0.22)	*CDI scale -7.54 (-13.17, -1.91)	-	-	Very serious[1]	Not serious	N/A[2]	Low
* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663) 1. >33.3% of weighted data from studies at high risk of bias 2. Only one study so inconsistency not applicable										

Moderate to severe depression in 5-11 year olds

Individual CBT vs usual care

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, CDI (values lower than 0 favour individual CBT) – Post treatment										
1 Weisz (2009)	RCT	44	MD -0.06 (-4.71, 4.59)	-	-	-	Very serious[1]	Not serious	N/A[2]	Low
1. >33.3% of weighted data from studies at high risk of bias 2. Only one study so inconsistency not applicable										

Group CBT vs attention control

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, CDI (values lower than 0 favour group CBT)– Post treatment										
1 Liddle (1990)	RCT	21	MD -3.55 (-8.69, 1.59)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, CDI (values lower than 0 favour group CBT) – ≤6 months										
1 Liddle (1990)	RCT	21	MD -1.56 (-6.73, 3.61)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
1. >33.3% of weighted data from studies at moderate or high risk of bias 2. Only one study so inconsistency not applicable										

Group CBT vs waiting list/no treatment

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, CDI (values lower than 0 favour group CBT)– Post treatment										
1 Liddle (1990)	RCT	21	MD -2.75 (-7.81, 2.31)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, CDI (values lower than 0 favour group CBT) – ≤6 months										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1 Liddle (1990)	RCT	21	MD -1.56 (-6.12, 3.00)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Family psychoeducation with CBT vs pill placebo

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, CDRS-R (values lower than 0 favour family psychoeducation with CBT) – Post treatment										
1 Fristad (2016)	RCT	37	SMD 0.09 (-0.55, 0.74)	CDI scale* MD 0.78 (-4.77, 6.41)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Remission (values higher than 1 favour family psychoeducation with CBT) – Post-treatment										
1 Fristad (2016)	RCT	37	RR 1.14 (0.66, 1.95)	-	56 per 100	63 per 100 (37, 100)	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour family psychoeducation with CBT)										
1 Fristad (2016)	RCT	37	RR 0.63 (0.12, 3.35)	-	17 per 100	11 per 100 (2, 56)	Serious[1]	Not serious	N/A[2]	Moderate

*SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Family therapy vs non directive supportive therapy (NDST)

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: NDST	Absolute risk: family therapy (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, CGAS (values higher than 0 favour family therapy) – Post-treatment										
1	RCT	134	MD -0.14	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: NDST	Absolute risk: family therapy (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Tompson (2017)			(-3.14, 2.86)							
Depression symptoms (values lower than 0 favour family therapy) – Post treatment										
1 Tompson (2017)	RCT	134	MD -2.54 (-6.49, 1.41)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Remission (values higher than 1 favour family therapy) – Post-treatment										
1 Tompson (2017)	RCT	134	RR 1.40 (0.95, 2.06)	-	37.31 per 100	52.24 per 100 (35.45, 76.87)	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour family therapy)										
1 Tompson (2017)	RCT	134	RR 2.60 (0.98, 6.89)	-	7.46 per 100	19.40 per 100 (7.31, 51.42)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Family based IPT vs non directive supportive therapy

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: NDST	Absolute risk: FB-IPT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms (values lower than 0 favour family based IPT) – Post treatment										
1 (Dietz 2015)	RCT	38	MD -4.90 (-10.76, 0.96)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Remission (values higher than 1 favour family based IPT) – Post-treatment										
1 (Dietz 2015)	RCT	38	RR 2.08 (0.87, 4.95)	-	30.77 per 100	64.00 per 100 (26.77, 152.31)	Serious[1]	Not serious	N/A[2]	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: NDST	Absolute risk: FB-IPT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Discontinuation for any reason (values lower than 1 favour family based IPT)										
1 (Dietz 2015)	RCT	40	RR 2.50 (0.13, 48.62)	-	Non-calculable[3]	Non-calculable[3]	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. Study at moderate risk of bias
2. Only one study so inconsistency not applicable
3. Non calculable as there were zero events in the NDST arm

Psychodynamic psychotherapy vs family therapy

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: family therapy	Absolute risk: psychodynamic psychotherapy (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, CGAS (values higher than 0 favour psychodynamic psychotherapy) – Post-treatment										
1 Trowell (2007)	RCT	72	MD -0.92 (-5.15, 3.31)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Functional status, CGAS (values higher than 0 favour psychodynamic psychotherapy) – ≤6months										
1 Trowell (2007)	RCT	72	MD 0.89 (-2.94, 4.72)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, CDI (values lower than 0 favour psychodynamic psychotherapy) – Post treatment										
1 Trowell (2007)	RCT	72	MD 5.20 (1.45, 8.95)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, CDI (values lower than 0 favour psychodynamic psychotherapy) – ≤6 months										
1 Trowell (2007)	RCT	72	MD 1.40 (-1.94, 4.74)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Remission (values higher than 1 favour psychodynamic psychotherapy) – Post-treatment										
1 Trowell (2007)	RCT	72	RR 0.98 (0.75, 1.28)	-	76 per 100	74 per 100 (57, 97)	Serious[1]	Not serious	N/A[2]	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: family therapy	Absolute risk: psychodynamic psychotherapy (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Remission (values higher than 1 favour psychodynamic psychotherapy) – ≤6months										
1 Trowell (2007)	RCT	72	RR 1.23 (1.04, 1.45)	-	81 per 100	99 per 100 (84, 100)	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour psychodynamic psychotherapy)										
1 Trowell (2007)	RCT	72	RR 0.12 (0.01, 2.10)	-	11 per 100	1 per 100 (0, 23)	Serious[1]	Not serious	N/A[2]	Moderate

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Moderate to severe depression in 12-18 year olds

Individual CBT vs waiting list/no treatment

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms (values lower than 0 favour individual CBT) – Post-treatment										
3 (Alavi 2013, Charkhandeh 2016, Rosello 1999)	RCTs	194	SMD -1.77 (-3.13, -0.41)	*CDI scale -15.34 (-27.13, -3.55)	-	-	Serious[1]	Not serious	Very serious[2]	Very low
Suicide ideation, SSI (values lower than 0 favour individual CBT) – Post-treatment										
1 (Alavi 2013)	RCT	30	MD -17.00 (-20.35, -13.65)	-	-	-	Serious[1]	Not serious	N/A[3]	Moderate
Discontinuation for any reason (values lower than 1 favour individual CBT)										
1 (Rosello	RCT	48	RR 0.74	-	22 per 100	16 per 100	Serious[1]	Not serious	N/A[3]	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1999)			(0.22, 2.41)			(5, 52)				

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. I^2 >66.7%
3. Only one study so inconsistency not applicable

Individual CBT vs pill placebo

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, CGAS (values higher than 0 favour individual CBT) – Post-treatment										
1 (March/TADS 2004)	RCT	223	MD -0.20 (-2.98, 2.58)	-	-	-	Very serious[1]	Not serious	N/A[2]	Low
Depression symptoms, CDRS-R (values lower than 0 favour individual CBT) – Post-treatment										
1 (March/TADS 2004)	RCT	223	SMD 0.24 (-0.02, 0.51)	* CDI scale 2.08 (-0.17, 4.42)	-	-	Very serious[1]	Not serious	N/A[2]	Low
Quality of life, HoNOSCA (values lower than 0 favour individual CBT) – Post-treatment										
1 (March/TADS 2004)	RCT	163	MD 0.90 (-0.90, 2.70)	-	-	-	Very serious[1]	Not serious	N/A[2]	Low
Suicide-related adverse events (values lower than 1 favour individual CBT)										
1 (March/TADS 2004)	RCT	123	RR 1.26 (0.35, 4.57)	-	4 per 100	5 per 100 (1, 16)	Very serious[1]	Not serious	N/A[2]	Low
Suicide ideation, SIQ-JR (values lower than 1 favour individual CBT) – Post-treatment										
1 (March/TADS 2004)	RCT	123	MD -1.32 (-5.10, 2.46)	-	-	-	Very serious[1]	Not serious	N/A[2]	Low

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Suicide ideation (values lower than 1 favour individual CBT) – Post-treatment										
1 (March/TADS 2004)	RCT	123	RR 1.35 (0.31, 5.87)	-	3 per 100	4 per 100 (1, 16)	Very serious[1]	Not serious	N/A[2]	Low
Discontinuation for any reason (values lower than 1 favour individual CBT)										
1 (March/TADS 2004)	RCT	123	RR 1.05 (0.63, 1.75)	-	21 per 100	22 per 100 (13, 36)	Very serious[1]	Not serious	N/A[2]	Low

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at high risk of bias
2. Only one study so inconsistency not applicable

Individual CBT vs usual care

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, CGAS (values higher than 0 favour individual CBT) – Post-treatment										
1 (Clarke 2016)	RCT	212	MD 4.27 (1.99, 6.55)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Functional status, CGAS (values higher than 0 favour individual CBT) – ≤6 months										
1 (Clarke 2016)	RCT	212	MD 1.84 (-0.49, 4.17)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Functional status, CGAS (values higher than 0 favour individual CBT) – >6 to ≤18 months										
1 (Clarke 2016)	RCT	212	MD -0.03 (-2.62, 2.56)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms (values lower than 0 favour individual CBT) – Post-treatment										
3 (Clarke 2016, Kobak	RCTs	220	SMD -0.13 (-0.61, 0.34)	*CDI scale -1.13 (-5.29, 2.95)	-	-	Serious[1]	Not serious	Very serious[3]	Very low

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
2015, Shirk 2013)										
Depression symptoms, CDRS-R (values lower than 0 favour individual CBT) – ≤6 months										
1 (Clarke 2016)	RCT	212	SMD -0.11 (-0.38, 0.16)	*CDI scale -0.95 (-3.29, 1.39)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, CDRS-R (values lower than 0 favour individual CBT) – >6 to ≤18 months										
1 (Clarke 2016)	RCT	212	SMD -0.14 (-0.41, 0.13)	*CDI scale -1.21 (-3.55, 1.13)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Remission (values higher than 1 favour individual CBT) – Post-treatment										
1 (Shirk 2013)	RCT	43	RR 1.05 (0.57, 1.93)	-	47.8 per 100	50.22 per 100 (27.3, 92.3)	Serious[1]	Not serious	N/A[2]	Moderate
Quality of life, PEDS-QL (values lower than 0 favour individual CBT) – Post-treatment										
1 (Clarke 2016)	RCT	212	SMD -0.44 (-0.71, -0.17)	***HoNOSCA scale -2.85 (-4.6, -1.1)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Quality of life, PEDS-QL (values lower than 0 favour individual CBT) – ≤6 months										
1 (Clarke 2016)	RCT	212	SMD -0.29 (-0.56, -0.02)	***HoNOSCA scale -1.88 (-3.63, -0.13)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Quality of life, PEDS-QL (values lower than 0 favour individual CBT) – >6 to ≤18 months										
1 (Clarke 2016)	RCT	212	SMD -0.01 (-0.28, 0.26)	***HoNOSCA scale -0.06 (-1.81, 1.68)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Suicide ideation, KSAD suicide behaviour (values lower than 1 favour individual CBT) – Post-treatment										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1 (Clarke 2016)	RCT	212	RR 0.20 (0.04, 0.89)	-	9 per 100	2 per 100 (0, 8)	Serious[1]	Not serious	N/A[2]	Moderate
Suicide ideation, KSAD suicide behaviour (values lower than 1 favour individual CBT) – ≤6 months										
1 (Clarke 2016)	RCT	212	RR 0.50 (0.05, 5.43)	-	2 per 100	1 per 100 (0, 10)	Serious[1]	Not serious	N/A[2]	Moderate
Suicide ideation, KSAD suicide behaviour (values lower than 1 favour individual CBT) – >6 to ≤18 months										
1 (Clarke 2016)	RCT	212	RR 0.67 (0.11, 3.91)	-	3 per 100	2 per 100 (0, 11)	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour individual CBT)										
3 (Clarke 2016, Kobak 2015, Shirk 2013)	RCTs	321	RR 0.62 (0.33, 1.16)	-	14 per 100	8.7 per 100 (4.6, 16.3)	Serious[1]	Not serious	Not serious	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

*** SMD to MD conversion on HoNOSCA scale using pooled SD for all studies using this scale (6.4787)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable
3. I^2 >66.7%

Sensitivity analysis excluding studies with a high risk of bias: individual CBT vs usual care

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms (values lower than 0 favour individual CBT) – Post-treatment										
2 (Clarke 2016, Shirk 2013)	RCTs	255	SMD -0.11 (-0.92, 0.69)	*CDI scale -0.95 (-7.97, 5.98)	-	-	Serious[1]	Not serious	Very serious[2]	Very low

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Discontinuation for any reason (values lower than 1 favour individual CBT)										
2 (Clarke 2016, Shirk 2013)	RCTs	245	RR 0.66 (0.31, 1.40)	-	12.60 per 100	8.31 per 100 (3.91, 17.64)	Serious[1]	Not serious	Not serious	Moderate
* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663) 1. >33.3% of weighted data from studies at moderate or high risk of bias 2. I^2 >66.7%										

Individual CBT vs family therapy

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: family therapy	Absolute risk: CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, CGAS (values higher than 0 favour individual CBT) – Post-treatment										
1 (Brent 1997)	RCT	66	MD -2.40 (-6.61, 1.81)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI (values lower than 0 favour individual CBT) – Post-treatment										
1 (Brent 1997)	RCT	64	SMD -0.59 (-1.10, -0.09)	*CDI scale -5.11 (-9.53, -0.78)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Remission (values higher than 1 favour individual CBT) – Post-treatment										
1 (Brent 1997)	RCT	66	RR 2.07 (1.12, 3.82)	-	29 per 100	60 per 100 (33, 100)	Serious[1]	Not serious	N/A[2]	Moderate
Suicide ideation, K-SADS-P/E score >4 (values lower than 1 favour individual CBT) – Post-treatment										
1 (Brent 1997)	RCT	66	RR 1.33 (0.24, 7.44)	-	6 per 100	9 per 100 (2, 48)	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour individual CBT)										
1 (Brent 1997)	RCT	72	RR 1.42 (0.25, 7.99)	-	6 per 100	8 per 100 (1, 46)	Serious[1]	Not serious	N/A[2]	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: family therapy	Absolute risk: CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663) 1. >33.3% of weighted data from studies at moderate or high risk of bias 2. Only one study so inconsistency not applicable										

Individual CBT vs non-directive supportive therapy (NDST)

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: NDST	Absolute risk: CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, CGAS (values higher than 0 favour individual CBT) – Post-treatment										
1 (Brent 1997)	RCT	68	MD 0.40 (-4.85, 4.05)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI (values lower than 0 favour individual CBT) – Post-treatment										
1 (Brent 1997)	RCT	64	SMD -0.29 (-0.77, 0.19)	*CDI scale -2.51 (-6.67, 1.65)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Main analysis: Remission (values higher than 1 favour individual CBT) – Post-treatment										
4 (Brent 1997, Feehan 1996, Szigethy 2014, Vostanis 1996)	RCTs	398	RR 1.14 (0.99, 1.31)	-	62.24 per 100	70.96 per 100 (61.62, 81.54)	Serious[1]	Not serious	Not serious	Moderate
Subgroup analysis: With comorbidity (IBS), Remission (values higher than 1 favour individual CBT) – Post-treatment										
1 (Szigethy 2014)	RCT	217	RR 1.04 (0.86, 1.27)	-	63.55 per 100	66.09 per 100 (54.65, 80.71)	Serious[1]	Not serious	N/A[2]	Moderate
Subgroup analysis: Without comorbidity, Remission (values higher than 1 favour individual CBT) – Post-treatment										
3 (Brent 1997, Feehan	RCTs	124	RR 1.26 (1.04, 1.53)	-	61 per 100	76 per 100 (63, 93)	Serious[1]	Not serious	Not serious	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: NDST	Absolute risk: CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1996, Vostanis 1996)										
Remission (values higher than 1 favour individual CBT) – >6 to ≤18 months										
1 (Vostanis 1996)	RCT	56	RR 0.95 (0.69, 1.31)	-	75 per 100	71 per 100 (52, 98)	Serious[1]	Not serious	N/A[2]	Moderate
Suicide ideation, K-SADS-P/E score >4 (values lower than 1 favour individual CBT) – Post-treatment										
1 (Brent 1997)	RCT	68	RR 0.57 (0.15, 2.18)	-	15 per 100	9 per 100 (2, 33)	Serious[1]	Not serious	N/A[2]	Moderate
Main analysis: Discontinuation for any reason (values lower than 1 favour individual CBT)										
3 (Brent 1997, Szigethy 2014, Vostanis 1996)	RCT	319	RR 0.89 (0.53, 1.49)	-	15.13 per 100	13.47 per 100 (8.02, 22.55)	Serious[1]	Not serious	Not serious	Moderate
Subgroup analysis: With comorbidity (IBS), Discontinuation for any reason (values lower than 1 favour individual CBT)										
1 (Szigethy 2014)	RCT	191	RR 0.92 (0.52, 1.61)	-	21.35 per 100	19.64 per 100 (11.10, 34.37)	Serious[1]	Not serious	N/A[2]	Moderate
Subgroup analysis: Without comorbidity, Discontinuation for any reason (values lower than 1 favour individual CBT)										
2 (Brent 1997, Vostanis 1996)	RCTs	128	RR 0.75 (0.19, 2.88)	-	6 per 100	5 per 100 (1, 18)	Serious[1]	Not serious	Not serious	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

IBS: irritable bowel syndrome

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Individual CBT vs psychodynamic psychotherapy

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: psychodynamic psychotherapy	Absolute risk: CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, MFQ (values lower than 0 favour individual CBT) – Post-treatment										
1 (Goodyer 2017)	RCT	213	SMD -0.23 (-0.50, 0.04)	*CDI scale -1.99 (-4.33, 0.35)	-	-	Not serious	Not serious	N/A[1]	High
Depression symptoms, MFQ (values lower than 0 favour individual CBT) – ≤6 months										
1 (Goodyer 2017)	RCT	221	SMD 0.08 (-0.18, 0.34)	*CDI scale 0.69 (-1.56, 2.95)	-	-	Not serious	Not serious	N/A[1]	High
Depression symptoms, MFQ (values lower than 0 favour individual CBT) – >6 to ≤18 months										
1 (Goodyer 2017)	RCT	237	SMD -0.02 (-0.28, 0.23)	*CDI scale -0.17 (-2.43, 1.99)	-	-	Not serious	Not serious	N/A[1]	High
Remission (values higher than 1 favour individual CBT) – Post-treatment										
1 (Goodyer 2017)	RCT	97	RR 1.03 (0.74, 1.44)	-	31 per 100	31 per 100 (23, 44)	Not serious	Not serious	N/A[1]	High
Quality of life, HoNOSCA (values lower than 0 favour individual CBT) – Post-treatment										
1 (Goodyer 2017)	RCT	169	MD -0.80 (-2.87, 1.27)	-	-	-	Not serious	Not serious	N/A[1]	High
Quality of life, HoNOSCA (values lower than 0 favour individual CBT) – ≤6 months										
1 (Goodyer 2017)	RCT	169	MD -0.30 (-2.23, 1.63)	-	-	-	Not serious	Not serious	N/A[1]	High
Quality of life, HoNOSCA (values lower than 0 favour individual CBT) – >6 to ≤18 months										
1	RCT	177	MD -1.10	-	-	-	Not	Not serious	N/A[1]	High

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: psychodynamic psychotherapy	Absolute risk: CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
(Goodyer 2017)			(-2.95, 0.75)				serious			
Discontinuation for any reason (values lower than 1 favour individual CBT)										
1 (Goodyer 2017)	RCT	178	RR 0.68 (0.34, 1.36)	-	13 per 100	9 per 100 (4, 17)	Not serious	Not serious	N/A[1]	High
* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663) 1. Only one study so inconsistency not applicable										

Individual CBT vs psychosocial intervention

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: psychosocial intervention	Absolute risk: CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, MFQ (values lower than 0 favour individual CBT) – Post-treatment										
1 (Goodyer 2017)	RCT	209	SMD -0.46 (-0.73, -0.18)	*CDI scale -3.99 (-6.33, -1.56)	-	-	Not serious	Not serious	N/A[1]	High
Depression symptoms, MFQ (values lower than 0 favour individual CBT) – ≤6 months										
1 (Goodyer 2017)	RCT	216	SMD -0.01 (-0.27, 0.26)	*CDI scale -0.09 (-2.34, 2.25)	-	-	Not serious	Not serious	N/A[1]	High
Depression symptoms, MFQ (values lower than 0 favour individual CBT) – >6 to ≤18 months										
1 (Goodyer 2017)	RCT	239	SMD -0.09 (-0.35, 0.16)	*CDI scale -0.78 (-3.03, 1.39)	-	-	Not serious	Not serious	N/A[1]	High
Remission (values higher than 1 favour individual CBT) – Post-treatment										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: psychosocial intervention	Absolute risk: CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1 (Goodyer 2017)	RCT	313	RR 1.04 (0.75, 1.45)	-	30 per 100	32 per 100 (23, 44)	Not serious	Not serious	N/A[1]	High
Quality of life, HoNOSCA (values lower than 0 favour individual CBT) – Post-treatment										
1 (Goodyer 2017)	RCT	169	MD -1.80 (-3.97, 0.37)	-	-	-	Not serious	Not serious	N/A[1]	High
Quality of life, HoNOSCA (values lower than 0 favour individual CBT) – ≤6 months										
1 (Goodyer 2017)	RCT	169	MD -0.50 (-2.47, 1.47)	-	-	-	Not serious	Not serious	N/A[1]	High
Quality of life, HoNOSCA (values lower than 0 favour individual CBT) – >6 to ≤18 months										
1 (Goodyer 2017)	RCT	190	MD -0.40 (-2.07, 1.27)	-	-	-	Not serious	Not serious	N/A[1]	High
Discontinuation for any reason (values lower than 1 favour individual CBT)										
1 (Goodyer 2017)	RCT	289	RR 0.52 (0.27, 0.99)	-	16 per 100	8 per 100 (4, 16)	Not serious	Not serious	N/A[1]	High

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. Only one study so inconsistency not applicable

Individual CBT vs relaxation

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: relaxation	Absolute risk: CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, GAS (values higher than 0 favour individual CBT) – Post-treatment										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: relaxation	Absolute risk: CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1 (Wood 1996)	RCT	53	SMD 0.38 (-0.16, 0.93)	**CGAS scale 3.6 (-1.52, 8.81)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Functional status, GAS (values higher than 0 favour individual CBT) – ≤6 months										
1 (Wood 1996)	RCT	48	SMD 0.16 (-0.40, 0.73)	**CGAS scale 1.52 (-3.79, 6.92)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, MFQ (values lower than 0 favour individual CBT) – Post-treatment										
1 (Wood 1996)	RCT	48	SMD -0.71 (-1.27, -0.15)	*CDI scale -6.15 (-11.01, -1.3)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, MFQ (values lower than 0 favour individual CBT) – ≤6 months										
1 (Wood 1996)	RCT	48	SMD -0.12 (-0.69, 0.45)	*CDI scale -1.04 (-5.98, 3.9)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Remission (values higher than 1 favour individual CBT) – Post-treatment										
1 (Wood 1996)	RCT	48	RR 2.60 (1.10, 6.16)	-	21 per 100	54 per 100 (23, 100)	Serious[1]	Not serious	N/A[2]	Moderate
Remission (values higher than 1 favour individual CBT) – ≤6 months										
1 (Wood 1996)	RCT	43	RR 1.43 (0.74, 2.79)	-	38 per 100	54 per 100 (28, 100)	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation (values lower than 1 favour individual CBT) – Post-treatment										
1 (Wood 1996)	RCT	53	RR 0.69 (0.13, 3.81)	-	11 per 100	8 per 100 (1, 42)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

** SMD to MD conversion on CGAS scale using pooled SD for all studies using this scale (9.47517)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Computer CBT vs attention control

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, BDI-II (values lower than 0 favour computer CBT) – Post-treatment										
1 (Topooco 2018)	RCT	70	SMD -0.68 (-1.16, -0.19)	*CDI scale -5.89 (-10.05, -1.65)	-	-	Very serious[1]	Not serious	N/A[2]	Low
Remission (values higher than 1 favour computer CBT) – Post-treatment										
1 (Topooco 2018)	RCT	70	RR 5.61 (2.13, 14.72)	-	11 per 100	61 per 100 (23, 100)	Very serious[1]	Not serious	N/A[2]	Low
Discontinuation for any reason (values lower than 1 favour computer CBT)										
1 (Topooco 2018)	RCT	70	RR 2.80 (0.58, 13.49)	-	5 per 100	15 per 100 (3, 73)	Very serious[1]	Not serious	N/A[2]	Low

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at high risk of bias
2. Only one study so inconsistency not applicable

Group CBT vs waiting list/no treatment

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, GAF (values higher than 0 favour group CBT) – Post-treatment										
1 (Clarke 1999)	RCT	64	SMD 0.42 (-0.08, 0.93)	**CGAS scale 3.98 (-0.76, 8.81)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms (values lower than 0 favour group CBT) – Post-treatment										
2 (Clarke 1999, Lewisohn 1990)	RCT	102	SMD -0.77 (-1.18, -0.37)	*CDI scale -6.67 (-10.23, -3.21)	-	-	Serious[1]	Not serious	Not serious	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Remission (values higher than 1 favour group CBT) – Post-treatment										
1 (Lewisohn 1990)	RCT	30	RR 7.88 (1.13, 54.66)	-	7 per 100	56 per 100 (8, 100)	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour group CBT) – Post-treatment										
2 (Clarke 1999, Lewisohn 1990)	RCT	121	RR 0.65 (0.32, 1.32)	-	25 per 100	17 per 100 (8, 34)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

** SMD to MD conversion on CGAS scale using pooled SD for all studies using this scale (9.47517)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Group CBT vs usual care

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, GAF (values higher than 0 favour group CBT) – Post-treatment										
1 (Clarke 2002)	RCT	86	SMD 0.15 (-0.27, 0.58)	**CGAS scale 1.42 (-2.56, 5.5)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Functional status, GAF (values higher than 0 favour group CBT) – >6 to ≤18 months										
1 (Clarke 2002)	RCT	73	SMD -0.05 (-0.51, 0.41)	**CGAS scale -0.47 (-4.83, 3.88)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, HAM-D (values lower than 0 favour group CBT) – Post-treatment										
1 (Clarke 2002)	RCT	86	SMD -0.21 (-0.64, 0.21)	*CDI scale -1.82 (-5.55, 1.82)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, HAM-D (values lower than 0 favour group CBT) – >6 to ≤18 months										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1 (Clarke 2002)	RCT	73	SMD 0.08 (-0.38, 0.54)	*CDI scale 0.69 (-3.29, 4.68)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Suicide ideation, K-SADS (values lower than 0 favour group CBT) – Post-treatment										
1 (Clarke 2002)	RCT	86	MD 0.10 (-0.42, 0.62)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Suicide ideation, K-SADS (values lower than 0 favour group CBT) – >6 to ≤18 months										
1 (Clarke 2002)	RCT	73	MD -0.20 (-0.72, 0.32)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

** SMD to MD conversion on CGAS scale using pooled SD for all studies using this scale (9.47517)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Group CBT vs group CBT and parent sessions

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: group CBT + parent	Absolute risk: group CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, GAF (values higher than 0 favour group CBT) – Post-treatment										
1 (Clarke 1999)	RCT	69	SMD -0.42 (-0.90, 0.06)	**CGAS scale -3.98 (-8.53, 0.57)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI (values lower than 0 favour group CBT) – Post-treatment										
2 (Clarke 1999, Lewisohn 1990)	RCTs	109	SMD -0.06 (-0.67, 0.54)	*CDI scale -0.52 (-5.81, 4.68)	-	-	Serious[1]	Not serious	Serious[3]	Low
Depression symptoms, BDI (values lower than 0 favour group CBT) – ≤6 months										
1	RCT	30	SMD 0.11	*CDI scale	-	-	Serious[1]	Not serious	N/A[2]	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: group CBT + parent	Absolute risk: group CBT (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
(Lewisohn 1990)			(-0.60, 0.83)	0.95 (-5.2, 7.19)						
Depression symptoms, BDI (values lower than 0 favour group CBT) – >6 to ≤18 months										
1 (Lewisohn 1990)	RCT	29	SMD 0.12 (-0.61, 0.85)	*CDI scale 1.04 (-5.29, 7.37)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Remission (values higher than 1 favour group CBT) – Post-treatment										
1 (Lewisohn 1990)	RCT	35	RR 1.34 (0.68, 2.64)	-	42 per 100	56 per 100 (29, 100)	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour group CBT)										
2 (Clarke 1999, Lewisohn 1990)	RCT	127	RR 0.85 (0.41, 1.78)	-	20 per 100	17 per 100 (8, 35)	Serious[1]	Not serious	Not serious	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

** SMD to MD conversion on CGAS scale using pooled SD for all studies using this scale (9.47517)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable
3. I^2 >33.3%

Group CBT and parent sessions vs waiting list/no treatment

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, GAF (values higher than 0 favour group CBT and parent sessions) – Post-treatment										
1 (Clarke 1999)	RCT	59	SMD 0.78 (0.25, 1.31)	**CGAS scale 7.39 (2.37, 12.41)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms (values lower than 0 favour group CBT and parent sessions) – Post-treatment										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
2 (Clarke 1999, Lewisohn 1990)	RCTs	99	SMD -0.72 (-1.30, -0.14)	*CDI scale -6.24 (-11.27, -1.21)	-	-	Serious[1]	Not serious	Serious[3]	Low
Remission (values higher than 1 favour group CBT and parent sessions) – Post-treatment										
1 (Lewisohn 1990)	RCT	33	RR 5.89 (0.83, 41.89)	-	7 per 100	42 per 100 (6, 100)	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour group CBT and parent sessions)										
2 (Clarke 1999, Lewisohn 1990)	RCTs	116	RR 0.76 (0.38, 1.52)	-	25 per 100	19 per 100 (10, 39)	Serious[1]	Not serious	Not serious	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

** SMD to MD conversion on CGAS scale using pooled SD for all studies using this scale (9.47517)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable
3. I^2 >33.3%

Family therapy vs attention control

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, BDI (values lower than 0 favour family therapy) – Post-treatment										
1 (Diamond 2002)	RCT	32	SMD -0.24 (-0.94, 0.45)	*CDI scale -2.08 (-8.15, 3.9)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Remission (values higher than 1 favour family therapy) – Post-treatment										
1 (Diamond	RCT	32	RR 3.00 (0.99, 9.08)	-	19 per 100	56 per 100 (19, 100)	Serious[1]	Not serious	N/A[2]	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
2002)										

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)
1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Family therapy vs usual care

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms (values lower than 0 favour family therapy) – Post-treatment										
2 (Israel 2013, Poole 2018)	RCTs	78	SMD -0.29 (-0.74, 0.17)	*CDI scale -2.51 (-6.41, 1.47)	-	-	Not serious	Not serious	Not serious	High
Depression symptoms, SMFQ (values lower than 0 favour family therapy) – ≤6 months										
1 (Poole 2018)	RCT	64	SMD 0.02 (-0.47, 0.51)	*CDI scale 0.17 (-4.07, 4.42)	-	-	Not serious	Not serious	N/A[1]	High
Discontinuation for any reason (values lower than 1 favour family therapy) – Post-treatment										
2 (Israel 2013, Poole 2018)	RCTs	73	RR 0.69 (0.22, 2.22)	-	14 per 100	10 per 100 (3, 32)	Serious[2]	Not serious	Not serious	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)
1. Only one study so inconsistency not applicable
2. >33.3% of weighted data from studies at moderate or high risk of bias

Family therapy vs non-directive supportive therapy (NDST)

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: NDST	Absolute risk: family therapy (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, CGAS (values higher than 0 favour family therapy) – Post-treatment										
1 (Brent 1997)	RCT	53	MD 2.00 (-2.29, 6.29)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI (values lower than 0 favour family therapy) – Post-treatment										
1 (Brent 1997)	RCT	62	SMD 0.25 (-0.25, 0.75)	*CDI scale 2.17 (-2.17, 6.5)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Remission (values higher than 1 favour family therapy) – Post-treatment										
1 (Brent 1997)	RCT	64	RR 0.80 (0.39, 1.63)	-	36 per 100	29 per 100 (14, 59)	Serious[1]	Not serious	N/A[2]	Moderate
Suicide ideation (values lower than 1 favour family therapy) – Post-treatment										
1 (Brent 1997)	RCT	64	RR 0.43 (0.09, 2.04)	-	15 per 100	7 per 100 (1, 31)	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour family therapy) – Post-treatment										
1 (Brent 1997)	RCT	70	RR 0.67 (0.12, 3.75)	-	9 per 100	6 per 100 (1, 32)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Online guided self-help vs waiting list/no treatment

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: online guided self-help (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, CDRS-R (values lower than 0 favour online guided self-help) – Post-treatment										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: online guided self-help (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1 (Rickhi 2015)	RCT	31	SMD -0.87 (-1.62, -0.12)	*CDI scale -7.54 (-14.04, -1.04)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour online guided self-help) – Post-treatment										
1 (Rickhi 2015)	RCT	31	RR 4.33 (0.59, 31.80)	-	8 per 100	33 per 100 (5, 100)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

IPT-A vs waiting list

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: IPT-A (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, CDI (values lower than 0 favour IPT-A) – Post-treatment										
1 (Rossello 1999)	RCT	37	MD -6.12 (-10.48, 1.76)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour IPT-A) – Post-treatment										
1 (Rossello 1999)	RCT	46	RR 0.80 (0.25, 2.61)	-	22 per 100	17 per 100 (5, 57)	Serious[1]	Not serious	N/A[2]	Moderate

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

IPT-A vs monitoring

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: IPT-A (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: IPT-A (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, BDI (values lower than 0 favour IPT-A) – Post-treatment										
1 (Mufson 1999)	RCT	48	SMD -0.29 (-0.86, 0.28)	*CDI scale -2.51 (-7.45, 2.43)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour IPT-A) – Post-treatment										
1 (Mufson 1999)	RCT	48	RR 0.23 (0.08, 0.71)	-	54 per 100	12 per 100 (4, 38)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

3. >33.3% of weighted data from studies at moderate or high risk of bias
4. Only one study so inconsistency not applicable

IPT-A vs usual care

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: IPT-A (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, CGAS (values higher than 0 favour IPT-A) – Post-treatment										
1 (Mufson 2004)	RCT	58	MD 7.30 (1.37, 13.23)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI (values lower than 0 favour IPT-A) – Post-treatment										
1 (Mufson 2004)	RCT	63	SMD -0.30 (-0.80, 0.20)	*CDI scale -2.6 (-6.93, 1.73)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour IPT-A)										
1 (Mufson 2004)	RCT	63	RR 1.71 (0.34, 8.65)	-	7 per 100	12 per 100 (2, 60)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

IPT-A vs individual CBT

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: CBT	Absolute risk: IPT-A (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, CDI (values lower than 0 favour IPT-A) – Post-treatment										
1 (Rossello 1999)	RCT	40	MD -3.58 (-8.04, 0.88)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, CDI (values lower than 0 favour IPT-A) – ≤6 months										
1 (Rossello 1999)	RCT	23	MD 3.76 (-2.63, 10.15)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour IPT-A)										
1 (Rossello 1999)	RCT	48	RR 1.09 (0.31, 3.85)	-	16 per 100	17 per 100 (5, 62)	Serious[1]	Not serious	N/A[2]	Moderate

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

IPT-A vs IPT-A with additional parent sessions

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: IPT-A + extra parents	Absolute risk: IPT-A (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, CGAS (values higher than 0 favour IPT-A) – Post-treatment										
1 (Gunlicks-Stoessel 2016)	RCT	15	MD -8.55 (-15.65, -1.45)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, CDRS-R (values lower than 0 favour IPT-A) – Post-treatment										
1 (Gunlicks-Stoessel 2016)	RCT	15	SMD 0.53 (-0.53, 1.59)	*CDI scale 4.59 (-4.59, 13.78)	-	-	Serious[1]	Not serious	N/A[2]	Moderate

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: IPT-A + extra parents	Absolute risk: IPT-A (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Discontinuation for any reason (values lower than 1 favour IPT-A)										
1 (Gunlicks-Stoessel 2016)	RCT	15	RR 0.29 (0.02, 5.08)	-	22 per 100	6 per 100 (0, 100)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

IPT-A vs group IPT

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: group IPT	Absolute risk: IPT-A (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, CGAS (values higher than 0 favour IPT-A) – Post-treatment										
1 (O'Shea 2015)	RCT	39	MD 6.95 (-2.37, 16.27)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Functional status, CGAS (values higher than 0 favour IPT-A) – >6 to ≤18 months										
1 (O'Shea 2015)	RCT	39	MD -2.25 (-12.74, 8.24)	-	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI-II (values lower than 0 favour IPT-A) – Post-treatment										
1 (O'Shea 2015)	RCT	39	SMD -0.03 (-0.66, 0.60)	*CDI scale -0.26 (-5.72, 5.2)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Depression symptoms, BDI-II (values lower than 0 favour IPT-A) - >6 to ≤18 months										
1 (O'Shea 2015)	RCT	39	SMD 0.29 (-0.34, 0.92)	*CDI scale 2.51 (-2.95, 7.97)	-	-	Serious[1]	Not serious	N/A[2]	Moderate
Remission (values higher than 1 favour IPT-A) – Post-treatment										

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: group IPT	Absolute risk: IPT-A (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
1 (O'Shea 2015)	RCT	39	RR 0.82 (0.60, 1.11)	-	90 per 100	74 per 100 (54, 100)	Serious[1]	Not serious	N/A[2]	Moderate
Remission (values higher than 1 favour IPT-A) – >6 to ≤18 months										
1 (O'Shea 2015)	RCT	39	RR 0.92 (0.65, 1.30)	-	80 per 100	74 per 100 (52, 100)	Serious[1]	Not serious	N/A[2]	Moderate
Discontinuation for any reason (values lower than 1 favour IPT-A)										
1 (O'Shea 2015)	RCT	39	RR 7.37 (1.00, 54.39)	-	5 per 100	37 per 100 (5, 100)	Serious[1]	Not serious	N/A[2]	Moderate

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at moderate or high risk of bias
2. Only one study so inconsistency not applicable

Psychodynamic psychotherapy vs psychosocial intervention

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: psychosocial intervention	Absolute risk: Psychodynamic psychotherapy (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, MFQ (values lower than 0 favour psychodynamic psychotherapy) – Post-treatment										
1 (Goodyer 2017)	RCT	214	SMD -0.22 (-0.49, 0.05)	*CDI scale -1.91 (-4.25, 0.43)	-	-	Not serious	Not serious	N/A[1]	High
Depression symptoms, MFQ (values lower than 0 favour psychodynamic psychotherapy) – ≤6 months										
1 (Goodyer 2017)	RCT	115	SMD -0.09 (-0.36, 0.18)	*CDI scale -0.78 (-3.12, 1.56)	-	-	Not serious	Not serious	N/A[1]	High
Depression symptoms, MFQ (values lower than 0 favour psychodynamic psychotherapy), >6 to ≤18 months										
1 (Goodyer	RCT	130	SMD -0.07 (-0.33, 0.19)	*CDI scale -0.61 (-2.86, 1.65)	-	-	Not serious	Not serious	N/A[1]	High

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: psychosocial intervention	Absolute risk: Psychodynamic psychotherapy (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
2017)										
Remission (values higher than 1 favour psychodynamic psychotherapy) – Post-treatment										
1 (Goodyer 2017)	RCT	315	RR 1.01 (0.72, 1.40)	-	30 per 100	31 per 100 (22, 43)	Not serious	Not serious	N/A[1]	High
Quality of Life, HoNOSCA (values lower than 1 favour psychodynamic psychotherapy) – Post-treatment										
1 (Goodyer 2017)	RCT	176	MD -1.00 (-3.18, 1.18)	-	-	-	Not serious	Not serious	N/A[1]	High
Quality of Life, HoNOSCA (values lower than 1 favour psychodynamic psychotherapy) – ≤6 months										
1 (Goodyer 2017)	RCT	171	MD -0.20 (-2.08, 1.68)	-	-	-	Not serious	Not serious	N/A[1]	High
Quality of Life, HoNOSCA (values lower than 1 favour psychodynamic psychotherapy) – >6 to ≤18 months										
1 (Goodyer 2017)	RCT	183	MD 0.70 (-1.18, 2.58)	-	-	-	Not serious	Not serious	N/A[1]	High
Discontinuation for any reason (values lower than 1 favour psychodynamic psychotherapy)										
1 (Goodyer 2017)	RCT	283	RR 0.77 (0.43, 1.36)	-	16 per 100	13 per 100 (7, 22)	Not serious	Not serious	N/A[1]	High

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. Only one study so inconsistency not applicable

Behavioural activation vs usual care

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality

No. of studies	Study design	Sample size	Effect size (95% CI)	SMD to MD conversion	Absolute risk: control	Absolute risk: intervention (95% CI)	Risk of bias	Indirectness	Inconsistency	Quality
Functional status, CGAS (values higher than 0 favour behavioural activation) – Post-treatment										
1 (McCauley 2016)	RCT	60	MD 3.00 (-2.61, 8.61)	-	-	-	Very serious[1]	Not serious	N/A[2]	Low
Depression symptoms, CDRS-R (values lower than 0 favour behavioural activation) – Post-treatment										
1 (McCauley 2016)	RCT	60	SMD -0.36 (-0.88, 0.15)	*CDI scale -3.12 (-7.63, 1.3)	-	-	Very serious[1]	Not serious	N/A[2]	Low
Discontinuation for any reason (values lower than 1 favour behavioural activation)										
1 (McCauley 2016)	RCT	53	RR 0.21 (0.05, 0.88)	-	33 per 100	7 per 100 (2, 29)	Very serious[1]	Not serious	N/A[2]	Low

* SMD to MD conversion on CDI scale using pooled SD for all studies using this scale (8.6663)

1. >33.3% of weighted data from studies at high risk of bias
2. Only one study so inconsistency not applicable

Network meta-analyses

Mild depression in 12 to 18 year olds

No. of studies	Study design	Sample size	Effect estimates	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, post-treatment							
26	RCT	3,206	See appendix G	Serious[1]	Not serious	Very serious[2,3]	Very low
Depression symptoms, ≤6 months							
22	RCT	2,885	See appendix G	Serious[1]	Not serious	Serious[4]	Low
Depression symptoms, >6 to ≤18 months							
9	RCT	1,417	See appendix G	Serious[1]	Not serious	Not serious	Moderate
Remission, post-treatment							
2	RCT	87	See appendix G	Very serious[4]	Not serious	Serious[4]	Very low
Discontinuation for any reason							
22	RCT	3,971	See appendix G	Serious[1]	Not serious	Serious[3]	Low

1. >33.3% of studies in the NMA at moderate or high risk of bias.
2. Meaningful differences between point estimates from direct and indirect evidence.
3. DIC for a random-effects model lower than the DIC for a fixed-effects model.
4. >33.3% of studies in the NMA at high risk of bias.

Moderate to severe depression in 5 to 11 year olds

No. of studies	Study design	Sample size	Effect estimates	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, post-treatment							
3	RCT	244	See appendix G	Serious[1]	Not serious	Not serious	Moderate
Functional status, post-treatment							
2	RCT	206	See appendix G	Serious[1]	Not serious	Serious[2]	Low
Remission, post-treatment							
3	RCT	244	See appendix G	Serious[1]	Not serious	Not serious	Moderate
Discontinuation for any reason, end point							
3	RCT	246	See appendix G	Serious[1]	Not serious	Not serious	Moderate

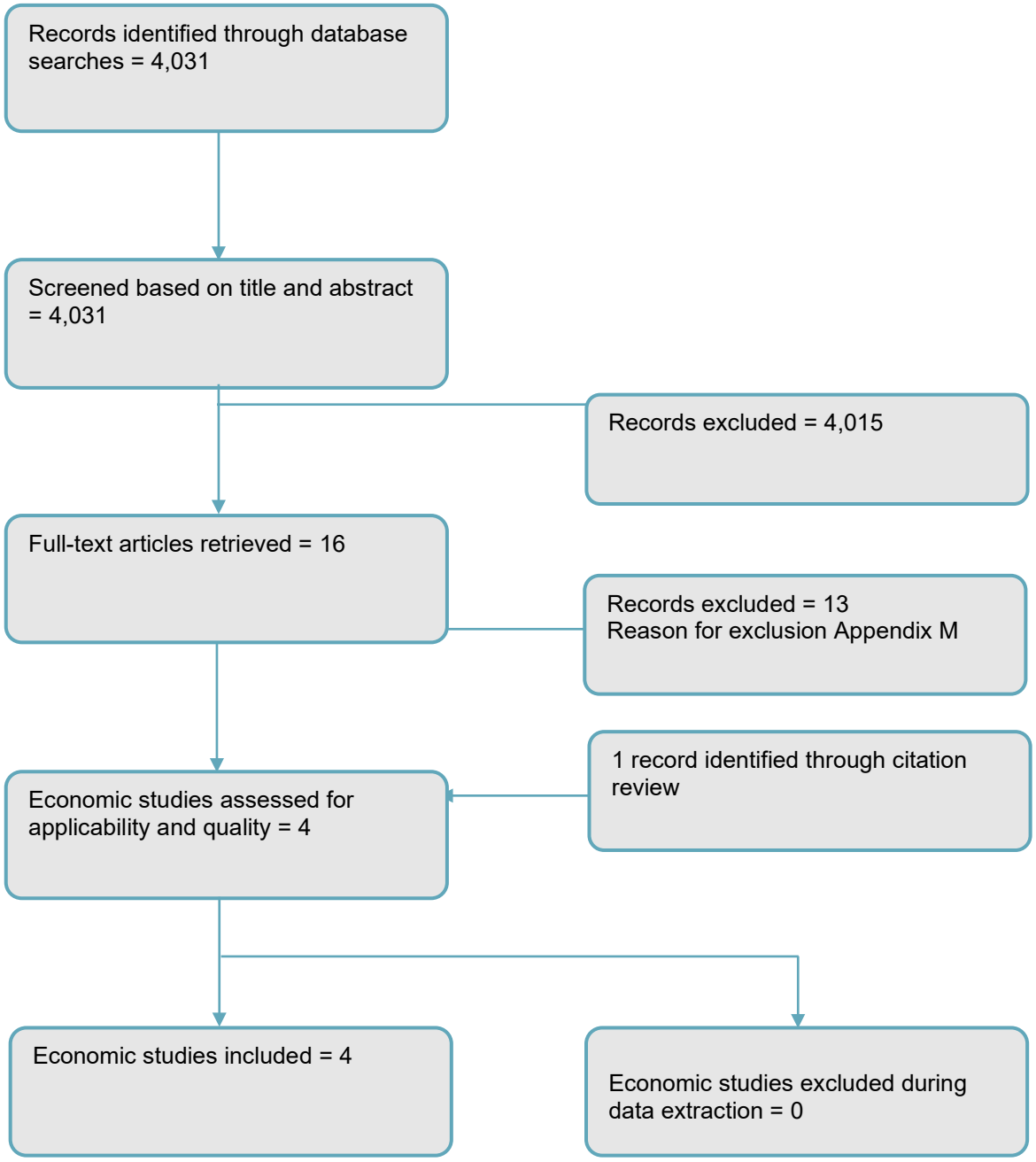
1. >33.3% of studies in the NMA at moderate or high risk of bias.
2. DIC for a random-effects model lower than the DIC for a fixed-effects model.

Moderate to severe depression in 12 to 18 year olds

No. of studies	Study design	Sample size	Effect estimates	Risk of bias	Indirectness	Inconsistency	Quality
Depression symptoms, post-treatment							
22	RCT	1,886	See appendix G	Serious[1]	Not serious	Very serious[2,3]	Very low
Depression symptoms, ≤6 months							
5	RCT	703	See appendix G	Serious[1]	Not serious	Serious[3]	Low
Depression symptoms, >6 to ≤18 months							
4	RCT	706	See appendix G	Serious[1]	Not serious	Not serious	Moderate
Functional status, post-treatment							
9	RCT	926	See appendix G	Serious[1]	Not serious	Not serious	Moderate
Functional status, ≤6 months							
2	RCT	260	See appendix G	Serious[1]	Not serious	Serious[3]	Low
Functional status, >6 to ≤18 months							
2	RCT	285	See appendix G	Serious[1]	Not serious	Not serious	Moderate
Remission, post-treatment							
8	RCT	875	See appendix G	Serious[1]	Not serious	Not serious	Moderate
Quality of life, post-treatment							
3	RCT	632	See appendix G	Serious[1]	Not serious	Serious[3]	Low
Quality of life, ≤6 months							
2	RCT	469	See appendix G	Serious[1]	Not serious	Serious[3]	Low
Quality of life, >6 to ≤18 months							
2	RCT	487	See appendix G	Serious[1]	Not serious	Not serious	Moderate
Suicide ideation (dichotomous), post-treatment							
3*	RCT	534	See appendix G	Serious[1]	Not serious	Not serious	Moderate
Discontinuation for any reason, end point							
18	RCT	1,886	See appendix G	Serious[1]	Not serious	Not serious	Moderate
* Studies with zero events in both arms removed from analysis.							

No. of studies	Study design	Sample size	Effect estimates	Risk of bias	Indirectness	Inconsistency	Quality
1. >33.3% of studies in the NMA at moderate or high risk of bias. 2. Meaningful differences between point estimates from direct and indirect evidence. 3. DIC for a random-effects model lower than the DIC for a fixed-effects model.							

Appendix I – Economic evidence study selection



Appendix J – Economic evidence tables

Study	Goodyer IM, Reynolds S, Barret B et al. 2017 Cognitive-behavioural therapy and short-term psychoanalytic psychotherapy versus brief psychological intervention in adolescents with unipolar major depression (IMPACT): a multicentre, pragmatic, observer-blind, randomised controlled trial. Health Technol Assess 21(12), 1-122			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
Economic analysis: Cost-utility **Study design:** Trial-based economic evaluation. **Approach to analysis:** The analysis was carried out in Stata 11.1. Differences in costs and QALYs were calculated for the different comparators and were analysed using linear regression models. The validity of results was explored using bias correction and non-parametric bootstrapping (5,000 samples). All analyses used baseline costs, geographic location and behavioural disorders as covariates. **Perspective:** Societal, considering costs for health, social care and education.[(b)]	**Population: 470** English residents aged 11 to 17 years with a current diagnostic episode of DSM-IV unipolar major depressive disorder[(a)] **Cohort settings** **Intervention 1:** Brief psychological intervention (BPI) [up to 12 sessions: 8 for the patients and 4 parent/guardian sessions, 45 minutes] **Intervention 2:** Cognitive behavioural therapy (CBT) [up to 20 patient individual sessions plus up to 4	**Total costs (mean per patient):** **BPI:** £2678 **CBT:** £2379 **STPP:** £3082 **Currency & cost year:** Analysis used unit costs are for financial year 2011/12 which were uprated when necessary using the Hospital and Community Health Services Index. Expressed in British Pounds (£) **Cost components incorporated:** Calculations included the costs of delivering BPI, CBT and STPP, the use of NHS primary and secondary	**QALYs:** CBT: 1.228 BPI: 1.241 STPP: 1.246 Between group differences in QALYs coefficients (86 week): CBT versus BPI: -0.009 STPP versus BPI: 0.000 CBT versus STPP: -0.019	**Full incremental analysis:** **ICER BPI vs CBT:** £23,000/QALY **ICER STPP vs CBT:** £80,800/QALY **Analysis of uncertainty:** Probabilistic sensitivity analysis was used to assess parameter uncertainty. **CBT versus BPI:** CBT had an above 60% probability of being cost-effective for any willingness to pay value, when compared to BPI. **STPP versus BPI:** For any willingness to pay, the probability that STPP is cost-effective compared to BPI is below 23%. **CBT versus STPP:** The probability that CBT is cost-effective compared to STPP is greater than 50% for all willingness to pay values. **CBT versus STPP versus BPI** For all willingness to pay values, CBT has the highest probability of being cost-effective (>50%). **Sensitivity Analysis:** The cost of session

Time horizon: 86 weeks **Treatment effect duration:** No extrapolations was made beyond the period of the trial. **Discounting:** QALYs and costs were discounted at 3.5% rate.	parent/guardian sessions, 55 minutes] **Intervention 3:** Short-term psychoanalytic psychotherapy (STPP) [up to 28 patient individual sessions plus up to seven parent/guardian sessions, 50 minutes]	services, the use of social care, education, voluntary sector services, and medication costs.		offered but not attended was assumed to be £0 in the base case (assumed professional could make some use of their available time). In sensitivity analysis this cost was increased by 50% (assuming not all professionals would make use of their free time). This increased the costs of CBT which became dominated by BPI. BPI became the most-cost-effective strategy with a probability above 50% for all willingness to pay values.

Data sources

Health outcomes: The benefit of the interventions was measured using mean variation in quality of life from baseline assessment. At the end of the 86-week follow-up the between comparator group differences in QALYs were marginal and not statistically significant.

Quality of life weights: The EuroQoL-5 Dimensions questionnaire was used to assess quality of life at baseline, 6, 12, 36, 52 and 86-week follow-up interviews. QALY calculations adjusted for baseline utility differences between cohorts.

Costs: Trial interventions usage was assessed based on attendances throughout the trial. Data on services use was collected from the adolescents and parents/guardians using the Child and Adolescent Service use Schedule (CA-SUS). These were done at baseline (covering the previous 3 months) and then at 6, 12, 36, 52 and 86-week follow-up sessions. Costing of drugs used recommendation and listings from the British National Formulary. Primary care services costs were sourced from the NMH reference cost and Unit Costs of Health and Social Care. Hospital usage costs were taken from the NHS Reference Costs 2011-12. The analysis used unit costs for the financial year of 2011/2012.

Comments

Source of funding: National Institute for Health and Care Research Health Technology Assessment programme and the department of Health.

Limitations: At 86 weeks, full CA-SUS service data were available in 59% (92/155) of participants in the BPI group, 61% (94/154) in the CBT group and 58% (91/156) in the STPP group. For the sample of participants with full service use information the number of treatment sessions attended by the young people was 7.97 (66% of the planned 12 sessions) in BPI group, 9.73 (49% of the planned 20 sessions) in the CBT group and 13.85 (49% of the planned 28 sessions) in the STPP group. The large volume of missing data may have had an unpredictable impact in the results of the clinical trial and economic analysis. Particularly the finding that costs were broadly equivalent between the more and less intensive interventions. While BPI was designed as a high quality control, in the trial >80% of therapists delivering the intervention were consultant psychiatrists. It is not clear whether this is generalisable to current practice in the NHS.

Utilities were measured using an adult version of the EQ-5D, which may be less precise when applied to a paediatric population.

About 30% of patients in each comparator group received selective serotonin reuptake inhibitors, in addition to the psychological treatment. The authors reported the difference in SSRIs uptake was not statistically significantly different between comparators.

Overall applicability: Directly applicable **Overall quality**: Potentially serious limitations[c]

(a) *At least 5 symptoms, 1 of which must be a mood symptom present nearly every day and most of the day for at least 2 weeks together with 4 other and accompanied by observable personal and/or social impairment.*
(b) *The authors considered that the costs for criminal justice and productivity losses were not relevant for this population and were not included in the analysis.*
(c) *Analysis took a societal perspective. The proportion of sessions attended ranged from 49 to 66% which may have affected the efficacy of the interventions. Service usage data was not reported in approximately 40% of the participants in all 3 comparators, this may have affected the results of the analysis and its generalisability. The adult version of the EQ-5D questionnaire and value set may not have been appropriate. It is not clear that, given the seniority of the therapists delivering BPI, the efficacy estimates for this intervention are generalizable to current practice in the NHS.*

Study	Byford S, Barrett B, Roberts et al (2007) Cost-effectiveness of selective serotonin reuptake inhibitors and routine specialist care with and without cognitive behavioural therapy in adolescents with major depression. The British journal of psychiatry: the journal of mental science 191, 521-7			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
Economic analysis: Cost-utility analysis **Study design:** Trial-based economic evaluation (ADAPT trial). **Approach to analysis:** Incremental cost-effectiveness ratios were calculated based of the difference between mean costs and man QALYs. Non-parametric bootstrapping of cost and effectiveness data was used to explore uncertainty	**Population:** 208 adolescents aged 11 to 17 years with major or probable major depression (DSM-IV criteria) who had not responded to a brief initial psychological intervention **Cohort settings** **Intervention 1:** Cognitive behavioural therapy (CBT) + Selective serotonin reuptake inhibitors (SSRIs) + clinical care [55 min sessions] **Intervention 2:** SSRIS + clinical care [30 min sessions]	**Total costs (mean per patient):** **Intervention 1:** £1,272 (£779 to £4,104) **Intervention 2:** £36 (£22 to £118) **Currency & cost year:** All unit costs from financial year 2003/04. British pounds (£). **Cost components incorporated:** Health, social services, education, voluntary and private sectors. Travel costs to intervention	**Health and Nation Outcome Scale for Children and Adolescents (HoNOSCA)** measure of mental health impairment (0-52, with higher scores indicating worse outcomes): **Intervention 1:** 15.39 (SD 8.59) **Intervention 2:** 14.52 (SD8.26) **QALYs (mean, 28 weeks):** **Intervention 1:** 0.36 (SD 0.15)	**Full incremental analysis:** Using bootstrapped means CBT+SSRIs costed more £2,327 than SSRIs and resulted in worse HoNOSCA scores (+0.81 points) over the 28 weeks period. The results using QALY bootstrapped means for incremental cost-effectiveness were: ICER: -£102,965/QALY **Analysis of uncertainty:** The probability of CBT+SSRIs being more cost-effective than SSRIs was 25% at a willingness to pay of £50,000. At a willingness to pay of £100,000 this probability did not rise above 26%.

probabilistically. **Perspective:** Societal perspective. **Time horizon:** 28 weeks **Treatment effect duration:** 28 weeks **Discounting:** not applicable		sessions and productivity losses of the primary carers related with the child's illness were also considered (human capital approach).	**Intervention 2:** 0.38 (SD 0.14)	The CEAC for QALY outcome showed that the probability of CBT+SSRIs being more effective that SSRIs alone did not rise above 4% at any willingness to pay value.

Data sources

Health outcomes: Collected directly from the ADAPT trial. Mental health impairment was collected using the HoNOSCA questionnaire.

Quality of life weights: Quality of life was assessed from the trial participants using the EQ-5D.

Costs: Service use data was collected using the Child and Adolescent Service Use Schedule (CA-SUS) applied at baseline (which covered the previous 6 months) and then at 12 and 28 weeks. Data on trial interventions, CBT and case management and medication were collected from clinical records to avoid break in concealment. Cost of interventions was calculated using the salary of professional involved and included on-costs (national insurance and superannuation contributions) and overhead costs. Medication costs used prices indexed in the British National Formulary. Hospital usage costs were sourced from the NHS Reference Cost (2004). Unit costs of community health and social services was taken from publications (Curtis and Netten 2004). Costs of schooling came from the Ofsted report and published documents (Berridge 2003; Independent Schools Council 2005). Productivity losses used a human capital approach, multiplying the days off work due to illness by the individual's salary.

Comments

Source of funding: UK NHS Health Technology Assessment Research and Development Grant, Central Manchester and Manchester Children's University Hospital NHS Trust and Cambridge and Peterborough Mental Health Trust.

Limitations: The population of the trial may not be representative of the population in this review question. The time horizon of the intervention was limited to 28 weeks. Attendance rates were low for CBT which may have affected the efficacy of the intervention. Because all patients received SSRIs concomitantly to CBT, this may suggest a higher severity of the disease in the study population. Utility was measured using an adult version of EQ-5D. The relative effect of CBT is therefore difficult to ascertain which limits the utility of the economic analysis to answer the research question of this update.

Overall applicability: Partially applicable[(a)] **Overall quality**: Potentially serious limitations[(b,c)]

(a) The population in the study all received SSRIs
(b) Economic analysis took a societal perspective
(c) Utility was measured using the adult version of EQ-5D form and value set

Study	Dickerson JF, Lynch FL, Leo MC, DeBar LL, Pearson J, Clarke GN. Cost-effectiveness of Cognitive Behavioral Therapy for Depressed Youth Declining Antidepressants. Pediatrics. 2018 Feb;141(2). pii: e20171969. doi: 10.1542/peds.2017-1969. Epub 2018 Jan 19.			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
Economic analysis: Cost-utility analysis **Study design:** Trial-based economic evaluation **Approach to analysis:** Trial based economic evaluation **Perspective:** US[(b)] Societal[(c)] **Time horizon:** 2 years **Treatment effect duration:** 104 weeks **Discounting**: No discounting	**Population:** 212 adolescents with depression declining SSRIs[(a)] **Cohort settings** **Intervention 1:** Treatment as Usual (TAU) **Intervention 2:** TAU + Cognitive Behavioural Therapy (CBT)	**Total costs (mean per patient 2 years):** **TAU:** $8,631 **TAU+CBT:** $3,655 **Incremental cost:** **CBT+TAU vs TAU** $-4,976 **Currency & cost year:** 2018 US dollars ($) **Cost components incorporated:** Units of resource use were recorded and standard US unit costs assigned.	**CBT+TAU vs TAU** Depression free days: 43.3* QALYs: 0.109* *Reported by the author as not being statistically significantly different	**Full incremental analysis:** **CBT+TAU vs TAU** Dominant **Analysis of uncertainty:** Probab probabilistic sensitivity analysis suggesting a 97% probability that CBT dominates TAU. **Sensitivity analysis** A sensitivity analysis excluding inpatient days (an important and influential driver of costs), the authors calculated that CBT had an ICER of $5,588 per QALY gained over TAU. Sensitivity analysis exploring other assumptions did not alter the authors' conclusions about the cost-effectiveness of CBT+TAU over TAU.
Data sources				
Health outcomes: The Children's Depression Rating Scale-Revised was used to calculate depression free days **Quality of life weights:** Depression free days were assigned a utility of 1 and depressed days were assigned a utility of 0.4. QALYs were calculated via weighted average. **Costs:** Costs were taken from standard US sources and included health and education resource use.				
Comments				

Source of funding: This study was funded by the National Institute of Mental Health (grant R01-MH73918). Funded by the National Institutes of Health (NIH).

Limitations: Important limitations of this study as it relates to this review question include the pragmatic nature of the trial design, the societal and US perspective, the influence that small units of differential resource use have over the incremental costs and a method for calculating QALYs that was not directly collected from trial participants and is outside NICE's reference case[d].

Overall applicability: Partially applicable[a] **Overall quality**: Potentially serious limitations[b,c,d]

Study	Domino ME, Foster EM, Vitiello B et al (2009) Relative cost-effectiveness of treatments for adolescent depression: 36-week results from the TADS Randomised trial. Journal American Academy Child and Adolescent Psychiatry 48(7): 711-720			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
Economic analysis: Cost-utility analysis **Study design:** Trial-based economic evaluation **Approach to analysis:** The fluoxetine arm was used as comparator in the incremental cost-effectiveness analysis. Bias-corrected 95% confidence interval and incremental cost-effectiveness planes were calculated using 1,000 bootstrap replications. **Perspective:** Societal **Time horizon:** 36 weeks	**Population:** 327 adolescents aged 12 to 18 years with primary diagnosis of major depression **Cohort settings** **Intervention 1:** Fluoxetine **Intervention 2:** Cognitive behavioural therapy (CBT) **Intervention 3:** Fluoxetine + CBT	**Total costs (mean per patient)[a]:** **Fluoxetine:** £5,924 **CBT:** £4,999 **Fluoxetine + CBT:** £5,618 **Incremental cost:** **Fluoxetine vs CBT** $-1044 (£-925) CBT is cheaper **Fluoxetine vs Fluoxetine + CBT** $-346 (£-307) Fluoxetine + CBT was cheaper **Currency & cost year:** 2003 US dollars ($) **Cost components**	**Fluoxetine vs CBT** Depression free days: -19.4* PQ-LES-Q: -0.12 HoNOSCA: -0.27 DFD-QALY: -0.02* PQ-LES-Q-QALY: -0.0067 **Fluoxetine vs fluoxetine + CBT** Depression free days: 13.3 PQ-LES-Q: 3.49 HoNOSCA: 0.044 DFD-QALY: 0.015 PQ-LES-Q-QALY: 0.012*	**Full incremental analysis:** *(calculated by analyst using incremental cost and incremental CDRS-R QALY)* **Fluoxetine+CBT dominates** **Fluoxetine vs CBT** ICER: $52,200 (£46,266) **Fluoxetine vs fluoxetine + CBT** ICER: $-23,067 (-£20,444) **Analysis of uncertainty:** **CDRS-R** When lower values of CDRS-R were used, CBT had a greater than 90% probability of being more cost-effective than fluoxetine. When higher values of CDRS-R were used, CBT and fluoxetine + CBT had an 80% probability of being more cost-effective than fluoxetine. **HoNOSCA** When the HoNOSCA scale results were

Treatment effect duration: 36 weeks **Discounting**: not applicable		**incorporated:** Cost of the interventions, services received outside of the study, parent/caregiver time and travel costs	*Reported by the author as not being statistically significantly different	used all 3 strategies became cost-effective (probability of cost-effectiveness not stated). **CDRS-R QALY** When the summary measure of QALY was used fluoxetine + CBT had an over 90% probability of being cost-effective compared to fluoxetine alone, for a willingness to pay of $100,000 (£88,632). **PQ-LES-Q** Results using the PQ-LES-Q score converted to QALYs lead to similar results. **Sensitivity analysis** The utility weights were varied in sensitivity analysis If QALY loss from depression was as low as 0.2, fluoxetine + CBT had an 89% probability of being more cost-effective than fluoxetine alone, at a willingness to pay of $200,000 (£177,264). If QALY loss is higher (0.6) then the combined strategy had a 94% probability of being cost-effective, compared to fluoxetine.

Data sources

Health outcomes: Depression free days were assessed using the Children depression rating Scale Revised (CDRS-R). For comparative purposes quality of life assessment also used the Quality of Life Enjoyment and Satisfaction Questionnaire (PQ-LES-Q) and the Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA).

Quality of life weights: Utility weights were calculated using depression free days assessed by the CDRS-R. Exploratory QALYs were also produced by applying the PQ-LES-Q and HoNOSCA instruments.

Costs: Cost of fluoxetine, medication management and CBT used 2003 nationwide fee-for-service Medicaid prices. Costs assigned to services used published Medicaid and Medicare sources. Travel costs used the Federal mileage rate price and education costs used population specific means from the 2003 Current Population Survey. The higher costs of the fluoxetine arm reflect the higher hospital and emergency department use.

Comments
Source of funding:
Limitations: Data on external service use at all time points (12, 24 and 36 weeks) were missing in 12% (40/327) of patients. In addition, 27% (89/327) of the participants had data missing in at least one of the time points assessed. These missing cost data were replaced using regression estimates imputed from the available data. Data replacement was repeated 5 times generating 5 datasets. Cost-effectiveness analysis was produced for each dataset and combined using Rubin's rule which were then compared with the means for the sample with completed data. The author reported that there were no statistically significant differences in missing data across study arms. QALY calculations were base in depression scales and may not capture general health characteristics and the adverse effects of medication.
Overall applicability: Partially applicable[(b)] **Overall quality**: Potentially serious limitations[(c)]

(a) Costs converted from 2003 US dollars to 2015 British pounds using the EPPI centre conversion tool, conversion factor 0.886 (accessed on the 02/10/2018).
(b) US Study.
(c) Societal perspective. Intervention may not reflect UK practice. QALYs derived using assumptions rather than any direct valuation or validated HRQoL assessment tool.

Appendix K – Health economic evidence profiles

None – see the Summary of Included Health Economic Studies section in the main body of this report.

Appendix L – Costing Exercise

A costing exercise was undertaken in order to help the committee consider the opportunity cost of recommending different interventions. Due to the NHS's fixed budget, any increase in funding leads to withdrawal of funding for other services and therefore health gain foregone. The opportunity cost in this case is therefore the amount of health gain that is lost when one alternative option is chosen. Given the heterogeneity in planned number of sessions per intervention, in average attendance and in staff delivering interventions, this exercise was intended only to provide the committee with rough estimates. Costs could then be considered qualitatively alongside the clinical evidence.

For each intervention, we obtained ranges for planned number of sessions, session length and patient numbers per session from a representative study included in the systematic review and ratified them with the committee, who made some modifications based on their understanding of current UK practice. Where average attendance was not reported we assumed it would be 63% of the maximum planned, which was the average observed among all trials included in the costing exercise. The committee noted this limitation and that, while there was no robust evidence on differential attendance between interventions, that less intensive interventions are likely to have higher adherence rates and therefore perhaps slightly higher costs than those presented here. We used staffing cost estimates from the PSSRU Unit Costs of Health and Social Care 2017[a] for targeted and multi-disciplinary CAMHS team members. Total unit costs including on-costs were £87 and £114 per hour of face-to-face contact time, respectively. These costs are not specific to banding or role because many of the interventions can be delivered by a variety of professionals provided they have had the appropriate training. The committee noted that these costs may have uniformly been overestimates, and particularly so for the less intensive interventions, which they expected largely to be delivered by more junior staff. They also indicated that interventions are often tailored to be less intensive for patients with milder symptoms; the average cost of CBT presented here has been drawn from the IMPACT HTA, which only included severe participants and is therefore likely to be an overestimate for the cost of CBT for the mild population, for example. The committee discussed several other factors that influence the cost of interventions that we did not try to capture due uncertainty; setting, age, success or failure of therapy, region and social class might all play a role in determining attendance. Similarly, we did not include the opportunity cost of attendance, which is also variable depending on the reason for non-attendance. The committee highlighted that non-attendances are managed differently according to setting, to patient severity and intervention type (group vs individual, for example).

The committee took account of these limitations while considering the evidence but noted that because costs were highly uncertain, any small differences between interventions of comparable intensity should not affect decision making. Ultimately, this costing exercise provided some evidence that group and computer based interventions are likely to be cheaper than individual psychological interventions and that some individual psychological interventions might be more costly than others but as no formal health economic analysis was conducted, these cost estimates were only taken into account qualitatively by the committee alongside other outcomes reported in the review.

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[a] Curtis, L. & Burns, A. (2017) Unit Costs of Health and Social Care 2017, Personal Social Services Research Unit, University of Kent, Canterbury.

Table 37: Resource use of interventions (63% attendance assumption highlighted)

Interventions	Num. sessions	Duration (minutes)	N per session	Attendance in study (or assumption)	Selected data source
Guided self-help	4 to 8 weeks	2 to 3 hours	1	1.9	Assumption
Group NDST	12 to 16	45	8	10.1	Stice 2008
IPT group	12 to 16	90	5	6.8	Young 2016
Group mindfulness	10 to 12	60 to 90	6	6.0	Shomaker 2017
Computer CBT	8 Computer + 2 Face to face	45 to 60	1	2.0	Topooco 2018
Group CBT	12 to 16	90 - 120	8	10.1	Clarke 1999
Group CBT + parents	12 to 16 + 8	90 - 120	8	12.7	Lewinsohn 1990
Dance therapy	36	45	6	22.8	Jeong 2005
Self-modelling	6 to 8	45 to 60	1	5.1	Kahn 1990
Relaxation	12 to 16	30 to 60	1	10.1	Kahn 1990
BPI	8 child, 4 parents	45	1	8.0	IMPACT
Family Therapy	10 to 12	50 to 60	1	9.71	Diamond 2010
Non-directive supportive therapy (NDST)	10 to 20	45 to 60	1	11.2	Brent 1997
CBT (individual)	12 to 20 + up to 4 parents	55	1	9.7	IMPACT
Interpersonal psychotherapy for adolescents (IPT-A)	12 to 16	35	1	11.5	Mufson 2004
STPP	up to 28 + up to 7 parents	50	1	13.9	IMPACT
Behavioural Activation	10 to 20	50 to 60	1	14.4	McCauley 2016

The average cost estimates for the interventions in Table 38 were calculated by combining the maximum and minimum values for all data. The "best estimate" incorporates the average staff cost, session duration and attendance in studies (or estimates thereof).

Table 38: Cost estimates for Interventions

Interventions	Estimate low	Est high	Average of L + H	Best Estimate (Ave att)
Guided self-help	£87	£257	£172	£119
Group NDST	£98	£456	£277	£175
IPT group	£157	£365	£261	£120
Group mindfulness	£145	£342	£244	£126

Computer CBT	£131	£228	£179	£176
Group CBT	£196	£456	£326	£223
Group CBT + parents	£261	£570	£416	£279
Dance therapy	£392	£684	£538	£335
Self-modelling	£392	£912	£652	£446
Relaxation	£522	£1,824	£1,173	£765
BPI	£522	£1,368	£945	£701
Family Therapy	£653	£1,368	£1,010	£853
Non-directive supportive therapy (NDST)	£653	£2,280	£1,466	£983
CBT (individual)	£783	£2,736	£1,760	£856
Interpersonal psychotherapy for adolescents (IPT-A)	£870	£1,824	£1,347	£1,059
STPP	£783	£3,990	£2,387	£1,218
Behavioural Activation	£653	£2,280	£1,466	£1,266

Table 39 and Table 40 show the average cost estimates alongside selected results from the NMAs (each intervention is compared to waiting list/control). It should be noted that for NMAs where several interventions have a similar mean rank (as in Table 39), a large amount of uncertainty exists about which of these treatments are better.

Table 39: Cost estimates and NMA results (12-18 Severe)

Age 12-18 Severe		**Depressive Symptoms Mean NMA Rank (17=bad)**	**Better than WL/control**			
			Depressive Symptoms	**Functional**	**QoL**	**Remission**
Interventions	**Cost**		**Post Tx**	**Post Tx**	**6m**	**Post Tx**
Guided self-help	£119	**9**	✗	**NA**	**NA**	**NA**
IPT group	£120	**8**	✗	✗	**NA**	**NA**
Computer CBT	£176	**7**	✗·	**NA**	**NA**	✗
Group CBT	£223	**10**	✓	✗	**NA**	**NA**
Group CBT + parents	£279	**10**	✗	✗	**NA**	**NA**
Relaxation	£765	**14**	✗	✗	**NA**	✗
BPI	£701	**11**	✗	**NA**	✗	✗
Family Therapy	£853	**8**	✓	✓	**NA**	✗
Non-directive supportive therapy (NDST)	£983	**8**	✗	✗	**NA**	✗
CBT (individual)	£856	**7**	✓	✓	✓	✗

Interpersonal psychotherapy for adolescents (IPT-A)	£1,059	**7**	✓	✓	**NA**	**NA**
STPP	£1,218	**9**	✗	**NA**	✗	✗
Behavioural Activation	£1,266	**6**	✗	✗	**NA**	**NA**

Note that some of the cost estimates, particularly for the more intensive interventions like individual CBT may be overestimated in Table 40 as they would be tailored to the mild population.

Table 40: Cost Estimates and NMA Results (12-18, Mild)

Population:		**Depressive symptoms mean NMA rank (14=bad)**	**Better than waiting list/control**				
Age 12-18 Mild			**Depressive symptoms**			**Functional status**	**Remission**
Interventions	**Cost**		**Post Tx**	**6m**	**18m**	**Post Tx**	**Post Tx**
Guided self-help	£119	**7**	✓	✗	✗	**NA**	**NA**
Group NDST	£175	**10**	✗	✓	✓	**NA**	**NA**
IPT group	£120	**4**	✓	✓	✓	**NA**	**NA**
Group mindfulness	£126		✓	✓	**NA**	**NA**	**NA**
Computer CBT	£176	**4**	✓	✓	✓	**NA**	**NA**
Group CBT	£223	**7**	✓	✓	✗	✓	**NA**
Dance therapy	£335	**7**	✗	**NA**	**NA**	**NA**	**NA**
Self-modelling	£446	**NA**	**NA**	✗	**NA**	**NA**	**NA**
Relaxation	£765	**6**	✓	✗	**NA**	**NA**	**NA**
Family therapy	£853	**4**	✓	✓	**NA**	**NA**	✗·
Non-directive supportive therapy (NDST)	£983	**11**	✗	✗	**NA**	**NA**	**NA**

CBT (individual)*	£856	7	✗	✓	NA	✓·	✓

*Individual CBT cost for the mild population and other comparable costs may be over-estimated. See discussion at the start of this section for details.

The costing exercise provided some low quality evidence (because of the limitations noted at the start of this appendix) on the expected average cost of the different treatment options, which ranged between £119 for guided self-help and over £1,200 for the more intensive individual psychological interventions. Computer and group based interventions are likely to cost less than individual interventions and lower intensity individual interventions such as BPI are likely to cost less than higher intensity individual interventions such as STPP. None of these cost data account for any costs beyond the initial delivery of the interventions and do not take into account any differences in effectiveness (although it should be noted that very few significant differences in effectiveness between active interventions were observed in the NMAs). A full discussion of the role that these data played in the committee's decisions can be found in the "cost-effectiveness and resource use" and "benefits and harms" sections of the "committee's discussion of the evidence" in the main text of this evidence review.

Appendix M – Excluded studies

Clinical studies

Systematic reviews

Author (year)	Title	Reason for exclusion
Aalbers (2017)	Music therapy for depression	• Systematic review used as a reference for individual RCTs
Abbass (2013)	Psychodynamic psychotherapy for children and adolescents: a meta-analysis of short-term psychodynamic models	• More recent systematic reviews were checked that covered the same topic
Arnberg (2014)	CBT for children with depressive symptoms: a meta-analysis	• More recent systematic reviews were checked that covered the same topic
Bernecker (2017)	For whom does interpersonal psychotherapy work? A systematic review	• More recent systematic reviews were checked that covered the same topic
Bevan (2018)	Psychoeducational interventions in adolescent depression: A systematic review	• Systematic review used as a reference for individual RCTs
Chi (2018)	Effects of Mindfulness-Based Stress Reduction on Depression in Adolescents and Young Adults: A Systematic Review and Meta-Analysis	• Systematic review used as a reference for individual RCTs
Compton (2004)	Cognitive-behavioral psychotherapy for anxiety and depressive disorders in children and adolescents: An evidence-based medicine review	• More recent systematic reviews were checked that covered the same topic
Cook (2016)	Dialectical behavior therapy for nonsuicidal self-injury and depression among adolescents: Preliminary meta-analytic evidence	• Systematic review used as a reference for individual RCTs
Crowe (2017)	Efficacy of cognitive-behavioral therapy for childhood anxiety and depression	• More recent systematic reviews were checked that covered the same topic
Devenish (2016)	The treatment of suicidality in adolescents by psychosocial interventions for depression: A systematic literature review.	• More recent systematic reviews were checked that covered the same topic
Dolle (2013)	The treatment of depressive disorders in children and adolescents	• More recent systematic reviews were checked that covered the same topic
Ebert (2015)	Internet and computer-based cognitive behavioral therapy for anxiety and depression in youth: a meta-analysis of	• Systematic review used as a reference for individual RCTs

Author (year)	Title	Reason for exclusion
	randomized controlled outcome trials.	
Erford (2011)	Counselling outcomes from 1990 to 2008 for school-age youth with depression: A meta-analysis	• Systematic review used as a reference for individual RCTs
Fleming (2014)	Serious games for the treatment or prevention of depression: A systematic review	• More recent systematic reviews were checked that covered the same topic
Forti-Buratti (2016)	Psychological treatments for depression in pre-adolescent children (12 years and younger): systematic review and meta-analysis of randomised controlled trials.	• Systematic review used as a reference for individual RCTs
Garber (2016)	Treatment and Prevention of Depression and Anxiety in Youth: Test of Cross-Over Effects	• More recent systematic reviews were checked that covered the same topic
Garcia-Escalera (2016)	Efficacy of transdiagnostic cognitive-behavioral therapy for anxiety and depression in adults, children and adolescents: A meta-analysis	• More recent systematic reviews were checked that covered the same topic
Gertler (2015)	Non-pharmacological interventions for depression in adults and children with traumatic brain injury	• More recent systematic reviews were checked that covered the same topic
Goodyer (2018)	Practitioner Review: Therapeutics of unipolar major depressions in adolescents	• Systematic review used as a reference for individual RCTs
Grist (2017)	Mental Health Mobile Apps for Preadolescents and Adolescents: A Systematic Review	• More recent systematic reviews were checked that covered the same topic
Gualano (2017)	The long-term effects of bibliotherapy in depression treatment: Systematic review of randomized clinical trials	• Systematic review used as a reference for individual RCTs
Hollis (2017)	Annual Research Review: Digital health interventions for children and young people with mental health problems - a systematic and meta-review	• More recent systematic reviews were checked that covered the same topic
Hunnicutt (2018)	Preliminary evidence for the effectiveness of dialectical behavior therapy for adolescents	• Systematic review used as a reference for individual RCTs
Kallapiran (2015)	Review: Effectiveness of mindfulness in improving mental health symptoms of children and adolescents: A meta-analysis	• More recent systematic reviews were checked that covered the same topic
Keles (2018)	A meta-analysis of group Cognitive Behavioral Therapy (CBT) interventions for adolescents with depression	• Systematic review used as a reference for individual RCTs
Livheim (2015)	The effectiveness of Acceptance and Commitment Therapy for adolescent mental health: Swedish and Australian pilot outcomes	• More recent systematic reviews were checked that covered the same topic

Author (year)	Title	Reason for exclusion
Loades (2016)	Treatment for paediatric chronic fatigue syndrome or myalgic encephalomyelitis (CFS/ME) and comorbid depression: a systematic review	• More recent systematic reviews were checked that covered the same topic
Lockwood (2004)	Comparing the effectiveness of cognitive behaviour therapy using individual or group therapy in the treatment of depression	• More recent systematic reviews were checked that covered the same topic
Loucas (2014)	E-therapies for mental health problems in children and young people: a systematic review and focus group investigation	• More recent systematic reviews were checked that covered the same topic
Marcotte (1997)	Treating depression in adolescence: A review of the effectiveness of cognitive-behavioral treatments	• More recent systematic reviews were checked that covered the same topic
Meekums (2015)	Dance movement therapy for depression	• Systematic review used as a reference for individual RCTs
Midgley (2017)	Psychodynamic psychotherapy for children and adolescents: an updated narrative review of the evidence base	• Systematic review used as a reference for individual RCTs
Montgomery (2013)	A systematic and empirical review of mindfulness interventions with adolescents: A potential fit for delinquency intervention	• More recent systematic reviews were checked that covered the same topic
Morina (2017)	Psychological interventions for post-traumatic stress disorder and depression in young survivors of mass violence in low- and middle-income countries: meta-analysis	• Systematic review used as a reference for individual RCTs
Muller (2015)	Moderators of the effects of indicated group and bibliotherapy cognitive behavioral depression prevention programs on adolescents' depressive symptoms and depressive disorder onset	• More recent systematic reviews were checked that covered the same topic
Mychailyszyn (2018)	Working through the blues: A meta-analysis on interpersonal psychotherapy for depressed adolescents (IPT-A)	• Systematic review used as a reference for individual RCTs
Pennant (2015)	Computerised therapies for anxiety and depression in children and young people: a systematic review and meta-analysis	• More recent systematic reviews were checked that covered the same topic
Pu (2017)	Efficacy and acceptability of interpersonal psychotherapy for depression in adolescents: A meta-analysis of randomized controlled trials	• More recent systematic reviews were checked that covered the same topic
Rasing (2017)	Depression and Anxiety Prevention Based on Cognitive Behavioral Therapy for At-Risk Adolescents: A Meta-Analytic Review	• More recent systematic reviews were checked that covered the same topic
Reyes-Portillo	Web-based interventions for youth	• More recent systematic reviews

Author (year)	Title	Reason for exclusion
(2014)	internalizing problems: a systematic review	were checked that covered the same topic
Rice (2014)	Online and social networking interventions for the treatment of depression in young people: a systematic review	• More recent systematic reviews were checked that covered the same topic
Rodgers (2012)	The clinical effectiveness and cost-effectiveness of low-intensity psychological interventions for the secondary prevention of relapse after depression: A systematic review	• More recent systematic reviews were checked that covered the same topic
Rohde (2018)	Major depression prevention effects for a cognitive-behavioral adolescent indicated prevention group intervention across four trials	• More recent systematic reviews were checked that covered the same topic
Spinhoven (2018)	The effects of cognitive-behavior therapy for depression on repetitive negative thinking: A meta-analysis	• More recent systematic reviews were checked that covered the same topic
Stasiak (2016)	Computer-Based and Online Therapy for Depression and Anxiety in Children and Adolescents	• More recent systematic reviews were checked that covered the same topic
Stein (2006)	Interventions for adolescent depression in primary care	• More recent systematic reviews were checked that covered the same topic
Straub (2014)	Psychotherapeutic treatment of children and adolescents with depression. Review of the literature on cognitive-behavioral and interpersonal group therapies (Provisional abstract)	• More recent systematic reviews were checked that covered the same topic
Tindall (2017)	Is behavioural activation effective in the treatment of depression in young people? A systematic review and meta-analysis	• Systematic review used as a reference for individual RCTs
Valimaki (2017)	Web-Based Interventions Supporting Adolescents and Young People With Depressive Symptoms: Systematic Review and Meta-Analysis	• Systematic review used as a reference for individual RCTs
Verdeli (2006)	Review of evidence-based psychotherapies for pediatric mood and anxiety disorders	• More recent systematic reviews were checked that covered the same topic
Wade (2010)	Use of the internet to assist in the treatment of depression and anxiety: A systematic review	• More recent systematic reviews were checked that covered the same topic
Werner-Seidler (2017)	School-based depression and anxiety prevention programs for young people: A systematic review and meta-analysis	• More recent systematic reviews were checked that covered the same topic

Author (year)	Title	Reason for exclusion
Wu (2016)	A gap in the literature: Clinical role for smartphone applications for depression care among adolescents?	• More recent systematic reviews were checked that covered the same topic
Yang (2017)	Efficacy and Acceptability of Cognitive Behavioral Therapy for Depression in Children: A Systematic Review and Meta-analysis.	• Systematic review used as a reference for individual RCTs
Yatham (2017)	Depression, anxiety, and post-traumatic stress disorder among youth in low and middle income countries: A review of prevalence and treatment interventions	• More recent systematic reviews were checked that covered the same topic
Ye (2014)	Effectiveness of internet-based interventions for children, youth, and young adults with anxiety and/or depression: a systematic review and meta-analysis	• More recent systematic reviews were checked that covered the same topic
Yuan (2018)	Comparative efficacy and acceptability of bibliotherapy for depression and anxiety disorders in children and adolescents: A meta-analysis of randomized clinical trials	• Systematic review used as a reference for individual RCTs

RCT

Author (year)	Title	Reason for exclusion
Albornoz (2011)	The effects of group improvisational music therapy on depression in adolescents and adults with substance abuse: A randomized controlled trial	Population does not match review protocol (majority of participants over the age of 18, and no subgroup analysis by age)
Anderson (2014)	Cost-effectiveness of classroom-based cognitive behaviour therapy in reducing symptoms of depression in adolescents: a trial-based analysis	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Arnarson (2009)	Prevention of depression among Icelandic adolescents	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Arora (2017)	Components Analyses of a School-Based Cognitive Behavioral Treatment for Youth Depression	Comparator does not match review protocol (paper does not report on comparator)
Barry (2017)	Assessing the effectiveness of a cognitive behavioural group coaching intervention in reducing symptoms of depression among adolescent males in a school setting	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Bounoua (2018)	Emotion regulation and spillover of interpersonal stressors to postsession insight among depressed and suicidal adolescents	Data not reported in an extractable format *Pair-review paper only reports baseline data. Follow-up data is only reported in the trial registration but standard deviations are too small. Therefore, it is uncertain whether standard deviation or standard error is reported*
Breland-Noble (2012)	AAKOMA Project Adult Advisory Board (2012) Community and treatment engagement for depressed African American youth: the AAKOMA FLOA pilot	Paper does not report outcomes specified in review protocol
Brent (1999)	A clinical trial for adolescent depression: predictors of additional treatment in the acute and follow-up phases of the trial.	Secondary publication of an included study that does not provide any additional relevant information
Briere (2014)	Moderators of two indicated cognitive-behavioral depression prevention approaches for adolescents in a school-based effectiveness trial	Paper does not report outcomes specified in review protocol
Brown (2016)	Effective Treatment of Depressive Disorders in Medical Clinics for Adolescents and Young Adults living with HIV: A controlled trial	Incorrect population (adult)
Brunwasser (2018)	Youth Cognitive-Behavioral Depression Prevention: Testing Theory in a Randomized Controlled Trial	Incorrect population (symptoms of depression not a criteria for inclusion in the study)

Burckhardt (2016)	A randomized controlled trial of strong minds: A school-based mental health program combining acceptance and commitment therapy and positive psychology.	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Burton (2016)	Pilot randomised controlled trial of Help4Mood, an embodied virtual agent-based system to support treatment of depression	Incorrect population (adult)
Butler (1980)	The effect of two school-based intervention programs on depressive symptoms in preadolescents	Not a relevant study design *There was no randomisation.*
Chaplin (2006)	Depression prevention for early adolescent girls: A pilot study of all girls versus co-ed groups	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Chen (2014)	Effectiveness RCT of a CBT intervention for youths who lost parents in the Sichuan, China, earthquake	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Chen (2015)	The effects of Chinese five-element music therapy on nursing students with depressed mood	Population does not match review protocol (mean age ≤18, and no subgroup analysis by age)
Cheng (2018)	Do parent mental illness and family living arrangement moderate the effects of the Aussie Optimism Program on depression and anxiety in children?	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Chorpita (2017)	Child STEPs in California: A cluster randomized effectiveness trial comparing modular treatment with community implemented treatment for youth with anxiety, depression, conduct problems, or traumatic stress	Outcomes do not match review protocol
Chu (2016)	Transdiagnostic group behavioral activation and exposure therapy for youth anxiety and depression: Initial randomized controlled trial	Intervention does not match interventions specified in review protocol *Intervention is aimed at treating both depression and anxiety*
Clarke (2015)	Cognitive-behavioral treatment of insomnia and depression in adolescents: A pilot randomized trial	Comparator in study does not match that specified in protocol *Both groups received CBT for depression. The comparator was for insomnia (sleep hygiene vs CBT for insomnia)*
Compas (2015)	Efficacy and moderators of a family group cognitive-behavioral preventive intervention for children of parents with depression	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Curry (2011)	Recovery and recurrence following	Paper does not report outcomes

	treatment for adolescent major depression	specified in review protocol
Davidson (2014)	Feasibility assessment of a brief, web-based behavioral activation intervention for adolescents with depressed mood	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
de Voogd (2016)	Emotional working memory training as an online intervention for adolescent anxiety and depression: A randomised controlled trial	Intervention does not match interventions specified in review protocol *Emotional working memory training*
de Voogd (2016)	Online attentional bias modification training targeting anxiety and depression in unselected adolescents: Short- and long-term effects of a randomized controlled trial	Intervention does not match interventions specified in review protocol *Attentional bias modification*
de Voogd (2017)	Imagine the bright side of life: A randomized controlled trial of two types of interpretation bias modification procedure targeting adolescent anxiety and depression	Intervention does not match interventions specified in review protocol *Online interpretation bias modification training*
De Voogd (2017)	Online visual search attentional bias modification for adolescents with heightened anxiety and depressive symptoms: A randomized controlled trial	Intervention does not match interventions specified in review protocol *Attentional bias modification*
de Voogd (2018)	A randomized controlled trial of multi-session online interpretation bias modification training: Short- and long-term effects on anxiety and depression in unselected adolescents	Intervention does not match interventions specified in review protocol *Online interpretation bias modification training*
Dickerson (2018)	Cost-effectiveness of cognitive behavioral therapy for depressed youth declining antidepressants	Secondary publication of an included study that does not provide any additional relevant information *Reports cost-effectiveness of Clarke (2016)*
Duong (2016)	Mediators and Moderators of a School-Based Cognitive-Behavioral Depression Prevention Program	Only reports moderators of treatment effect from previously reported trial *McCarty 2013*
Eckshtain (2017)	Amelioration of Child Depression Through Behavioral Parent Training: A Preliminary Study	Comparator does not match review protocol (paper does not report on comparator)
Eckshtain (2018)	Parental depressive symptoms as a predictor of outcome in the treatment of child depression	Comparator does not match review protocol (paper does not report on comparator)
Eisen (2013)	Pilot study of implementation of an internet-based depression prevention intervention (CATCH-IT) for adolescents in	Comparator in study does not match that specified in protocol *Both groups received the same*

	12 US primary care practices: Clinical and management/organizational behavioral perspectives	*internet intervention (CATCH-IT: Competent Adulthood Transition with Cognitive-behavioural and Interpersonal Training). The comparators were motivational intervention and brief advice*
Garber (2018)	Prevention of Depression in At-Risk Adolescents: Moderators of Long-term Response	Only reports moderators of treatment effect from previously reported trial *McCarty 2013*
Gillham (2012)	Evaluation of a Group Cognitive-Behavioral Depression Prevention Program for Young Adolescents: A Randomized Effectiveness Trial	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Gunlicks-Stoessel (2010)	The impact of perceived interpersonal functioning on treatment for adolescent depression: IPT-A versus treatment as usual in school-based health clinics	Only reports predictors of treatment effect in previously reported trial *Mufson 2004*
Gunlicks-Stoessel (2016)	A Pilot SMART for Developing an Adaptive Treatment Strategy for Adolescent Depression	Outcomes do not match review protocol *Only reports on patients' clinical status with treatment using the Clinical Global Impressions scale*
Gunlicks-Stoessel (2017)	The role of attachment style in interpersonal psychotherapy for depressed adolescents	Data is not reported separately for intervention and comparator
Hassiotis (2013)	Manualised Individual Cognitive Behavioural Therapy for mood disorders in people with mild to moderate intellectual disability: a feasibility randomised controlled trial	Incorrect population (adult)
Hendricks (2011)	Using Music Techniques to Treat Adolescent Depression	Data not reported in an extractable format *Only reports means at baseline and follow-up for each arm*
Horowitz (2007)	Prevention of depressive symptoms in adolescents: a randomized trial of cognitive-behavioral and interpersonal prevention programs	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Jacobs (2010)	Treating depression and oppositional behavior in adolescents	Outcomes do not match review protocol *Only reports on oppositional defiant disorder from previously reported trial (March 2004, TADS study)*
Jacobs (2016)	Targeting Ruminative Thinking in Adolescents at Risk for Depressive Relapse: Rumination-Focused Cognitive Behavior Therapy in a Pilot Randomized Controlled Trial with Resting State fMRI	Data not reported in an extractable format *Only reports data on mixed-effects regression model*

Javanmiri (2013)	The Study of Solution-Focused Group Counseling in Decreasing Depression among Teenage Girls	Not possible to allocate to mild or moderate to severe depression groups
Jones (2017)	Not All Masks Are Created Equal: Masking Success in Clinical Trials of Children and Adolescents	Only reports success of masking from previously reported trial (Fristad 2016)
Keerthy (2016)	Effect of Psychotherapy on Health Care Utilization in Children With Inflammatory Bowel Disease and Depression	Data not reported in an extractable format *Only reports depressive severity at 1 year follow-up for both CBT and SNDT groups combined from a previously reported trial (Szigethy 2014)*
Kindt (2016)	The effect of a depression prevention program on negative cognitive style trajectories in early adolescents	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Kolaitis (2014)	Self-esteem and social adjustment in depressed youths: a randomized trial comparing psychodynamic psychotherapy and family therapy	Only reports moderators of treatment effect from previously reported trial *Trowell 2007*
Kolko (2000)	Cognitive and family therapies for adolescent depression: treatment specificity, mediation, and moderation	Paper does not report outcomes specified in review protocol (state that depression symptoms were measure using Beck depression inventory, but these data are not reported)
Kramer (2014)	Effectiveness of a Web-Based Solution-Focused Brief Chat Treatment for Depressed Adolescents and Young Adults: Randomized Controlled Trial	Population does not match review protocol (majority of participants over the age of 18, and no subgroup analysis by age)
Kuosmanen (2017)	A pilot evaluation of the SPARX-R gaming intervention for preventing depression and improving wellbeing among adolescents in alternative education	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Kuosmanen (2018)	The implementation of SPARX-R computerized mental health program in alternative education: Exploring the factors contributing to engagement and dropout	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Kwok (2016)	Positive psychology intervention to alleviate child depression and increase life satisfaction: A randomized clinical trial	Intervention does not match interventions specified in review protocol *Positive psychology*
Layne (2008)	Effectiveness of a school-based group psychotherapy program for war-exposed adolescents: a randomized controlled trial	Intervention does not match interventions specified in review protocol *Trauma and grief component therapy for adolescents*
Lewis (2015)	The Impact on Family Functioning of Social Media Use by Depressed	Qualitative study from a trial (Poole 2018)

	Adolescents: A Qualitative Analysis of the Family Options Study	
Li (2016)	Systemic family therapy of comorbidity of anxiety and depression with epilepsy in adolescents	Comparator in study does not match that specified in protocol *Antiepileptic drugs*
Luby (2012)	A novel early intervention for preschool depression: findings from a pilot randomized controlled trial	Participants were children under and over 5 years old with depression and data was not reported separately for the 5 years and older group
Luby (2018)	A Randomized Controlled Trial of Parent-Child Psychotherapy Targeting Emotion Development for Early Childhood Depression	Participants were children under and over 5 years old with depression and data was not reported separately for the 5 years and older group
Maina (2005)	Randomized controlled trial comparing brief dynamic and supportive therapy with waiting list condition in minor depressive disorders.	Incorrect population (adult)
Manicavasagar (2014)	Feasibility and effectiveness of a web-based positive psychology program for youth mental health: randomized controlled trial	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Matsuzaka (2017)	Task shifting interpersonal counseling for depression: A pragmatic randomized controlled trial in primary care	Incorrect population (adult)
McBain (2015)	Improving outcomes for caregivers through treatment of young people affected by war: a randomized controlled trial in Sierra Leone	Outcomes do not match review protocol *Only reports outcomes on caregivers*
McGlinchey (2017)	Innovations in Practice: The relationship between sleep disturbances, depression, and interpersonal functioning in treatment for adolescent depression	Only reports predictors of treatment effect in previously reported trial *Mufson 2004*
Mead (2005)	The clinical effectiveness of guided self-help versus waiting-list control in the management of anxiety and depression: a randomized controlled trial.	Incorrect population (adult)
Melvin (2017)	Augmenting Cognitive Behavior Therapy for School Refusal with Fluoxetine: A Randomized Controlled Trial	Comparator does not match review protocol (paper does not report on comparator) *CBT was compared to 1) CBT plus placebo 2) CBT plus fluoxetine*
Miller (2008)	Interpersonal psychotherapy with pregnant adolescents: two pilot studies	Not a relevant study design *Open trial*
Moharreri (2017)	Evaluation of the Effectiveness of the Friends for Life Program on Children's Anxiety and Depression	Intervention does not match interventions specified in review protocol *Intervention is aimed at treating both depression and anxiety*
O'Leary-Barrett	Two-year impact of personality-targeted,	Incorrect population (symptoms of

(2013)	teacher-delivered interventions on youth internalizing and externalizing problems: a cluster-randomized trial	depression not a criteria for inclusion in the study)
Park (2009)	The Efficacy of a Short-Term Group Program for Treating Depressive Disorder in Female Adolescents: a Comparison of the Cognitive-Behavioral and Psychoeducation Programs: a Preliminary Study	Paper is not reported in English
Parker (2016)	The effectiveness of simple psychological and physical activity interventions for high prevalence mental health problems in young people: A factorial randomised controlled trial.	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Perry (2017)	Preventing Depression in Final Year Secondary Students: School-Based Randomized Controlled Trial	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Possel (2006)	Comparison of two school based depression prevention programs for adolescents	Paper is not reported in English
Raes (2017)	School-based prevention and reduction of depression in adolescents: A cluster-randomized controlled trial of a mindfulness group program	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Reed (1994)	Social skills training to reduce depression in adolescents	Paper does not report outcomes specified in review protocol
Renaud (1998)	Rapid response to psychosocial treatment for adolescent depression: a two-year follow-up	Paper does not report outcomes separately for interventions and comparators specified in review protocol
Reyes-Portillo (2017)	Mediators of interpersonal psychotherapy for depressed adolescents on outcomes in Latinos: The role of peer and family interpersonal functioning	Secondary publication of an included study that does not provide any additional relevant information
Richardson (2014)	Collaborative care for adolescents with depression in primary care: A randomized clinical trial	Intervention does not match interventions specified in review protocol *Collaborative care intervention with a choice of CBT, antidepressant medication, or both*
Roberts (2003)	The prevention of depressive symptoms in rural school children: a randomized controlled trial.	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Rohde (2012)	Reduced substance use as a secondary benefit of an indicated cognitive-behavioral adolescent depression prevention program	Paper does not report outcomes specified in review protocol
Rohde (2014)	Sequenced versus coordinated treatment for adolescents with comorbid depressive and substance use disorders	Comparator in study does not match that specified in protocol *Family therapy focused on treating comorbidity (substance use disorder)*

Rohde (2015)	Effectiveness trial of an indicated cognitive-behavioral group adolescent depression prevention program versus bibliotherapy and brochure control at 1- and 2-year follow-up	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Rohde (2018)	Depression Change Profiles in Adolescents Treated for Comorbid Depression/Substance Abuse and Profile Membership Predictors	Outcomes do not match review protocol *Only reports trajectories of change in depression during treatment from a previously reported trial (Rohde 2014)*
Rooney (2013)	Reducing depression in 9-10 year old children in low SES schools: a longitudinal universal randomized controlled trial	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Saelid (2017)	Rational emotive behaviour therapy in high schools to educate in mental health and empower youth health. A randomized controlled study of a brief intervention	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Sanford (2006)	A pilot study of adjunctive family psychoeducation in adolescent major depression: feasibility and treatment effect	Data not reported in an extractable format *Standard deviations are only reported for baseline data but not for post-treatment or follow-up data.* *Therefore, we could not use any data in pairwise or NMA analyses*
Saulsberry (2013)	Randomized clinical trial of a primary care Internet-based intervention to prevent adolescent depression: One-year outcomes	Comparator in study does not match that specified in protocol *One year outcomes of Van Voorhees 2009*
Schleider (2018)	A single-session growth mindset intervention for adolescent anxiety and depression: 9-month outcomes of a randomized trial	Intervention does not match interventions specified in review protocol *Mindset of personality*
Shomaker (2016)	A Randomized Controlled Trial to Prevent Depression and Ameliorate Insulin Resistance in Adolescent Girls at Risk for Type 2 Diabetes	Comparator in study does not match that specified in protocol *Health education is not in the list of comparators*
Shomaker (2017)	Prevention of insulin resistance in adolescents at risk for type 2 diabetes with depressive symptoms: 1-year follow-up of a randomized trial	Comparator in study does not match that specified in protocol *Health education is not in the list of comparators*
Spence (2003)	Preventing adolescent depression: an evaluation of the problem solving for life program	Intervention does not match interventions specified in review protocol *Problem solving for life programme which integrates 2 components: cognitive re-structuring and problem-*

		solving skills training
Spence (2016)	Improvements in interpersonal functioning following interpersonal psychotherapy (IPT) with adolescents and their association with change in depression	Only reports predictors of treatment effect in previously reported trial *O'Shea 2015*
Spirito (2015)	Concurrent treatment for adolescent and parent depressed mood and suicidality: feasibility, acceptability, and preliminary findings	Data not reported in an extractable format *Only reports data from the latent growth models*
Stapersma (2018)	Effectiveness of Disease-Specific Cognitive Behavioral Therapy on Anxiety, Depression, and Quality of Life in Youth With Inflammatory Bowel Disease: A Randomized Controlled Trial	Population does not match review protocol (mean age ≤18, and no subgroup analysis by age)
Szigethy (2015)	Effect of 2 psychotherapies on depression and disease activity in pediatric Crohn's disease	Data not reported in an extractable format *From a previously reported trial (Szigethy 2014) See table 3*
Thurman (2017)	Mitigating depression among orphaned and vulnerable adolescents: a randomized controlled trial of interpersonal psychotherapy for groups in South Africa	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Trowell (2009)	Childhood depression: An outcome research project	Secondary publication of an included study that does not provide any additional relevant information *Paper reports on comorbidity from a previously reported trial (Trowell 2007)*
Van Voorhees (2009)	Randomized clinical trial of an Internet-based depression prevention program for adolescents (Project CATCH-IT) in primary care: 12-week outcomes	Comparator in study does not match that specified in protocol *Both groups received the same internet intervention (CATCH-IT: Competent Adulthood Transition with Cognitive-behavioural and Interpersonal Training). The comparators were motivational intervention and brief advice*
Weersing (2016)	Prevention of Depression in At-Risk Adolescents: Predictors and Moderators of Acute Effects	Incorrect population (symptoms of depression not a criteria for inclusion in the study) *Reports on a trial excluded in the 2015 NICE update of this guideline (Garber 2009)*
Weersing (2017)	Brief Behavioral Therapy for Pediatric Anxiety and Depression in Primary Care: A Randomized Clinical Trial	Intervention does not match interventions specified in review protocol *Intervention is aimed at treating both*

		depression and anxiety
Whittaker (2017)	MEMO: an mHealth intervention to prevent the onset of depression in adolescents: a double-blind, randomised, placebo-controlled trial	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Wong (2014)	Preventing anxiety and depression in adolescents: A randomised controlled trial of two school based Internet-delivered cognitive behavioural therapy programmes	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Young (2006)	Impact of comorbid anxiety in an effectiveness study of interpersonal psychotherapy for depressed adolescents	Secondary publication of an included study that does not provide any additional relevant information *Paper reports on depressive symptoms and level of function in participants with/without anxiety at baseline from a previously reported trial (Mufson 2004)*
Young (2012)	Interpersonal Psychotherapy-Adolescent Skills Training: Effects on School and Social Functioning	Outcomes do not match review protocol *This paper reports on school and social functioning outcomes from a previously reported trial (Young 2010)*
Young (2012)	Interpersonal Psychotherapy-Adolescent skills training: Anxiety outcomes and impact of comorbidity	Secondary publication of an included study that does not provide any additional relevant information *Paper reports combined results from Young 2006a and Young 2010*
Young (2016)	Predicting Therapeutic Effects of Psychodiagnostic Assessment Among Children and Adolescents Participating in Randomized Controlled Trials	Data not reported in an extractable format *Data on CDRS-R is only reported on a graph*
Young (2017)	Psychoeducational Psychotherapy and Omega-3 Supplementation Improve Co-Occurring Behavioral Problems in Youth with Depression: Results from a Pilot RCT	Outcomes do not match review protocol *Paper only reports on behaviour problems (Fristad 2016)*

2015 update excluded studies that were also excluded in this review

This table is an amended version of the excluded studies table from the 2015 update of this review question. Any references that were potentially relevant to this update due to changes in the protocol (for example in outcomes and interventions) were removed from this table and checked at full text and excluded or included as normal. The remaining references were not checked again at full text screening, but are listed here for reference.

Reference	Reason for exclusion
Anon (2012) Computer therapy found effective treatment for depression in adolescents. Pediatric Annals 41: 217.	Not primary research (Commentary)
Anon (2010) Randomised controlled trial of brief psychodynamic	Trial protocol only (no full

Reference	Reason for exclusion
psychotherapy, cognitive behaviour therapy and treatment as usual in adolescents with moderate to severe depression attending routine child and adolescent mental health clinics (Project record). Health Technology Assessment Database	text article)
Ahmead M, Bower P (2008) The effectiveness of self-help technologies for emotional problems in adolescents: A systematic review. Child and Adolescent Psychiatry and Mental Health 2	Systematic review that does not match protocol (population includes mix of adolescents and young adults, with no subgroup analysis by age)
Araya R, Fritsch R, Spears M et al. (2013) School intervention to improve mental health of students in Santiago, Chile: a randomized clinical trial. JAMA Pediatrics 167: 1004-10.	Participants were not selected because of symptoms of depression (universal intervention in schools)
Asarnow JR, Jaycox LH, Tang L et al. (2009) Long-term benefits of short-term quality improvement interventions for depressed youths in primary care. American Journal of Psychiatry 166: 1002-10.	Intervention does not match interventions specified in review protocol
Baas KD, Koeter MW, van Weert HC et al. (2010) Brief cognitive behavioral therapy compared to general practitioners care for depression in primary care: a randomized trial. Trials [Electronic Resource] 11: 96.	Trial protocol only
Barbe RP, Bridge J, Birmaher B et al. (2004) Suicidality and its relationship to treatment outcome in depressed adolescents. Suicide & Life-Threatening Behavior 34: 44-55.	Only reports on predictive factors for treatment response from previously reported trial (Brent 1997)
Beardslee WR, Brent DA, Weersing VR et al. (2013) Prevention of depression in at-risk adolescents: longer-term effects. JAMA Psychiatry 70: 1161-70.	Incorrect population (current symptoms of depression not required for inclusion in the study)
Becker BJ, Gusrae R, Macnicol E (1963) A clinical study of a group psychotherapy program for adolescents. Psychiatric Quarterly 37: 685-703.	Incorrect study type (case series)
Betancourt T (2012) A Feasibility Trial of the Youth Readiness Intervention: A Group Psychosocial Intervention for War-affected Youth in Sierra Leone. ClinicalTrials.gov [www.clinicaltrials.gov]	Trial protocol only
Betancourt TS, Newnham EA, Brennan RT et al. (2012) Moderators of treatment effectiveness for war-affected youth with depression in northern Uganda. Journal of Adolescent Health 51: 544-50.	Reports moderators of treatment effectiveness in previously reported trial (Bolton et al 2007). No additional effectiveness data reported.
Birmaher B, Brent DA, Kolko D et al. (2000) Clinical outcome after short-term psychotherapy for adolescents with major depressive disorder. Archives of General Psychiatry 57: 29-36.	Only reports moderators of treatment effect from previously reported trial (Brent 1997)
Boogar IR (2012) Effectiveness of the Teasdale Cognitive Therapy on depression reduction in guidance and high school students. [Farsi (Iranian)]. [References]. Psychological research 14: 25-40.	Article not obtainable (likely not in English)
Boylan K, Macpherson HA, Fristad MA (2013) Examination of disruptive behavior outcomes and moderation in a randomized psychotherapy trial for mood disorders. Journal of the American Academy of Child and Adolescent Psychiatry 52: 699-708.	Population includes children with bipolar disorder
Boylan MB (2006) Psychological mindedness as a predictor of treatment outcome with depressed adolescents. Dissertation	No full text article: abstract only

Reference	Reason for exclusion
Abstracts International: Section B: the Sciences and Engineering 67: 3479.	
Brent D (1997) A clinical trial comparing three psychotherapies for adolescent depression: differential efficacy and predictors of outcome. WPA Thematic Conf; 1997 Nov; Jerusalem : 9.	Not full text article (conference report)
Brent DA, Kolko DJ, Birmaher B et al. (1998) Predictors of treatment efficacy in a clinical trial of three psychosocial treatments for adolescent depression. Journal of the American Academy of Child & Adolescent Psychiatry 37: 906-14.	Only reports predictors of treatment response from previously reported trial (Brent 1997)
Brent DA, Roth CM, Holder DP et al. (1996) Psychosocial interventions for treating adolescent suicidal depression: A comparison of three psychosocial interventions. [References]. Hibbs, Euthymia D [Ed]; Jensen, Peter S [Ed] : 761-206.	Trial protocol with preliminary results from individual participants only
Brook DW (2001) Group therapy with children and adolescents. International Journal of Group Psychotherapy 51: 437-41.	Not primary research (narrative review)
Brown RA, Lewinsohn PM (1984) A psychoeducational approach to the treatment of depression: comparison of group, individual, and minimal contact procedures. Journal of Consulting & Clinical Psychology 52: 774-83.	Incorrect population (adults)
Bru L, Solholm R, Idsoe T (2013) Participants' experiences of an early cognitive behavioral intervention for adolescents with symptoms of depression. Emotional and behavioural difficulties 18: 24-43.	Population does not match review protocol (majority of participants over the age of 18, and no subgroup analysis by age)
Brunwasser SM, Gillham JE, Kim ES (2009) A meta-analytic review of the Penn Resiliency Program's effect on depressive symptoms. Journal of Consulting & Clinical Psychology 77: 1042-54.	Systematic review that does not match review protocol (only includes subset of specified interventions) Use for cross checking
Bursuk LI (1998) The effects of a school-based cognitive-behavioral intervention program on the depression scores of sixth-grade students: A comparison outcome study. Dissertation Abstracts International Section A: Humanities and Social Sciences 59: 1065.	No full text article (abstract only)
Calear AL, Christensen H (2010) Systematic review of school-based prevention and early intervention programs for depression. [Review] [80 refs]. Journal of Adolescence 33: 429-38.	Systematic review that does not match review protocol (only includes subset of specified interventions) Use for cross checking
Calear AL, Christensen H, Mackinnon A et al. (2009) The Youth Mood Project: a cluster randomized controlled trial of an online cognitive behavioral program with adolescents. Journal of Consulting & Clinical Psychology 77: 1021-32.	Incorrect population (symptoms of depression not inclusion criteria for study)
Chorpita BF, Weisz JR, Daleiden EL et al. (2013) Long-term outcomes for the Child STEPs randomized effectiveness trial: A comparison of modular and standard treatment designs with usual care. Journal of Consulting and Clinical Psychology 81: 999-1009.	Incorrect population (symptoms of depression not inclusion criteria for study)
Christensen H, Pallister E, Smale S et al. (2010) Community-based prevention programs for anxiety and depression in youth: a systematic review. Journal of Primary Prevention 31: 139-70.	Systematic review that does not match review protocol (population not required to have symptoms

Reference	Reason for exclusion
	of depression)
Clarizio HF (1985) Cognitive-behavioral treatment of childhood depression. Psychology in the schools 22: 308-22.	Not primary research (narrative review)
Clarke G, Hops H, Lewinsohn PM et al. (1992) Cognitive-behavioral group treatment of adolescent depression: Prediction of outcome. Behavior Therapy 23: 341-54.	Only reports on moderators of treatment efficacy in previously reported trial (Lewinsohn 1990)
Congleton AB (1996) The effect of a cognitive-behavioral group intervention on the locus of control, attributional style, and depressive symptoms of middle school students. Dissertation Abstracts International Section A: Humanities and Social Sciences 56: 3507.	No full text article (abstract only)
Cornelius JR, Douaihy A, Bukstein OG et al. (2011) Evaluation of cognitive behavioral therapy/motivational enhancement therapy (CBT/MET) in a treatment trial of comorbid MDD/AUD adolescents. Addictive Behaviors 36: 843-8.	Not a randomised controlled trial
Cox GR, Fisher CA, De SS et al. (2012) Interventions for preventing relapse and recurrence of a depressive disorder in children and adolescents. Cochrane Database of Systematic Reviews 11: CD007504.	Systematic review that does not match protocol (population includes mix of adolescents and young adults)
Cox GR, Callahan P, Churchill R et al. (2012) Psychological therapies versus antidepressant medication, alone and in combination for depression in children and adolescents. Cochrane Database of Systematic Reviews 11: CD008324.	Systematic review that does not match protocol (different psychological therapies not compared). NB forms the basis of the systematic review for review question 2
Curry J, Rohde P, Simons A et al. (2006) Predictors and moderators of acute outcome in the Treatment for Adolescents with Depression Study (TADS). Journal of the American Academy of Child & Adolescent Psychiatry 45: 1427-39.	Only reports moderators of treatment effect for previously reported study (TADS study, March et. al 2004)
Diamond G, Creed T, Gillham J et al. (2012) Sexual trauma history does not moderate treatment outcome in attachment-based family therapy (ABFT) for adolescents with suicidal ideation. Journal of Family Psychology 26: 595-605.	Reports factors predicting outcomes in previously reported trial (Diamond et al. 2010)
Dietz LJ, Marshal MP, Burton CM et al. (2014) Social problem solving among depressed adolescents is enhanced by structured psychotherapies. Journal of Consulting and Clinical Psychology 82: 202-11.	Only reports predictors of treatment effects from results of previous trial (Brent et al. 1997)
Dolle K, Schulte-Korne G (2013) The treatment of depressive disorders in children and adolescents. Deutsches Arzteblatt International 110: 854-60.	Article not in English
Domino ME, Burns BJ, Silva SG et al. (2008) Cost-effectiveness of treatments for adolescent depression: results from TADS. American Journal of Psychiatry 165: 588-96.	Secondary publication of an included study that does not provide any additional relevant information
Donker T, Batterham PJ, Warmerdam L et al. (2013) Predictors and moderators of response to internet-delivered Interpersonal Psychotherapy and Cognitive Behavior Therapy for depression.	Incorrect population (adults)

Reference	Reason for exclusion
Journal of Affective Disorders 151: 343-51.	
Eskin M, Ertekin K, Demir H (2008) Efficacy of a problem-solving therapy for depression and suicide potential in adolescents and young adults. Cognitive Therapy and Research 32: 227-45.	Incorrect population (study included young adults as well as adolescents and mean age was > 18)
Esposito-Smythers C, Spirito A, Kahler CW et al. (2011) Treatment of co-occurring substance abuse and suicidality among adolescents: a randomized trial. Journal of Consulting & Clinical Psychology 79: 728-39.	Population not required to have symptoms of depression to participate
Ettelson RG (2003) The treatment of adolescent depression. Dissertation Abstracts International: Section B: the Sciences and Engineering 64: 1899.	No full text article (abstract only)
Fine S, Forth A, Gilbert M et al. (1991) Group therapy for adolescent depressive disorder: A comparison of social skills and therapeutic support. Journal of the American Academy of Child and Adolescent Psychiatry 30: 79-85.	Incorrect study type (assignment to groups was not at random)
Fischer G, Brunner R, Parzer P et al. (2013) Short-term psychotherapeutic treatment in adolescents engaging in non-suicidal self-injury: a randomized controlled trial. Trials [Electronic Resource] 14: 294.	Trial protocol only
Fristad MA, Verducci JS, Walters K et al. (2009) Impact of multifamily psychoeducational psychotherapy in treating children aged 8 to 12 years with mood disorders. Archives of General Psychiatry 66: 1013-21.	Population included children/young people with bipolar disorder
Garber J, Clarke GN, Weersing VR et al. (2009) Prevention of depression in at-risk adolescents: a randomized controlled trial. JAMA 301: 2215-24.	Incorrect population (current symptoms of depression not required for inclusion in the study)
Gau JM, Stice E, Rohde P et al. (2012) Negative life events and substance use moderate cognitive behavioral adolescent depression prevention intervention. Cognitive Behaviour Therapy 41: 241-50.	Only reports the effect of moderators on treatment effects in previously reported trial (Stice et al 2008)
Gordon MS, Tonge B, Melvin GA (2011) Outcome of adolescent depression: 6 months after treatment. Australian & New Zealand Journal of Psychiatry 45: 232-9.	Only reports predictors of depression remission in participants from two previously-reported randomised controlled trials.
Gunlicks-Stoessel M, Mufson L (2011) Early patterns of symptom change signal remission with interpersonal psychotherapy for depressed adolescents. Depression & Anxiety 28: 525-31.	Only reports predictors of treatment effect in previously reported trial (Mufson et al 2004)
Guo X, Slesnick N, Feng X (2014) Reductions in depressive symptoms among substance-abusing runaway adolescents and their primary caretakers: a randomized clinical trial. Journal of Family Psychology 28: 98-105.	Symptoms of depression not inclusion criteria for study
Harrington R, Campbell F, Shoebridge P et al. (1998) Meta-analysis of CBT for depression in adolescents. Journal of the American Academy of Child & Adolescent Psychiatry 37: 1005-7.	Not primary research (letter/comment)
Harrington R, Whittaker J, Shoebridge P et al. (1998) Systematic review of efficacy of cognitive behaviour therapies in childhood and adolescent depressive disorder. BMJ 316: 1559-63.	Not primary research (letter/comment)

Reference	Reason for exclusion
Harrington R, Whittaker J, Shoebridge P et al. (1998) Systematic review of efficacy of cognitive behaviour therapies in childhood and adolescent depressive disorder. BMJ 316: 1559-63.	Systematic review that does not match the review protocol (only includes a subset of the specified interventions). Use for cross checking
Hazell P (2011) Depression in children and adolescents. Clinical Evidence 2011, 2011.	Not primary research (narrative review)
Hetrick SE, Cox GR, Merry SN (2011) Treatment-resistant depression in adolescents: is the addition of cognitive behavioral therapy of benefit? Psychology Research & Behavior Management 4: 97-112.	Systematic review that does not match the review protocol (only includes a subset of the specified interventions). Use for cross checking
Hickman KA (1995) Effects of social skills training on depressed children attending a behavioural day treatment program. Dissertation abstracts international 56: 1699.	No full text article available, abstract only
Hoek W, Schuurmans J, Koot HM et al. (2012) Effects of Internet-based guided self-help problem-solving therapy for adolescents with depression and anxiety: a randomized controlled trial. PLoS ONE [Electronic Resource] 7: e43485.	Incorrect population (symptoms of depression were not required for inclusion in the study)
Hoek W, Schuurmans J, Koot HM et al. (2009) Prevention of depression and anxiety in adolescents: a randomized controlled trial testing the efficacy and mechanisms of Internet-based self-help problem-solving therapy. Trials [Electronic Resource] 10: 93.	Trial protocol only
Horn H, Geiser-Elze A, Reck C et al. (2005) [Efficacy of psychodynamic short-term psychotherapy for children and adolescents with depression]. Praxis der Kinderpsychologie und Kinderpsychiatrie 54: 578-97.	Exclude: Article not in English
Hyun MS, Nam KA, Kim MA (2010) Randomized controlled trial of a cognitive-behavioral therapy for at-risk Korean male adolescents. Archives of Psychiatric Nursing 24: 202-11.	Symptoms of depression was not inclusion criteria for population
Ingram D, Moreno M (2012) A computerized self-help intervention is as effective as face-to-face counselling for adolescents seeking help for depression. Journal of Pediatrics 161: 967-8.	Not primary research (commentary on Merry et al 2012)
Jaycox LH, Reivich KJ, Gillham J et al. (1994) Prevention of depressive symptoms in school children. Behaviour Research & Therapy 32: 801-16.	Symptoms of depression was not inclusion criteria for population
Kaufman NK, Rohde P, Seeley JR et al. (2005) Potential mediators of cognitive-behavioral therapy for adolescents with comorbid major depression and conduct disorder. Journal of Consulting & Clinical Psychology 73: 38-46.	Comparator does not match review protocol (life skills training)
Kennard BD, Silva SG, Mayes TL et al. (2009) Assessment of safety and long-term outcomes of initial treatment with placebo in TADS. American Journal of Psychiatry 166: 337-44.	Invention and and comparator do not match review protcol (part of the TADS study - compares all active treatment groups combined to placebo group)
Klein JB, Jacobs RH, Reinecke MA (2007) Cognitive-behavioral therapy for adolescent depression: a meta-analytic investigation of changes in effect-size estimates. Journal of the American Academy of Child & Adolescent Psychiatry 46: 1403-13.	Systematic review that does not match review protocol (only includes subset of specified interventions) Use for cross checking

Reference	Reason for exclusion
Kolaitis G, Pomini V, Tomaras V et al. (2011) Psychodynamic and family psychotherapy for young people with major depression: Preliminary findings on their psychosocial adjustment. Childhood depression: A place for psychotherapy: 221-5.	Secondary publication of an included study that does not provide any additional relevant information
Kovacs M (2001) Psychotherapy for young dysthymic children. http://crisp.cit.nih.gov/	Unobtainable by information services (incomplete database record, does not appear to be journal publication)
Kowalenko N, Rapee RM, Simmons J et al. (2005) Short-term effectiveness of a school-based early intervention program for adolescent depression. Clinical Child Psychology and Psychiatry 10: 493-507.	Incorrect study type (allocated to groups was not randomised)
Kratochvil C, Emslie G, Silva S et al. (2006) Acute time to response in the Treatment for Adolescents with Depression Study (TADS). Journal of the American Academy of Child & Adolescent Psychiatry 45: 1412-8.	Not primary research (narrative review)
Kratochvil CJ, May DE, Silva SG et al. (2009) Treatment response in depressed adolescents with and without co-morbid attention-deficit/hyperactivity disorder in the Treatment for Adolescents with Depression Study. Journal of Child & Adolescent Psychopharmacology 19: 519-27.	Only reports moderators of treatment effect in previously reported trial (March et al. 2004)
Kroll L, Harrington R, Jayson D et al. (1996) Pilot study of continuation cognitive-behavioral therapy for major depression in adolescent psychiatric patients. Journal of the American Academy of Child & Adolescent Psychiatry 35: 1156-61.	Incorrect study type (not a randomised controlled trial)
Lee J (2007) Mindfulness-based cognitive therapy for children: Feasibility, acceptability, and effectiveness of a controlled clinical trial. Dissertation Abstracts International: Section B: the Sciences and Engineering 67: 6064.	No full text article - abstract only
Lewis CC, Simons AD, Nguyen LJ et al. (2010) Impact of childhood trauma on treatment outcome in the Treatment for Adolescents with Depression Study (TADS). Journal of the American Academy of Child & Adolescent Psychiatry 49: 132-40.	Only reports moderators of treatment effect in previously reported trial (March et al. 2004)
Lewis CC, Simons AD, Silva SG et al. (2009) The role of readiness to change in response to treatment of adolescent depression. Journal of Consulting & Clinical Psychology 77: 422-8.	Only reports moderators of treatment effect in previously reported trial (March et al. 2004)
Liehr P, Diaz N (2010) A pilot study examining the effect of mindfulness on depression and anxiety for minority children. Archives of Psychiatric Nursing 24: 69-71.	Symptoms of depression was not criteria for inclusion in population
Lillevoll KR, Vangberg HC, Griffiths KM et al. (2014) Uptake and adherence of a self-directed internet-based mental health intervention with tailored e-mail reminders in senior high schools in Norway. BMC Psychiatry 14: 14.	Incorrect population (symptoms of depression not required for inclusion in study)
Listug-Lunde LB (2005) A cognitive-behavioral treatment for depression in Native American middle-school students. Dissertation Abstracts International: Section B: the Sciences and Engineering 66: 1176.	No full text article (abstract only)
Lynch FL, Hornbrook M, Clarke GN et al. (2005) Cost-effectiveness of an intervention to prevent depression in at-risk teens. Archives of General Psychiatry 62: 1241-8.	Only reports cost-effectiveness analysis of previously reported trial (Clarke et al. 2001)
Maag JW, Swearer SM, Toland MD (2009) Cognitive-behavioral interventions for depression in children and adolescents: meta-analysis, promising programs, and implications for school personnel	Systematic review that does not meet quality standards outlined in NICE

Reference	Reason for exclusion
(Structured abstract). Database of Abstracts of Reviews of Effects Chapter 9: 235-65.	methods handbook (only small subset of relevant databases searched)
Mahoney JR, Kennard BD, Mayes TL (2011) Cognitive behavioral treatment of depression in youth. Pediatric Annals 40: 307-13.	Not primary research (narrative review/ instructional article)
Manassis K, Wilansky-Traynor P, Farzan N et al. (2010) The feelings club: randomized controlled evaluation of school-based CBT for anxious or depressive symptoms. Depression & Anxiety 27: 945-52.	Symptoms of depression was not criteria for inclusion in population
March J, Silva S, Petrycki S et al. (2005) The Treatment for Adolescents with Depression Study (TADS): Demographic and clinical characteristics. Journal of the American Academy of Child and Adolescent Psychiatry 44: 28-40.	Study protocol/demographic analysis only, no results presented
March JS, Silva S, Petrycki S et al. (2007) The Treatment for Adolescents With Depression Study (TADS): long-term effectiveness and safety outcomes.[Erratum appears in Arch Gen Psychiatry. 2008 Jan;65(1):101]. Archives of General Psychiatry 64: 1132-43.	No valid comparator (part of TADS study reporting outcomes after 12 weeks, after which placebo group did not continue)
Merry SN (2009) Cognitive behavioral therapy prevents depression in at-risk adolescents. Journal of Pediatrics 155: 758.	Not primary research (Narrative review/comment)
Midgley N, Kennedy E (2011) Psychodynamic psychotherapy for children and adolescents: A critical review of the evidence base. Journal of Child Psychotherapy 37: 232-60.	Systematic review that does not match review protocol (only includes subset of specified interventions) Use for cross checking
Moldenhauer Z (2004) Adolescent depression: A primary care pilot intervention study. Dissertation Abstracts International: Section B: the Sciences and Engineering 65: 656.	No full text article (abstract only)
Mufson LH, Collins K (2006) Group interpersonal psychotherapy for depressed adolescents (IPT-AG) in school-based clinics [NCT00270244]. ClinicalTrials.gov [www.clinicaltrials.gov]	Trial protocol only
Nauta MH, Festen H, Reichart CG et al. (2012) Preventing mood and anxiety disorders in youth: a multi-centre RCT in the high risk offspring of depressed and anxious patients. BMC Psychiatry 12: 31.	Trial protocol only
Nobel R, Manassis K, Wilansky-Traynor P (2012) The role of perfectionism in relation to an intervention to reduce anxious and depressive symptoms in children. Journal of Rational-Emotive & Cognitive-Behavior Therapy 30: 77-90.	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
O'Kearney R, Kang K, Christensen H et al. (2009) A controlled trial of a school-based Internet program for reducing depressive symptoms in adolescent girls. Depression & Anxiety 26: 65-72.	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
O'Kearney R, Gibson M, Christensen H et al. (2006) Effects of a cognitive-behavioural internet program on depression, vulnerability to depression and stigma in adolescent males: a school-based controlled trial. Cognitive Behaviour Therapy 35: 43-54.	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
O'Kearney R, Kang K, Gibson M et al. (2007) A CBT internet program for depression in adolescents (MoodGYM): Effects on depressive symptoms, attributional style, self-esteem and beliefs about depression. 197-204.	Not primary research (narrative review/ summary of previous studies)

Reference	Reason for exclusion
Parraga J (1984) Psychological treatments in childhood depression: cognitive therapy, skinner therapy and mixed therapy. A comparative study. Revista De Neuropsiquiatría Infantil 2: 107-35.	Commentary on previously reported trial (TADS)
Platania-Solazzo A, Field TM, Blank J et al. (1992) Relaxation therapy reduces anxiety in child and adolescent psychiatric patients. Acta Paedopsychiatrica: 115-20.	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Punamaki RL, Paavonen J, Toikka S et al. (2013) Effectiveness of preventive family intervention in improving cognitive attributions among children of depressed parents: a randomized study. Journal of Family Psychology 27: 683-90.	Incorrect population (symptoms of depression no required for inclusion in the study)
Reinecke MA, Ryan NE, DuBois DL (1998) Cognitive-behavioral therapy of depression and depressive symptoms during adolescence: a review and meta-analysis. Journal of the American Academy of Child & Adolescent Psychiatry 37: 26-34	Systematic review that does not match review protocol (only includes subset of specified interventions) Use for cross checking
Richardson T, Stallard P, Velleman S (2010) Computerised cognitive behavioural therapy for the prevention and treatment of depression and anxiety in children and adolescents: a systematic review. [Review]. Clinical Child & Family Psychology Review 13: 275-90.	Systematic review that does not match the review protocol (includes studies on prevention, as well as treatment of depression)
Rohde P, Silva SG, Tonev ST et al. (2008) Achievement and maintenance of sustained response during the Treatment for Adolescents With Depression Study continuation and maintenance therapy. Archives of General Psychiatry 65: 447-55.	No valid comparator (part of TADS study reporting outcomes after 12 weeks, after which placebo group did not continue)
Rohde P, Clarke GN, Mace DE et al. (2004) An efficacy/effectiveness study of cognitive-behavioral treatment for adolescents with comorbid major depression and conduct disorder. Journal of the American Academy of Child & Adolescent Psychiatry 43: 660-8.	Comparator does not match review protocol (life skills training)
Rohde P, Seeley JR, Clarke GN et al. (2006) Predicting time to recovery among depressed adolescents treated in two psychosocial group interventions. Journal of Consulting and Clinical Psychology 74: 80-8.	Only reports moderators of treatment effect in previously reported trial (Rohde 2004)
Rohde P, Stice E, Gau JM (2012) Effects of three depression prevention interventions on risk for depressive disorder onset in the context of depression risk factors. Prevention Science 13: 584-93.	Only reports predictors of treatment effect in previously reported trial (Stice et al. 2008, 2010)
Rohde P, Clarke GN, Lewinsohn PM et al. (2001) Impact of comorbidity on a cognitive-behavioral group treatment for adolescent depression. [References]. Journal of the American Academy of Child & Adolescent Psychiatry 40: 795-802.	Only reports moderators of treatment effect in previously reported trial (Lewisohn 1990, Clarke 1999)
Rohde P, Stice E, Shaw H et al. (2014) Indicated cognitive behavioral group depression prevention compared to bibliotherapy and brochure control: Acute effects of an effectiveness trial with adolescents. [References]. Journal of Consulting and Clinical Psychology 82: 65-74.	Incorrect population (symptoms of depression were not an inclusion criteria for the study)
Rose K, Hawes DJ, Hunt CJ (2014) Randomized controlled trial of a friendship skills intervention on adolescent depressive symptoms. Journal of Consulting and Clinical Psychology 82: 510-20.	Incorrect population (symptoms of depression were not an inclusion criteria for the study)
Rossello J, Bernal G, Rivera-Medina C (2008) Individual and group	Compared individual and

Reference	Reason for exclusion
CBT and IPT for Puerto Rican adolescents with depressive symptoms. Cultural Diversity & Ethnic Minority Psychology 14: 234-45.	group cognitive behavioural therapy (CBT) with individual and group interpersonal psychotherapy (IPT) but results not reported for each group separately (only presented for individual vs group or CBT vs IPT)
Rossouw TI, Fonagy P (2012) Mentalization-based treatment for self-harm in adolescents: a randomized controlled trial. Journal of the American Academy of Child & Adolescent Psychiatry 51: 1304-13.	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Salsman NL, Arthur R (2011) Adapting dialectical behavior therapy to help suicidal adolescents. Current Psychiatry 10: 18-33.	Not primary research (narrative review)
Schaik AM (2008) No added value of cognitive behavior therapy in adolescents with depression. Nederlands tijdschrift voor geneeskunde 152: 56.	Article not in English
Schramm E, Zobel I, Dykierek P et al. (2011) Cognitive behavioral analysis system of psychotherapy versus interpersonal psychotherapy for early-onset chronic depression: a randomized pilot study. Journal of Affective Disorders 129: 109-16.	Incorrect population (adult)
Scott CV (1999) Evaluation of cognitive-behavioral group therapy in treating depressive symptoms in prepubertal children: A pilot study. Dissertation Abstracts International: Section B: the Sciences and Engineering 60: 2960.	No full text article (abstract only)
Semple RJ (2006) Mindfulness-Based Cognitive Therapy for children: A randomized group psychotherapy trial developed to enhance attention and reduce anxiety. Dissertation Abstracts International: Section B: the Sciences and Engineering 66: 5105.	No full text article (abstract only)
Sethi S, Campbell AJ, Ellis LA (2010) The use of computerized self-help packages to treat adolescent depression and anxiety. Journal of Technology in Human Services 28: 144-60.	Incorrect population (aged up to 25 years)
Sethi S (2013) Treating youth depression and anxiety: A randomised controlled trial examining the efficacy of computerised versus face-to-face cognitive behaviour therapy. Australian Psychologist 48: 249-57.	Incorrect population (18-25 year olds)
Sheffield JK, Spence SH, Rapee RM et al. (2006) Evaluation of universal, indicated, and combined cognitive-behavioral approaches to the prevention of depression among adolescents. Journal of Consulting & Clinical Psychology 74: 66-79.	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Spinhoven P, Slee N, Garnefski N et al. (2009) Childhood sexual abuse differentially predicts outcome of cognitive-behavioral therapy for deliberate self-harm. Journal of Nervous & Mental Disease 197: 455-7.	Incorrect population (adult)
Stallard P (2010) A single blind randomised controlled trial to determine the effectiveness of group Cognitive Behaviour Therapy (CBT) in the prevention of depression in high risk adolescents [ISRCTN19083628]. Health Technology Research Projects www.hta.ac.uk/1667 (accessed 7 August 2013)	Trial protocol only
Stallard P, Richardson T, Velleman S et al. (2011) Computerized CBT (Think, Feel, Do) for depression and anxiety in children and adolescents: outcomes and feedback from a pilot randomized controlled trial. Behavioural & Cognitive Psychotherapy 39: 273-84.	Incorrect population (symptoms of depression not a criteria for inclusion in the study)

Reference	Reason for exclusion
Steinberg EB, Sayger TV, Szykula SA (1997) The effects of strategic and behavioral family therapies on child behavior and depression. Contemporary Family Therapy: An International Journal 19: 537-51.	Incorrect population (symptoms of depression not a criteria for inclusion in the study)
Stice E, Burton E, Bearman SK et al. (2007) Randomized trial of a brief depression prevention program: an elusive search for a psychosocial placebo control condition. Behaviour Research & Therapy 45: 863-76.	Incorrect population (included participants up to the age of 22)
Stikkelbroek Y, Bodden DH, Dekovic M et al. (2013) Effectiveness and cost effectiveness of cognitive behavioral therapy (CBT) in clinically depressed adolescents: individual CBT versus treatment as usual (TAU). BMC Psychiatry 13: 314.	Trial protocol only
Tang TC, Jou SH, Ko CH et al. (2009) Randomized study of school-based intensive interpersonal psychotherapy for depressed adolescents with suicidal risk and parasuicide behaviors. Psychiatry & Clinical Neurosciences 63: 463-70.	Incorrect population (participants were not required to have symptoms of depression)
Treatment for Adolescents With Depression Study (TADS) Team, March J, Silva S et al. (2009) The Treatment for Adolescents With Depression Study (TADS): outcomes over 1 year of naturalistic follow-up. American Journal of Psychiatry 166: 1141-9.	Comparator does not match review protocol (part of TADS study reporting 1 year follow up, but placebo control group only included up to 12 weeks)
van der Zanden R, Kramer J, Gerrits R et al. (2012) Effectiveness of an online group course for depression in adolescents and young adults: a randomized trial. Journal of Medical Internet Research 14: e86.	Incorrect population (included participants up to the age of 25)
Vitiello B (2008) Treatment for Adolescents with Depression Study (TADS). BMJ 337: 890.	Not primary research (letter/comment)
Vostanis P, Feehan C, Grattan E (1998) Two-year outcome of children treated for depression. European Child & Adolescent Psychiatry 7: 12-8.	Incorrect study type (not a randomised controlled trial as subjects were allocated to interventions alternately)
Weisz JR, McCarty CA, Valeri SM (2006) Effects of psychotherapy for depression in children and adolescents: a meta-analysis. Psychological Bulletin 132: 132-49.	Systematic review with insufficient details to judge whether meets quality criteria specified in the NICE clinical guidelines manual. Use for cross checking.
Weisz JR, Weiss B, Han SS et al. (1995) Effects of psychotherapy with children and adolescents revisited: a meta-analysis of treatment outcome studies. Psychological Bulletin 117: 450-68.	Systematic review that did not meet criteria specified in review protocol (population was children with all psychological problems, not specifically depression)
Weitkamp K, Daniels JK, Hofmann H et al. (2014) Psychoanalytic psychotherapy for children and adolescents with severe depressive psychopathology: preliminary results of an effectiveness trial. Psychotherapy: Theory, Research, Practice, Training 51: 138-47.	Incorrect study type (non-randomised controlled study)
Wood A, Trainor G, Rothwell J et al. (2001) Randomized trial of group therapy for repeated deliberate self-harm in adolescents. Journal of the American Academy of Child & Adolescent Psychiatry 40: 1246-53.	Incorrect population (symptoms of depression not a criteria for inclusion in the study)

Reference	Reason for exclusion
Zuckerbrot RA (2007) Combined fluoxetine plus cognitive behavioural therapy is more effective than monotherapy or placebo for adolescents with depression. Evidence-Based Mental Health 10: 84.	Not primary research (summary of previously reported study)

Economic studies

Short Title	Title	Reason for exclusion
Anderson (2014)	Cost-effectiveness of classroom-based cognitive behaviour therapy in reducing symptoms of depression in adolescents: a trial-based analysis	Intervention delivered to a general population of scholar age children with no formal diagnosis of depression. The results of the analysis are not presented separately for high risk individuals.
Arnberg (2014)	Internet-delivered psychological treatments for mood and anxiety disorders: a systematic review of their efficacy, safety, and cost-effectiveness	Not an economic evaluation.
Bee (2014)	The clinical effectiveness, cost-effectiveness and acceptability of community-based interventions aimed at improving or maintaining quality of life in children of parents with serious mental illness: A systematic review	Interventions destined to children of parents with psychiatric disease, not necessarily depressed children.
Brettschneider (2015)	Cost-utility analyses of cognitive-behavioural therapy of depression: a systematic review	Systematic review of economics evaluations. Checked for relevant references.
Lee (2017)	The population cost-effectiveness of delivering universal and indicated school-based interventions to prevent the onset of major depression among youth in Australia	Interventions in the context of prevention not treatment. Results expressed in $/DALY.
Macdonald (2016)	The effectiveness, acceptability and cost-effectiveness of psychosocial interventions for maltreated children and adolescents: an evidence synthesis	Cost-effectiveness analysis of CBT for children with depression and post-traumatic stress disorder (PTSD) who were victims of sexual abuse. Results reported for PTSD and anxiety.
Meuldijk (2015)	Economic Evaluation of Concise Cognitive Behavioural Therapy and/or Pharmacotherapy for Depressive and Anxiety Disorders	Interventions destined to children who were maltreated, not necessarily depressed children.
Philipsson (2013)	Cost-utility analysis of a dance intervention for adolescent girls with internalizing problems	Intervention targeted at adolescent girls with internalising problems. Not specific to depression in children and adolescents.
Rodgers (2012)	The clinical effectiveness and cost-effectiveness of low-intensity psychological interventions for the secondary prevention of relapse after depression: A systematic review	Intervention in adults.
Stafford (2018)	Effectiveness and cost-effectiveness of humanistic counselling in schools for young people with emotional distress (ETHOS): study protocol for a randomised controlled	Study protocol.

	trial	
Stallard (2013)	A cluster randomised controlled trial to determine the clinical effectiveness and cost-effectiveness of classroom-based cognitive-behavioural therapy (CBT) in reducing symptoms of depression in high-risk adolescents	Same as Anderson 2014.
Stikkelbroek (2013)	Effectiveness and cost effectiveness of cognitive behavioral therapy (CBT) in clinically depressed adolescents: individual CBT versus treatment as usual (TAU)	Study protocol.
Wellander (2016)	Does Prevention Pay? Costs and Potential Cost-savings of School Interventions Targeting Children with Mental Health Problems	Cost-offset analysis.

Appendix N – Research recommendations

1. What is the clinical and cost effectiveness, post treatment and at longer-term follow-up, of psychological therapies in children aged 5 to 11 years with mild or moderate to severe depression?

The majority of the evidence for psychological therapies for mild or moderate to severe depression is derived from RCTs that recruited young people aged 12-18 years. For mild depression, 2 trials (Stark 1987 and Weisz 1997) looked at the effects of group CBP versus waiting list/ no treatment in 5-11 year olds with mild depression and found a reduction in depression symptoms post treatment and at 6 months follow up, but the trials were small and did not report other outcomes such as functional status and remission. For 5-11 year olds with moderate to severe depression, there were 3 trials that compared psychological therapies to each other (Dietz 2015, Trowell 2007 and Tompson 2017), but none of them included a control and so it is unclear whether any of the treatments are better and usual care or waiting list/ no treatment. Other trials looked at therapies compared to controls (Liddle 1990, Weisz 2009) , but were unable to detect differences in effects for depression symptoms at post-treatment and 6 months. However, the trials were small and it is possible that larger trials would be able to detect an effect.

As a result, the current update of CG28 has recommendations for mild depression children aged 5-11 years that were made based on the evidence for 12-18 year olds. The recommendations for 5-11 year olds with moderate to severe depression include the more effective therapies from the above trials, with the caveat that it is unclear whether they are better than a control, and the individual CBT which was the most effective treatment for 12-18 year olds. However, it is likely that 5-11 year olds may respond differently to these therapies compared to 12-18 year olds.

Further research is needed to explore the clinical and cost effectiveness of the psychological therapies compared to controls or other psychological therapies in a larger group of young people aged 5 to 11 years old with mild or moderate to severe depression. Longer follow up times (including 6 months and 1 year) should also be used to determine whether the effects of the interventions are short-lived or maintained over time.

Research in this area is essential to inform future updates of this guidance and could lead to specific recommendations for the 5-11 year age group, which in turn could help improve patient outcomes.

PICO	**Population:** • Young people aged 5-11 years with mild depression • Young people aged 5-11 years with moderate to severe depression **Interventions:** • Psychological therapies **Comparators:** • Control intervention (waiting list, no treatment, monitoring or usual care) • Other psychological therapies **Outcomes:** • Depression symptoms • Functional status • Remission • Quality of life • Suicide ideation
Current evidence	Lidle 1990, Stark 1987, Weisz 1997, Weisz 2009, Dietz 2015, Trowell 2007 and Tompson 2017

base	
Study design	Randomised controlled trial
Other comments	• This RCT should be carried out within the UK. • The study should be powered to detect the superiority of the interventions over the comparators. • Subgroup analyses should include: ○ Sex ○ Environment and family situation (for example, young people with chaotic family lives compared to those without; young people in prison or those who are looked after) ○ Neurodevelopmental disorders

2. What is the clinical and cost effectiveness, post treatment and at longer-term follow-up, of supported digital CBT compared with unsupported digital CBT in young people aged 12 to 18 years with mild depression, and what are the key components of the interventions that influence effectiveness?

Digital CBT was identified as an effective psychological therapy to treat mild depression in 12-18 year olds, but the underlying evidence came from RCTs using a variety of digital CBT programmes. Digital CBT can also be delivered in a supported manner (with additional contact with a healthcare professional) or as an unsupported intervention (no additional contact). It is unclear whether unsupported or supported digital CBT is more effective and which programmes would be most effective for use in the UK.

The 2019 update of CG2028 identified a number of digital CBT programmes: SPARX (Fleming 2012; Merry 2012; Poppelaars 2016), Stressbusters (Smith 2015; Wright 2017), The Journal (Stasiak 2014), iCBT (Topooco 2018) and Grasp the Opportunity (Ip 2016). They have been tested in a variety of countries, but only the Stressbusters programme (Smith 2015, Wright 2017) has been tested in the UK. These interventions share key components including psychoeducation, relaxation, analysis of behaviour, behavioural activation, basic communication and interpersonal skills, emotional recognition, dealing with strong emotions, problem solving, cognitive restructuring (identifying thoughts, challenging unhelpful/negative thoughts), mindfulness, and relapse prevention, but it is unclear which components influence effectiveness.

Further research is needed to identify key components of digital CBT; the most effective programme for a UK population and whether supported programmes are more effective than unsupported ones to ensure that suitable form of digital CBT is available to young people aged 12-18 years old with mild depression. Longer follow up times (including 6 months and 1 year) should also be used to determine whether the effects of the interventions are short-lived or maintained over time.

PICO	**Population:** Young people aged 12 to 18 with mild depression **Interventions:** • Supported digital CBT **Comparator:** • Unsupported digital CBT **Outcomes:** • Depression symptoms • Functional status • Remission • Quality of life • Suicide ideation
Current evidence base	No evidence was identified that addressed this research question
Study design	Randomised controlled trial

Other comments	• This RCT should be carried out within the UK.
	• The study should be powered to detect the superiority of supported CBT compared to unsupported CBT.
	• Subgroup analyses should include:
	  ○ Sex
	  ○ Environment and family situation (for example, young people with chaotic family lives compared to those without; young

	people in prison or those who are looked after) ○ Neurodevelopmental disorders

3. What is the clinical and cost effectiveness, post treatment and at longer-term follow-up, of family therapy, psychodynamic psychotherapy and IPT-A (IPT for adolescents) compared with each other and with individual CBT in young people aged 12 to 18 years with moderate to severe depression?

The current update of CG28 includes a recommendation for IPT-A, family therapy or STPP to treat moderate to severe depression in children and young people should individual CBT not meet the individual's needs or preferences. These therapies were recomended as second line options due to limitations in the evidence base.

Trowell 2007 and Goodyer 2017 trials tested psychodynamic psychotherapy against family therapy, and individual CBT/brief psychosocial intervention respectively, but either they did not report results for all outcomes of interest or the results were reported for short follow up times. Family therapy was also trialled against individual CBT (Brent 1997), but this trial only reported results post treatment. Four studies looked at IPT-A compared to other interventions or controls (Rossello 1999, Mufson 1999, Mufson 2004, O'Shea 2015) and there was similar shortage of outcomes reported or short follow up times.

In order to support and strengthen the recommendation for IPT-A, psychodynamic psychotherapy and family therapy, further research is needed to explore the clinical and cost effectiveness of these therapies compared to each other and individual CBT in a larger group of young people aged 12-18 years old with moderate to severe depression. Longer follow up times (including 6 months and 1 year) should also be used to determine whether the effects of the interventions are short-lived or maintained over time and wider range of outcomes should be reported.

Research in this area is could inform future updates of key recommendations in this guidance, which in turn could help improve patient outcomes.

PICO	**Population:** Young people aged 12 to 18 years with moderate to severe depression **Interventions:** • IPT-A (IPT for adolescents) • psychodynamic psychotherapy • family therapy **Comparators:** • Each other • Individual CBT **Outcomes:** • Depression symptoms • Functional status • Remission • Quality of life • Suicide ideation
Current evidence base	Trowell 2007, Goodyer 2017, Mufson 1999, Mufson 2004, Rossello 1999 and O'Shea 2015
Study design	Randomised controlled trial

Other comments	• This RCT should be carried out within the UK.
	• The study should be powered to detect the superiority of the interventions over the comparators.
	• Subgroup analyses should include:
	  ○ Gender
	  ○ Environment and family situation (for example, young people with chaotic family lives compared to those without; young

	people in prison or those who are looked after) o Neurodevelopmental disorders

4. What is the clinical and cost effectiveness, post treatment and at longer-term follow-up, of a brief psychosocial intervention as reported by the IMPACT trial, but delivered by practitioners other than psychiatrists and in other settings, including primary care, to young people aged 12 to 18 years with mild or moderate to severe depression?

The current update of CG28 includes a weak recommendation for a brief psychosocial intervention (BPI) to treat moderate to severe depression in children and young people. However, this recommendation is based on an NMA using data on this intervention from a single trial. The IMPACT trial (Goodyer 2017) assessed the medium-term effects and costs of BPI compared to CBT and short-term psychoanalytic psychotherapy in adolescents with a diagnosis of depression at recruitment. It found no evidence for the superiority of CBT or short-term psychoanalytic psychotherapy compared with the BPI, suggesting that BPI could be an effective intervention in its own right. However, a high proportion of people conducting BPI within the study were psychiatrists and it is unclear whether the intervention would be equally effective if carried out by more junior staff. In addition, these treatments were designed for delivery by practitioners working in routine NHS CAMHS settings and it is unclear whether the intervention would be equally effective if carried out in a primary care setting. As a result, further research is needed to explore the clinical and cost effectiveness of the BPI when it is delivered by other practitioners and in other settings, including primary care. In addition, this intervention has yet to be tested in young people with mild depression.

It is important to have a sufficiently large study population to enable the relative superiority of BPI compared to other interventions to be examined and to include a control arm to confirm that BPI is more effective than for example, waiting list. Longer follow up times (including 6 months and 1 year) should also be used to determine whether the effects of the interventions are short-lived or maintained over time.

Research in this area could strengthen the recommendation for BPI, and may increase the pool of healthcare professionals who can deliver the intervention and expand the settings in which the intervention can be carried out. These changes could in turn help improve patient access to treatment and outcomes.

PICO	**Population:** • Young people aged 12 to 18 years with mild depression • Young people aged 12 to 18 years moderate to severe depression **Interventions:** • Brief psychosocial intervention delivered by practitioners outside the specialist setting (including primary care) **Comparators:** • Control intervention (waiting list, no treatment, monitoring or usual care) • Other psychological therapies **Outcomes:** • Depression symptoms • Functional status • Remission • Quality of life • Suicide ideation
Current evidence base	This research question is based on the findings of 1 RCT (IMPACT trial, Goodyer 2017)
Study design	Randomised controlled trial

Other comments	• This RCT should be carried out within the UK.
	• The study should be powered to detect the superiority of BPI over the comparators.
	• Subgroup analyses should include:
	  ○ Sex
	  ○ Environment and family situation (for example, young people with chaotic family lives compared to those without; young people in prison or those who are looked after)
	  ○ Neurodevelopmental disorders

5. What is the clinical and cost effectiveness, post treatment and at longer-term follow-up, of behavioural activation compared with other psychological therapies in children aged 5 to 11 and young people aged 12 to 18 years with mild or moderate to severe depression?

Behavioural activation may meet the specific needs of some children and young people with mild or moderate to severe depression. It could be particularly suitable for a large number of children and young people who might struggle with the concepts of CBT. It could also be suitable for younger children and older ones who are less into talking and more into doing things or for children with learning disabilities or neurodevelopmental disorders.

Behavioural activation is particularly helpful in treating the symptoms of withdrawal from social activities, inactivity and avoidance which are common symptoms for young people who experience depression. It is relatively simple to administer and can be used as part of a broad cognitive approach, however it is particularly useful for young people as it can be used as a stand-alone intervention and unlike cognitive base approaches, does not require the therapists to challenge the young person's thinking. It can be considered particularly useful for this age group as it is developmentally appropriate and does not require the young person to access thought processes because many young people may struggle to access thinking processes, either due to their developmentally immaturity or as a consequence of their depression.

Only 1 RCT (McCauley 2016) was identified which compared behavioural activation with usual care in adolescents with moderate to severe depresssion. The RCT found no significant differences between behavioural activation and usual care in depression symptoms and functional status at post-treatment. However, the sample size was small (60 participants), and it is possible that a larger trial would be able to detect an effect on these outcomes.

Further research is needed to explore the clinical and cost effectiveness of behavioural activation compared other psychological therapies in a larger group of young people aged 12-18 years old with moderate to severe depression. It may also be an appropriate therapy for children aged 5-11 years with modeate to severe depression and for children and young people with mild depression. Longer follow up times (including 6 months and 1 year) should also be used to determine whether the effects of the interventions are short-lived or maintained over time.

Research in this area could inform future updates of key recommendations in this guidance, which in turn could help improve patient outcomes.

PICO	**Population:** • Children aged 5-11 years with mild depression • Children aged 5-11 years with moderate to severe depression • Young people aged 12 to 18 years with mild depression • Young people aged 12 to 18 years with moderate to severe depression **Interventions:** • Behavioural activation **Comparator:** • Other psychological therapies **Outcomes:** • Depression symptoms • Functional status • Remission

	• Quality of life • Suicide ideation
Current evidence base	This research question is based on the findings of 1 RCT (McCauley 2016)
Study design	Randomised controlled trial

Other comments	• This RCT should be carried out within the UK.
	• The study should be powered to detect the superiority of behavioural activation over the comparators.
	• Subgroup analyses should include:
	  ○ Gender
	  ○ Environment and family situation (for example, young people with chaotic family lives compared to those without; young people in prison or those who are looked after)
	  ○ Neurodevelopmental disorders

6. What is the clinical and cost effectiveness, post treatment and at longer-term follow-up, of group mindfulness compared with other psychological therapies in young people aged 12 to 18 years with mild depression?

In the NMAs included in this review, group mindfulness was better than waiting list/no treatment at reducing depression symptoms post treatment and at 6 months, but this intervention was not recommended because the effect was not sustained longer term and no data was available for effects on other outcomes such as functional status. The data on this intervention came from a single, small US based study with 33 female participants who were at risk of type 2 diabetes due to being overweight or obese that compared mindfulness group to group CBT (Shomaker 2017). The evidence behind the results for group mindfulness were considered to be insufficiently robust to change UK practice at this time.

Further research is needed to explore the clinical and cost effectiveness of group mindfulness compared to other psychological therapies in a larger group of young people aged 12-18 years old with mild depression. Longer follow up times (including 6 months and 1 year) should also be used to determine whether the effects of the interventions are short-lived or maintained over time.

Research in this area could inform future updates of key recommendations in this guidance, which in turn could help improve patient outcomes.

PICO	**Population:** • Young people aged 12 to 18 years with mild depression **Interventions:** • Group mindfulness **Comparator:** • Other psychological therapies **Outcomes:** • Depression symptoms • Functional status • Remission • Quality of life • Suicide ideation
Current evidence base	This research question is based on the findings of 1 RCT (Shomaker 2017)
Study design	Randomised controlled trial
Other comments	• This RCT should be carried out within the UK. • The study should be powered to detect the superiority of group mindfulness over the comparators. • Subgroup analyses should include: o Gender o Environment and family situation (for example, young people with chaotic family lives compared to those without; young people in prison or those who are looked after) o Neurodevelopmental disorders

Appendix O – References

Clinical studies

Included studies – NMA

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Appendix P – Scales used to measure continuous outcomes

Information about the key scales used in this review are shown in Table 41. This list is not intended to be exhaustive, but to provide information on some of the main scales reported in the included studies.

Table 41: Rating scales used in included studies

Outcome assessed	Scale	Variants	Description	Intended age range	Rating scale
Quality of life	Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA)	Practitioner and parent tool, self-rated tool	Quality of life measure focusing on general health and social functioning for use in child and adolescent mental health services.	5-18 years 13-18 years (self-rated tool)	0-52 or 0-60
Functional status	Global assessment of function (GAF)	-	Rating of social, occupational, and psychological functioning (not specific to depression). Higher scores indicate better function.	Adults	1 to 100
Functional status	Children's global assessment scale (CGAS)	-	Adaptation of the adult global assessment of function. Higher scores indicate better function.	Under 18	1 to 90 or 1 to 100
Depression symptoms	Beck depression inventory (BDI)	BDI-1A, BDI-II	Self-report measure of depression severity at current time. Higher scores indicate more depression symptoms.	13+	0 to 63
Depression symptoms	Child depression inventory (CDI)	CDI-II, long, short, parent and teacher versions	Adaptation of the adult Beck depression inventory. Higher scores indicate more depression symptoms.	7-17	0 to 54
Depression symptoms	Reynolds adolescent depression scale (RADS)	RADS-2, RADS-short form	Self-report questionnaire that aims to identify and quantify depressive symptoms in adolescents (gives score representing severity of depressive symptoms). Higher scores indicate more depression symptoms.	13-18	30 to 120
Depression symptoms	Mood and feelings questionnaire (MFQ)	Short-MFQ, Parent MFQ-P, Child MFQ-C	Self-report questionnaire that aims to assess depressive symptoms. Higher scores indicate more depression symptoms.	8-17	Short version: 0 to 26 Long version: 0 to 66
Depression	Center for	CES-D-R	Self-report	Adults	0 to 60

Outcome assessed	Scale	Variants	Description	Intended age range	Rating scale
symptoms	epidemiological studies depression scale (CES-D)	(revised version)	questionnaire designed to measure depressive symptoms in the past week in the general population (designed for epidemiological studies). Higher scores indicate more depression symptoms.		
Depression symptoms, remission	Schedule for Affective disorders and Schizophrenia for school-age children (K-SADS)	Present and lifetime version (K-SADS-PL); K-SADS-E interview	Structured diagnostic interview for range of psychiatric disorders including major depressive disorder. Can also be used to assess symptom severity, but is time consuming so may be inefficient as a way of measuring changes in symptoms. Higher scores indicate more depression symptoms.	6-17	0 to 3 (rating scale unclear).
Depression symptoms, remission	Hamilton rating scale for depression (HAM-D)	Also abbreviated to HDRS or HRSD	Structured interview that determines the presence and severity of depression. Higher scores indicate more depression symptoms.	Adults	17 to 29 items depending on the version; scored either on a 3-point or 5-point Likert-scale
Depression symptoms, remission	Child depression rating scale (CDRS)	CDRS-R (revised version)	Adaptation of the Hamilton rating scale for depression for adults. Higher scores indicate more depression symptoms.	6-12	CDRS-R: 17 to 113 (rating scale unclear).
Depression symptoms	Bellevue index of depression, BID	-	Scale developed at Bellevue psychiatric hospital	6 to 12 ½	0 to 120
Suicidal ideation	K-SADS suicide symptom total score	-	See entry for K-SADS under depression symptoms, remission	6-17	(rating scale unclear)
Suicidal ideation	Suicidal ideation questionnaire - Junior version (SIQ-JR)	-	15-item questionnaire to assess suicidal ideation. Higher scores indicate greater suicidal ideation.	Adolescents	15 items (rating scale unclear).
Suicidal ideation	Scale for suicidal ideation (SSI)	-	19 item clinician rating scale to assess suicidal ideation. Higher scores indicate greater suicidal	Adults	0 to 38

Outcome assessed	Scale	Variants	Description	Intended age range	Rating scale
			ideation.		

Appendix Q – List of scales with ranking for data extraction

Table 42: List scales used in included studies with ranking for data extraction. Results for depression symptoms were back converted onto the Child Depression Inventory (CDI), the Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA) was used for quality of life and the Children's Global Assessment Scale (CGAS) was used for level of function.

List of scales per outcome	Abbreviation	Number of studies	Ranking	Clinician or self-reported	Direction of scale
Level of function					
Children's global assessment scale	CGAS	14	1		Higher values better level of function
Global assessment of functioning	GAF	5	2		Higher values better level of function
Depression					
Child depression rating scale-revised	CDRS-R	16	1		Lower values fewer depression symptoms
Child depression Inventory	CDI	14	2		Lower values fewer depression symptoms
CDI-child reported	CDI-C	1	2		Lower values fewer depression symptoms
CDI-parent reported	CDI-P	3	2		Lower values fewer depression symptoms
Beck Depression inventory	BDI	11	3		Lower values fewer depression symptoms
BDI in line with DSM-IV	BDI-II	7	3		Lower values fewer depression symptoms
Hamilton rating scale for depression also known as HRSD	HAM-D/ HRSD	9	4		Lower values fewer depression symptoms
Centre for epidemiological studies depression scale	CES-D	11	5		Lower values fewer depression symptoms
CESD-children	CESD-C	1	5		Lower values fewer depression symptoms

List of scales per outcome	Abbreviation	Number of studies	Ranking	Clinician or self-reported	Direction of scale
CESD-parent	CESD-P	1	5		Lower values fewer depression symptoms
CESD-revised	CESD-R	1	5		Lower values fewer depression symptoms
CESD-youth	CESD-Y	1	5		Lower values fewer depression symptoms
Mood and feelings questionnaire	MFQ	6	6		Lower values fewer depression symptoms
MFQ-child	MFQ-C	3	6		Lower values fewer depression symptoms
MFQ-parent	MFQ-P	1	6		Lower values fewer depression symptoms
Short-MFQ	SMFQ	4	6		Lower values fewer depression symptoms
Reynolds adolescent depression scale	RADS	4	7		Lower values fewer depression symptoms
RADS-version 2	RADS-2	5	7		Lower values fewer depression symptoms
RADS-short form	RCADS	2	7		Lower values fewer depression symptoms
Schedule for Affective disorders and Schizophrenia for school-age children	K-SADS	2	8		Lower values fewer depression symptoms
Preschool Feelings Checklist-scale version 21-item adaptation	PFC-S	1	9		Lower values fewer depression symptoms
Quick inventory of depressive symptomatology-adolescent version	QIDS-A-Pat	1			Lower values fewer depression symptoms
Quality of life					
Health of the nation outcome scales for children and adolescents	HoNOSCA	2	1		Lower values better quality of life
Paediatric Quality of Life Enjoyment and Satisfaction Questionnaire	PQ-LES-Q	3	2		Higher values better quality of life

List of scales per outcome	Abbreviation	Number of studies	Ranking	Clinician or self-reported	Direction of scale
Paediatric Quality of Life Inventory	PEDS-QL	2	3		Higher values better quality of life
EuroQol five dimensions questionnaire	EQ-5D	1	3		Higher values better quality of life
EQ-5D-youth	EQ-5D-Y	1	3		Higher values better quality of life
Suicidal ideation – continuous					
Suicide ideation questionnaire	SIQ	1	1		Lower values less suicidal ideation
SIQ-junior version	SIQ-JR	3	1		Lower values less suicidal ideation
Scale for suicidal ideation	SSI	2	2		Lower values less suicidal ideation
Only item 9 of BDI	BDI (item 9)	1			Lower values less suicidal ideation
Schedule for Affective disorders and Schizophrenia for school-age children	K-SADS	1			Lower values less suicidal ideation
K-SADS-interview version	K-SADS-E	1			Lower values less suicidal ideation
K-SADS-present and lifetime version	K-SADS-P/E	1			Lower values less suicidal ideation
Self-harm					
Only 1 study reported self-harm as a dichotomous outcome: thoughts of deliberate self-harm (Y/N); deliberate self-harm behaviour (Y/N)					

Appendix R: NMA models

Please refer to appendix S for the inconsistency models.

Fixed effects model for standardised mean differences with same input and output codes

```
# Normal likelihood, identity link: SMD with arm-based means
# Fixed effect model
model{                                # *** PROGRAM STARTS
for(i in 1:ns){                       #   LOOP THROUGH STUDIES
  mu[i] ~ dnorm(0,.0001)   # vague priors for all trial baselines
  for (k in 1:na[i]){
     var[i,k] <- pow(se[i,k],2)       # calcultate variances
     prec[i,k] <- 1/var[i,k]          # set precisions
         y[i,k] ~ dnorm(phi[i,k], prec[i,k]) # normal likelihood
      #phi[i,k] <- theta[i,k] * Pooled.sd[i] # theta is SMD
      phi[i,k]<- theta[i,k] * sdlist[Scale[i]]
         theta[i,k] <- mu[i] + d[t[i,k]] - d[t[i,1]] # model for linear
predictor
#Deviance contribution
     dev[i,k] <- (y[i,k]-phi[i,k])*(y[i,k]-phi[i,k])/var[i,k]
   }
#  summed residual deviance contribution for this trial
  resdev[i] <- sum(dev[i,1:na[i]])
 }
totresdev <- sum(resdev[])            #Total Residual Deviance
d[1]<-0       # treatment effect is zero for control arm
# vague priors for treatment effects
for (k in 2:nt){  d[k] ~ dnorm(0,.0001) }
for (test in 1:nt)
{ d2[test] <- d[test] * sdlist[1]  }

#change sdlist[1]  to a specific number if want to back convert onto a
different scale

# pairwise differences
for (c in 1:(nt-1))
{  for (k in (c+1):nt)  {
diff[c,k] <- d2[k] - d2[c]
}
}
# rank treatments
for (k in 1:nt)  {
  rk[k]  <- rank(d[],k)
  best[k]  <- equals(rk[k],1)    # Smallest is best (i.e. rank 1)
# prob treat k is h-th best, prob[1,k]=best[k]
  for (h in 1:nt) { prob[h,k] <- equals(rk[k],h) }
   }
 }

}                                     # *** PROGRAM ENDS
```

Random effects model for standardised mean differences with same input and output codes

```
# Normal likelihood, identity link: SMD with arm-based means
# Random effects model for multi-arm trials
model{                                # *** PROGRAM STARTS
for(i in 1:ns){                       #   LOOP THROUGH STUDIES
  w[i,1] <- 0   # adjustment for multi-arm trials is zero for control arm
  delta[i,1] <- 0          # treatment effect is zero for control arm
  mu[i] ~ dnorm(0,.0001)   # vague priors for all trial baselines
  for (k in 1:na[i]){
     var[i,k] <- pow(se[i,k],2)      # calcultate variances
     prec[i,k] <- 1/var[i,k]         # set precisions
         y[i,k] ~ dnorm(phi[i,k], prec[i,k]) # normal likelihood
         #phi[i,k] <- theta[i,k] * Pooled.sd[i] # theta is SMD
      phi[i,k]<- theta[i,k] * sdlist[Scale[i]]
         theta[i,k] <- mu[i] + delta[i,k] # model for linear predictor
#Deviance contribution
     dev[i,k] <- (y[i,k]-phi[i,k])*(y[i,k]-phi[i,k])/var[i,k]
   }
#  summed residual deviance contribution for this trial
  resdev[i] <- sum(dev[i,1:na[i]])
  for (k in 2:na[i]){                # LOOP THROUGH ARMS
# trial-specific RE distributions
    delta[i,k] ~ dnorm(md[i,k], taud[i,k])
    md[i,k] <- d[t[i,k]] - d[t[i,1]] + sw[i,k]
# precision of RE distributions (with multi-arm trial correction)
    taud[i,k] <- tau *2*(k-1)/k
#adjustment, multi-arm RCTs
    w[i,k] <- delta[i,k] - d[t[i,k]] + d[t[i,1]]
# cumulative adjustment for multi-arm trials
    sw[i,k] <-sum(w[i,1:k-1])/(k-1)
  }
 }
totresdev <- sum(resdev[])            #Total Residual Deviance
d[1]<-0       # treatment effect is zero for control arm
# vague priors for treatment effects
for (k in 2:nt){  d[k] ~ dnorm(0,.0001) }
sd ~ dunif(0,10)                      # vague prior for for between-trial
SD
tau <- pow(sd,-2)   # between-trial precision = (1/between-trial variance)
for (test in 1:nt)
{ d2[test] <- d[test] * sdlist[1]   }

#change sdlist[1] to a specific number if want to back convert onto a
different scale

# pairwise differences
for (c in 1:(nt-1))
{  for (k in (c+1):nt)  {
diff[c,k] <- d2[k] - d2[c]
}
}
# rank treatments
for (k in 1:nt)  {
  rk[k]  <- rank(d[],k)
  best[k]  <- equals(rk[k],1)    # Smallest is best (i.e. rank 1)
# prob treat k is h-th best, prob[1,k]=best[k]
  for (h in 1:nt) { prob[h,k] <- equals(rk[k],h) }
   }
```

```
 }

}                                       # *** PROGRAM ENDS
```

Fixed effects model for standardised mean differences with input and output codes swapped

```
# Input codes 1 and 2 are swopped at output stage.Input 1 had most data,
but input 2 was the control.


# Normal likelihood, identity link: SMD with arm-based means
# Fixed effect model
model{                                # *** PROGRAM STARTS
for(i in 1:ns){                       #   LOOP THROUGH STUDIES
  mu[i] ~ dnorm(0,.0001)   # vague priors for all trial baselines
  for (k in 1:na[i]){
     var[i,k] <- pow(se[i,k],2)       # calcultate variances
     prec[i,k] <- 1/var[i,k]          # set precisions
         y[i,k] ~ dnorm(phi[i,k], prec[i,k]) # normal likelihood
      #phi[i,k] <- theta[i,k] * Pooled.sd[i] # theta is SMD
            phi[i,k]<- theta[i,k] * sdlist[Scale[i]]
         theta[i,k] <- mu[i] + d[t[i,k]] - d[t[i,1]] # model for linear
predictor
#Deviance contribution
     dev[i,k] <- (y[i,k]-phi[i,k])*(y[i,k]-phi[i,k])/var[i,k]
   }
#  summed residual deviance contribution for this trial
  resdev[i] <- sum(dev[i,1:na[i]])
 }
totresdev <- sum(resdev[])            #Total Residual Deviance
d[1]<-0       # treatment effect is zero for control arm
# vague priors for treatment effects
for (k in 2:nt){  d[k] ~ dnorm(0,.0001) }
for (test in 1:nt)
{ d2[test] <- d[test] * sdlist[1] }

#change sdlist[1] to a specific number if want to back convert onto a
different scale

# pairwise differences
for (c in 1:(nt-1))
{  for (k in (c+1):nt)
{ diff[c,k] <- d2[k] - d2[c]
}
}
diff2[1,2] <- -diff[1,2]
for (test in 3:nt)
{
diff2[1,test]<-diff[2,test]
}
for (test in 3:nt)
{
diff2[2,test]<-diff[1,test]
}

for (c in 3:(nt-1))
{  for (k in (c+1):nt)
{ diff2[c,k] <- diff[c,k]
}
}
d3[1]<-0
d3[2]<- -diff[1,2]
```

```
for (test in 3:nt)
{ d3[test] <- diff[2,test] }
# rank treatments
for (k in 1:nt)  {
  rk[k]  <- rank(d3[],k)
  best[k]  <- equals(rk[k],1)    # Smallest is best (i.e. rank 1)
# prob treat k is h-th best, prob[1,k]=best[k]
  for (h in 1:nt) { prob[h,k] <- equals(rk[k],h) }
   }
 }
}                                    # *** PROGRAM ENDS
```

Random effects model for standardised mean differences with input and output codes swapped

```
# Input codes 1 and 2 are swopped at output stage.Input 1 had most data,
but input 2 was the control.


# Normal likelihood, identity link: SMD with arm-based means
# Random effects model for multi-arm trials
model{                               # *** PROGRAM STARTS
for(i in 1:ns){                      #   LOOP THROUGH STUDIES
  w[i,1] <- 0   # adjustment for multi-arm trials is zero for control arm
  delta[i,1] <- 0          # treatment effect is zero for control arm
  mu[i] ~ dnorm(0,.0001)   # vague priors for all trial baselines
  for (k in 1:na[i]){
     var[i,k] <- pow(se[i,k],2)      # calcultate variances
     prec[i,k] <- 1/var[i,k]         # set precisions
         y[i,k] ~ dnorm(phi[i,k], prec[i,k]) # normal likelihood
         #phi[i,k] <- theta[i,k] * Pooled.sd[i] # theta is SMD
            phi[i,k]<- theta[i,k] * sdlist[Scale[i]]
         theta[i,k] <- mu[i] + delta[i,k] # model for linear predictor
#Deviance contribution
     dev[i,k] <- (y[i,k]-phi[i,k])*(y[i,k]-phi[i,k])/var[i,k]
   }
#  summed residual deviance contribution for this trial
  resdev[i] <- sum(dev[i,1:na[i]])
  for (k in 2:na[i]){                # LOOP THROUGH ARMS
# trial-specific RE distributions
    delta[i,k] ~ dnorm(md[i,k], taud[i,k])
    md[i,k] <- d[t[i,k]] - d[t[i,1]] + sw[i,k]
# precision of RE distributions (with multi-arm trial correction)
    taud[i,k] <- tau *2*(k-1)/k
#adjustment, multi-arm RCTs
    w[i,k] <- delta[i,k] - d[t[i,k]] + d[t[i,1]]
# cumulative adjustment for multi-arm trials
    sw[i,k] <-sum(w[i,1:k-1])/(k-1)
  }
 }
totresdev <- sum(resdev[])            #Total Residual Deviance
d[1]<-0       # treatment effect is zero for control arm
# vague priors for treatment effects
for (k in 2:nt){  d[k] ~ dnorm(0,.0001) }
sd ~ dunif(0,10)                      # vague prior for for between-trial
SD
tau <- pow(sd,-2)   # between-trial precision = (1/between-trial variance)
for (test in 1:nt)
{ d2[test] <- d[test] * sdlist[1] }

#change sdlist[1]  to a specific number if want to back convert onto a
different scale
```

```
# pairwise differences
for (c in 1:(nt-1))
{  for (k in (c+1):nt)
{ diff[c,k] <- d2[k] - d2[c]
}
}
diff2[1,2] <- -diff[1,2]
for (test in 3:nt)
{
diff2[1,test]<-diff[2,test]
}
for (test in 3:nt)
{
diff2[2,test]<-diff[1,test]
}

for (c in 3:(nt-1))
{  for (k in (c+1):nt)
{ diff2[c,k] <- diff[c,k]
}
}
d3[1]<-0
d3[2]<- -diff[1,2]
for (test in 3:nt)
{ d3[test] <- diff[2,test] }
# rank treatments
for (k in 1:nt)  {
  rk[k]  <- rank(d3[],k)
  best[k]  <- equals(rk[k],1)    # Smallest is best (i.e. rank 1)
# prob treat k is h-th best, prob[1,k]=best[k]
  for (h in 1:nt) { prob[h,k] <- equals(rk[k],h) }
   }
 }

}                                        # *** PROGRAM ENDS
```

Fixed effects model for relative risk with same input and output codes

```
model{ # *** PROGRAM STARTS
for(i in 1:ns){ # LOOP THROUGH STUDIES
 mu[i] ~ dnorm(0,.0001) # vague priors for all trial baselines
 for (k in 1:na[i]) { # LOOP THROUGH ARMS 62
 r[i,k] ~ dbin(p[i,k],n[i,k]) # binomial likelihood
 logit(p[i,k]) <- mu[i] + d[t[i,k]] - d[t[i,1]] # model for linear
predictor
 rhat[i,k] <- p[i,k] * n[i,k] # expected value of the numerators
 dev[i,k] <- 2 * (r[i,k] * (log(r[i,k])-log(rhat[i,k])) #Deviance
contribution
 + (n[i,k]-r[i,k]) * (log(n[i,k]-r[i,k]) - log(n[i,k]-rhat[i,k])))
 }
 resdev[i] <- sum(dev[i,1:na[i]]) # summed residual deviance contribution
for this trial
 }
totresdev <- sum(resdev[]) #Total Residual Deviance
d[1]<-0 # treatment effect is zero for reference treatment
for (k in 2:nt){ d[k] ~ dnorm(0,.0001) } # vague priors for treatment
effects
for (l in 1:nt) { pbest[l]<-equals(rank(d[],l),5) }
for (z in 1:(nt-1))
{
caterpillar[z] <- exp(d[z+1])-d[1]
}
# pairwise ORs and LORs for all possible pair-wise comparisons, if nt>2
for (c in 1:(nt-1)) {
for (k in (c+1):nt) {
or[c,k] <- exp(d[k] - d[c])
lor[c,k] <- (d[k]-d[c])
}
}
# change distribution A below for each outcome of interest (data taken from
events in treatment 1 for the largest trial)
A ~ dnorm(-1.098612289, 2.25)

for (k in 1:nt) { logit(T[k]) <- A + d[k] }
# Provide estimates of number needed to treat NNT[k], Risk Difference
RD[k],
# and Relative Risk RR[k], for each treatment, relative to treatment 1
RR[1] <- 1
for (k in 2:nt) {
RR[k] <- T[k]/T[1]
}
for (c in 1:(nt-1)) {
for (k in (c+1):nt) {
RRR[c,k] <- T[k]/T[c]
}
}
# rank treatments
for (k in 1:nt)  {
  rk[k]  <- rank(d[],k)
  best[k]  <- equals(rk[k],1)     # Smallest is best (i.e. rank 1)
# prob treat k is h-th best, prob[1,k]=best[k]
  for (h in 1:nt) { prob[h,k] <- equals(rk[k],h) }
   }
 }

} # *** PROGRAM ENDS
```

Random effects model for relative risk with same input and output codes

```
model{ # *** PROGRAM STARTS
for(i in 1:ns){ # LOOP THROUGH STUDIES
 w[i,1] <- 0 # adjustment for multi-arm trials is zero for control arm
 delta[i,1] <- 0 # treatment effect is zero for control arm
 mu[i] ~ dnorm(0,.0001) # vague priors for all trial baselines
 for (k in 1:na[i]) { # LOOP THROUGH ARMS
 r[i,k] ~ dbin(p[i,k],n[i,k]) # binomial likelihood
 logit(p[i,k]) <- mu[i] + delta[i,k] # model for linear predictor
 rhat[i,k] <- p[i,k] * n[i,k] # expected value of the numerators
 dev[i,k] <- 2 * (r[i,k] * (log(r[i,k])-log(rhat[i,k])) #Deviance
contribution
 + (n[i,k]-r[i,k]) * (log(n[i,k]-r[i,k]) - log(n[i,k]-rhat[i,k])))
 }
 resdev[i] <- sum(dev[i,1:na[i]]) # summed residual deviance contribution
for this trial
 for (k in 2:na[i]) { # LOOP THROUGH ARMS
 delta[i,k] ~ dnorm(md[i,k],taud[i,k]) # trial-specific LOR distributions
 md[i,k] <- d[t[i,k]] - d[t[i,1]] + sw[i,k] # mean of LOR distributions
(with multi-arm trial correction)
 taud[i,k] <- tau *2*(k-1)/k # precision of LOR distributions (with multi-
arm trial correction)
 w[i,k] <- (delta[i,k] - d[t[i,k]] + d[t[i,1]]) # adjustment for multi-arm
RCTs
 sw[i,k] <- sum(w[i,1:k-1])/(k-1) # cumulative adjustment for multi-arm
trials
 }
 }
totresdev <- sum(resdev[]) #Total Residual Deviance
d[1] <- 0 # treatment effect is zero for reference treatment
for (k in 2:nt){ d[k] ~ dnorm(0,.0001) } # vague priors for treatment
effects
sd ~ dunif(0,5) # vague prior for between-trial SD. ALTERNATIVES BELOW
tau <- pow(sd,-2) # between-trial precision = (1/between-trial variance)
# pairwise ORs and LORs for all possible pair-wise comparisons, if nt>2
for (c in 1:(nt-1)) {
for (k in (c+1):nt) {
or[c,k] <- exp(d[k] - d[c])
lor[c,k] <- (d[k]-d[c])
}
}
# change distribution A below for each outcome of interest (data taken from
events in treatment 1 for the largest trial)
A ~ dnorm(-1.098612289, 2.25)

for (k in 1:nt) { logit(T[k]) <- A + d[k] }
# Provide estimates of number needed to treat NNT[k], Risk Difference
RD[k],
# and Relative Risk RR[k], for each treatment, relative to treatment 1
RR[1] <- 1
for (k in 2:nt) {
RR[k] <- T[k]/T[1]
}
for (c in 1:(nt-1)) {
for (k in (c+1):nt) {
RRR[c,k] <- T[k]/T[c]
}
}
# rank treatments
for (k in 1:nt)  {
```

```
  rk[k]  <- rank(d[],k)
  best[k]  <- equals(rk[k],1)    # Smallest is best (i.e. rank 1)
# prob treat k is h-th best, prob[1,k]=best[k]
  for (h in 1:nt) { prob[h,k] <- equals(rk[k],h) }
   }
 }

} # *** PROGRAM ENDS
```

Fixed effects model for relative risk with input and output codes swapped

```
# Input codes 1 and 2 are swopped at output stage.Input 1 had most data,
but input 2 was the control.

model{ # *** PROGRAM STARTS
for(i in 1:ns){ # LOOP THROUGH STUDIES
 mu[i] ~ dnorm(0,.0001) # vague priors for all trial baselines
 for (k in 1:na[i]) { # LOOP THROUGH ARMS 62- can do > 2 arms
 r[i,k] ~ dbin(p[i,k],n[i,k]) # binomial likelihood
 logit(p[i,k]) <- mu[i] + d[t[i,k]] - d[t[i,1]] # model for linear
predictor
 rhat[i,k] <- p[i,k] * n[i,k] # expected value of the numerators
 dev[i,k] <- 2 * (r[i,k] * (log(r[i,k])-log(rhat[i,k])) #Deviance
contribution
 + (n[i,k]-r[i,k]) * (log(n[i,k]-r[i,k]) - log(n[i,k]-rhat[i,k])))
 }
 resdev[i] <- sum(dev[i,1:na[i]]) # summed residual deviance contribution
for this trial
 }
totresdev <- sum(resdev[]) #Total Residual Deviance
d[1]<-0 # treatment effect is zero for reference treatment
for (k in 2:nt){ d[k] ~ dnorm(0,.0001) } # vague priors for treatment
effects
for (l in 1:nt) { pbest[l]<-equals(rank(d[],l),5) }
for (z in 1:(nt-1))
{
caterpillar[z] <- exp(d[z+1])-d[1]
}
# pairwise ORs and LORs for all possible pair-wise comparisons, if nt>2
for (c in 1:(nt-1)) {
for (k in (c+1):nt) {
or[c,k] <- exp(d[k] - d[c])
lor[c,k] <- (d[k]-d[c])
}
}
for (c in 1:(nt-1))
{  for (k in (c+1):nt)
{ diff[c,k] <- d[k] - d[c]
}
}
diff2[1,2] <- -diff[1,2]
for (test in 3:nt)
{
diff2[1,test]<-diff[2,test]
}
for (test in 3:nt)
{
diff2[2,test]<-diff[1,test]
}

for (c in 3:(nt-1))
{  for (k in (c+1):nt)
```

```
{ diff2[c,k] <- diff[c,k]
}
}
d3[1]<-0
d3[2]<- -diff[1,2]
for (test in 3:nt)
{ d3[test] <- diff[2,test] }

# change distribution A below for each outcome of interest (data taken from
events in treatment 1 for the largest trial)

A ~ dnorm( 0.555946059, 24.78504673)

for (k in 1:nt) { logit(T[k]) <- A + d3[k] }
# Provide estimates of number needed to treat NNT[k], Risk Difference
RD[k],
# and Relative Risk RR[k], for each treatment, relative to treatment 1
RR[1] <- 1
for (k in 2:nt) {
RR[k] <- T[k]/T[1]
}
for (c in 1:(nt-1)) {
for (k in (c+1):nt) {
RRR[c,k] <- T[k]/T[c]
}
}
# rank treatments
for (k in 1:nt)  {
  rk[k]  <- rank(d3[],k)
  best[k]  <- equals(rk[k],1)    # Smallest is best (i.e. rank 1)
# prob treat k is h-th best, prob[1,k]=best[k]
  for (h in 1:nt) { prob[h,k] <- equals(rk[k],h) }
   }
 }

} # *** PROGRAM ENDS
```

Random effects model for relative risk with input and ouput codes swapped

```
# Input codes 1 and 2 are swopped at output stage.Input 1 had most data,
but input 2 was the control.

model{ # *** PROGRAM STARTS
for(i in 1:ns){ # LOOP THROUGH STUDIES
 w[i,1] <- 0 # adjustment for multi-arm trials is zero for control arm
 delta[i,1] <- 0 # treatment effect is zero for control arm
 mu[i] ~ dnorm(0,.0001) # vague priors for all trial baselines
 for (k in 1:na[i]) { # LOOP THROUGH ARMS
 r[i,k] ~ dbin(p[i,k],n[i,k]) # binomial likelihood
 logit(p[i,k]) <- mu[i] + delta[i,k] # model for linear predictor
 rhat[i,k] <- p[i,k] * n[i,k] # expected value of the numerators
 dev[i,k] <- 2 * (r[i,k] * (log(r[i,k])-log(rhat[i,k])) #Deviance
contribution
 + (n[i,k]-r[i,k]) * (log(n[i,k]-r[i,k]) - log(n[i,k]-rhat[i,k])))
 }
 resdev[i] <- sum(dev[i,1:na[i]]) # summed residual deviance contribution
for this trial
 for (k in 2:na[i]) { # LOOP THROUGH ARMS
 delta[i,k] ~ dnorm(md[i,k],taud[i,k]) # trial-specific LOR distributions
 md[i,k] <- d[t[i,k]] - d[t[i,1]] + sw[i,k] # mean of LOR distributions
(with multi-arm trial correction)
```

```
 taud[i,k] <- tau *2*(k-1)/k # precision of LOR distributions (with multi-
arm trial correction)
 w[i,k] <- (delta[i,k] - d[t[i,k]] + d[t[i,1]]) # adjustment for multi-arm
RCTs
 sw[i,k] <- sum(w[i,1:k-1])/(k-1) # cumulative adjustment for multi-arm
trials
 }
 }
totresdev <- sum(resdev[]) #Total Residual Deviance
d[1] <- 0 # treatment effect is zero for reference treatment
for (k in 2:nt){ d[k] ~ dnorm(0,.0001) } # vague priors for treatment
effects
sd ~ dunif(0,5) # vague prior for between-trial SD. ALTERNATIVES BELOW
tau <- pow(sd,-2) # between-trial precision = (1/between-trial variance)
# pairwise ORs and LORs for all possible pair-wise comparisons, if nt>2
for (c in 1:(nt-1)) {
for (k in (c+1):nt) {
or[c,k] <- exp(d[k] - d[c])
lor[c,k] <- (d[k]-d[c])
}
}
for (c in 1:(nt-1))
{  for (k in (c+1):nt)
{ diff[c,k] <- d[k] - d[c]
}
}
diff2[1,2] <- -diff[1,2]
for (test in 3:nt)
{
diff2[1,test]<-diff[2,test]
}
for (test in 3:nt)
{
diff2[2,test]<-diff[1,test]
}
for (c in 3:(nt-1))
{  for (k in (c+1):nt)
{ diff2[c,k] <- diff[c,k]
}
}
d3[1]<-0
d3[2]<- -diff[1,2]
for (test in 3:nt)
{ d3[test] <- diff[2,test] }

# change distribution A below for each outcome of interest (data taken from
events in treatment 1 for the largest trial)

A ~ dnorm( 0.555946059, 24.78504673)
for (k in 1:nt) { logit(T[k]) <- A + d3[k] }
# Provide estimates of number needed to treat NNT[k], Risk Difference
RD[k],
# and Relative Risk RR[k], for each treatment, relative to treatment 1
RR[1] <- 1
for (k in 2:nt) {
RR[k] <- T[k]/T[1]
}
for (c in 1:(nt-1)) {
for (k in (c+1):nt) {
RRR[c,k] <- T[k]/T[c]
}
}
# rank treatments
```

```
for (k in 1:nt)  {
  rk[k]  <- rank(d3[],k)
  best[k]  <- equals(rk[k],1)    # Smallest is best (i.e. rank 1)
# prob treat k is h-th best, prob[1,k]=best[k]
  for (h in 1:nt) { prob[h,k] <- equals(rk[k],h) }
   }
 }

} # *** PROGRAM ENDS
```

Appendix S: Checking for inconsistency in the NMA results

Introduction

The purpose of this analysis was to assess the consistency assumption in the network meta-analysis (NMA) models used to estimate the comparative effectiveness of psychological interventions for treating depression in children and young people.

Methods

An important assumption made in NMA concerns the consistency, that is, the agreement of the direct and indirect evidence informing the treatment contrasts [1,2]. There should be no meaningful differences between these two sources of evidence.

To determine if there is evidence of inconsistency, the selected consistency model (fixed or random effects) was compared to an "inconsistency", or unrelated mean effects, model [1,2]. The latter is equivalent to having separate, unrelated, meta-analyses for every pairwise contrast, with a common variance parameter assumed in the case of random effects models. Note that the consistency assumption can only be assessed when there are closed loops of direct evidence on 3 treatments that are informed by at least 3 independent sources of evidence [3]. This was not the case for the networks of evidence listed in Table 43.

Table 43 Networks where inconsistency checks were not possible.

Outcome	Age Group	Severity of Depression
Depression symptoms, post-treatment	5 to 11 years	Moderate to severe
Depression symptoms, ≤ 6 months	12 to 18 years	Moderate to severe
Depression symptoms, >6 to ≤ 18 months	12 to 18 years	Mild
		Moderate to severe
Functional status, post-treatment	5 to 11 years	Moderate to severe
	12 to 18 years	Mild
		Moderate to severe
Functional status, ≤ 6 months	12 to 18 years	Mild
		Moderate to severe
Functional status, >6 to ≤ 18 months	12 to 18 years	Moderate to severe
Remission, post-treatment	5 to 11 years	Moderate to severe
	12 to 18 years	Mild
		Moderate to severe
Quality of life, post-treatment	12 to 18 years	Moderate to severe
Quality of life, ≤ 6 months	12 to 18 years	Moderate to severe
Quality of life, >6 to ≤ 18 months	12 to 18 years	Moderate to severe
Suicide ideation, post-treatment	5 to 11 years	Moderate to severe

	12 to 18 years	Mild
		Moderate to severe
Discontinuation, endpoint	5 to 11 years	Moderate to severe

The posterior mean of the residual deviance, which measures the magnitude of the differences between the observed data and the model predictions of the data, was used to assess and compare the goodness of fit of each model [4]. Smaller values are preferred, and in a well-fitting model the posterior mean residual deviance should be close to the number of data points in the network (each study arm contributes 1 data point) [4].

In addition to assessing how well the models fit the data using the posterior mean of the residual deviance, models were compared using the deviance information criterion (DIC). This is equal to the sum of the posterior mean deviance and the effective number of parameters, and thus penalizes model fit with model complexity [4]. Lower values are preferred and differences of 3 points were considered meaningful [4].

The posterior median between-study standard deviation, which measures the heterogeneity of treatment effects estimated by trials making the same treatment comparisons, was also used to compare models. If the inconsistency model has smaller heterogeneity compared to the consistency model, then this indicates potential inconsistency in the data.

NOTE: These inconsistency checks were carried out on earlier versions of the analyses which included: Luby (2012) for 5-11 year olds with moderate to severe depression; Szigethy (2007) for mild depression in 12-18 year olds and Szigethy (2014) and Gunlicks-Stoessel (2016) for moderate to severe depression in 12-18 year olds. However, the inconsistency analyses were not rerun because the removal of studies is expected to decrease inconsistency where any was previously detected. In the case of Gunlicks-Stoessel (2016), the removal of this paper led to the loss of IPT-A with extra parent sessions from the NMA network. Luby (2012) was completely excluded from the review because the study recruited children aged 3-7 years old and this update covers 5-18 year olds only. Szigethy (2007 and 2014) were excluded because they recruited young people with depression and a specific comorbidity. In addition, for 5-11 year olds with moderate to severe depression, the interventions in Dietz (2015) and Fristad (2016) were reclassified from family therapy to family based IPT and family psychoeducation with CBT respectively. Family psychoeducation with CBT (Fristad, 2016) was not included in the updated analyses due to the lack of a connection to the network.

Results

3.1 OUTCOME: DEPRESSION SYMPTOMS POST-TREATMENT, 12 – 18 YEAR OLDS, MILD DEPRESSION

Inconsistency checks were performed using the random effects model, as smaller posterior mean residual deviance and DIC suggests this model was preferred over the fixed effect model. Convergence was satisfactory for the random effects model assuming inconsistency after 20,000 iterations, and the consistency and inconsistency models were compared using results based on samples from a further 40,000 iterations on two chains. WinBUGS code for the inconsistency model is provided in appendix S1.

There are no meaningful differences between the fit of the random effects consistency and inconsistency models (Table 44). However, the between-study standard deviation is smaller in the inconsistency model. The area below the line of equality in Figure 121 highlights where the inconsistency model better predicted data points, and there were notable improvements in the prediction of data in Jacob 2016, Stice 2008, and Ackerson 1998.

Table 44 Model fit statistics for 'Depression symptoms, post-treatment', 12 to 18 year olds with mild depression.

Model	Between Study Heterogeneity - Standard Deviation (95% CrI[a])	Posterior total residual deviance[b]	DIC[c]
Consistency model - RE	0.35 (0.19, 0.59)	62.13	263.690
Inconsistency model - RE	0.23 (0.06, 0.48)	62.97	263.258

[a] Credible Interval (CrI)
[b] Posterior mean residual deviance compared to 60 total data points
[c] Deviance information criteria (DIC) – lower values preferred

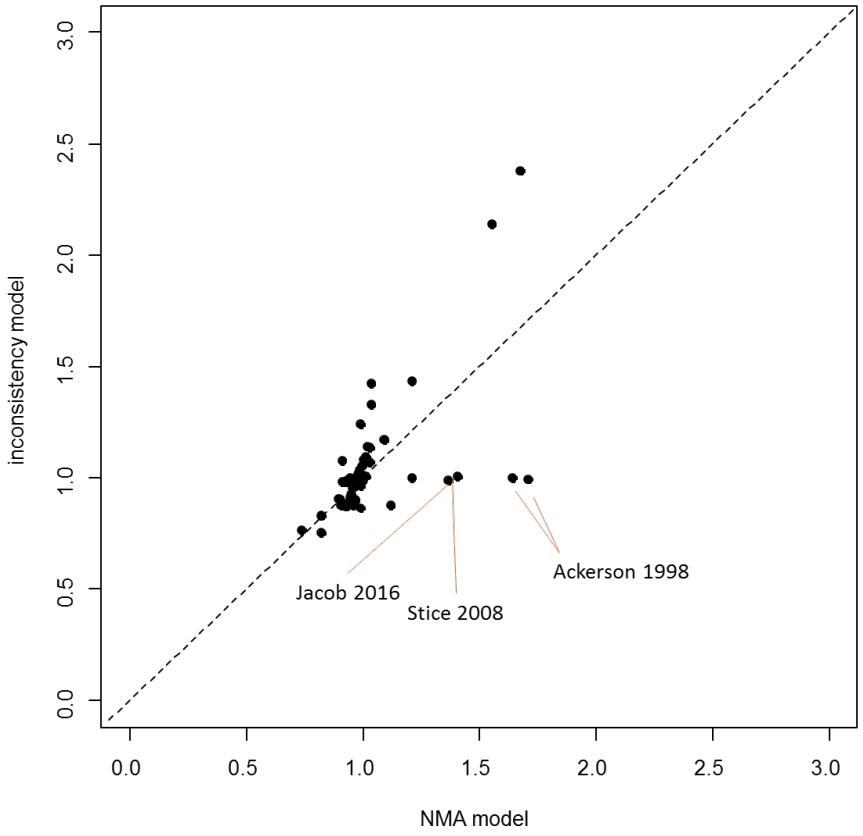

Figure 121 Deviance contributions for the random effects consistency and inconsistency models.

3.2 OUTCOME: DEPRESSION SYMPTOMS POST-TREATMENT, 12 – 18 YEAR OLDS, MODERATE TO SEVERE DEPRESSION

Inconsistency checks were performed using the random effects model, as smaller posterior mean residual deviance and DIC suggests this model was preferred over the fixed effect model. Convergence was satisfactory for the random effects model assuming inconsistency after 20,000 iterations, and the consistency and inconsistency models were compared using results based on samples from a further 40,000 iterations on two chains. WinBUGS code for the inconsistency model is provided in appendix S1.

There are no meaningful differences between the fit of the random effects consistency and inconsistency models, and the between-study standard deviation is smaller in the consistency model (Table 45). The area below the line of equality in Figure 122 highlights where the inconsistency model better predicted data points, and the improvements were minimal.

Table 45 Model fit statistics for 'Depression symptoms, post-treatment', 12 to 18 year olds with moderate to severe depression

Model	Between Study Heterogeneity - Standard Deviation (95% CrI[a])	Posterior total residual deviance[b]	DIC[c]
Consistency model - RE	0.54 (0.29, 1.04)	51.63	250.859
Inconsistency model - RE	0.65 (0.34, 1.43)	51.02	251.007

[a] Credible Interval (CrI)
[b] Posterior mean residual deviance compared to 51 total data points
[c] Deviance information criteria (DIC) – lower values preferred

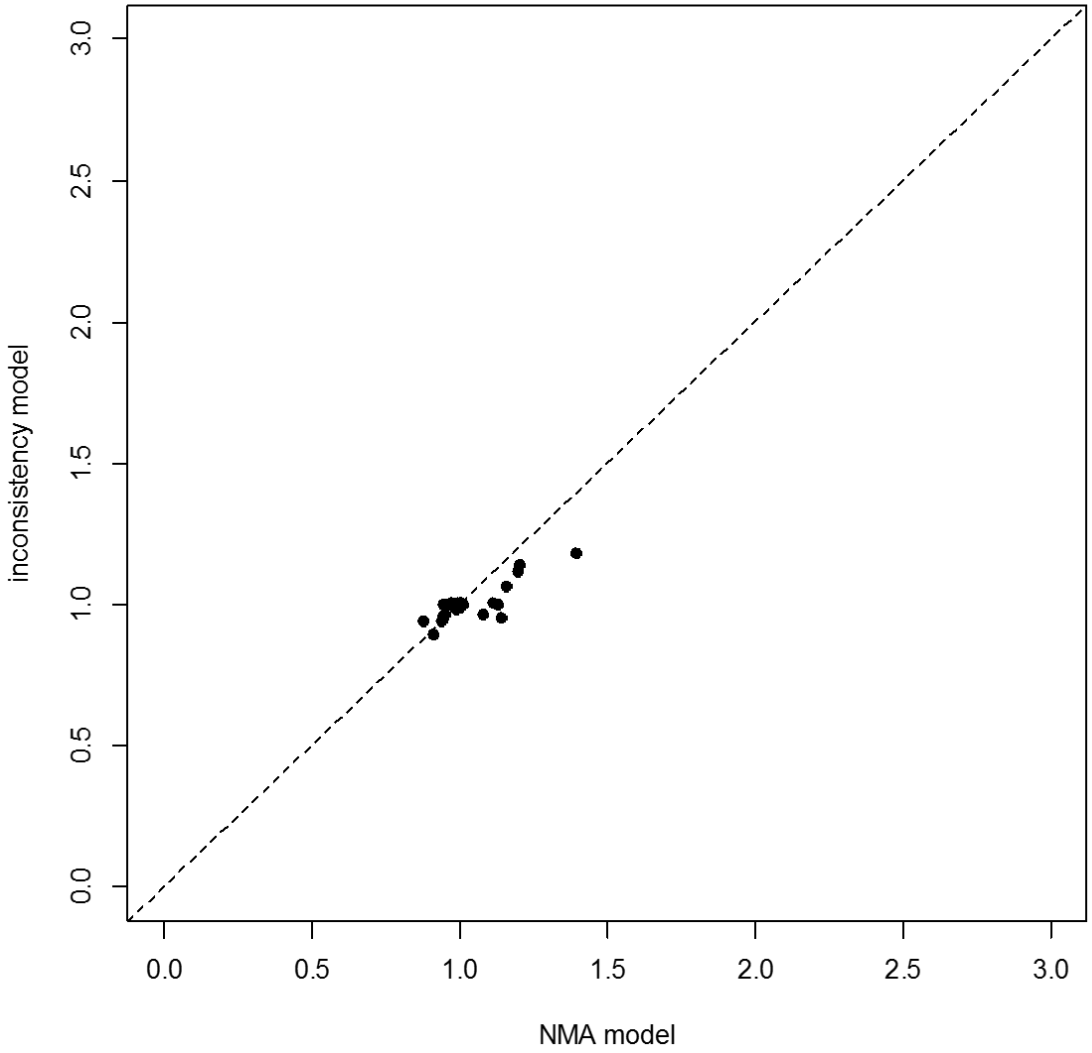

Figure 122 Deviance contributions for the random effects consistency and inconsistency models.

3.3 OUTCOME: DEPRESSION SYMPTOMS AT FOLLOW-UP UP TO 6 MONTHS, 12 – 18 YEAR OLDS, MILD DEPRESSION

Inconsistency checks were performed using the fixed effect model, as there were no meaningful differences in the DIC. Nevertheless, the model fit was poor, since the posterior total residual deviance is notably larger than the number of data points (Table 46). Convergence was satisfactory for the fixed effect model assuming inconsistency after 20,000 iterations, and the consistency and inconsistency models were compared using results based on samples from a further 40,000 iterations on two chains. WinBUGS code for the inconsistency model is provided in appendix S2.

There are no meaningful differences between the fit of the fixed effect consistency and inconsistency models (Table 46). The area below the line of equality in Figure 123 highlights where the inconsistency model better predicted data points, and there were notable improvements in the prediction of data in Hayes 2011.

Table 46 Model fit statistics for 'Depression symptoms, ≤ 6 months', 12 to 18 year olds with mild depression

Model	Between Study	Posterior total	DIC[c]

	Heterogeneity - Standard Deviation (95% CrI[a])	**residual deviance[b]**	
Consistency model - FE	N/A	68.37	239.540
Inconsistency model - FE		64.0	238.184

[a] Credible Interval (CrI)
[b] Posterior mean residual deviance compared to 52 total data points
[c] Deviance information criteria (DIC) – lower values preferred

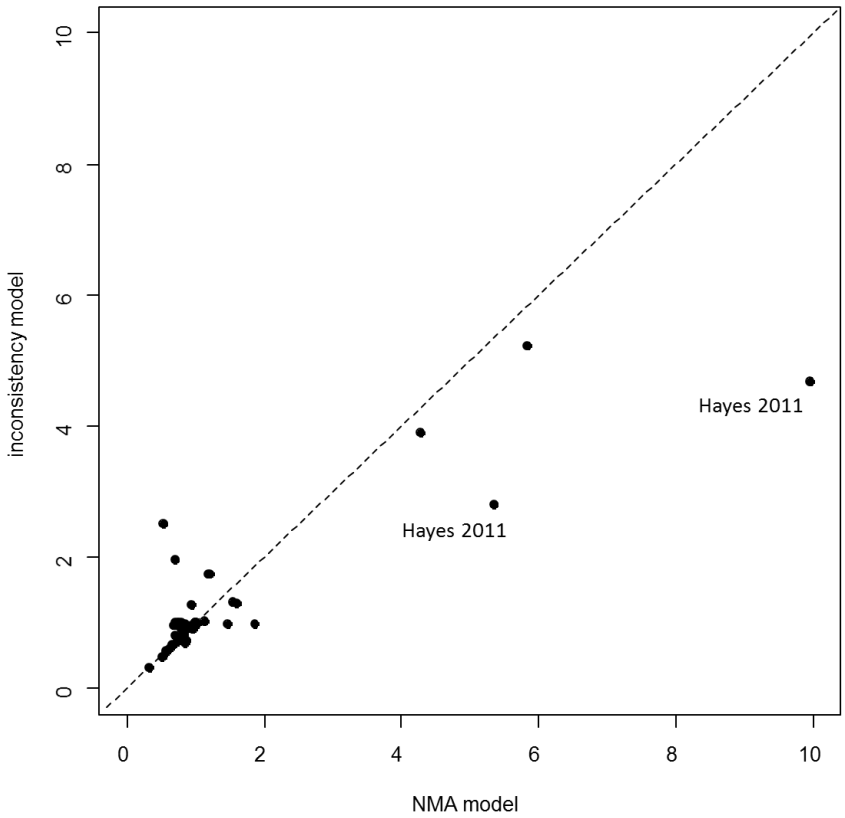

Figure 123 Deviance contributions for the fixed effect consistency and inconsistency models.

3.4 OUTCOME: FUNCTIONAL STATUS, >6 TO ≤ 18 MONTHS, 12 – 18 YEAR OLDS, MILD DEPRESSION

Inconsistency checks were performed using the fixed effect model, as there were no meaningful differences in the posterior mean residual deviance or DIC. Convergence was satisfactory for the fixed effect model assuming inconsistency after 20,000 iterations, and the consistency and inconsistency models were compared using results based on samples from a further 40,000 iterations on two chains. WinBUGS code for the inconsistency model is provided in appendix S2.

There are no meaningful differences between the fit of the fixed effect consistency and inconsistency models (Table 47). The area below the line of equality in Figure 124 highlights where the inconsistency model better predicted data points, and there were no improvements.

Table 47 Model fit statistics for 'Functional status >6 to ≤ 18 months', 12 to 18 year olds with mild depression

Model	Between Study Heterogeneity - Standard Deviation (95% CrI[a])	Posterior total residual deviance[b]	DIC[c]
Consistency model - FE	N/A	5.135	25.902
Inconsistency model - FE		5.971	27.707

[a] Credible Interval (CrI)
[b] Posterior mean residual deviance compared to 6 total data points
[c] Deviance information criteria (DIC) – lower values preferred

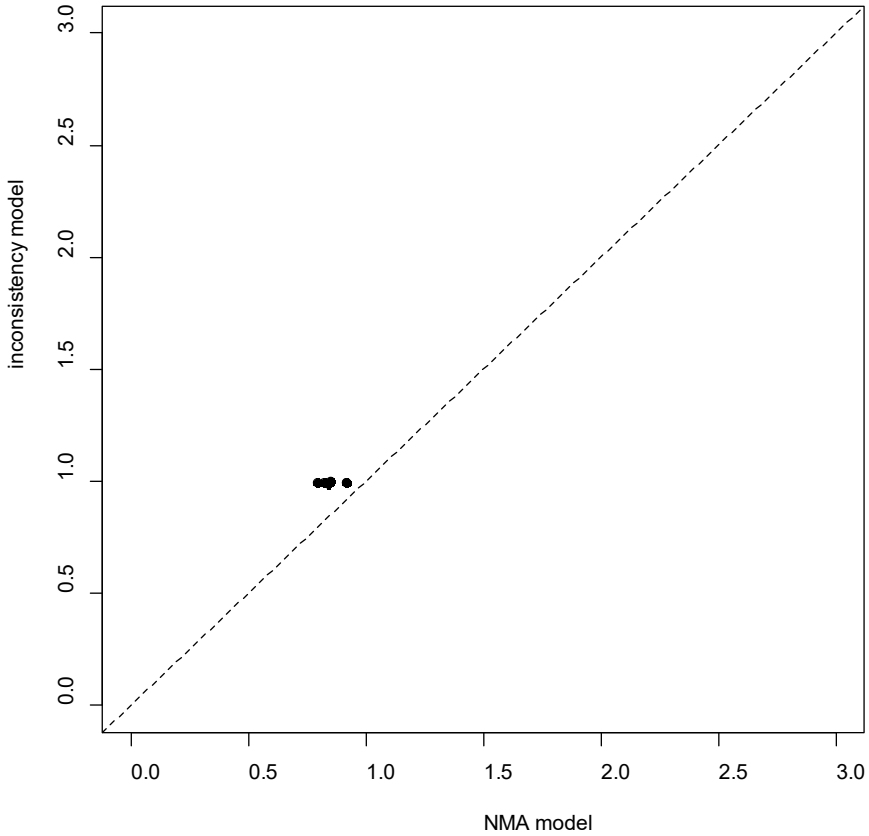

Figure 124 Deviance contributions for the fixed effect consistency and inconsistency models

3.5 OUTCOME: DISCONTINUATION, ENDPOINT, 12 – 18 YEAR OLDS, MILD DEPRESSION

Inconsistency checks were performed using the random effects model, as smaller posterior mean residual deviance and DIC suggests this model was preferred over the fixed effect model. Nevertheless, the model fit was poor, since the posterior total residual deviance is notably larger than the number of data points (Table 48). Convergence was satisfactory for the random effects model assuming inconsistency after 20,000 iterations, and the consistency and inconsistency models were compared using results based on samples from a further 40,000 iterations on two chains. WinBUGS code for the inconsistency model is provided in appendix S3.

The inconsistency model better fitted the data, as noted by the smaller posterior mean residual deviance and DIC (Table 48). The area below the line of equality in Figure 125 highlights where the inconsistency model better predicted data points, and there were notable improvements in the prediction of data in Smith 2015, Poppleaars 2016, and Duong 2016.

Table 48 Model fit statistics for 'Discontinuation for any reason, end point', 12 to 18 year olds with mild depression

Model*	Between Study Heterogeneity - Standard Deviation (95% CrI[a])	Posterior total residual deviance[b]	DIC[c]
Consistency model - RE	0.77 (0.17, 1.78)	54.36	255.066

Inconsistency model - RE	0.96 (0.29, 2.42)	50.71	252.876

[a] Credible Interval (CrI)
[b] Posterior mean residual deviance compared to 48 total data points
[c] Deviance information criteria (DIC) – lower values preferred
* Thin = 10

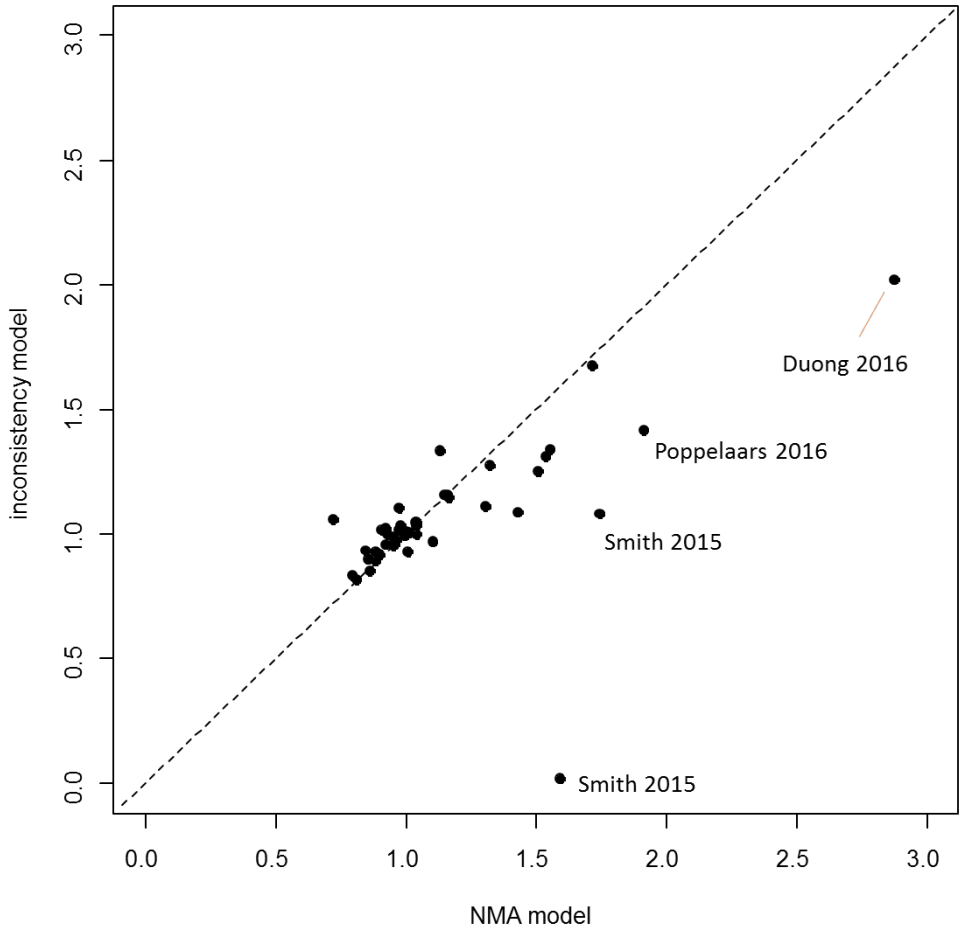

Figure 125 Deviance contributions for the random effects consistency and inconsistency models.

3.6 OUTCOME: DISCONTINUATION, ENDPOINT, 12 – 18 YEAR OLDS, MODERATE TO SEVERE DEPRESSION

Inconsistency checks were performed using the fixed effect model, as there were no meaningful differences in the posterior mean residual deviance or DIC. Convergence was satisfactory for the fixed effect model assuming inconsistency after 20,000 iterations, and the consistency and inconsistency models were compared using results based on samples from a further 40,000 iterations on two chains. WinBUGS code for the inconsistency model is provided in appendix S4.

There are no meaningful differences between the fit of the fixed effect consistency and inconsistency models (Table 49). The area below the line of equality in Figure 126 highlights where the inconsistency model better predicted data points, and there were no improvements.

Table 49 Model fit statistics for 'Discontinuation for any reason, end point, 12 to 18 year olds with moderate to severe depression

Model*	Between Study Heterogeneity - Standard Deviation (95% CrI[a])	Posterior total residual deviance[b]	DIC[c]
Consistency model - FE	N/A	42.24	218.248
Inconsistency model - FE		43.96	221.901

[a] Credible Interval (CrI)
[b] Posterior mean residual deviance compared to 45 total data points
[c] Deviance information criteria (DIC) – lower values preferred
* Continuity correction applied. Thin = 10.

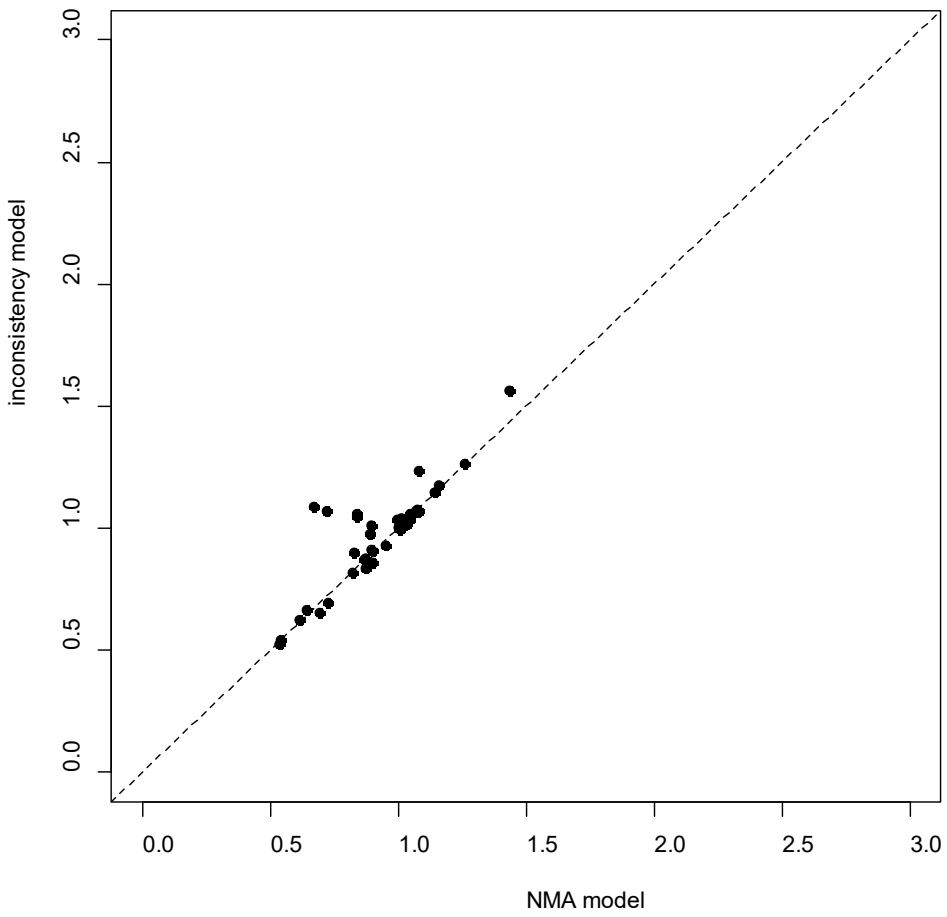

Figure 126 Deviance contributions for the fixed effect consistency and inconsistency models.

Conclusions

There was evidence of inconsistency in the 'Depression symptoms, post-treatment, 12-18 year olds, mild', 'Depression symptoms, ≤ 6 months, 12 – 18 year olds, mild', 'Discontinuation for any reason, endpoint, 12 – 18 year olds, mild' networks. The data in these networks, particularly for the studies highlighted in Section 3, were scrutinised to ensure there were no errors that could account for these issues, but none were found. The lack of good fit in the 'Depression symptoms, ≤ 6 months, 12 – 18 year olds, mild' network was noted, which may be due to inconsistency in the network. Finally, there is large between-study heterogeneity in the 'Discontinuation for any reason, endpoint, 12 – 18 year olds, mild' network (posterior median of between study standard deviation: 0.77 (95% CrI: 0.17, 1.78)). These observations were carefully considered when interpreting the evidence.

Please refer to methods and processes for details of subsequent analyses and the sensitivity analyses section of the quality of the evidence for a discussion of the results of these additional analyses.

Appendix S1. WinBUGS code for inconsistency model used in this report – 'Depression symptoms post-treatment, 12 – 18 year olds, mild depression' and 'Depression symptoms post-treatment, 12 – 18 year olds, moderate to severe depression'

```
# Normal likelihood, identity link: SMD with arm-based means
# Random effects model
model{                          # *** PROGRAM STARTS

       for(i in 1:ns){          # LOOP THROUGH STUDIES
       delta[i,1] <- 0          # treatment effect is zero for control arm
       mu[i] ~ dnorm(0,.0001)   # vague priors for all trial baselines

       for (k in 1:na[i]){
              var[i,k] <- pow(se[i,k],2)      # calculate variances
              prec[i,k] <- 1/var[i,k]         # set precisions
              y[i,k] ~ dnorm(phi[i,k], prec[i,k])           # normal likelihood

              phi[i,k]<- theta[i,k] * sdlist[Scale[i]]      # theta is SMD

              theta[i,k] <- mu[i] + delta[i,k]        # model for linear predictor

              #Deviance contribution
              dev[i,k] <- (y[i,k]-phi[i,k])*(y[i,k]-phi[i,k])/var[i,k]
              }

       #  summed residual deviance contribution for this trial
       resdev[i] <- sum(dev[i,1:na[i]])

       for (k in 2:na[i]){                # LOOP THROUGH ARMS
              # trial-specific RE distributions
              delta[i,k] ~ dnorm(md[i,k], tau)
              md[i,k] <- d[t[i,1],t[i,k]]
              }
       }

totresdev <- sum(resdev[])            # Total Residual Deviance

sd ~ dunif(0,10)    # vague prior for for between-trial SD
tau <- pow(sd,-2)   # between-trial precision = (1/between-trial variance)

# vague priors for treatment effects
for (c in 1:nt) {   d[c,c] <- 0 }
for (c in 1:(nt-1)) {  # priors for all mean treatment effects
    for (k in (c+1):nt)  {
                    d[c,k] ~ dnorm(0,.0001)
                    d[k,c] <- -d[c,k]
                    }
  }

}                                     # *** PROGRAM ENDS
```

Appendix S2. WinBUGS code for inconsistency model used in this report – 'Depression symptoms at follow-up up to 6 months, 12 – 18 year olds, mild depression' and 'Functional status, >6 to ≤ 18 months, 12 – 18 year olds, mild depression'

```
# Normal likelihood, identity link: SMD with arm-based means
# Fixed effect model
model{                          # *** PROGRAM STARTS

       for(i in 1:ns){          # LOOP THROUGH STUDIES
       mu[i] ~ dnorm(0,.0001)   # vague priors for all trial baselines

       for (k in 1:na[i]){
              var[i,k] <- pow(se[i,k],2)      # calculate variances
              prec[i,k] <- 1/var[i,k]         # set precisions
              y[i,k] ~ dnorm(phi[i,k], prec[i,k])           # normal likelihood

              phi[i,k]<- theta[i,k] * sdlist[Scale[i]]      # theta is SMD

              # model for linear predictor
              theta[i,k] <- mu[i] + d[t[i,1],t[i,k]]

              #Deviance contribution
              dev[i,k] <- (y[i,k]-phi[i,k])*(y[i,k]-phi[i,k])/var[i,k]
              }

       #  summed residual deviance contribution for this trial
       resdev[i] <- sum(dev[i,1:na[i]])

       }

totresdev <- sum(resdev[])            #Total Residual Deviance

# vague priors for treatment effects
for (c in 1:nt) {   d[c,c] <- 0 }
for (c in 1:(nt-1)) {  # priors for all mean treatment effects
    for (k in (c+1):nt)  {
                    d[c,k] ~ dnorm(0,.0001)
                    d[k,c] <- -d[c,k]
                    }
       }
}                                     # *** PROGRAM ENDS
```

Appendix S3. WinBUGS code for inconsistency model used in this report – 'Discontinuation, endpoint, 12 – 18 year olds, mild depression'

```
# Binomial likelihood, logit link
# Random effects model
model{                            # *** PROGRAM STARTS

       for(i in 1:ns){                   # LOOP THROUGH STUDIES
       delta[i,1] <- 0                   # treatment effect is zero for control arm
       mu[i] ~ dnorm(0,.0001)            # vague priors for all trial baselines

       for (k in 1:na[i]) {                      # LOOP THROUGH ARMS
              r[i,k] ~ dbin(p[i,k],n[i,k])       # binomial likelihood
              logit(p[i,k]) <- mu[i] + delta[i,k]     # model for linear predictor

              rhat[i,k] <- p[i,k] * n[i,k] # expected value of the numerators

              #Deviance contribution
              dev[i,k] <- 2 * (r[i,k] * (log(r[i,k])-log(rhat[i,k]))
                  + (n[i,k]-r[i,k]) * (log(n[i,k]-r[i,k]) - log(n[i,k]-rhat[i,k])))

              }

       # summed residual deviance contribution for this trial
       resdev[i] <- sum(dev[i,1:na[i]])

       for (k in 2:na[i]) {                 # LOOP THROUGH ARMS
              delta[i,k] ~ dnorm(md[i,k],tau)   # trial-specific LOR distributions
              md[i,k] <- d[t[i,1],t[i,k]]       # mean of LOR distributions
              }

       }

totresdev <- sum(resdev[])            #Total Residual Deviance


sd ~ dunif(0,5)     # vague prior for for between-trial SD
tau <- pow(sd,-2)   # between-trial precision = (1/between-trial variance)


# vague priors for treatment effects
for (c in 1:nt) {   d[c,c] <- 0 }
for (c in 1:(nt-1)) {            # priors for all mean treatment effects
       for (k in (c+1):nt)  {
              d[c,k] ~ dnorm(0,.0001)
              d[k,c] <- -d[c,k]
              }
       }

}                                     # *** PROGRAM ENDS
```

Appendix S4. WinBUGS code for inconsistency model used in this report – 'Discontinuation, endpoint, 12 – 18 year olds, moderate to severe depression'

```
# Binomial likelihood, logit link
# Fixed effect model
model{                          # *** PROGRAM STARTS

       for(i in 1:ns){                  # LOOP THROUGH STUDIES
       mu[i] ~ dnorm(0,.0001)           # vague priors for all trial baselines

       for (k in 1:na[i]) {                     # LOOP THROUGH ARMS
              r[i,k] ~ dbin(p[i,k],n[i,k])      # binomial likelihood

              # model for linear predictor
              logit(p[i,k]) <- mu[i] + d[t[i,1],t[i,k]]

              rhat[i,k] <- p[i,k] * n[i,k] # expected value of the numerators

              #Deviance contribution
              dev[i,k] <- 2 * (r[i,k] * (log(r[i,k])-log(rhat[i,k]))
                  + (n[i,k]-r[i,k]) * (log(n[i,k]-r[i,k]) - log(n[i,k]-rhat[i,k])))

              }

       # summed residual deviance contribution for this trial
       resdev[i] <- sum(dev[i,1:na[i]])

       }

totresdev <- sum(resdev[])            #Total Residual Deviance

# vague priors for treatment effects
for (c in 1:nt) {   d[c,c] <- 0 }
for (c in 1:(nt-1)) {            # priors for all mean treatment effects
       for (k in (c+1):nt)  {
              d[c,k] ~ dnorm(0,.0001)
              d[k,c] <- -d[c,k]
              }
       }

}                                     # *** PROGRAM ENDS
```

References

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2. Dias S, Welton NJ, Sutton AJ, Caldwell DM, Lu G, Ades AE. NICE DSU Technical Support Document 4: Inconsistency in networks of evidence based on randomised controlled trials. 2011; last updated April 2014. Available from http://scharr.dept.shef.ac.uk/nicedsu/technical-support-documents/evidence-synthesis-tsd-series/.

3. van Valkenhoef, G, Dias S, Ades AE, Welton NJ. Automated generation of node-splitting models for assessment of inconsistency in network meta-analysis. *Research Synthesis Methods.* 2016. 7:80-93.

4. Spiegelhalter DJ, Best,NG, Carlin BP, van der Linde A. Bayesian measures of model complexity and fit. *Journal of the Royal Statistical Society: Series B*. 2002. 64(4):583-616.