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Family therapy approaches for anorexia nervosa (Review)

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[Intervention Review]

Family therapy approaches for anorexia nervosa

Caroline A Fisher¹, Sonja Skocic², Kathleen A Rutherford³, Sarah E Hetrick^{4,5}

¹Allied Health - Psychology, Royal Melbourne Hospital, Melbourne Health, Parkville, Australia. ²The Melbourne Clinic, Healthscope, Richmond, Australia. ³Rehabilitation, Aged and Community Care, ACT Health, Canberra, Australia. ⁴Department of Psychological Medicine, University of Auckland, Auckland, New Zealand. ⁵The Centre of Youth Mental Health, University of Melbourne, Melbourne, Australia

Contact: Caroline A Fisher, Allied Health - Psychology, Royal Melbourne Hospital, Melbourne Health, Parkville, Victoria, 3050, Australia. caroline.fisher2@mh.org.au.

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ABSTRACT

Background

Anorexia nervosa (AN) is characterised by a failure to maintain a normal body weight due to a paucity of nutrition, an intense fear of gaining weight or behaviour that prevents the individual from gaining weight, or both. The long-term prognosis is often poor, with severe developmental, medical and psychosocial complications, high rates of relapse and mortality. 'Family therapy approaches' indicate a range of approaches, derived from different theories, that involve the family in treatment. We have included therapies developed on the basis of dominant family systems theories, approaches that are based on or broadly similar to the family-based therapy derived from the Maudsley model, approaches that incorporate a focus on cognitive restructuring, as well as approaches that involve the family without articulation of a theoretical approach. This is an update of a Cochrane Review first published in 2010.

Objectives

To evaluate the efficacy of family therapy approaches compared with standard treatment and other treatments for AN.

Search methods

We searched the Cochrane Common Mental Disorders Controlled Trials Register (CCMDCTR) and PsycINFO (OVID) (all years to April 2016). We ran additional searches directly on Cochrane Central Register for Controlled Trials (CENTRAL), MEDLINE, Ovid Embase, and PsycINFO (to 2008 and 2016 to 2018). We searched the World Health Organization (WHO) trials portal (ICTRP) and ClinicalTrials.gov, together with four theses databases (all years to 2018). We checked the reference lists of all included studies and relevant systematic reviews. We have included in the analyses only studies from searches conducted to April 2016.

Selection criteria

Randomised controlled trials (RCTs) of family therapy approaches compared to any other intervention or other types of family therapy approaches were eligible for inclusion.

We included participants of any age or gender with a primary clinical diagnosis of anorexia nervosa.

Data collection and analysis

Four review authors selected the studies, assessed quality and extracted data. We used a random-effects meta-analysis. We used the risk ratio (with a 95% confidence interval) to summarise dichotomous outcomes and both the standardised mean difference and the mean difference to summarise continuous measures.

Main results

We included 25 trials in this version of the review (13 from the original 2010 review and 12 newly-included studies). Sixteen trials were of adolescents, eight trials of adults (seven of these in young adults aged up to 26 years) and one trial included three age groups: one adolescent, one young adult and one adult. Most investigated family-based therapy or variants. Reporting of trial conduct was generally inadequate, so that in a large number of studies we rated the risk of bias as unclear for many of the domains. Selective reporting bias was particularly problematic, with 68% of studies rated at high risk of bias in this area, followed by incomplete outcome data, with 44% of studies rated at high risk of bias in this area. For the main outcome measure of remission there was some low-quality evidence (from only two studies, 81 participants) suggesting that family therapy approaches might offer some advantage over treatment as usual on rates of remission, post intervention (risk ratio (RR) 3.50, 95% confidence interval (CI) 1.49 to 8.23; $I^2 = 0\%$). However, at follow-up, low-quality evidence from only one study suggested this effect was not maintained. There was very low-quality evidence from only one trial, which means it is difficult to determine whether family therapy approaches offer any advantage over educational interventions for remission (RR 9.00, 95% CI 0.53 to 153.79; 1 study, N = 30). Similarly, there was very low-quality evidence from only five trials for remission post-intervention, again meaning that it is difficult to determine whether there is any advantage of family therapy approaches over psychological interventions (RR 1.22, 95% CI 0.89 to 1.67; participants = 252; studies = 5; $I^2 = 37\%$) and at long-term follow-up (RR 1.08, 95% CI 0.91 to 1.28; participants = 200; studies = 4 with 1 of these contributing 3 pairwise comparisons for different age groups; $I^2 = 0\%$). There was no indication that the age group had any impact on the overall treatment effect; however, it should be noted that there were very few trials undertaken in adults, with the age range of adult studies included in this analysis from 20 to 27. There was some evidence of a small effect favouring family based therapy compared with other psychological interventions in terms of weight gain post-intervention (standardised mean difference (SMD) 0.32, 95% CI 0.01 to 0.63; participants = 210; studies = 4 with 1 of these contributing 3 pairwise comparisons for different age groups; $I^2 = 11\%$). Overall, there was insufficient evidence to determine whether there were any differences between groups across all comparisons for most of the secondary outcomes (weight, eating disorder psychopathology, dropouts, relapse, or family functioning measures), either at post-intervention or at follow-up.

Authors' conclusions

There is a limited amount of low-quality evidence to suggest that family therapy approaches may be effective compared to treatment as usual in the short term. This finding is based on two trials that included only a small number of participants, and both had issues about potential bias. There is insufficient evidence to determine whether there is an advantage of family therapy approaches in people of any age compared to educational interventions (one study, very low quality) or other psychological therapies (five studies, very low quality). Most studies contributing to this finding were undertaken in adolescents and youth. There are clear potential impacts on how family therapy approaches might be delivered to different age groups and further work is required to understand what the resulting effects on treatment efficacy might be. There is insufficient evidence to determine whether one type of family therapy approach is more effective than another. The field would benefit from further large, well-conducted trials.

PLAIN LANGUAGE SUMMARY

Family therapy for those diagnosed with anorexia nervosa

Review Question

This review investigated whether family therapy approaches reduce rates of anorexia nervosa (AN), or associated symptoms, compared to other treatments.

Background

People with AN have a deliberately maintained low body weight and distorted body image. They also experience related medical and psychological problems, and the risk of dying from the disease (mortality) is relatively high. Family therapy approaches are one form of treatment used in AN.

Search date

The evidence is current up to 8 April 2016.

Study characteristics

We included 25 trials in the review. Fourteen trials used *family-based* therapy, one used *systems* family therapy, one used *structural* family therapy and seven studies used therapy with family involvement but did not provide specific details about the theory behind the therapy or its procedures, termed *other* family therapy. Two studies included two family therapy arms each: one included *family-based* therapy and *systems* family therapy arms, and one included *systems* family therapy and *other* family therapy arms. Four studies compared family therapy approaches to treatment as usual, six compared family therapy approaches to other psychological interventions and two compared family therapy to educational interventions. Twelve studies compared various forms of family therapy approaches to each other. Two studies included both a treatment as usual as well as other psychological intervention arms.

Key results

Family therapy approaches for anorexia nervosa (Review)

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Overall there was some low-quality evidence from only two trials to suggest that family therapy approaches may be better than treatment as usual in the short term. The size and very low quality of the evidence base and the consistency of the trial outcomes are insufficient at this time to draw conclusions about whether family therapy approaches offer any clear advantage over educational or psychological interventions. We found very few differences between treatment groups on measures of weight, eating disorder symptoms and family functioning, and these differences were generally not maintained at follow-up. The reporting of death rates was not clear enough to assess whether death is reduced for those treated with family therapy approaches compared to other interventions. There was very little information about the effects of the interventions on general or family functioning.

Quality of the evidence

The way the trials were run was not adequately described in many studies and we found potential risks of bias in most of the studies. This limited the meaningful conclusions that we could draw from the studies.

Authors' conclusions

Overall, there is a very limited evidence base in this field. There is some low-quality evidence to suggest that family therapy approaches may be effective compared to treatment as usual in the short term. There is insufficient evidence to be able to determine whether family therapy approaches offer any advantage over educational interventions, other types of psychological therapy, or whether one type of family therapy approach is more effective than another. Most of the studies contributing to the findings were undertaken in adolescents and young adults. There are clear implications about how family therapy approaches might be delivered to different age groups, and we need further research to understand what the resulting effects on treatment might be.

SUMMARY OF FINDINGS

Summary of findings for the main comparison. Family therapy compared to standard care/treatment as usual for anorexia nervosa

Family therapy compared to standard care/treatment as usual for anorexia nervosa

Participants: People of any age or gender with a primary clinical diagnosis of anorexia nervosa (AN)

Intervention: Family therapy

Comparator: Standard care/treatment as usual

Outcomes	Nº of participants (studies) Follow up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects* (95% CI)	
				Risk with standard care/ treatment as usual	Risk difference with family therapy
Remission post-intervention	81 (2 RCTs)	⊕⊕⊕⊕ LOW ^{a,b}	RR 3.83 (1.60 to 9.13)	Study population	
				128 per 1000	363 more per 1000 (77 more to 1042 more)
Remission at long-term follow-up	41 (1 RCT)	⊕⊕⊕⊕ LOW ^{c,d}	RR 6.09 (0.33 to 110.84)	Study population	
				0 per 1000	0 fewer per 1000 (0 fewer to 0 fewer)
Mortality at long-term follow-up	0 (0 studies)	-	not pooled	Study population	
				not pooled	not pooled

***The risk in the intervention group** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio;

GRADE Working Group grades of evidence

High certainty: We are very confident that the true effect lies close to that of the estimate of the effect

Moderate certainty: We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different

Low certainty: Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect

Very low certainty: We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect

^aEvidence downgraded by one level for unclear risk of selection bias due to inadequate reporting of random sequence generation and allocation concealment in one study. Evidence also downgraded for high or unclear risk of performance and detection bias across studies. Evidence also downgraded for high risk of reporting bias due to selective reporting across both studies (some data not reported), including uneven treatment doses, participants crossing over groups and reporting anomalies.

^bEvidence downgraded by one level for imprecision, as there are only two trials with a total of 81 participants and wide confidence intervals.

^cEvidence downgraded by one level for high risk of performance bias and detection bias. Some discrepancy in numbers reported in dropouts.

^dEvidence downgraded by one level for imprecision as there was only one trial with 41 participants.

Summary of findings 2. Family therapy compared to psychological interventions for anorexia nervosa

Family therapy compared to psychological interventions for anorexia nervosa

Participants: People of any age or gender with a primary clinical diagnosis of anorexia nervosa (AN)

Intervention: Family therapy

Comparator: Psychological interventions

Outcomes	Nº of participants (studies) Follow up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects* (95% CI)	
				Risk with psychological interventions	Risk difference with Family therapy
Remission post-intervention	252 (5 RCTs)	⊕⊕⊕⊕ VERY LOW ^{a,b,c}	RR 1.22 (0.89 to 1.67)	Study population 488 per 1000	107 more per 1000 (54 fewer to 327 more)
Remission at long-term follow-up	200 (4 RCTs)	⊕⊕⊕⊕ VERY LOW ^{a,d,e}	RR 1.08 (0.91 to 1.28)	Study population 703 per 1000	56 more per 1000 (63 fewer to 197 more)
All-cause mortality - long-term outcome	0 (studies)	-	not pooled	Study population not pooled	not pooled

***The risk in the intervention group** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio;

GRADE Working Group grades of evidence

High certainty: We are very confident that the true effect lies close to that of the estimate of the effect

Moderate certainty: We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different

Low certainty: Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect
Very low certainty: We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect

^aEvidence downgraded by one level due to high risk of selection bias in studies, arising from inadequate reporting of random sequence generation or allocation concealment. Evidence was also downgraded due to high risk of performance bias across all trials and often high risk of detection bias; there were several instances of reporting anomalies, some instances of missing data (at times high: up to 29.5% in one trial) not being adequately dealt with; and difficulties with outcomes being reported by subgroup or by total (in contrast to what was described in methods), or data from outcome measures not being reported at all.

^bEvidence downgraded by one level for inconsistency, as although heterogeneity was 37% and potentially not considered serious, the direction of effects variously favoured family therapy and psychological therapy.

^cEvidence downgraded by one level for imprecision, as the small effect observed was based on only five trials with 252 participants with wide confidence intervals that cross the line of no effect.

^dEvidence downgraded by one level for inconsistency, as although heterogeneity was 0%, the direction of effects variously favoured family therapy and psychological therapy.

^eEvidence downgraded by one level for imprecision, as the small effect observed was based on only four trials with 200 participants with wide confidence intervals that cross the line of no effect.

Summary of findings 3. Family therapy compared to educational interventions for anorexia nervosa

Family therapy compared to educational interventions for anorexia nervosa

Participants: People of any age or gender with a primary clinical diagnosis of anorexia nervosa (AN)

Intervention: Family therapy

Comparator: Educational interventions

Outcomes	Nº of participants (studies) Follow up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects* (95% CI)	
				Risk with educational interventions	Risk difference with Family therapy
Remission at long-term follow-up - other	30 (1 RCT)	⊕⊕⊕⊕ VERY LOW ^{a,b,c}	RR 9.00 (0.53 to 153.79)	Study population 0 per 1000	0 fewer per 1000 (0 fewer to 0 fewer)

***The risk in the intervention group** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio;

GRADE Working Group grades of evidence

High certainty: We are very confident that the true effect lies close to that of the estimate of the effect

Moderate certainty: We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different

Low certainty: Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect

Very low certainty: We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect

^aEvidence downgraded by one level for unclear risk of selection bias, due to inadequate reporting of random sequence generation and allocation concealment and also downgraded due to high risk of performance bias.

^bEvidence downgraded by one level for imprecision, as there was only one trial.

^cEvidence downgraded by one level for inconsistency, due to wide confidence intervals.

BACKGROUND

Description of the condition

The standard diagnostic criteria for anorexia nervosa (AN) are based on ICD (WHO 1992) and DSM (APA 2013) diagnostic systems. The criteria include a failure to maintain a normal body weight due to a paucity of nutrition, an intense fear of gaining weight or compulsive behaviour (e.g. excessive exercise) that prevents the individual from gaining weight, or both. A distorted body image or distorted perception of dangerously low body weight is also present, as well as a link between self-evaluation and body shape and weight. Individuals with AN will typically use any or all of three strategies for losing weight or reducing the possibility for weight gain, or both. These strategies are 1) food restriction, 2) purging food (e.g. vomiting, use of laxatives), and 3) excessive exercise. High rates of severe medical, developmental and psychosocial complications, including the loss of menses in females, is also common (Katzman 2005; Zipfel 2003). AN is associated with high morbidity and mortality rates compared to other psychiatric disorders (Harris 1998). In longitudinal follow-up studies of chronically ill adults with AN, mortality rates of between 9% and 20% have been observed over 12- to 20-year follow-up periods (Fichter 2006; Sullivan 1995). The long-term prognosis for the illness is often poor and high rates of relapse have been reported (Berkman 2007). Many patients never receive treatment, and there are high rates of treatment refusal, treatment avoidance and treatment dropout (Pingani 2012; Tolkien II Team 2006).

Lifetime prevalence for AN according to DSM-IV criteria (APA 1994) was previously reported as 0.9% for females and 0.3% for males (Hudson 2007). However, in recent years the DSM criteria for AN have been revised in the DSM-5 (APA 2013), with the previous criteria of weight loss, fear of weight gain and amenorrhoea removed. The changes have reportedly led to a considerable increase of between 50% to 60% in female lifetime prevalence rates in those who met DSM-5 criteria compared to those assessed with DSM-IV criteria (Mustelin 2016; Smink 2014).

There is acknowledgement of the complex aetiology of eating disorders with the interaction of psychological and environmental factors with genetic factors at play (Culbert 2015). Genetic factors have been implicated in the development of AN, with studies reporting high heritability estimates ranging from 58% to 90% (Kaye 2000; Wade 2000). Early models of family therapy were based on explanatory models that assumed that there were specific family processes that interacted with a vulnerability in the child to give rise to an eating disorder (e.g. the Psychosomatic Family Model of Minuchin 1975) but the empirical evidence supporting such models is unconvincing. Moreover, it is important to point out that while a number of studies have found some association between eating disorders and aspects of family environment and family functioning e.g. attachment, parenting style, communication, conflict (Cerniglia 2017; Jewell 2016; Miller-Day 2006; Soenens 2008), this does not imply these cause AN. Indeed the research is often reliant on retrospective recall in cross-sectional studies, does not take into account potential confounding such as the co-existence of other psychosocial disorders, and does not consider the possibility that what is being observed is an outcome of having someone in the family with an eating disorder which impacts the whole family (Whitney 2005). Those with eating disorders exist in a variety of family contexts and focusing on the experience of those families has been proposed as more beneficial in terms

of understanding how to support families in the treatment of someone with an eating disorder (Eisler 2005). Position papers from within the field have stressed the importance of the avoidance of the placement of blame on families of sufferers of eating disorders, and emphasised the utility of including families in the treatment process for many sufferers (Le Grange 2010). Current models of family therapy for eating disorders emphasize that families are primarily a resource rather than a target of treatment i.e. a treatment *with* the family rather than *of* the family (Simic 2018).

Description of the intervention

One common goal of treatment for AN is weight restoration, with treatment typically beginning with nutritional rehabilitation (Fairburn 2003). In addition, a range of psychological and pharmacological therapies have been used to augment or follow weight restoration. There is a lack of evidence to support the use of antidepressants (Claudino 2006) or antipsychotic medication (Court 2008) in AN treatment. No specific psychological intervention is considered more efficacious for treating AN, including cognitive behavioural therapy (CBT) - enhanced, interpersonal therapy, cognitive analytic therapy, behavioural therapy, psychodynamic therapy, or specialist supportive clinical management (Bulik 2007; Carter 2011; Hay 2015; Le Grange 1992). Nevertheless, specific types of psychological interventions may be effective for specific populations. For example, CBT for reducing relapse rates in adults who have already achieved restoration of a normal body weight (Bulik 2007), CBT-AN for severe and enduring AN with a focus on improving the quality of life rather than weight restoration (Touyz 2013; Touyz 2015), and family therapy for children and young people with AN (Bulik 2007; Le Grange 2005b; NICE 2017).

How the intervention might work

A range of different family therapies have been considered in this review and each has a different approach. Earlier approaches were based on a model of change derived from an explanatory model of family functioning. However, as described above, current models emphasise the utility of engaging families as a resource. The models of change that inform these current approaches are still evolving.

(Note: the following includes descriptive labels to group together broadly similar approaches based on the description of the therapies provided in the trials. Full descriptions of therapy used, including how the trial authors named the therapy, are provided in [Characteristics of included studies](#)).

Family systems theory describes how family dynamics/processes can contribute to the development or maintenance or both of problems within the family system. Two dominant approaches to applying family systems theory are Structural Family Therapy and Strategic Family Therapy.

Minuchin's 1974 *Structural Family Therapy* examines and challenges dysfunctional family dynamics (Minuchin 1974). Within this theory, AN is viewed as a consequence of an over-involved, conflict-avoidant and rigid family structure (Minuchin 1978). These family factors are thought to combine with some type of physiological predisposition to developing AN. The aim of Structural Family Therapy is to alter the family's processes that contribute to the problem and therefore treat the AN. Family processes are evaluated during the therapy session and subsystems

within the entire family examined. This approach was the first to emphasise the importance of including the family in treatment and addressing some of the problematic patterns that were present.

A follow-on approach, *Strategic Family Therapy*, moves away from hypothesising about the onset of AN and instead focuses on inducing change in AN symptoms and acknowledging the effect of the illness on all family members. Dysfunctional family processes are discussed and a focus on communicating and problem-solving is maintained by methods such as reframing and paradoxical intervention (Madanes 1981). *Strategic* interventions may still be used in other forms of individual or family therapy in order to address family difficulties.

Current models, which in this review are grouped in a category called family based therapy (FBT) disregard the notion that the family dynamic is a direct causative agent in the pathogenesis of the disorder (Lock 2005; Le Grange 1999). Instead, FBT has a behavioural and educative focus. FBT aims to assist families in managing the eating behaviours of the family member with AN by providing education about AN, encouraging parents/caregivers to generate strategies for increasing food intake and limiting physical activity. There are three principal phases to the treatment process that are described in early and more recent investigations into the efficacy of FBT (e.g. Dare 1990; Le Grange 2012). In the first phase, the principal focus is on refeeding (ensuring adequate caloric and nutritional intake) and weight restoration. This is achieved by placing responsibility for the family member's eating patterns in the hands of the parents/caregivers and emphasising the individual's inability to control eating patterns due to the effects of starvation. Parents/caregivers are given the responsibility to refeed and the therapist provides ongoing support and encouragement. However, when implemented with adult patients, parents/caregivers are not encouraged to take control of the family member's eating behaviour in the same way as when working with younger people (e.g. Dare 2001). In the second phase of FBT, the individual with AN develops their independence with eating and parents/caregivers take the focus off food. There may also be some assistance with problem-solving about family and psychological issues that interfere with refeeding and weight restoration. The third phase addresses any concerns that are not directly related to AN. These concerns may be related to normal adolescent development, including the (re-)establishment of healthy family boundaries. There are two subtypes of FBT. *Conjoint family therapy* (Eisler 2000; Le Grange 1992; Le Grange 2016) occurs when the phases described above are implemented in joint therapy sessions involving both the person with AN and their family. Implementing this framework with the family and individual in the session together allows the therapist to directly observe and interact with family dynamics. Contrastingly, *separated family therapy* (Eisler 2000) or *family counselling* (Le Grange 1992) occurs when the FBT framework is implemented through therapy sessions where the individual with AN is seen separately from their parents/caregivers.

A further therapy described in the literature that we have grouped in the category of FBT, *behavioural family systems therapy* (BFST), also has three stages to treatment, that are very similar in nature to those used in FBT (Ball 2004; Le Grange 2017; Robin 1994; Robin 1995). The main difference is the focus on cognitive restructuring that is used in order to reduce problematic cognitions about food and weight. In addition to this, the BFST therapist also assists families in reducing problematic dynamics and processes such as

enmeshment, triangulation, and coalitions by addressing eating disorder psychopathology, behavioural patterns and problems with the family structure (Robin 1994; Robin 1995).

In addition to these formally described family therapy interventions, families are involved in other ways of supporting recovery from AN. This involvement may take various forms, and while they may not necessarily have such a well-described theoretical underpinning, may also have an important influence on recovery. Hence, we describe family therapy approaches as a way to include these as well as more formally described family therapy interventions.

Why it is important to do this review

Our original Cochrane Review investigating family therapy in AN was published in 2010 (Fisher 2010), from a literature search that was conducted on 1 August 2008. The aim of this review was to determine whether family involvement in therapy, of any description, is beneficial to those with AN and what effect this involvement might have. The overall conclusion from the original review was that there was some evidence to suggest that family therapy may be effective compared to treatment as usual in the short term. However, this was based on few trials that included only a small number of participants, all of which had issues about potential bias. There was insufficient evidence to be able to determine whether family therapy offers any advantage over other types of psychological interventions, or whether one type of family therapy is more effective than another. It was suggested that the field would benefit from a large, well-conducted trial.

The purpose of this updated review is to provide a systematic review of the current literature into the efficacy of family therapy approaches for AN. The results of this review will be useful for treatment institutions interested in implementing evidence-based models of care for individuals with AN.

OBJECTIVES

To evaluate the efficacy of family therapy approaches compared with standard treatment and other treatments in AN.

METHODS

Criteria for considering studies for this review

Types of studies

We include all published or unpublished randomised controlled trials (RCTs). We would also have included cluster-randomised controlled trials and cross-over trials, but we found none.

There were no language restrictions, nor did we exclude studies on the basis of the date of publication.

Types of participants

We included people of any age or gender with a primary clinical diagnosis of anorexia nervosa (AN), either or both purging or restricting subtypes, based on DSM (APA 2013) or ICD criteria (WHO 1992) or clinicians' judgement, and of any severity. We included those with chronic AN. We included those with psychiatric comorbidity, with the details of comorbidity documented.

Participants may have received the intervention in any setting (including in-, day- or outpatient) and may have started in the trial at the beginning of treatment or part-way through (e.g. after discharge from hospital or some other indication/definition of stabilisation).

We included those living in a family unit (of any nature, as described/defined by study authors), and those living outside of a family unit.

Types of interventions

Interventions

Trials where the intervention describes inclusion of the family in some way and is labelled 'family therapy'. These interventions may have been delivered as a monotherapy or in conjunction with other interventions (including standard care, which may or may not be in the context of an inpatient admission).

The main categories of family therapy approaches considered were:

1. *Structural* family therapy
2. *Systems* (systemic) family therapy
3. *Strategic* family therapy
4. *Family-based* therapy and its variants (including short-term, long-term, and separated) and *behavioural* family systems therapy (these two therapies were grouped together, given the similarity of approach)
5. *Other* (including other approaches that use family involvement in therapy but are less specific about the theoretical underpinning of the therapy and its procedures).

Control Conditions

Family therapy approaches were compared with:

1. Standard care or treatment as usual
2. Biological interventions (for example, antidepressants, antipsychotics, mood stabilisers, anxiolytics, nutraceuticals, and other agents such as anti-glucocorticoids)
3. Educational interventions (for example, nutritional interventions and dietetics)
4. Psychological interventions (for example, cognitive behavioural therapy (CBT) and its derivatives, cognitive analytical therapy, interpersonal therapy, supportive therapy, psychodynamic therapy, play therapy, other)
5. Alternative or complementary interventions (for example, massage, exercise, light therapies).

Additionally, different types of family therapy approaches were compared to each other. The addition of a family therapy approach to other interventions (including standard care) was also compared to other interventions alone.

Main comparisons

The main comparisons made included:

1. Family therapy approaches versus standard care/treatment as usual
2. Family therapy approaches versus psychological interventions
3. Family therapy approaches versus educational interventions

4. Family therapy approach versus other type of family therapy approach.

We would also have included the following comparisons: Family therapy approaches versus biological interventions; and Family therapy approaches versus alternative/complementary interventions; however, we had neither the relevant trials nor useable data from these.

Types of outcome measures

Primary outcomes

1. Remission (by DSM or ICD or trialist-defined cut-off on standardised scale measure for remission versus no remission)
2. All-cause mortality

Secondary outcomes

1. Family functioning as measured on standardised, validated and reliable measures, e.g. Family Environment Scale (Moos 1994), Expressed Emotions (Vaughn 1976), FACES III (Olson 1985)
2. General functioning, measured by return to school or work, or by general mental health functioning measures, e.g. Global Assessment of Functioning (GAF) (APA 1994)
3. Dropout (by rates per group during treatment)
4. Eating disorder psychopathology (evidence of ongoing preoccupation with weight/shape/food/eating by eating-disorder symptom measures using any recognised validated eating disorders questionnaire or interview schedule, e.g. the Morgan-Russell Assessment Schedule (Morgan 1988), Eating Attitudes Test (EAT, Garner 1979), Eating Disorders Inventory (Garner 1983; Garner 1991).
5. Weight, including all representations of this measure such as kilograms, body mass index (BMI, kg/m²) and average body weight (ABW) calculations. We included this measure after the finalisation of our protocol, due to the lack of universal reporting on remission, and the differing definitions used for remission
6. Relapse (by DSM or ICD or trialist-defined criteria for relapse or hospitalisation)

We had planned to provide a description of any adverse outcomes from each trial, but adverse outcomes other than mortality were not generally reported in the trials.

The primary outcomes were reported first, followed by the secondary outcomes, in the order outlined above.

We classified outcomes as: 1) immediate post-intervention; 2) short-term (< 12 months) follow-up, and; 3) long-term (> 12 months) follow-up.

As with the comparisons, we anticipate that in future updates we will reduce the number of outcomes in order to reduce the likelihood of multiple analyses generating spurious results. We will limit outcomes to:

1. Remission
2. Mortality
3. Family functioning
4. Eating disorder psychopathology
5. Weight

Search methods for identification of studies

Cochrane Common Mental Disorders Controlled Trials Register (CCMD-CTR)

The Cochrane Common Mental Disorders Group maintains a specialised register of randomised controlled trials, the CCMD-CTR. This register contains over 40,000 reference records (reports of RCTs) for anxiety disorders, depression, bipolar disorder, eating disorders, self-harm and other mental disorders within the scope of this Group. The CCMD-CTR is a partially studies-based register with more than 50% of reference records tagged to around 12,500 individually PICO-coded study records. Reports of trials for inclusion in the register are collated from (weekly) generic searches of MEDLINE (1950 onwards), Embase (1974 onwards) and PsycINFO (1967 onwards), quarterly searches of the Cochrane Central Register of Controlled Trials (CENTRAL) and review-specific searches of additional databases. Reports of trials are also sourced from international trial registries, drug companies, the handsearching of key journals, conference proceedings and other (non-Cochrane) systematic reviews and meta-analyses. Details of [CCMD's core search strategies](#) (used to identify RCTs) can be found on the Group's website, with an example of the core MEDLINE search displayed in [Appendix 1](#).

In 2016 the Group's Specialised Register (CCMD-CTR) became out of date with the Editorial Group's move from Bristol to York.

Electronic searches

1. Cochrane Specialised Register (CCMD-CTR) (to April 2016)

The Information Specialist with the Cochrane Common Mental Disorders Group (CCMD) searched their group's specialised register (CCMD-CTR-Studies and CCMD-CTR-References) (1 August 2008 to 8 April 2016), using the following terms:

```
((*family or families) and (anorexi* or "eating disorder*" or EDNOS))
[All Fields]
```

An earlier search of the CCMD-CTR (all years to 2008) is displayed in [Appendix 2](#).

2. Additional bibliographic database searches

The Information Specialist performed an additional search of PsycINFO (2008 to 21 April 2016) and PubMed (current year) to help ensure that we had missed no studies from the Group's specialised register ([Appendix 3](#)).

In May 2018, the Information Specialist ran an update search on the following databases (as the CCMD-CTR had become out of date at the time) ([Appendix 4](#)). We had also searched these databases in 2008 for the first version of the review, but as all studies were accounted for by the CCMD-CTR we did not repeat this exercise, whilst the specialised register was in date:

- Cochrane Central Register of Controlled Trials (CENTRAL) (Issue 5 of 12, May 2018);
- Ovid Embase (2016 to 31 May 2018);
- Ovid MEDLINE (2016 to 31 May 2018);
- Ovid PsycINFO (2016 to May Week 4 2018).

3. International Trials Registers

Relevant trial protocols from the WHO's trials portal ([ICTRP](#)) and [ClinicalTrials.gov](#) had already been incorporated into the CCMD group's specialised register (to April 2016) and we performed a separate update search on 4 June 2018.

We applied no restriction by date, language or publication status to the searches. We have included only studies from searches conducted to 2016 in the analysis.

Searching other resources

1. Theses

We searched the following databases to identify relevant PhD theses (to 4 June 2018):

- DART-Europe E-theses Portal (www.dart-europe.eu/);
- EThOS - the British Libraries e-theses online service (ethos.bl.uk/);
- Open Access Theses and Dissertations (oatd.org);
- ProQuest Dissertations and theses database ([c/o dissexpress.umi.com/](http://c/o/dissexpress.umi.com/)).

2. Reference lists

We checked the reference lists of all included studies and relevant systematic reviews to identify additional studies missed from the original electronic searches (for example, unpublished or in-press citations).

3. Personal communication

We contacted the first author of included trials contained in the original 2010 review. We attempted contact with one study author of the new trials included in this updated review.

Data collection and analysis

Selection of studies

Three review authors (CF, SS and SH) independently selected studies for possible inclusion in the review. First, we independently reviewed the titles and abstracts of trials identified from the search. Secondly, two out of the four review authors independently examined the full text of all studies that they considered to be of possible relevance. Each review author compiled a list of studies that they believed met the inclusion criteria. We compared the contents of each review author's list, and discussed any discrepancies. We resolved any disagreement by discussion and consensus between all of the review authors.

Data extraction and management

Three review authors (CF, SS and KR) independently extracted the data using specially developed data extraction forms. Each included study underwent data extraction by two review authors. We collected information provided about the descriptors that may have an impact on the treatment effect as listed below.

In order to understand the context to which the trial results are relevant, and to inform generalisability, we documented the following descriptors: age, gender, how the diagnosis was made, setting of care, the subtype of AN, length of treated and untreated illness, age at onset, previous treatment, baseline weight and BMI, baseline eating disorder scale measure as a measure of severity, comorbidity, living arrangements, family educational

and occupational details. We also documented the recruitment strategies, the exclusion criteria and the country in which the trial was undertaken.

We recorded the type of family therapy approach, including the name and the major specific interventions. This allowed for discussion of how different types of family therapy approaches may impact on the outcome, as well as grouping of the different types of family therapy approaches in the analysis.

We also documented the intended and delivered 'dosage' including number of sessions, length of sessions, total length of the treatment intervention, who delivered the treatment, whether the treatment was manualised, the training and qualifications of the care deliverers, whether treatment was supervised and whether adherence to the treatment approach was measured.

We independently extracted the point estimates and measures of variability as well as relevant frequency counts for dichotomous variables (CF, SS and KR).

One review author (CF) compiled all comparisons and entered the outcome data into Review Manager 5 (RevMan) for meta-analysis. A second review author (SH) performed double-data entry to ensure accuracy of results.

Assessment of risk of bias in included studies

Two of four review authors independently assessed the risks of bias of each of the included trials using a descriptive approach as described by the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011). For the following items we noted a description of the methods and described them in a 'Risk of bias' table, and made our judgements about the resulting risks of bias:

1. Was the allocation sequence adequately generated?
2. Was the allocation adequately concealed?
3. Was knowledge of the allocated interventions adequately prevented during the trial (outcome assessors)? (Blinding of participants and therapists not possible).
4. Were incomplete outcome data adequately addressed (numbers and reasons for dropout by group and an intention-to-treat analysis)?
5. Are reports of the trial free of the suggestion of selective outcome reporting? If the protocol was available, then we compared outcomes in the protocol and the published report. If not, then we compared outcomes listed in the Methods section of the article with those for which results were reported. We noted whether non-significant results were mentioned but not reported adequately, as well as noting which of the review outcomes were only reported in terms of significant differences between groups. We also noted the other outcomes (not collected for the review) reported by the trialists in the paper publication(s).
6. Was the trial apparently free of other problems that could put it at a high risk of bias?

We graded each criterion as low risk of bias, high risk of bias or unclear risk of bias, according to the guidelines in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011). When we scored criteria as unclear, one review author attempted to obtain further information from the authors of the trial. The review

authors discussed any disagreement in the assessment of risks of bias to reach a consensus.

Measures of treatment effect

For dichotomous outcomes such as 'remission', we expressed the results from each trial as a risk ratio (RR) with a 95% confidence interval (CI), and combined them in meta-analysis.

We present continuous outcomes, such as symptom measures, in several ways. When absolute values of post-treatment means and standard deviations (SDs) were given, using the same rating scale across trials, we used them to calculate the mean difference (MD) and 95% confidence interval. If different scales were used to measure the same outcomes, we calculated the standardised mean difference (SMD) with a 95% confidence interval and then combined them for meta-analysis. Results from linear regression models were not commonly reported and therefore were not extracted or pooled using inverse variance meta-analysis.

Unit of analysis issues

Where a trial had more than one active treatment arm, we extracted the appropriate arms for each of our main comparisons. If more than one comparison was relevant, we included both in their designated sections (e.g. if a study compared family therapy approaches to both standard care/treatment as usual and another type of psychological therapy, then we included the comparison to standard care/treatment as usual in Comparison 1, while the comparison to psychology therapy appeared in Comparison 2). If a study contained more than one comparison group that could be used for a particular analysis, we chose one comparison group, and included this group in the relevant analysis. Where this occurred (e.g. Dare 2001), we stated it clearly in the Results section.

Dealing with missing data

We imputed missing data where necessary (e.g. calculating SDs from standard errors and P values), and this is clearly documented in the review. We used intention-to-treat data where available, with a note of the methods used (such as last observation carried forward or other types of modelling) for imputing missing data. However, we acknowledge that this was often unclear or not available, and in that case we used what was available, which was often the observed case number of participants. In no case were we able to use both last observation carried forward and observed case data to check results for robustness.

Assessment of heterogeneity

Clinical homogeneity was satisfied when we considered participants, interventions and outcome measures to be similar. For trials that were clinically heterogeneous or presented insufficient information for pooling, we provide a descriptive analysis. We assessed statistical homogeneity on the basis of the *Cochrane Handbook's* recommendations (I^2 values of 0% to 40%: might not be important; 30% to 60%: may represent moderate heterogeneity; 50% to 90%: may represent substantial heterogeneity; 75% to 100%: considerable heterogeneity).

We also considered the Chi^2 and its P value and the direction and magnitude of the treatment effects, because the importance of the observed I^2 depends on (i) magnitude and direction of effects and (ii) strength of evidence for heterogeneity, in addition to the I^2 value

(Higgins 2003). Because the Chi² test is underpowered to detect heterogeneity in meta-analysis that includes only a few studies, we used a P value of 0.10 as a threshold of statistical significance.

When statistical heterogeneity was evident, the aim was to examine it using specified subgroup and sensitivity analyses; however, this was often not possible due to the paucity of trials.

Assessment of reporting biases

We had planned to investigate the potential for publication bias using a funnel plot for the primary outcomes relating to AN remission or symptoms or both. Publication bias has long been associated with funnel plot asymmetry; however, asymmetry may be due to reasons other than publication bias and is difficult to assess in the case of a small number of trials, as in this review. We have therefore not included a funnel plot for publication bias. For this reason, we also include an assessment of the risk of selective outcome reporting bias, as stated above.

Data synthesis

When appropriate, we performed meta-analysis and obtained pooled effect estimates, using the Review Manager 5 statistical software programme. Meta-analytic methods used are presented below. For all meta-analyses, we used a random-effects model (DerSimonian 1986).

Subgroup analysis and investigation of heterogeneity

We undertook subgroup analysis for the two main comparisons (Family therapy approaches versus standard care/treatment as usual; and Family therapy approaches versus psychological interventions) to investigate the impact of age on the magnitude of the treatment effect. We define adolescents as those aged 12.0 to 18.9 years, and adults as 19 years and older. We used a total mean age for the entire trial, where this was reported. Where mean age was reported by group, we used the average of the mean ages by group to classify trials into the adolescent or adult subgroups.

Given the paucity of trials, subgroup analysis on chronicity was not possible.

we conducted subgroup analysis by the type of family therapy approaches; however, in most comparisons there were only trials using one type of family therapy.

Sensitivity analysis

We planned sensitivity analyses to assess the effect of risk of bias, based on the following groups:

1. Allocation concealment is rated as inadequate, not used or unclear (and attempts to clarify with authors fail) (A)
2. Blinding of outcome assessment is not done or unclear (and attempts to clarify with authors fail) (B)
3. Incomplete outcome data were assessed as high or unclear risk of bias (and attempts to clarify with authors fail) (C).

These criteria for assessing the risks of bias have been shown to influence estimates of treatment effect (Juni 2001). We planned sensitivity analyses for trials excluding those categorised as A, B or C. However, there were too few trials to undertake a meaningful sensitivity analysis on this basis.

Timeline

The review will be updated according to the latest version of the *Cochrane Handbook* (Higgins 2011).

GRADE and 'Summary of findings' tables

We constructed 'Summary of findings' tables (Higgins 2016), for the following comparisons:

1. Family therapy approaches versus standard care/treatment as usual;
2. Family therapy approaches versus psychological interventions; and
3. Family therapy approaches versus educational interventions

We used the following outcomes:

1. Remission at short-term follow-up;
2. Remission at long-term follow-up; and
3. Follow-up mortality.

In the 'Summary of findings' tables we have used the principles of the GRADE approach (Guyatt 1998) to assess the extent to which there can be confidence that the obtained effect estimate reflects the true underlying effect. We judged the quality of the body of evidence on the basis of the included studies' risks of bias, the directness of the evidence, unexplained heterogeneity, imprecision, and the risk of publication bias. We used the average rate in all the arms of included trials as the 'Assumed risk' for each outcome. As we were not aiming to target any particularly high- or low-risk populations, all the tables were for medium-risk populations.

RESULTS

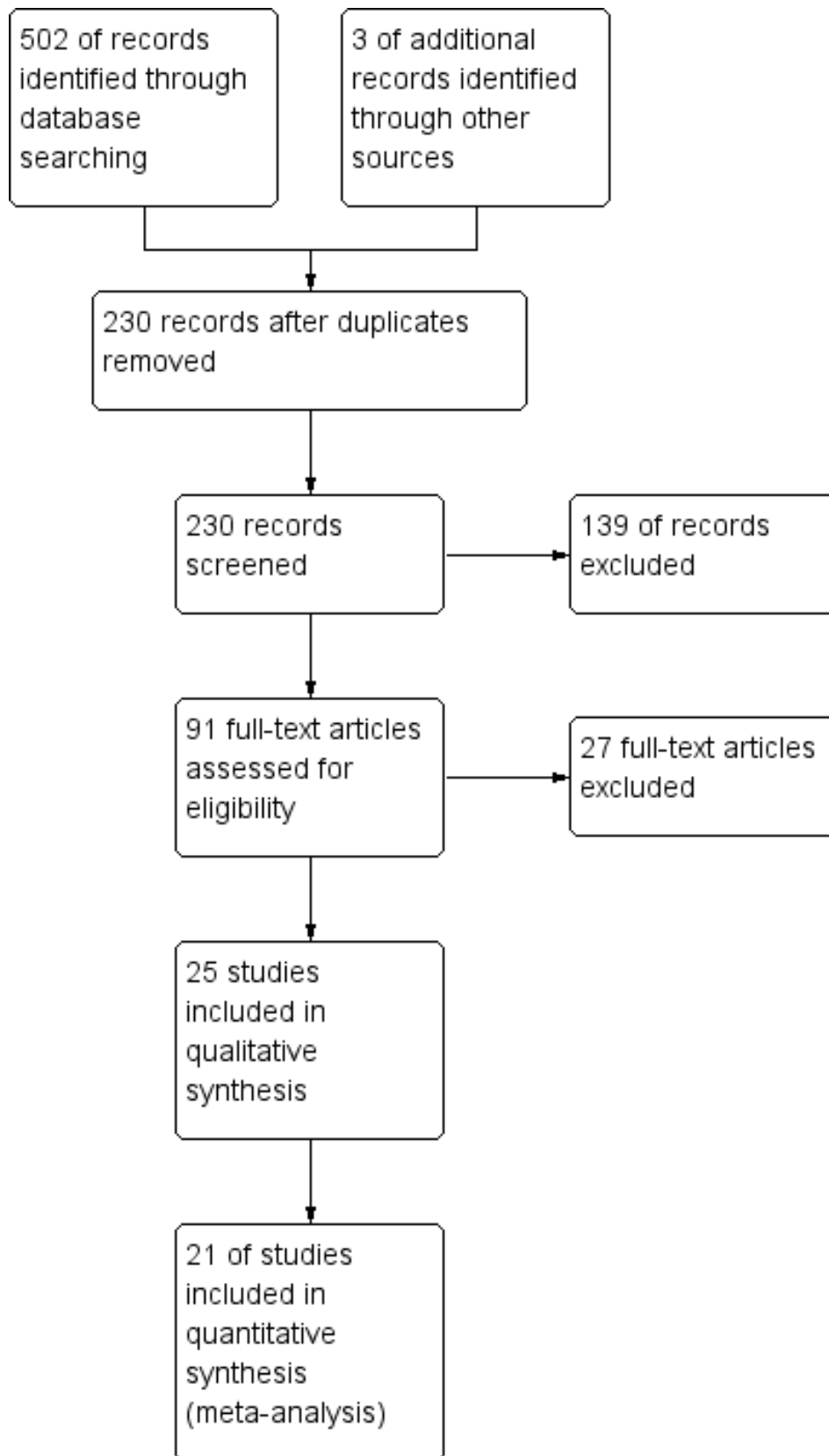
Description of studies

Results of the search

The update search for this review (to April 2016) yielded 220 records from the CCMD-CTR (including 36 trial registry records), 103 from PsycINFO, 179 from PubMed and a further three papers from reference list and theses database searches, resulting in a total of 505 references, leaving 230 papers after duplicates were removed. We selected 91 papers from title and abstract screening for full-text review. Of these, we excluded 27 papers. We retained a total of 25 studies for inclusion, for which there are multiple companion papers. One of these studies reported data separately for three different age groups and is included in the review as three studies (Russell 1987a; Russell 1987b; Russell 1987c). We describe the characteristics of the included studies below (see [Characteristics of included studies](#)). The included studies comprise the 13 studies included in the original 2010 review (Ball 2004; Crisp 1991; Dare 2001; Eisler 2000; Espina 2000; Geist 2000; Hall 1987; Le Grange 1992; Lock 2005; Rausch Herscovici 2006 (previously labelled as Rausch 2006); Robin 1999; Russell 1987; Whitney 2012 (previously labelled as Whitney unpublished)), as well as 12 additional studies (Agras 2014; Besharat 2001; Godart 2012; Herpertz-Dahlmann 2014; Herscovici 2017; Le Grange 2016; Li 2006; Lock 2010; Lock 2015; Madden 2015; Onnis 2012; Rhodes 2008). Twenty-one of the included studies had useable data, with four studies (Besharat 2001; Geist 2000; Li 2006; Onnis 2012) not providing any data that could be used for analysis.

See [Figure 1](#) for a summary of the flow of study inclusion.

Figure 1. Study flow diagram (from searches conducted to April 2016).



In May 2018 a further update search identified 105 references. We de-duplicated and dual-screened these for eligibility. We found three published trial reports for studies previously listed as ongoing (Dimitropoulos 2014; Eisler 2006; Lock 2014), four new ongoing study protocols (Bilyk 2017; Carrot 2017; Hildebrandt 2016; Lock 2017) and 10 additional, companion papers matching the following included studies: Agras 2014; Herscovici 2017; Le Grange 2016; Madden 2015; Lock 2010.

A study protocol, previously listed as ongoing (NCT01579682) was confirmed by the trialist to match the included study Lock 2015.

We have incorporated only those studies identified from the April 2016 search into the current analyses. The three newly-reported studies (Dimitropoulos 2014; Eisler 2006; Lock 2014) identified in 2018 have been added to those studies already awaiting classification, and will be incorporated at a later date, as appropriate. The results to Dimitropoulos 2014 were published on ClinicalTrials.gov in July 2016 (NCT02106728).

Included studies

Participants

Please see [Characteristics of included studies](#) table for specific details of each included study. The UK was the location of eight of the trials, while four were conducted in the USA, three in Australia, and one in Canada. Seven trials were conducted in non-English-speaking countries including three trials in the Spanish-speaking countries of Spain and Argentina, one in France, one in Italy, one in Germany and one in China. While not described in the trial report, personal correspondence revealed the trial by Besharat 2001 was located in the UK. In a further trial the location of the study was not explicitly stated, although author affiliation for this remaining study was listed as the USA (Lock 2015).

Most of the trials (16/25) reported using referrals to specialist eating disorder treatment units for recruitment. One trial recruited participants who had been admitted to the casualty ward of a hospital for malnutrition and medical compromise (Rhodes 2008). Three trials sought potential participants by sending letters to community care providers and schools, and publicised the trial using presentations and announcements (Herscovici 2017; Lock 2010; Robin 1999). Five trials provided no details about their recruitment strategy (Besharat 2001; Espina 2000; Li 2006; Lock 2015; Russell 1987).

Most trials were conducted on an outpatient basis. Twelve trials reported solely outpatient treatment, three reported that the selection of participants occurred whilst participants were receiving inpatient treatment, but that therapy began after discharge, two further trials involved the provision of outpatient therapy but investigators noted that some participants required hospitalisation during the trial. Five trials used both inpatient and outpatient treatment, and only one trial reported the provision of solely inpatient treatment (Whitney 2012). In two trials the treatment setting was not specified (Besharat 2001; Espina 2000).

Generally, most trials used some form of the DSM diagnostic criteria for the selection of participants with AN. Ten trials used the relevant DSM criteria of the era, e.g. DSM-III, DSM-III-R or DSM-IV, without variation, while a further three used these criteria, but removed the amenorrhoea requirement. Four trials used DSM criteria but

included participants whose current body weight exceeded the diagnostic weight criterion of being less than 85% of their expected body weight. Thus, these trials may represent samples of people with a lower level of severity. One trial employed DSM diagnostic criteria, but excluded participants with a history of AN for more than 10 years, possibly representing a less chronic sample of participants. Two trials used both DSM-IV and ICD 10 criteria, two trials used the diagnostic criteria of "Great Ormond Street", while one used the Chinese Classification of Mental Disorders (CCMD-3) criteria for anorexia. In two trials the method used to diagnose was not specified (Espina 2000; Hall 1987). In six trials, information about purging or restricting behaviour/subtype was reported.

Both the reporting of exclusion criteria and the types of exclusion criteria used were mixed. Nine trials provided no details about whether exclusion criteria were applied. Of the trials that provided details, five trials excluded participants on the basis of suicidal ideation/high suicide risk. Eleven excluded participants due to serious comorbid medical or psychiatric/psychological conditions. Three excluded participants who were currently receiving psychological therapy. Six trials also used upper or lower age limits or both for participants. As stated above, some reported exclusion criteria based on the chronicity of participants' AN while others excluded participants due to very low baseline body mass index (BMI)/average body weight (ABW) scores. One trial excluded male participants (Geist 2000).

There was some variation in the average ages and age ranges of trial participants. Sixteen trials included adolescent participants. Four trials included those between the ages of 18 and 23. One trial separated the treatment groups by age, with those 18 years and younger in two groups and those 19 years and over in another. Four trials comprised adult participants, with only one of these reporting an average age over 30 (Li 2006).

All but one study (Besharat 2001) provided information about gender. Most participants across these trials were female. Twelve trials included male participants. In all but one of these studies males did not exceed 12% of the total participants. In the remaining study (Li 2006) males comprised 43% of the sample.

The provision of details about the severity of participants' AN at baseline was mixed. Eight trials provided information about the age of onset of participants' AN, while all but three provided information about the duration of the participants' AN. Two trials reported no information about participants' baseline weight. The remaining trials reported on weight in kilograms, in BMI, in ABW, in expected body weight (EBW), in ideal body weight (IBW) or percentile/percentage scores of these measures. Fourteen studies provided baseline BMI data. The average BMIs ranged between 14.9 and 17.3 across most trials, with the exception of Onnis 2012 (BMI averages of 14.5 and 14.2 across treatment groups) and Whitney 2012 (average baseline BMI of 13.3), with the Whitney study in particular potentially representing a more severe participant sample. Most studies (20) used an established eating disorder psychopathology scale (e.g. Morgan-Russell Scales, Eating Attitudes Test) to indicate the severity of participants' core eating disorder psychopathology at baseline. Twelve trials provided information about participants' comorbid psychiatric diagnoses. Six trials had specified that co-existing psychiatric conditions were part of their exclusion criteria. Eleven trials provided information about the living arrangements of the participants, such as whether

they lived with their primary family unit, alone, with partners or in shared accommodation. Nine trials provided information about the educational/occupational background or social class of the participants or their families.

Interventions and comparisons

Four trials (Espina 2000; Godart 2012; Onnis 2012) compared family therapy approaches with standard care or treatment as usual. Six trials compared family therapy approaches with other psychological interventions, (cognitive behavioural therapy (CBT): Ball 2004; cognitive analytic therapy: Besharat 2001; psychotherapy: Besharat 2001; : individual supportive therapy/counselling: Besharat 2001; Russell 1987; and ego-oriented individual therapy/adolescent-focused therapy: Lock 2010; Robin 1999). Two trials compared family therapy approaches with educational interventions (Geist 2000 with family psychoeducation and Hall 1987 with psychoeducation). Twelve trials compared various family therapy approaches with each other (Agras 2014; Eisler 2000; Herpertz-Dahlmann 2014; Herscovici 2017; Le Grange 1992; Le Grange 2016; Lock 2005; Lock 2015; Madden 2015; Rausch Herscovici 2006; Rhodes 2008; Whitney 2012). Two trials (Crisp 1991; Dare 2001) included multiple comparison arms, each a standard care or treatment as usual, and a psychological intervention (cognitive analytic therapy Dare 2001; psychotherapy Crisp 1991) were included in two separate comparisons, due to the use of multiple treatment conditions in each trial. Although Besharat 2001 had three comparative treatment arms in addition to a family therapy approach, the data were not provided in a format that was useable for analysis.

Most trials used *family-based treatment* (and its variants, including short-term, long-term and separated) (Agras 2014; Ball 2004; Dare 2001; Eisler 2000; Herscovici 2017; Le Grange 1992; Le Grange 2016; Lock 2005; Lock 2010; Lock 2015; Madden 2015; Rausch Herscovici 2006; Rhodes 2008; Robin 1999; Russell 1987). Espina 2000 and Whitney 2012 used *systems* family therapy, while Onnis 2012 used *structural* family therapy. Seven trials deployed family therapy approaches that used family involvement, but did not provide specific details about the theoretical underpinning of the therapy and its procedures (Besharat 2001; Crisp 1991; Geist 2000; Godart 2012; Hall 1987; Herpertz-Dahlmann 2014; Li 2006; Whitney 2012). We therefore categorised these approaches as *Other* family therapy approaches. Agras 2014 compared *family-based treatment* with *systems* family therapy and Whitney 2012 compared *systems* family therapy with an approach classed as other.

Outcomes

We extracted the data we believed equivalent to remission, or similar to it, across the trials wherever possible. Several trials used close to equivalent definitions of 'good' and 'intermediate' response or outcome (Ball 2004; Eisler 2000; Godart 2012; Le Grange 1992; Russell 1987). Dare 2001 and Crisp 1991 used similar definitions but labelled these as 'recovered', 'significantly improved', 'well' and 'nearly well'. For all these trials the best level of outcome included restoration of weight to within 85% of an average body weight, restoration of regular menstruation and absence of bulimic symptoms; the definition of the next level of outcome was restoration of weight to within 85% of an average body weight, menstruation may not have returned and/or occasional bulimic symptoms. Ball 2004 added an additional criterion, where participants had to have gained at least four

kilograms. We combined the numbers of participants who met all of these levels (good, intermediate, recovered, significantly improved, well and nearly well) of outcome in each trial for the outcome 'remission', based on Dare 2001, who stated that participants in all of these categories no longer met DSM-IV criteria for AN. Other trials used remission criteria that were primarily based on weight-derived outcomes (Agras 2014 95%+ IBW; Herpertz-Dahlmann 2014 BMI; Lock 2005, 90%+ IBW; Lock 2015 and Herscovici 2017 95% + EBW) or a combination of multiple outcome results (Le Grange 2016 95% mBMI + eating disorder examination (EDE) Global score ≤ 1.59 ; Lock 2010 95% IBW + EDE score within 1 SD of global mean published norms; Madden 2015, > 95% EBW and a global EDE within 1 SD of published norms). Robin 1999 provided data for the remission outcome, the definition of which was the target weight set by the clinician. Hall 1987 and Besharat 2001 provided no definitions for their remission/recovered outcomes. Most of the trials that reported on the remission outcome therefore used different definitions of remission. In seven trials there were no data provided on remission, and no definition given for what this might equate to (Espina 2000; Geist 2000; Li 2006; Onnis 2012; Rausch Herscovici 2006; Rhodes 2008; Whitney 2012). Relapse was defined as the number of participants who had achieved remission (as defined above) during the trial, but were at a later point found no longer to meet the criteria for remission.

Of the trials that provided useable data from eating disorder psychopathology scale measures, the measures used were varied. Eight trials (Crisp 1991; Ball 2004; Dare 2001; Eisler 2000; Herscovici 2017; Le Grange 1992; Rausch Herscovici 2006; Russell 1987) used the Morgan-Russell Assessment Schedule (Morgan 1988). Three trials (Eisler 2000; Le Grange 1992; Robin 1999) used the eating attitudes test (EAT; Garner 1979; Garner 1983). Six trials (Agras 2014; Le Grange 2016; Lock 2010; Lock 2015; Lock 2005; Madden 2015) used a version of the EDE (Cooper 1987b). However, as Lock 2005 only provided global EDE scores for follow-up (not post-intervention results) we used the other measure in this trial, the Yale-Brown-Cornell Eating Disorders Scale (Sunday 1995) total score, for the post-intervention outcome in our analysis. Three trials used the eating disorders inventory (EDI) or EDI-2 (Godart 2012; Herpertz-Dahlmann 2014; Herscovici 2017). One trial (Whitney 2012) used the short evaluation of eating disorders (SEED) (Kordy 2005).

Nine trials measured family functioning. Of those that did, Le Grange 1992 and Eisler 2000 used the standardised clinical family interview (SCFI) (Kinston 1984), Expressed Emotions measure (Vaughn 1976), and FACES III (Olson 1979; Olson 1985), while Besharat 2001 used the SCFI alone. Robin 1999 used a scale called the general and eating-related conflict scale (Robin 1990), and observed family conflict during interactions using a behaviour code for videotaped interactions. Geist 2000 used a general family functioning measure (Skinner 1991). Rausch Herscovici 2006 used the family health scale. Lock 2010 used the McMaster family assessment device (FAD). Whitney 2012 used several scales, of which the data are extracted from the level of expressed emotion scale (LEE) (Cole 1988). Onnis 2012 the Wiltwyck family task test. Of these, only Rausch Herscovici 2006 and Whitney 2012 provided outcome data in a useable format.

General functioning was rarely reported on. Only Godart 2012 reported useable general functioning outcome data with the global outcome assessment scale (GOAS; Morgan 1988; Jeammet 1991).

For evaluating weight outcomes, we used standard BMI scores whenever possible (Ball 2004; Godart 2012; Lock 2005; Lock 2015; Rausch Herscovici 2006; Robin 1999, Whitney 2012). Other measures that were used for analysis included BMI percentile (Lock 2010), percentage median BMI (Le Grange 2016), percentage ABW (Eisler 2000; Le Grange 1992; Russell 1987), percentage EBW (Herpertz-Dahlmann 2014; Herscovici 2017) and percentage EBW change (Madden 2015). We have specified the measure used for weight for each analysis.

Excluded studies

See [Characteristics of excluded studies](#) table for reasons for excluding 27 trials.

Studies awaiting classification

See [Characteristics of studies awaiting classification](#) table for details on 10 studies awaiting classification.

Ongoing studies

See [Characteristics of ongoing studies](#) table for details of six ongoing trials.

New studies included in this update (to 8 April 2016)

New included studies found for this update were: [Agras 2014](#); [Besharat 2001](#); [Godart 2012](#); [Herpertz-Dahlmann 2014](#); [Herscovici 2017](#); [Le Grange 2016](#); [Li 2006](#); [Lock 2010](#); [Lock 2015](#); [Madden 2015](#); [Onnis 2012](#); [Rhodes 2008](#); [Whitney 2012](#), with details provided in the [Characteristics of included studies](#) table.

Risk of bias in included studies

For a summary of the risks of bias across the studies see [Figure 2](#); and [Figure 3](#). See the Study tables for full details.

Figure 2. Risk of bias graph: review authors' judgements about each risk of bias item presented as percentages across all included studies.

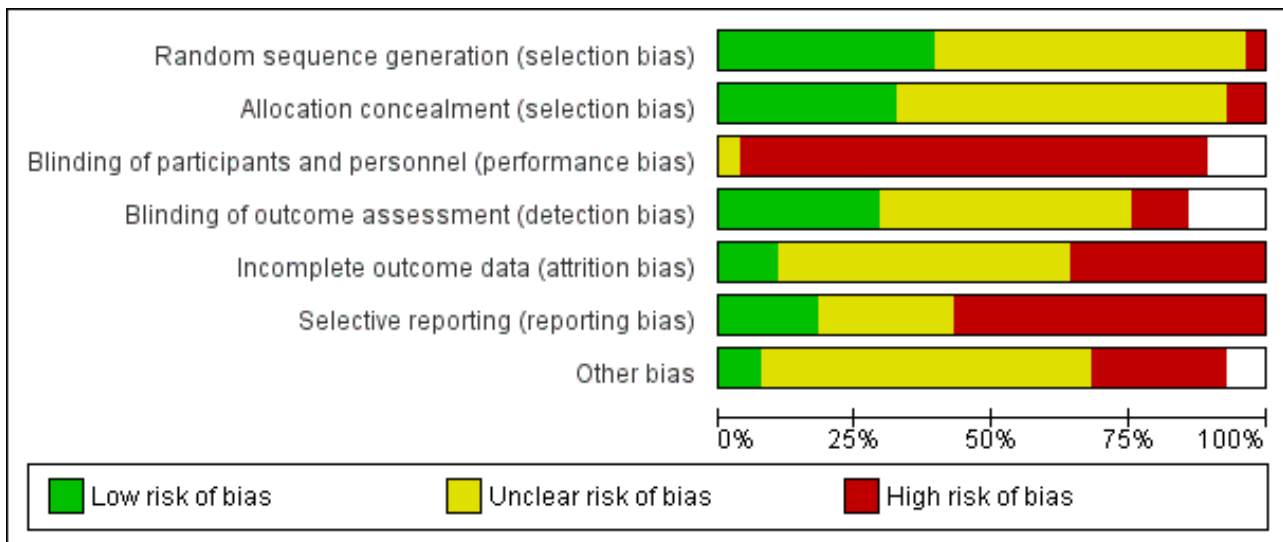


Figure 3. Risk of bias summary: review authors' judgements about each risk of bias item for each included study.

	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	Incomplete outcome data (attrition bias)	Selective reporting (reporting bias)	Other bias
Agras 2014	+	?	-	+	+	?	?
Ball 2004	?	?	-	?	-	-	-
Besharat 2001	?	?	-	?	?	-	?
Crisp 1991	?	?	-	?	+	-	-
Dare 2001	+	+	-	-	?	?	?
Eisler 2000	+	+	-	?	-	-	-
Espina 2000	?	?	-	+	-	?	?
Geist 2000	?	?	-	?	?	+	?
Godart 2012	+	+	-	+	?	-	?
Hall 1987	?	?	-	+	+	-	-
Herpertz-Dahlmann 2014	+	-	-	-	?	+	
Herscovici 2017	+	?	-	+	?	+	?
Le Grange 1992	?	+	-	?	-	-	-
Le Grange 2016	+	+	-	?	?	-	?
Li 2006	-	?	-	?	?	-	+
Lock 2005	?	?	-	+	-	-	+
Lock 2010	+	+	-	?	-	+	?
Lock 2015	?	?	-	?	?	-	?
Madden 2015	+	-	-	+	?	-	?
Onnis 2012	?	?	-	?	?	-	

Figure 3. (Continued)

Onnis 2012	?	?	-	?	?	-	
Rausch Herscovici 2006	?	?	-	+	?	?	?
Rhodes 2008	+	+	-	?	-	-	?
Robin 1999	+	?	-	-	-	-	-
Russell 1987	?	+	-	?	-	-	-
Russell 1987a	?	?			?	?	?
Russell 1987b	?	?			?	?	?
Russell 1987c	?	?			?	?	?
Whitney 2012	?	+	?		-	+	?

Allocation

For most trials (13/25), no or unclear information was provided about whether a random sequence was generated for allocation or how this was generated, or both (Ball 2004; Besharat 2001; Crisp 1991; Espina 2000; Geist 2000; Hall 1987; Le Grange 1992; Lock 2005; Lock 2015; Onnis 2012; Rausch Herscovici 2006; Russell 1987; Whitney 2012). In 11 trials we considered the randomisation sequence to be adequately generated (Agras 2014; Dare 2001; Eisler 2000; Godart 2012; Herpertz-Dahlmann 2014; Herscovici 2017; Le Grange 2016; Lock 2010; Madden 2015; Rhodes 2008; Robin 1999), while in one trial the generation of the randomisation sequence was inadequate (Li 2006). In two trials allocation was not adequately concealed (Herpertz-Dahlmann 2014; Madden 2015), in nine trials we judged that allocation was adequately concealed (Dare 2001, Eisler 2000, Godart 2012, Le Grange 1992; Le Grange 2016, Lock 2010, Rhodes 2008, Russell 1987, Whitney 2012). In the remainder (14 trials) no or unclear information about concealment was provided.

Blinding

The blinding of participants and personnel to treatment is not possible for family therapy approaches. Blinding of outcome assessors is not possible for self-reported outcomes, only for clinician-rated outcomes. For clinician-rated outcomes blinding was not carried out, or was unmasked, in three trials (Dare 2001; Herpertz-Dahlmann 2014; Robin 1999), was carried out and maintained in six (Agras 2014; Espina 2000; Godart 2012; Herscovici 2017; Lock 2005; Madden 2015) and was unclear in the remaining 16 trials (Ball 2004; Besharat 2001; Crisp 1991; Eisler 2000; Geist 2000; Hall 1987; Le Grange 1992; Le Grange 2016; Li 2006; Lock 2010; Lock 2015; Onnis 2012; Rausch Herscovici 2006; Rhodes 2008; Russell 1987; Whitney 2012).

Incomplete outcome data

We considered a trial to have adequately addressed incomplete data (i.e. low risk of bias) if both the amount of missing data was clearly reported, and an intention-to-treat analysis was undertaken. This was the case in three trials (Agras 2014; Crisp 1991; Hall 1987). We considered the method in which incomplete outcome data were addressed to be unclear if there were

inconsistencies in the numbers of dropouts or treatment group numbers throughout the paper, if the details reported about the dropouts was unclear (e.g. which treatment group they were in), if the method of analysis (e.g. intention-to-treat, last observation carried forward, observed case) was unclear, and if there were more than 15% missing data for any outcome measures (Besharat 2001; Dare 2001; Geist 2000; Godart 2012; Herpertz-Dahlmann 2014; Herscovici 2017; Le Grange 2016; Li 2006; Lock 2015; Madden 2015; Onnis 2012; Whitney 2012). We rated trials at high risk of attrition bias if they did not report any details on dropouts, or if dropouts occurred and intention-to-treat analysis did not appear to have been undertaken on at least one or more outcome measure (Ball 2004; Eisler 2000; Espina 2000; Le Grange 1992; Lock 2005; Lock 2010; Rausch Herscovici 2006; Rhodes 2008; Robin 1999; Russell 1987).

Selective reporting

Selective reporting bias includes the lack of reporting of the data from an outcome measure that was stated to have been collected, and follow-up data reported to have been collected but not reported. We judged 16 studies to have some form of reporting bias (Ball 2004; Besharat 2001; Crisp 1991; Dare 2001; Eisler 2000; Godart 2012; Le Grange 1992; Le Grange 2016; Li 2006; Lock 2005; Lock 2015; Madden 2015; Onnis 2012; Rhodes 2008; Robin 1999; Russell 1987), while in five the level of selective reporting bias was unclear (Agras 2014; Espina 2000; Hall 1987; Rausch Herscovici 2006), and the risk of bias was low in five studies.

Other potential sources of bias

We found other potential sources of bias. These included baseline group imbalances for particular core characteristics (Agras 2014; Ball 2004; Crisp 1991; Dare 2001; Hall 1987; Herpertz-Dahlmann 2014; Herscovici 2017; Le Grange 1992; Robin 1999; Russell 1987), inconsistencies between the description of the results in the text, and the actual outcome data given in tables (Ball 2004; Crisp 1991; Dare 2001), and inconsistencies in the participant numbers reported for various outcome measures throughout trials (Besharat 2001; Dare 2001; Robin 1999; Russell 1987). Other problems included small sample sizes with a number of studies containing fewer than 30 participants (Ball 2004; Geist 2000; Herscovici 2017; Le Grange 1992; Onnis 2012; Rausch Herscovici 2006; Rhodes 2008);

uneven or unspecified treatment dosages/durations (Besharat 2001; Crisp 1991; Dare 2001; Godart 2012; Herpertz-Dahlmann 2014; Herscovici 2017; Robin 1999; Russell 1987), the use of within-group analysis (Hall 1987; Robin 1999); no or very little between-group analysis reported (Besharat 2001; Robin 1999; Russell 1987), and potential contamination from the same therapist(s) conducting both types of therapy (Dare 2001; Eisler 2000; Russell 1987).

Overall, there appeared to be considerable risks of bias in the included studies.

Effects of interventions

See: [Summary of findings for the main comparison Family therapy compared to standard care/treatment as usual for anorexia nervosa](#); [Summary of findings 2 Family therapy compared to psychological interventions for anorexia nervosa](#); [Summary of findings 3 Family therapy compared to educational interventions for anorexia nervosa](#)

Comparison 1: Family therapy approaches versus standard care/treatment as usual

Four trials (286 participants) compared family therapy approaches with treatment as usual. Dare 2001 used *family-based* therapy, Espina 2000 used a *systems* approach, and Crisp 1991 and Godart 2012 used more general forms of family therapy, which we classified under the *Other* family therapy approaches category. We classed three of the trials as being in adult populations (Crisp 1991; Dare 2001; Espina 2000) and one as a trial in an adolescent population (Godart 2012).

Primary outcomes

Remission

Two trials reported on remission post-intervention (Crisp 1991; Dare 2001). There was some evidence that family therapy approaches may improve the rates of remission post-intervention compared to standard care/treatment as usual groups (risk ratio (RR) 3.50, 95% confidence interval (CI) 1.49 to 8.23 (RR 3.50, 95% CI 1.49 to 8.23; participants = 81; $I^2 = 0\%$) [Analysis 1.1](#)). Only one of these trials (Dare 2001) collected data on remission at long-term follow-up (12 months +), with no differences between groups in rates of remission and very wide confidence intervals (RR 6.09, 95% CI 0.33 to 110.84, 41 participants; [Analysis 1.2](#)).

Both of these trials were undertaken in adults so we are unclear about the impact on adolescents.

All-cause mortality

Dare 2001 reported on mortality, stating that there was one participant from the standard care/treatment as usual group who died during the treatment phase. One death was reported following randomisation, but prior to the start of treatment in Crisp 1991, in the outpatient group therapy condition (this arm of the trial was not used in the review).

Secondary outcomes

Functioning

No trials reported on family functioning. However, Godart 2012 reported on general functioning, with little evidence that family therapy approaches improved family functioning compared with

standard care/treatment as usual (mean difference (MD) 0.50, 95% CI -0.62 to 1.62, 59 participants; [Analysis 1.3](#)). Given only one trial of adolescents reporting on this outcome, we were unable to conduct subgroup analysis based on age.

Dropouts

Three trials reported on dropouts during therapy (Dare 2001; Espina 2000; Godart 2012), with no evidence of a difference between family therapy approaches and standard care/treatment as usual (RR 1.01, 95% CI 0.44 to 2.34; participants = 137; [Analysis 1.4](#)).

There was no evidence that age group modified the effect of family therapy approaches, compared with standard therapy post-intervention for dropouts ($Chi^2 = .06$; $df = 1$; $P = 0.81$; [Analysis 13.4](#)).

Eating disorder psychopathology

Two trials (Crisp 1991; Godart 2012) reported scores with little evidence for an effect of family therapy approaches on eating disorder psychopathology outcomes (standardised mean difference (SMD) -0.11, 95% CI -0.49 to 0.27, $I^2 = 0\%$, 109 participants; [Analysis 1.5](#)) compared with standard care/treatment as usual, post-intervention.

There was no evidence that age group modified the effect of family therapy approaches, compared with standard therapy post-intervention ($Chi^2 = .67$; $df = 1$; $P = 0.41$; [Analysis 13.5](#)).

Weight

One trial (Godart 2012) reported on BMI weight outcomes, with little evidence for an effect of family therapy approaches compared with standard care/treatment as usual (MD 0.40, 95% CI 0.-75 to 1.55, 59 participants; [Analysis 1.6](#)).

Given only one trial of adolescents reporting on this outcome, we were unable to conduct subgroup analysis based on age.

Relapse

Two trials (Dare 2001; Godart 2012) reported on relapse, and while the effect favoured family therapy approaches compared with standard care/treatment as usual, this did not reach statistical significance (RR 0.65, 95% CI 0.37 to 1.15; participants = 100; [Analysis 1.7](#)).

There was no evidence that age group modified the effect of family therapy approaches, compared with standard therapy post-intervention ($Chi^2 = .15$; $df = 1$; $P = 0.70$; [Analysis 13.7](#)).

Comparison 2: Family therapy approaches versus psychological interventions

Six trials (414 participants) compared family therapy approaches with psychological interventions. Five trials used *family-based* therapy (Ball 2004; Dare 2001; Lock 2010; Robin 1999; Russell 1987). One trial (Crisp 1991) described more general family therapy embedded into individual outpatient work, categorised as *Other* family therapy. The participants in the Russell 1987 trial were grouped by age of onset and duration of illness. The comparison group in Russell 1987 was individual supportive therapy, in Robin 1999 and Lock 2010 ego-oriented individual therapy/adolescent-focused therapy, in Crisp 1991 group sessions of more general psychotherapy, in Ball 2004 CBT, and in Dare 2001 cognitive

analytical group was used as a comparator (rather than the psychoanalytic psychotherapy arm).

Primary outcomes

Remission

Five trials reported on remission post-intervention (all but [Crisp 1991](#)), with [Russell 1987](#) reporting results for their three subgroups separately. While the effect favoured family therapy approaches compared with other psychological therapies, this did not reach statistical significance (RR 1.22, 95% CI 0.89 to 1.67; $I^2 = 37%$, 252 participants; [Analysis 2.1](#)). Only one study ([Lock 2010](#)) reported follow-up rates for remission at short-term follow-up (less than 12 months), favouring family therapy approaches but showing no statistically significant difference between groups (RR 1.16, 95% CI 0.94 to 1.44, 89 participants; [Analysis 2.2](#)). Similarly, the results for remission from four studies at long-term follow-up showed the same pattern ([Ball 2004](#); [Lock 2010](#); [Robin 1999](#); [Russell 1987](#)) (RR 1.08, 95% CI 0.91 to 1.28; $I^2 = 0%$, 200 participants; [Analysis 2.3](#)).

There was little evidence that age group modified the effect of family therapy approaches, compared with psychological therapies post-intervention ($\text{Chi}^2 = .62$; $\text{df} = 1$; $P = 0.43$; [Analysis 14.1](#)). At short-term follow-up there was only one trial in an adolescent population. At long-term follow-up, while effect sizes favoured psychological therapies for adults, and family therapy approaches for adolescents, there was no evidence that age group modified the effect ($\text{Chi}^2 = 2.67$; $\text{df} = 1$; $P = 0.10$; [Analysis 14.3](#)).

All-cause mortality

Three trials ([Crisp 1991](#); [Dare 2001](#); [Russell 1987](#)) reported on mortality. [Russell 1987](#) stated that there were no deaths at the post-intervention assessment. The paper reporting follow-up ([Eisler 1997](#)) stated that by five-year follow-up three participants had died, but does not state to which treatment group they belonged. No participants in the family therapy approaches or individual psychological treatment group had died in [Dare 2001](#). As above, one death was reported following randomisation but prior to treatment in [Crisp 1991](#), in the outpatient group therapy condition.

Secondary outcomes

Functioning

None of the six trials reported useable data on family or general functioning.

Dropouts

Four trials reported on dropouts during therapy ([Ball 2004](#); [Dare 2001](#); [Lock 2010](#); [Russell 1987](#)), with little evidence of a difference in the number of dropouts between those receiving family therapy approaches and those receiving psychological interventions (RR 1.13, 95% CI 0.46 to 2.78; $I^2 = 46%$, 229 participants; [Analysis 2.4](#)).

There was little evidence that age group modified the effect of family therapy approaches, compared with psychological therapies post-intervention ($\text{Chi}^2 = .30$; $\text{df} = 1$; $P = 0.58$; [Analysis 14.4](#)).

Eating disorder psychopathology

We combined the Morgan-Russell data from [Ball 2004](#), [Crisp 1991](#) and [Russell 1987](#) (reported separately in three subgroups; these data are reported in [Eisler 2008](#)) with the EAT data from [Robin 1999](#),

and the EDE data from [Lock 2010](#). There was little evidence of an effect of family therapy approaches compared with psychological interventions on these measures (SMD 0.17, 95% CI -0.32 to 0.66, 262 participants; [Analysis 2.5](#)).

One trial ([Lock 2010](#)) reported on eating disorder psychopathology at less than 12 months follow-up, with little evidence of a difference between family-based therapy versus the psychological intervention (ego-oriented individual therapy/adolescent-focused therapy) (MD -0.23, 95% CI -0.69 to 0.23, 89 participants; [Analysis 2.6](#)). Four trials ([Ball 2004](#); [Lock 2010](#); [Robin 1999](#); [Russell 1987](#) (reported separately in three subgroups; these data are reported in [Eisler 1997](#))) measured eating disorder psychopathology at long-term follow-up (more than 12 months), with the longest follow-up time point taken for each trial. Again, there was little evidence of a difference, with effect sizes in various directions and moderate heterogeneity between those who received family therapy approaches and those who received other psychological interventions (SMD -0.01, 95% CI -0.50 to 0.47; $I^2 = 57%$, 197 participants; [Analysis 2.7](#)).

Post-intervention, while effect sizes favoured psychological therapies for adults and family therapy approaches for adolescents, there was little evidence that age group modified the effect ($\text{Chi}^2 = 1.87$; $\text{df} = 1$; $P = 0.17$; [Analysis 14.5](#)). At short-term follow-up there was only one trial in an adolescent population. At long-term follow-up, again while effect sizes favoured psychological therapies for adults and family therapy approaches for adolescents, there was little evidence that age group modified the effect post-intervention ($\text{Chi}^2 = 1.17$; $\text{df} = 1$; $P = 0.28$; [Analysis 14.7](#)).

Weight

Four trials ([Ball 2004](#); [Lock 2010](#); [Robin 1999](#); [Russell 1987](#)) reported on weight at the end of intervention (BMI, BMI percentile, ABW percentage), with some evidence that family therapy approaches resulted in greater improvements in weight than psychological therapy (SMD 0.32, 95% CI 0.01 to 0.63; participants = 210); [Analysis 2.8](#)). The one trial reporting on this ([Lock 2010](#)) found no difference in weight (BMI percentile) at short-term follow-up (MD 2.30, 95% CI -7.28 to 11.88); [Analysis 2.9](#)). Four trials ([Ball 2004](#); [Lock 2010](#); [Robin 1999](#); [Russell 1987](#)) reported on weight at long-term follow-up (BMI, BMI percentile, ABW percentage), and while the effects were in the same direction as at the end of intervention, the effect was no longer statistically significant (SMD 0.14, 95% CI -0.16 to 0.45; $I^2 = 7%$, 198 participants; [Analysis 2.10](#)).

Post-intervention, while effect sizes favoured psychological therapies for adults and family therapy approaches for adolescents, there was not enough evidence to demonstrate that age group modified the effect ($\text{Chi}^2 = 2.45$; $\text{df} = 1$; $P = 0.12$; [Analysis 14.8](#)). At short-term follow-up there was only one trial of an adolescent population. At long-term follow-up, there were statistically non-significant results favouring psychological therapy for adults in the two trial arms in [Russell 1987](#) (SMD -0.50, 95% CI -1.21 to 0.21; $I^2 = 0%$) and favouring family therapy approaches for adolescents in four trials (SMD 0.27, 95% CI -0.04 to 0.57; $I^2 = 0%$), with evidence that age group modified the treatment effect ($\text{Chi}^2 = 3.82$; $\text{df} = 1$; $P = 0.05$; [Analysis 14.10](#)).

Relapse

Two trials ([Dare 2001](#); [Russell 1987](#); reported separately in three subgroups) reported on relapse at end of treatment, with little evidence of a difference between family therapy approaches and psychological interventions (RR 1.06, 95% CI 0.54 to 2.08, $I^2 = 0\%$, 101 participants [Analysis 2.11](#)).

One trial ([Lock 2010](#)) reported on relapse at long-term follow-up, with evidence of a difference between groups (RR 2.49, 95% CI 0.55 to 11.21, 77 participants; [Analysis 2.12](#)).

Post-intervention, there was little evidence that age group modified the effect ($\text{Chi}^2 = .01$; $df = 1$; $P = 0.93$; [Analysis 14.11](#)), and there was only one trial reported in an adolescent population at long-term follow-up.

Comparison 3: Family therapy approaches vs educational interventions

There was one trial ([Hall 1987](#); 30 participants) comparing family therapy approaches with an educational intervention. The trial compared a combination of individual and family work (categorised as *Other* family therapy) to dietary advice.

Primary outcomes

Remission

There were no data on remission post-intervention. At short-term follow-up (9 months) there was little evidence, with very wide confidence intervals, that there was a difference between a family therapy approach and those receiving dietary advice in the percentage of participants who recovered (RR 9.00, 95% CI 0.53 to 153.79; participants = 30), [Analysis 3.1](#)).

All-cause mortality

Mortality was not reported.

Secondary outcomes

Functioning

There were no useable data reported on family or general functioning.

Dropouts

There were no dropouts reported in either intervention group.

Eating disorder psychopathology

There were no useable data reported on eating disorder psychopathology outcomes.

Weight

Weight was not reported as an outcome.

Relapse

There were no data on relapse reported.

Comparison 4: Short-term versus long-term family therapy approaches

Efficacy outcomes

One trial ([Lock 2005](#); 86 participants) examined the effectiveness of six-month (short-term) compared with 12-month (long-term) family-based therapy.

Primary outcomes

Remission

The data on remission post-intervention were not reported. At follow-up (mean 3.96 years) there was little evidence of any difference in the percentage of participants who recovered between those who received short-term and those who received long-term family-based therapy (RR 0.95, 95% CI 0.80 to 1.12, 71 participants; [Analysis 4.1](#)).

All-cause mortality

Mortality was not reported.

Secondary outcomes

Functioning

[Lock 2005](#) examined attending school or work as a way of estimating general functioning; there was little evidence of any difference in functioning at follow-up between those receiving short-term and those receiving long-term family-based therapy (RR 1.03, 95% CI 0.95 to 1.12, 71 participants; [Analysis 4.2](#)).

Dropouts

There was little evidence of any difference in the rate of dropouts during therapy between the group receiving short-term and long-term family-based therapy (RR 3.67, 95% CI 0.81 to 16.66, 86 participants; [Analysis 4.3](#)).

Eating disorder psychopathology

At follow-up, the EDE scale scores were provided and there was little evidence of any difference between the short-term and long-term family-based therapy groups (MD -0.43, 95% CI -1.23 to 0.37, 35 participants; [Analysis 4.4](#)).

Weight

There was little evidence of differences in BMI between the groups receiving short-term and long-term family-based therapy at the end of treatment (MD 0.50, 95% CI -0.43 to 1.43, 86 participants; [Analysis 4.5](#)) or at follow-up (MD 0.17, 95% CI -0.83 to 1.17, 71 participants; [Analysis 4.6](#)).

Relapse

There was little evidence of differences in relapse during therapy between the groups receiving short-term and long-term family-based therapy (RR 0.94, 95% CI 0.43 to 2.09, 86 participants; [Analysis 4.7](#)).

Comparison 5: Conjoint family therapy approaches versus separated family therapy approaches

Three trials ([Eisler 2000](#); [Le Grange 1992](#); [Le Grange 2016](#)) compared *conjoint family-based* therapy, where the family and the participant were seen together, with *separated family-based* therapy, where the family and participant were seen separately, with a total of 165

participants. In all cases family-based therapy was the approach used.

Primary outcomes

Remission

Two studies reported on remission post-intervention (Eisler 2000; Le Grange 2016), with some evidence to show rates might be higher for those in the separated family-based therapy condition (RR 0.56, 95% CI 0.38 to 0.83; participants = 134; $I^2 = 0\%$); Analysis 5.1). The direction of effect was consistent across short-term (only one study; Le Grange 2016) (RR 0.48, 95% CI 0.28 to 0.84; 74 participants; Analysis 5.2) and long-term follow-up, but by long-term follow-up the effect was no longer statistically significant (RR 0.86, 95% CI 0.67 to 1.09; participants = 100; $I^2 = 0\%$); Analysis 5.3) (Eisler 2000; Le Grange 2016).

All-cause mortality

Only Eisler 2000 reported on mortality, stating that there were no deaths in either of their treatment groups during treatment or over the five years of follow-up.

Secondary outcomes

Functioning

Neither trial reported useable data on family or general functioning.

Dropouts

Eisler 2000 and Le Grange 2016 reported on dropout numbers at the end of treatment, with little evidence that there was any difference in the number of dropouts between those receiving conjoint family-based therapy and those receiving separately-based family therapy (RR 1.26, 95% CI 0.60 to 2.68; participants = 134; $I^2 = 0\%$); Analysis 5.4). Eisler 2000 reported long-term (five-year) follow-up dropouts and found no difference between the groups, but with very large confidence intervals suggesting that the effect size could not be reliably established (RR 1.11, 95% CI 0.07 to 16.49, 38 participants; Analysis 5.5).

Eating disorder psychopathology

A large range of eating disorder scale measures were used to assess eating disorder psychopathology, including the EAT, Morgan-Russell Scales, EDI and EDE, across the three studies. There was little evidence of difference in outcomes between conjoint and separated family-based therapy across any of these measures, and notable that the confidence intervals are often very wide, suggesting that the effect size can not be reliably estimated. This included Eisler 2000 and Le Grange 1992 EAT scores at the end of treatment (MD -1.85, 95% CI -10.01 to 6.31, 58 participants; Analysis 5.6), Eisler 2000 EAT long-term follow-up (five years) data (MD 4.40, 95% CI -25.72 to 34.52, 14 participants; Analysis 5.7), Eisler 2000 and Le Grange 1992 post-intervention Morgan-Russell scales scores (MD -0.96, 95% CI -1.95 to 0.03, 58 participants; Analysis 5.8), Eisler 2000 post-intervention EDI scores (MD -10.50, 95% CI -26.96 to 5.96, 40 participants; Analysis 5.9) and long-term follow-up EDI scores (MD -7.90, 95% CI -37.73 to 21.93, 20 participants; Analysis 5.10), as well as Le Grange 2016 EDE scores at post-intervention (MD 0.29, 95% CI -0.22 to 0.80, 94 participants; Analysis 5.11), short-term (MD 0.24, 95% CI -0.28 to 0.76, 74 participants; Analysis 5.12) and long-term follow-up (MD 0.23, 95% CI -0.36 to 0.82, 62 participants; Analysis 5.13). As no one

scale was used consistently across the studies, and change scores (rather than exact scale scores) were reported for some of the data, it was not possible to combine the scale results into a single meta-analysis.

Weight

Similarly, the reporting of change scores in one study also prevented pooling of weight data across percentage ABW and percentage median BMI scores. Eisler 2000 and Le Grange 1992 both reported percentage ABW at post-intervention. When these results are combined there is little evidence to support any difference between the conjoint and separated family-based therapy groups (MD -2.75, 95% CI -18.50 to 13.00; participants = 58; $I^2 = 84\%$); Analysis 5.17), nor at five-year follow-up (one trial only; Eisler 2000) (MD -6.70, 95% CI -14.14 to 0.74, 33 participants; Analysis 5.18). Le Grange 2016 reported percentage median BMI scores with little evidence of a difference between groups post-intervention (MD -3.20, 95% CI -7.09 to 0.69, 94 participants; Analysis 5.14), short-term (MD -2.20, 95% CI -7.13 to 2.73, 74 participants; Analysis 5.15) or long-term (MD -2.30, 95% CI -7.20 to 2.60, 62 participants; Analysis 5.16).

Relapse

Only one trial (Eisler 2000) reported on relapse and found little evidence of a treatment effect post-intervention (RR 3.32, 95% CI 0.38 to 29.23, 40 participants; Analysis 5.19) or after five-year follow-up (RR 0.56, 95% CI 0.12 to 2.68, 38 participants; Analysis 5.20).

Comparison 6: Family therapy approaches versus family therapy approaches plus meal

Two trials examined the efficacy of *family-based* therapy compared with *family-based therapy* that included a family meal as an intervention, with a combined total of 35 participants (Herscovici 2017; Rausch Herscovici 2006).

Primary outcomes

Remission

At the end of treatment there was little evidence of a difference in the numbers of remitted participants between family-based therapy plus meal and family-based therapy alone, with very high heterogeneity (RR 0.70, 95% CI 0.23 to 2.10; participants = 35; $I^2 = 88\%$); Analysis 6.1). There was little evidence of any difference in levels of remission at short-term follow-up in Herscovici 2017 (RR 0.69, 95% CI 0.35 to 1.35, 23 participants; Analysis 6.2), or at long-term follow-up in Rausch Herscovici 2006 (RR 1.00, 95% CI 0.75 to 1.34, 12 participants; Analysis 6.3).

All-cause mortality

Mortality was not reported.

Secondary outcomes

Functioning

Family functioning was measured on the Family Health Scale by Rausch Herscovici 2006, with some limited evidence of an improvement for those receiving the family-based therapy plus meal compared to those receiving family-based therapy alone after intervention (MD -0.62, 95% CI -1.16 to -0.08; 12 participants; Analysis 6.4). There were no useable data on family functioning at follow-up.

There were no useable data on general functioning.

Dropouts

Both studies ([Herscovici 2017](#); [Rausch Herscovici 2006](#)) reported on dropouts, with some limited evidence that there were no differences in the rate of dropouts during therapy between the groups (RR 0.33, 95% CI 0.02 to 6.86; participants = 35; $I^2 = 0\%$); [Analysis 6.5](#)).

Eating disorder psychopathology

Both studies ([Herscovici 2017](#); [Rausch Herscovici 2006](#)) used the Morgan-Russell scales. Combined data showed some limited evidence that there may be little difference between the groups on eating disorder psychopathology at the end of intervention (MD 0.54, 95% CI -0.78 to 1.85; participants = 35; $I^2 = 0\%$); [Analysis 6.6](#)), at short-term follow-up in [Herscovici 2017](#) (MD -0.10, 95% CI -1.78 to 1.58, 23 participants; [Analysis 6.7](#)) or at long-term follow-up in [Rausch Herscovici 2006](#) (MD 0.33, 95% CI -1.85 to 2.51, 12 participants; [Analysis 6.8](#)).

Weight

There was little evidence of differences in weight (BMI and EBW percentage) between the groups receiving family-based therapy and the groups receiving family-based therapy plus meal at the end of treatment or at long-term follow-up (SMD -0.19, 95% CI -0.85 to 0.48; participants = 35; $I^2 = 0\%$); [Analysis 6.9](#)), with both study results combined. There was little evidence of difference in EBW percentages at short-term follow-up in [Herscovici 2017](#) (MD -5.30, 95% CI -15.05 to 4.45, 23 participants; [Analysis 6.10](#)), or in BMI scores in [Rausch Herscovici 2006](#) (MD 0.60, 95% CI -2.10 to 3.30, [Analysis 6.11](#)).

Relapse

There were no useable data reported on relapse.

Comparison 7: Individual family therapy approaches versus group family therapy approaches

There was one trial in this condition ([Whitney 2012](#)). In this trial a 'specific family therapy' approach was applied to individual families in one condition (categorised as *Other* family therapy), while *systems* family therapy was used to treat families in a group setting in the other, with a total of 48 participants.

Primary outcomes

Remission

There were no useable data on remission.

All cause mortality

No data about mortality were reported.

Secondary outcomes

Functioning

Family functioning was measured using the carers' level of expressed emotion (LEE) scale ([Cole 1988](#)). There was little evidence of any differences between the groups on family functioning at the end of treatment (MD 1.10, 95% CI -2.93 to 5.13, 66 participants; [Analysis 7.1](#)) or at follow-up (MD -0.90, 95% CI -5.23 to 3.43, 58 participants; [Analysis 7.2](#)).

There were no data on general functioning.

Dropouts

There was little evidence of any differences in the rate of dropouts between groups (RR 1.09, 95% CI 0.24 to 4.86, 48 participants; [Analysis 7.3](#)).

Eating disorder psychopathology

[Whitney 2012](#) measured eating disorder psychopathology using the short evaluation of eating disorders-anorexia nervosa (SEED-AN); there was little evidence on this measure of a difference between the groups post-intervention (MD 0.20, 95% CI -0.62 to 1.02, 25 participants; [Analysis 7.4](#)) or at follow-up (MD -0.20, 95% CI -0.79 to 0.39, 29 participants; [Analysis 7.5](#)).

Weight

There was little evidence of a difference between the groups in BMI at the end of treatment (MD -0.80, 95% CI -1.86 to 0.26, 47 participants; [Analysis 7.6](#)) or at follow-up (MD 1.00, 95% CI -0.42 to 2.42, 44 participants; [Analysis 7.7](#)).

Mortality

No data about mortality were reported.

Relapse

No useable data on relapse were provided.

Comparison 8: Family-based therapy versus systemic family therapy

There was one trial ([Agras 2014](#); 158 participants) for this comparison of *family-based therapy* to *systemic family therapy*.

Primary outcomes

Remission

There was little evidence of any difference in remission rates between family-based therapy and systemic family therapy post-intervention (RR 1.33, 95% CI 0.81 to 2.18, 158 participants; [Analysis 8.1](#)), or at short-term follow-up (RR 1.06, 95% CI 0.72 to 1.55, 158 participants; [Analysis 8.2](#)).

All-cause mortality

The study reported that there were no deaths of participants in either intervention at the end of treatment or at short-term follow-up (less than 12 months).

Secondary outcomes

Functioning

There were no useable data reported on family functioning or general functioning.

Dropouts

There was little evidence of any difference in dropout rates between family-based therapy and systemic family therapy during the intervention. (RR 1.03, 95% CI 0.60 to 1.75, 158 participants; [Analysis 8.3](#)).

Eating disorder psychopathology

There were no useable data reported on eating disorder psychopathology.

Weight

There were no usable data reported on weight.

Mortality

No data about mortality were reported.

Relapse

No useable data were provided about relapse.

Comparison 9: Inpatient family therapy versus day-patient family therapy

There was one trial ([Herpertz-Dahlmann 2014](#); 161 participants) for this comparison of inpatient family therapy to day-patient family therapy. We categorised both interventions as *Other* family therapy and incorporated family therapy along with other therapeutic approaches.

Primary outcomes

Remission

There was little evidence of any difference in remission rates between an inpatient family therapy approach and a day-patient family therapy approach at short-term follow-up (less than 12 months) (RR 1.15, 95% CI 0.79 to 1.66, 161 participants; [Analysis 9.1](#)).

All-cause mortality

The study reported that there were no deaths of participants in either intervention at the end of treatment or at short-term follow-up (less than 12 months).

Secondary outcomes

Functioning

No useable data were provided about family functioning or general functioning.

Dropouts

There was little evidence of any difference in dropout rates between an inpatient family therapy approach and a day-patient family therapy approach during the intervention (RR 0.60, 95% CI 0.30 to 1.22, 161 participants; [Analysis 9.2](#)).

Eating disorder psychopathology

The EDI was used to assess eating disorder psychopathology. There was little evidence of any difference between an inpatient family therapy approach and a day-patient family therapy approach at short-term follow-up (MD 8.00, 95% CI -15.22 to 31.22, 161 participants; [Analysis 9.3](#)).

Weight

Weight was assessed by percentile EBW. There was little evidence of any difference between an inpatient family therapy approach and a day-patient family therapy approach at short-term follow-up (MD -1.20, 95% CI -3.92 to 1.52, 161 participants; [Analysis 9.4](#)).

Mortality

The study reported that there were no deaths of participants in either intervention at the end of treatment or at short-term follow-up (less than 12 months).

Relapse

There was little evidence of any difference in rates of relapse between an inpatient family therapy approach and a day-patient family therapy approach at short-term follow-up (RR 1.68, 95% CI 0.89 to 3.16, 161 participants; [Analysis 9.5](#)).

Comparison 10: Family-based therapy versus family-based therapy plus parent coaching

There was one trial ([Lock 2015](#); 45 participants) comparing family-based therapy to family-based therapy plus parent coaching for those with poor early weight restoration.

Primary outcomes

Remission

There was little evidence of any difference in remission rates between family-based therapy and family-based therapy plus parent coaching post-intervention (RR 1.03, 95% CI 0.51 to 2.09, 45 participants; [Analysis 10.1](#)).

All-cause mortality

No useable data were provided about mortality.

Secondary outcomes

Functioning

No useable data were provided about family functioning or general functioning.

Dropouts

There was little evidence of any difference in dropout rates between family-based therapy and family-based therapy plus parent coaching post-intervention (RR 1.00, 95% CI 0.25 to 4.08, 45 participants; [Analysis 10.2](#)).

Eating disorder psychopathology

The EDE scale was used to assess eating disorder psychopathology at post-intervention. There was some limited evidence of a difference in EDE results, favouring family-based therapy over family-based therapy plus parent coaching (MD -0.80, 95% CI -1.39 to -0.21, 36 participants; [Analysis 10.3](#)).

Weight

There was little evidence of any difference in weight measured using BMI between family-based therapy and family-based therapy plus parent coaching (MD -0.10, 95% CI -1.08 to 0.88, 36 participants; [Analysis 10.4](#)).

Relapse

No useable data were provided about relapse.

Comparison 11: Family therapy approach plus medical stabilisation versus family therapy approach plus weight restoration

There was one trial ([Madden 2015](#); 82 participants) for this comparison. We categorised both of these interventions as *family-based therapy*.

Primary outcomes

Remission

There was little evidence of any difference in rates of remission between family-based therapy plus medical stability compared with family-based therapy plus weight restoration at post-intervention (RR 1.13, 95% CI 0.78 to 1.64, 78 participants; [Analysis 11.1](#)), at short-term follow-up (RR 0.78, 95% CI 0.56 to 1.08, 78 participants; [Analysis 11.2](#)) or at long-term follow-up (RR 0.86, 95% CI 0.69 to 1.07, 78 participants; [Analysis 11.3](#)).

All-cause mortality

No useable data were provided about mortality.

Secondary outcomes

Functioning

No useable data were provided about family functioning or general functioning.

Dropouts

There was little evidence of any difference in dropout rates between family therapy plus medical stability compared with family therapy plus weight restoration (RR 0.33, 95% CI 0.04 to 3.07, 82 participants; [Analysis 11.4](#)).

Eating disorder psychopathology

There was little evidence of any difference in eating disorder psychopathology on the EDE at long-term follow-up between family-based therapy plus medical stability compared with family-based therapy plus weight restoration (MD -0.18, 95% CI -0.90 to 0.54, 69 participants; [Analysis 11.5](#)).

Weight

There was little evidence of any difference in percentage EBW change at long-term follow-up between family-based therapy plus medical stability compared with family-based therapy plus weight restoration (MD 2.02, 95% CI -2.57 to 6.61, 78 participants; [Analysis 11.6](#)).

Relapse

Relapse was defined as requiring readmission to hospital in the 12-month follow-up period. There was little evidence of any difference between the family-based therapy plus medical stability compared with family-based therapy plus weight restoration (RR 0.95, 95% CI 0.53 to 1.72, 78 participants; [Analysis 11.7](#)).

Comparison 12: Family-based therapy versus family-based therapy plus consultation

One trial ([Rhodes 2008](#); 20 participants) compared *family-based therapies*, with and without parent-to-parent consultation.

Primary outcomes

Remission

There was little evidence of any difference in rates of remission between family-based therapy compared with family-based therapy plus consultation at post-intervention (RR 1.14, 95% CI 0.69 to 1.90, 20 participants; [Analysis 12.1](#)).

All-cause mortality

No useable data were provided about mortality.

Secondary outcomes

Functioning

No useable data were provided about family functioning or general functioning.

Dropouts

No useable data were provided about dropouts.

Eating disorder psychopathology

No useable data were provided about eating disorder psychopathology.

Weight

No useable data were provided about weight, as percentage IBW results were missing standard deviations and were reported by outcome categories and not by treatment group totals.

Relapse

No useable data were provided about relapse.

DISCUSSION

Summary of main results

The first primary outcome measure in this review was remission. The definition of remission varied widely across studies, with this heterogeneity affecting the comparability of the results. Of the 12 comparisons conducted, useable data for remission were available for at least one time point (post-intervention, short-term less than 12-month follow-up or long-term 12-month and longer follow-up) in 11 analyses. Based on these results there is a very small evidence base (two trials) of low-quality evidence that suggests that family therapy approaches may be more effective than treatment as usual post-intervention, but this difference does not appear to be maintained at long-term follow-up, based on one trial. There was insufficient and low-quality evidence (five trials post intervention and four trials at long term follow-up; one of these trials presented three pair-wise comparisons for different age groups) contributing to a comparison of family therapy approaches and psychological interventions, meaning it is difficult to conclude whether there are advantages of one approach over the other. The same was true for family therapy approaches and educational interventions (one trial). Given this lack of evidence for a clear advantage of family therapy, the choice of treatment for those with AN may include individual psychological therapy or educational interventions, which can be less costly and more accessible than family therapy.

When we compared different types of family therapy approaches head-to-head, we found few differences in rates of remission between treatments, and those that we found were no longer evident at long-term follow-up, although frequently such findings were based on very few trials and wide confidence intervals. There was some evidence, based on two trials, that remission rates might be higher for separated compared to conjoint family-based therapy at post-intervention, and at short-term follow-up based on one trial; however, there was not strong evidence of a difference between separated and conjoint family-based therapy remission rates at long-term follow-up, based on two trials. Given that the current evidence does not allow us to determine whether there is any advantage of family therapy approaches compared with psychological interventions, the utility of focusing on comparisons between different types of family therapy approaches could also be questionable.

The second primary outcome measure was mortality. Information about mortality was not reported for seven of the 12 comparisons. In those where mortality data were available, it was often not provided for all trials, or was provided in an incomplete or unclear manner. One death was reported following randomisation but prior to treatment in [Crisp 1991](#). Across all studies, four deaths were reported either at post-intervention or at follow-up. One death was reported in one study (occurring in the treatment-as-usual condition; [Dare 2001](#)). There were also three deaths at five-year follow-up in [Russell 1987](#), but it was unclear in which treatment groups these deaths occurred. As a large number of the remaining trials had incomplete analysis of participants at follow-up, or anomalies in the reported follow-up data, it was not possible to determine whether these were in fact the only deaths across all trial participants. Consequently, it is difficult to make an overall comment on any potential harms resulting from the interventions under evaluation. However, based on the available evidence, the mortality rates in the included trials appear to be lower for all types of interventions compared to the rates of mortality reported in individuals with AN in the general literature ([Fichter 2006](#); [Harris 1998](#); [Sullivan 1995](#)). This may reflect the fact that the most severely unwell people may not have been included in the trials, or it may reflect an improvement in care.

For the secondary outcomes, almost all the remaining comparisons for the outcome measures of eating disorder psychopathology, family or general functioning, relapse, weight measures and dropouts from treatment, there was insufficient evidence to determine whether there were differences between treatment conditions. There was a limited amount of evidence, based on four trials, to suggest that there may be greater gains in weight for those receiving family therapy approaches compared with other psychological therapies, but this effect was less clear at long-term follow-up. There was also some limited evidence of a difference in eating disorder psychopathology, favouring family-based therapy over family-based therapy plus parent coaching at post-intervention, with no follow-up data reported ([Lock 2015](#)). There was some limited evidence of an improvement in family functioning on the Family Health Scale in the family-based therapy plus meal group compared to the family-based therapy alone group after intervention, in one trial ([Rausch Herscovici 2006](#)). Useable follow-up data on family functioning were not reported. Overall, across all of the trials comparing one type of family therapy to another, there was insufficient evidence to determine if there is a

significant advantage of any particular type of family therapy over another.

Very few trials provided useable data on the key measures of general functioning (2/25) and family functioning (2/25). While remission rates are very important to assess, general functioning (i.e. participation in major life activities such as school, work, socialisation, etc.) is also extremely important and it would be beneficial to the research field if more information were available about general functioning post-AN treatment and recovery. As all trials used some form of family therapy approach, it is to be expected that the trialists would be interested in assessing the impact of the interventions on functioning within the family structure. The low rates of assessment of family functioning were therefore disappointing. It would have been valuable for family functioning factors to have been explored more commonly as an outcome measure, and to have been reported in more detail.

Useable data about relapse rates for participants were reported in some form for six of the 12 comparisons. There was not enough evidence to determine if there are meaningful differences in relapse rates across any of the comparisons of family therapy versus non-family therapy interventions, or between different forms of family therapy when compared head-to-head.

This review is a major update of the original version ([Fisher 2010](#)). It incorporates a further 12 studies, bringing the total number of included studies up to 25. The number of comparison analyses has also doubled, from six to 12. As a result, there is a large spread of analyses, with many of the new trials contributing to analyses investigating small variations within the same family therapy approach (e.g. family-based therapy with family meal versus no meal; family-based therapy with parental coaching to early poor weight restorers versus no parental coaching), rather than strengthening the evidence in the major comparisons of interest. The overall results from the primary outcome measure (remission) are similar to the original version of the review, with both versions presenting low-quality evidence to suggest that family therapy may be more effective than treatment as usual on rates of remission in the short term, but insufficient evidence to determine if there is a significant advantage of family therapy compared with educational interventions or other psychological interventions. In this update we implemented subgroup analysis to investigate the impact of age group on treatment effects; however, overall there was insufficient evidence to draw robust conclusions. There are few adult trials and most of these include participants who might be classed as youth (United Nations class youth as 15 to 24 years), with studies postulating that this group are not necessarily dissimilar from adolescents ([Sawyer 2018](#)). Very few studies have been undertaken in adults over the age of 30, although we note that there are some additional trials listed in [Characteristics of studies awaiting classification](#) that include adults. It is inevitable that the application of family therapy approaches will be different in adolescents, youth and adults, and that the impact of age on treatment effect requires further investigation. Indeed, it would make sense for this review to be split so that the efficacy of family therapy approaches in adults can be examined separately.

We also anticipated that in updates of this review it might be possible to investigate whether there were any differences in treatment effectiveness based on how long an individual met criteria for AN. However, due to the trial designs and the nature

in which the data were reported (i.e. few studies that stratified the results according to chronicity) it was not possible to conduct analyses to investigate the impact of chronicity on treatment effectiveness.

Overall completeness and applicability of evidence

The available trials allowed for the comparison of family therapy approaches to standard treatment, and to other treatments, meeting the first major objective of the review. However, in many of the comparison analyses there were few trials with small numbers of participants. The comparison that included the greatest number of trials was family therapy approaches versus other psychological interventions, which comprised six trials (only 5 contributing to the primary outcome remission) with a total of 414 AN patients. This was followed by family therapy approaches versus standard care/treatment as usual, which comprised four trials with 286 participants.

The second major objective of the review was to compare the efficacy of different forms of family therapy approaches. Nine analyses were possible that directly compared different forms of family therapy approaches. However, it is important to note that most of these involved the use of two family interventions that were theoretically very similar (or identical), but with a single point of difference or a modification between the two interventions, i.e. short-term versus long-term, conjoint versus separated, family meal versus no meal, inpatient versus outpatient, parent coaching versus no parent coaching, pre-therapy medical stability versus weight restoration. The two exceptions to this were *family-based* therapy versus *systems* family therapy (one trial), and specific individual family therapy (*other*) versus *systems* group family therapy (one trial). The comparison with the highest number of participants was conjoint versus separated family-based therapy (three trials, 165 participants). This was followed by inpatient family therapy approaches versus day-patient family therapy approaches (one trial, 161 participants) and family-based therapy versus systemic family therapy (one trial, 158 participants).

There were a limited number of trials and useable data, and a lack of specificity about the theoretical underpinning of the family therapy approach used in a number of trials. It was therefore not possible to compare trials with different theoretical approaches in the family therapy approaches versus other therapy analyses (i.e. treatment as usual, psychological interventions and educational interventions). We therefore conclude that there is insufficient evidence to be able to determine whether or not there are differences between different types of family therapy.

The primary outcome of the review was remission; however, this was variously defined across trials and only reported in 15 of the 25 trials at end of treatment and in 14 at follow-up. While improvements in eating disorder psychopathology and weight are important to patients, returning to normal functioning is likely to be a more important outcome measure. Unfortunately, only two trials reported useable data for a measure of general functioning. This lack of consistency in the reporting of key outcome measures, and a lack of more generalised assessments of functioning, has compromised the capacity of our review to investigate clear outcome results from the trials. Many trials also failed to report on between-group differences (e.g. [Hall 1987](#); [Russell 1987](#); [Robin 1999](#)).

Eighteen trials reported at least some information on the rate of dropouts prior to the post-intervention assessment. A further nine trials reported on the rate of dropouts at follow-up. However, due to the nature of the reporting of this information it was at times unclear to which treatment arms the dropouts belonged. It was also often unclear how dropouts had been managed during the analysis of the outcome data. Given the nature of the disorder, it is possible that a proportion of participants who dropped out of the intervention fared poorly, in terms of clinical outcomes. The numbers of dropouts in the reviewed trials may therefore have the effect of artificially inflating the effectiveness of the interventions.

A wide variety of weight measures were used across the trials (BMI, kilograms, IBW percentage, ABW, EBW percentage), making it difficult to determine if participants included in these trials were similar to those seen in clinical practice. Of the 13 trials that reported mean BMI scores at baseline, most fell between 14.9 and 17.5, with just two trials reporting BMI means below 14.9. Three of the trials that reported their exclusion criteria excluded participants with very low weight: [Agras 2014](#) excluded those less than 75% of IBW; [Ball 2004](#) those with a BMI below 13.5; [Dare 2001](#) those with "extremely low body weight". Three trials excluded people with longer durations of AN: [Crisp 1991](#) excluding clients with more than 10 years of illness; [Godart 2012](#) and [Madden 2015](#) excluding people with more than three years of illness, while [Le Grange 1992](#) excluded those with less than three years of illness. Participants with comorbidities, including suicidal risk and other psychiatric disorders, were often excluded. Participants were included both from inpatient and from outpatient settings. However, most were outpatients and consequently were more likely to be stabilised. It is important to note that men and boys were either excluded or represented a small proportion of the samples, so it may be that the results are not generalisable to male patients with AN. Furthermore, as noted, most of the studies included participants either exclusively or predominantly from an adolescent age range. The findings may therefore not be generalisable to older people with AN.

We have not examined treatment cost effectiveness in the review, but is an important factor when considering the overall applicability of a treatment to a particular cohort and setting. Treatments that are more therapist time-intensive, and those in which participants received or required inpatient admissions throughout the therapy are likely to have been more costly than less intensive outpatient therapies. Evaluating treatment cost effectiveness would be a useful addition to any future update of this review.

Quality of the evidence

The reporting of aspects of risks of bias across the trials was generally inadequate. It is therefore difficult to estimate what the effect of bias on the treatment might be. This was particularly evident for concealment of allocation, as inadequate concealment is known to have a large effect on treatment estimates ([Juni 2001](#)). The blinding of care providers and participants is not possible in trials of therapy. Similarly, blinding of self-reported outcome measures is also not possible. However, in this review clinician-assessed outcomes were common, and little detail was provided about the blinding of these outcome assessors, with just five trials reporting the blinding of outcome assessors. In the remaining 20 trials this was either not conducted or was not reported or unclear. The risks of bias in the reporting of trial results were also high,

with just 12% rated at low risk of attrition bias, 16% at low risk of reporting bias and just 4% at low risk of other potential sources of bias.

A number of trials suffered from other problems relating to the eccentricities of trials conducted in this field. For example, several appeared to have baseline imbalances (e.g. [Crisp 1991](#); [Eisler 2000](#); [Hall 1987](#); [Le Grange 1992](#); [Robin 1999](#); [Whitney 2012](#)). In some cases the same therapist conducted the therapy in both family therapy and comparison treatment groups (e.g. [Agras 2014](#); [Eisler 2000](#); [Russell 1987](#)). There were often issues with the delivery of treatment or with treatment integrity, e.g. in [Crisp 1991](#) participants were allowed to change treatment conditions; there was little consistency in treatment dosage in [Dare 2001](#); [Crisp 1991](#); [Russell 1987](#); in one trial participants also received individual psychodynamic therapy, but there was no psychodynamic therapy-alone comparison group ([Hall 1987](#)).

Risk of bias is one domain of the GRADE rating system of quality that we therefore consistently downgraded. We also downgraded for inconsistency, where in some cases the direction of effect varied (investigated in subgroup analyses by age group, but with too little data available for adults this was underpowered), and for imprecision, with few trials and with wide confidence intervals attributable to few participants.

Potential biases in the review process

Three of the trials included in the review were not published in English. Two of these trials were reported in Spanish and thus the data for two trials were extracted by a Spanish-speaking colleague. One trial was published in Chinese and the data were extracted by a Chinese-speaking colleague. We made every effort to ensure the accuracy and consistency of these extractions. However, the fact that the data were extracted by another individual, not as well-practised in extraction for this particular review, may have affected the quality of the information obtained from these papers.

In most cases we used end-point data in the review, rather than change scores, as these were not generally available. End-point data are more sensitive to baseline imbalances in the data, and thus may have affected the accuracy of the results.

Most of the data were obtained through published trial reports. However, some of the data were obtained through personal correspondence after we contacted all lead trial authors. As not all authors responded to our requests for missing data, or provided clarifications of data anomalies, it is possible that there remains a proportion of the existing data that we were not able to include in this review. Also, as we acquired extra data from a number of the responding authors through personal communication, the current review may under-represent the extent of the level of reporting bias in the published papers, as originally published.

Agreements and disagreements with other studies or reviews

Based on the data available in this update, there is insufficient evidence to be able to determine the relative efficacy of family therapy approaches over other interventions, other than treatment as usual. There is insufficient evidence to be able to determine the relative efficacy of family therapy approaches over educational or other psychological interventions, and little clear evidence to indicate that family therapy approaches are more effective for

adolescents compared to older persons (19 years +) with AN. This contrasts with recommendations in some recent guidelines ([NICE 2017](#)).

Several reviews of the efficacy of family therapy approaches have previously been published. Typically, these have based their conclusions on narrative summaries of individual trial results, not meta-analyses. Of these, a review of intervention studies for the treatment of AN in adolescents ([Keel 2008](#)) highlighted the paucity of studies for this population. They concluded that the Maudsley model of family therapy (*family-based therapy*) is the only intervention that has been tested and that based on two small studies ([Russell 1987](#); [Robin 1999](#)) family-based therapy is superior to the other psychological interventions investigated in these trials. In a systematic review of intervention studies for the treatment of AN in all age groups ([Berkman 2006](#)), the Agency for Healthcare Research and Quality states that the efficacy of family therapy approaches in treating adults with AN has not yet been completely addressed and that various forms of family therapy are efficacious in treating adolescents. The report highlights the fact that the statement about the efficacy of family therapy for adolescents with AN is based on the results of [Robin 1999](#) and on the results of the subgroup of younger participants with shorter duration of illness in the [Russell 1987](#) trial. This review contextualises these findings in terms of the quality of the conduct of the trials, and highlights the small sample sizes and lack of statistical power to detect differences across treatment groups in the included trials. In a systematic review of the evidence for psychological treatments in eating disorders ([Hay 2013](#)), the authors state that in adolescents with AN there has been progress in the evidence for the use of family-based treatment and cognitive behaviour therapy.

One recent systematic review ([Couturier 2013](#)) did undertake a meta-analysis and examined the efficacy of family-based treatment for adolescents with eating disorders. Due to the selection criteria, only three trials were included, only one of which included participants with AN, and two others with bulimia nervosa (BN) and eating disorders not otherwise specified (EDNOS). The authors concluded that family-based treatment does not appear to be superior to individual treatment at end of treatment, but at follow-up appears to show significant benefits for adolescents with eating disorders. Given the inclusion of trials with eating disorders other than AN, it is difficult to make any clear comparisons with our review.

AUTHORS' CONCLUSIONS

Implications for practice

The research literature into family therapy approaches for the treatment of AN is growing, with the available studies meeting criteria for this review almost doubling over the eight-year period between the first and second versions (2008 to 2016). However, it is important to note that the evidence base still remains relatively small. Several recent moderate-sized trials have been conducted, but many still involve small sample sizes, and all have potentially significant risks of bias, with many details about the conduct of the trials not reported. What evidence there is generally of low quality, and while it suggests that family therapy may be effective compared to standard or routine treatment (predominantly outpatient management with individual consultations with general practitioner/family doctor, psychiatrist or other health professionals that may be group-based) in the

short term, there is insufficient evidence to be able to determine the relative efficacy of family therapy, and educational and other psychological interventions. The main type of family therapy investigated remains family-based therapy and its variants. There is insufficient evidence to be able to determine whether there are any significant differences in effectiveness between different family therapy approaches. Nor is there sufficient evidence to determine the impact of age on treatment efficacy, with most trials undertaken in adolescents and youth. We did not address treatment cost effectiveness as part of this review.

Implications for research

The effectiveness of different family therapy approaches has not been well studied, with some major classes of family therapy intervention not investigated in trials to date. Further research into the efficacy of other psychological interventions versus family therapy is warranted, as are trials comparing different schools of family therapy. Such trials should include the following factors:

1. Given the lack of reporting about the conduct of trials and the potential impact of bias on these trials, there is a need for large, well-conducted trials that include all elements designed to reduce the risk of bias;
2. This would include using standard clinically meaningful outcomes for participants;

3. Of particular interest would be trials that carefully investigated the impact of family therapy on family functioning, and in turn on clinical outcomes;
4. Within such trials, the impact of chronicity should be carefully investigated and distinguished from age.

It is clear that the impact of age requires further significant examination and this should be done in a review that separates out adult studies.

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* Indicates the major publication for the study

CHARACTERISTICS OF STUDIES
Characteristics of included studies [ordered by study ID]

Agras 2014

Methods	RCT
Participants	<p>Country: USA</p> <p>Diagnostic tool: DSM-IV except for the amenorrhoea criterion and with up to 87% of their IBW</p> <p>No. screened: 564</p> <p>No. randomised: Total: 164; FBT: 82; SyFT 82</p> <p>No. started trial: FBT 78; SyFT 80</p> <p>No. dropped out during intervention: Total: 40; FBT: 20; SyFT 20</p> <p>No. dropped out during follow-up: No detail</p> <p>No. analysed (observed case): Total: 158; FBT: 78; SyTF 80</p> <p>Mean age in years (SD): Total: 15.3 (1.8); FBT: 15.1 (1.7), SyFT: 15.6 (1.8)</p> <p>Age range in years: Total: Between ages 12 -18</p> <p>Gender %: Total female 89.2%; FBT 85.9%; SyTF 92.5%</p> <p>Subtype purging %: No detail</p> <p>Subtype restricting %: No detail</p> <p>Age of onset: No detail</p> <p>Duration of illness: Total 13.5 (13.9) moths; FBT:11.6 (9.8); SyFT:15.4 (16.9)</p> <p>Baseline weight: Total: mean IBW 81.9%; FBT: 82.2% (3.8); SyFT: 81.7% (3.7)</p> <p>Baseline BMI: No detail</p> <p>Baseline eating disorder scale score: Total: No detail; FBT: 1.6 (1.3) EDE; SyFT: 1.9 (1.5) EDE</p> <p>Baseline eating disorder scale score: Total: No detail; FBT: 10.7 (8.0) Yale-Brown-Cornell Eating Disorder Scale; SyFT: 12.1 (8.4) Yale-Brown-Cornell Eating Disorder Scale</p> <p>Comorbidity: Total: Dep - 25.3%, Anx - 10.8%, OCD - 11.4 %, Other - 10.1%; FBT: Dep - 25.6%, Anx - 14.1%, OCD - 10.2%, Other - 9.0%; SyFT: Dep - 25.0%, Anx - 7.5%, OCD - 12.5 %, Other - 11.2%</p> <p>Details on living arrangements: No detail</p> <p>Family education/employment/income: No detail</p> <p>Recruitment strategy: 6 clinical sites experienced in the treatment of AN, 1 site had difficulty with recruitment and was replaced by another site</p> <p>Exclusion criteria:</p> <ol style="list-style-type: none"> 1. Current psychotic illness 2. Mental retardation that would prohibit the use of psychotherapy 3. Bipolar disorder 4. Dependence on drugs or alcohol 5. Pregnancy 6. Previous family therapy for AN 7. Taking medications that may induce weight loss 8. Medical instability, including being at a weight at or below 75% of the IBW. Participants who were medically unstable were eligible for entry to the study when they became medically stable for outpatient treatment.

Agras 2014 (Continued)

Interventions

Setting of care: Outpatient

Training/qualification of care provider(s): Yes: 26 therapists were doctorate- or masters-level psychologists, psychiatrists, or social workers; mean of 6 years' experience in the treatment of adolescent AN
Treatment manual: Yes, both treatments

Supervision of treatment: Therapists were trained in separate workshops for each treatment and then completed treatment for 2 cases with supervision from experts in each type of family therapy (JL for FBT and ED for SyFT). Supervision of therapists continued at weekly intervals throughout the treatment phase and were provided centrally by the data and co-ordinating centre and at the site level by a trained supervisor, with each treatment supervised separately. Elements of supervision included listening to therapy tapes, case discussions focusing on the process of treatment, behavioural rehearsal, and treatment planning

Adherence to treatment: Yes: Fidelity to each treatment was assessed at 1 of the sites by 6 raters with a graduate degree in psychology or social work and experience in treating eating disorders. Raters were trained in 1 of the 2 treatments by reading the manual and viewing tapes of the training workshop for clinicians and were also trained in the application of the appropriate fidelity instrument for which reliability was established. Each site provided 4 videotapes per family randomly sampled from each of the following blocks of sessions: 1 to 4, 5 to 8, 9 to 12, and 13 to 16. A total of 421 therapy tapes were audited (210 FBT and 211 SyFT). The overall mean scores for fidelity were FBT 4.15 (0.94) and SyFT 4.38 (0.48) on a 0 to 6 scale

Intervention group 1

Description: Family-based therapy

Length: 60 min, 16 sessions over 9 months

Intervention group 2

Description: Systemic family therapy

There is no family meal or specific emphasis on normalisation of eating or weight, although if the family raises this issue, the therapist will help them address it

Length: 60 min, 16 sessions over 9 months

Outcomes

Eating psychopathology

EDE

Yale-Brown-Cornell EDS

Behavioural indices

Remission (defined as achieving a minimum of 95% of the IBW)

Ideal body weight % (IBW)

General psychopathology and obsessionality

BDI

STAI

Child Yale-Brown Obsessive Compulsive Scale

Rosenberg self-esteem scale

Global pathology and interpersonal functioning

Quality of Life and Enjoyment Scale (short form)

Notes

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Agras 2014 (Continued)

Standard deviations often not reported so data for eating disorder psychopathology and weight could not be used

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Participants were randomised within sites to 1 of the 2 family therapies using a computer-generated programme
Allocation concealment (selection bias)	Unclear risk	No detail
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Assessors were blinded to the treatment condition
Incomplete outcome data (attrition bias) All outcomes	Low risk	Results for all participants who began treatment reported
Selective reporting (reporting bias)	Unclear risk	All measures appear to have been reported on; but in many cases the SDs were not reported
Other bias	Unclear risk	<ol style="list-style-type: none"> 1. Differences in mean length of illness between groups at baseline 2. Differences in comorbid baseline anxiety 3. Therapists conducted both types of treatment

Ball 2004

Methods	RCT
Participants	Country: Australia Diagnostic tool: DSM-IV modified to also include participants with < 90% ABW No. screened: No detail No. randomised: Total: 25; BFT: 12; CBT: 13 No. started trial: No detail No. dropped out during intervention: Total: 7; BFT: 3; CBT: 4 No. dropped out during follow-up: No detail No. analysed (observed case): BFT: 9; CBT: 9 Mean age in years (SD): BFT: 17.58 (3.37); CBT: 18.45 (2.57) Age range in years: Total: 13 - 23 (totals only provided) Gender %: 100% female Subtype purging %: Total: 36% (N 9); BFT: 25% (N 3); CBT: 46.2% (N 6) Subtype restricting %: Total: 64% (N 16); BFT: 75% (N 9); CBT: 53.8 % (N 7) Age of onset: No detail

Ball 2004 (Continued)

Duration of illness: No detail

Baseline weight: No detail

Baseline BMI: BFT: 16.45 (0.85); CBT: 16.06 (1.58)

Baseline eating disorder scale score (EDE): BFT: 2.00 (0.2); CBT: 2.05 (0.26)

Baseline eating disorder scale score (MRS): BFT: 6.09 (1.51); CBT: 5.94 (1.07)

Baseline purging: No detail

Comorbidity: No detail

Details on living arrangements: Total: All “currently living with their family” (pg. 305)

Family education/employment/income: No detail

Recruitment strategy: Patients evaluated at eating disorder unit

Exclusion criteria:

1. BMI < 13.5
2. Currently receiving other psychological or pharmacological treatment
3. Current physical or psychological disorder - other than depression or anxiety associated with AN
4. Current drug or alcohol abuse
5. Self-harming behaviour in last 12 months
6. Other indications for hospitalisation - severe physical complications or suicidal ideation
7. Recent history of untreated physical or psychological trauma or sexual abuse

Interventions

Setting of care: Outpatient

Training/qualification of care provider(s): Yes: 6 female clinical psychologists with post-graduate qualifications in CBT and eating disorders - therapist crossed across treatments

Treatment manual: No: No for CBT; unclear for BFT “based on a number of behavioural interventions described by [Robin 1989](#).”

Supervision of treatment: No detail

Adherence to treatment: No detail

Intervention group 1

Description: Behavioural family therapy
Behavioural family therapy ([Robin 1989](#)), plus 4 nutritional counselling sessions
Length: 25 sessions of 1 hour duration over 12 months

Intervention group 2

Description: Individual Cognitive Behavioural Therapy
Based on [Garner 1982](#), therapy to address maladaptive core beliefs often associated with feelings of failure and inadequacy. Plus 4 nutritional counselling sessions
Length: 25 sessions of 1 hour duration over 12 months

Outcomes

Eating psychopathology
EDE ([Cooper 1987a](#); [Cooper 1987b](#))
Scales of Body Dissatisfaction, EDI ([Garner 1983](#))
Anorectic Behaviour Observation Scale ([Vandereycken 1992](#))
Behavioural indices
Weight, BMI
Menstruation
Good outcome/intermediate outcome/poor outcome

General psychopathology
Depression ([Beck 1961](#))
STAI ([Speilberger 1970](#))

Ball 2004 (Continued)

Obsessionality
 Perfectionism Scale from the EDE (Cooper 1987a; Cooper 1987b)

Global pathology and interpersonal functioning
 State Self Esteem Scale (Heatherton 1991)

Family functioning
 Eating Conflict Scale of the IBC (Robin 1989) (Prinz 1978)

Notes
 Included in family therapy vs individual psychological intervention
 Family therapy categorised as family-based therapy
 Funded by: Prince Henry Hospital Coast Centenary Grant

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No detail
Allocation concealment (selection bias)	Unclear risk	No detail
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	No detail
Incomplete outcome data (attrition bias) All outcomes	High risk	<ol style="list-style-type: none"> 1. There is not a full description of why people left the intervention in each group 2. There are 3 hospitalisations but it is unclear from which groups 3. No ITT analysis 4. For the main outcome they do compare ITT to completer analysis.
Selective reporting (reporting bias)	High risk	<ol style="list-style-type: none"> 1. Do not report outcomes from the Eating Conflict subscale of the IBC 2. Authors report that they collected data on both general and family functioning, but the data are not reported in a format that is useable for analysis
Other bias	High risk	<ol style="list-style-type: none"> 1. Small sample size 2. Baseline imbalance - for subtype of AN 3. Inaccurate, with conflict in reporting (state 60% in "good" category but then report N = 7 in each group for "good", which is less than 60%)

Besharat 2001

Methods	RCT
Participants	Country: Not reported in paper (author affiliation listed as Iran; personal correspondence revealed study undertaken in the UK) Diagnostic tool: DSM-IV and ICD-10 No. screened: No detail No. randomised: 58 (although the results of 62 participants are reported)

Family therapy approaches for anorexia nervosa (Review)

Besharat 2001 (Continued)

No. started trial: No detail
 No. dropped out during intervention: No detail
 No. dropped out during follow-up:
 No. analysed (observed case): 62 (despite 58 being included in study)

Mean age in years (SD): Total: 26.1 (6.6)
 Age range in years: Total: No detail
 Gender %: No detail
 Subtype purging %: No detail
 Subtype restricting %: No detail
 Age of onset: Total: No detail
 Duration of illness: No detail
 Baseline weight: The ABW, expressed as a percentage of the mean population weight matched for age and height, for the entire sample was 71.8 kg (7.8%)
 Baseline BMI: No detail
 Baseline eating disorder scale score: No detail
 Baseline eating disorder scale score: No detail
 Baseline purging: No detail
 Comorbidity: No detail (although must be BN as mixed sample)
 Details on living arrangements: In 53.3% the family composition was dual-parental, composed of mother, father and participant, while 26.6% were single-parent families, mainly mother and the participant, and 20% were marital families, husband and wife
 Family education/employment/income:
 Recruitment strategy: No detail

Exclusion criteria: No detail

Interventions

Setting of care: No detail
 Training/qualification of care provider(s): No detail
 Treatment manual: No detail
 Supervision of treatment: No detail
 Adherence to treatment: No detail

Intervention group 1

Description: Family therapy

No further details

Length: Up to 1 year

Intervention group 2

Description: Supportive therapy

No further details

Length: Up to 1 year

Intervention group 3

Description: Individual focal psychoanalytic psychotherapy

No further details

Length: Up to 1 year

Intervention group 4

Description: Cognitive analytic therapy

No further details

Length: Up to 1 year

Outcomes

Standardised clinical family interview expressed emotion

Besharat 2001 (Continued)

Morgan-Russell outcome assessment

Notes The results from the studies are only reported as group totals for AN versus BN participants. No information is provided for study outcomes by treatment group

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Participants described as "randomly assigned" in abstract. No further details
Allocation concealment (selection bias)	Unclear risk	No detail
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	No detail
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	58 study participants are described in the abstract. However, outcomes for 62 participants are reported in Table 1
Selective reporting (reporting bias)	High risk	No results from the actual RCT for therapy outcomes reported by intervention group. Outcomes only reported by AN vs BN and pre-intervention Expressed Emotion results
Other bias	Unclear risk	No useable data

Crisp 1991

Methods	RCT
Participants	Country: UK Diagnostic tool: DSM-III-R No. screened: No detail No. randomised: 90: Inpatient (includes FT): 30; Outpatient (includes FT): 20; Outpatient group: 20; Assessment only: 20 No. started trial: 73: Inpatient (includes FT): 18; Outpatient (includes FT): 18; Outpatient group: 17 (1 died); Assessment only: 20 No dropped out during intervention: (not fully reported): Outpatient (includes FT): 3 (attended 5 sessions or fewer); Assessment only: 14 dropped out in the sense that they sought treatment elsewhere No. analysed: 90 (LOCF): Inpatient (includes FT): 30; Outpatient (includes FT): 20; Outpatient group: 20; Assessment only: 20 Mean age in years (SD): Total: 22; Inpatient (includes FT): 23.2 (4.9); Outpatient (includes FT): 21.2 (5.1); Outpatient group: 19.7 (2.6); Assessment only: 21.9 (4.5) Age range in years: Total: 20 - 23 (not given by group) Note - the review authors note that this age range is inconsistent with the mean ages provided per treatment group (i.e. outpatient group mean is stated as 19.7). Gender: All female participants Subtype: No detail

Family therapy approaches for anorexia nervosa (Review)

Crisp 1991 (Continued)

Age of onset in years (SD): Inpatient (includes FT): 19.8 (4.7); Outpatient (includes FT): 18.4 (3.9); Outpatient group: 17.4 (3.9); Assessment only: 17.4 (3.2)

Duration of illness in months (SD): Total: 39; range 4 - 107 months; Inpatient (includes FT): 41.0 (30.17); Outpatient (includes FT): 33.4 (25.9); Outpatient group: 27.5 (25.8); Assessment only: 53.5 (52.9)

Baseline weight in kgs: Inpatient (includes FT): 40.8 (6.1); Outpatient (includes FT): 40.3 (3.8); Outpatient group: 40.2 (6.0); Assessment only: 41.0 (6.1)

Baseline deviation below MMPW % (SD): Inpatient (includes FT): 28.0 (9.4); Outpatient (includes FT): 26.5 (6.9); Outpatient group: 26.2 (8.7); Assessment only: 25.0 (8.5)

Baseline BMI: Inpatient (includes FT): 15.3; Outpatient (includes FT): 15.5; Outpatient group: 15.5; Assessment only: 15.7

Baseline eating disorder scale score (MRS): Inpatient (includes FT): 3.5 (0.2); Outpatient (includes FT): 3.9 (0.3); Outpatient group: 3.8 (0.4); Assessment only: 3.5 (0.3)

Baseline purging ("usually vomiting"): Inpatient (includes FT): 5; Outpatient (includes FT): 5; Outpatient group: 5; Assessment only: 7

Baseline Purging ("usually bulimic"): Inpatient (includes FT): 3; Outpatient (includes FT): 2; Outpatient group: 5; Assessment only: 3

Comorbidity: No details

Details on living arrangements: No details

Family education/employment/income: *No details*

Recruitment strategy: Not stated other than "successive referrals" to treatment centre

Exclusion criteria:

1. Not residing close enough for outpatient treatment (> 40 miles)
2. \geq 10 year duration of illness
3. Males

Interventions

Setting of care: Inpatient and outpatient
 Training/qualification of care provider(s): Paper states 'trained and experienced' no other details
 Treatment manual: No detail
 Supervision of treatment: No detail
 Adherence to treatment: No detail

Intervention group 1

Description: Outpatient individual therapy and family therapy
 12 outpatient sessions including individual work which nearly always but to a variable extent included some family work (more with the younger participants). Family work emphasised establishment of boundaries, and addressing issues such as enmeshment, conflict avoidance (e.g. non-communication) and attempted solving of family problems. Dietary counselling also included.
Length: Several months

Intervention group 2

Description: Outpatient group therapy for participants and outpatient group therapy for parents
 10 outpatient psychotherapy group meetings for the individual and 10 group meetings for parents separately. Issues addressed included conflict avoidance, sense of self, family relationships, identification of moods, meaning of weight and shape, management of impulse, communication and relationship skills, with parents additionally addressing support of each other in managing shared problems and difficulties over autonomy as well as parental discord and lifestyle issues. Dietary counselling also included
Length: 10 sessions

Intervention group 3

Description: Inpatient treatment
 Inpatient stay of several months including weight restoration with weekly individual therapy, family therapy, group therapy, dietary counselling and occupational therapy using psychodrama and projective art techniques. Followed by 12 sessions of outpatient treatment involving both the participant and the family
Length: Several months of inpatient plus outpatient treatment over several months

Intervention group 4

Description: 'One off' - no further treatment

Crisp 1991 (Continued)

Referred back to their family doctor or local consultant who received a detailed report of the assessment with advice on further management. "of those in option 4, 6 had no treatment of any kind, six had inpatient treatment, 5 had outpatient hospital treatment and 3 had very regular contact with GP. 6 patients spent almost the entire year in treatment" (pg. 329 Crisp 1991)
Length: 'one off'

Outcomes

Eating psychopathology
 Morgan Russell Assessment Schedule (Morgan 1988)

Behavioural indices

Well: weight within 15% MMPW; regular menstruation; normal eating
 Almost well: weight risen to above 85% of MMPW, menstruation returned (but not necessarily regular); aspects of abnormal eating may remain
 Significantly better: Weight risen to within 85% or still less but risen by 10%, and/or menstruation absent or sporadic; aspects of abnormal eating may remain
 No change: Weight less than 85% MMPW and/or increased by < 10% and/or menstruation absent or sporadic; abnormal eating
 Worse: weight loss has occurred or score lower on the Morgan Russell score; amenorrhoea still present

Notes

Included in family therapy vs standard care/treatment as usual
 Family therapy categorised as other
 Also included in family therapy vs individual psychological intervention
 Family therapy categorised as other
 Funded by: Marks and Spencer plc, St George's Hospital Special Trustees and Worshipful Company of Grocers

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No detail : Methods paper pg. 446 " treatment option drawn by random allocation" with no other statement
Allocation concealment (selection bias)	Unclear risk	No detail
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	At 12 months "patients were seen by one of the team uninvolved in the treatment programs and as far as possibly unaware of the treatment allocation" but the methods paper (Gowers) states it was "not possible for the interviewer to be blind to the treatment given" pg. 453
Incomplete outcome data (attrition bias) All outcomes	Low risk	All participants were followed up regardless of compliance with treatment. Analysis included all 90 participants who were randomised
Selective reporting (reporting bias)	High risk	<ol style="list-style-type: none"> Vaguely stated hypotheses No report of restricting or purging behaviours at follow-up despite these measures being taken at baseline 2-year outcomes only reported for 2 groups. Authors report that they collected data on weight, relapse and dropouts but the data are not reported in a format that is useable for analysis
Other bias	High risk	<ol style="list-style-type: none"> Many "no treatment" participants received treatment Treatment dosages uneven

Family therapy approaches for anorexia nervosa (Review)

Crisp 1991 (Continued)

3. 50% more allocation to inpatient group at randomisation
4. Longer duration of illness in Group 4. Uneven age distribution across groups. Means range from 19.8 years to 17.4 years
5. Inpatient group had lower mean weight at presentation but then no differences in compliers (i.e. those who took up treatment)
6. Compliance was lower in the inpatient and non-treatment groups
7. Reporting anomalies in Gowers 1994 follow-up paper, which provided outcomes for groups 2 and 4 only. Authors have stated that (pg. 171) "Only in one case (in the treatment group) was a follow-up weight not obtained." However, all follow-up data are reported on N = 20, instead of N = 19.
8. Baseline data obtained before allocation to treatment groups when allocation contained potentially therapeutic interventions - "all had an extensive family based and potentially therapeutically effective baseline assessment"
9. Non-standardised outcome assessment from assessors and in methods of obtaining outcome data

Dare 2001

Methods	RCT
Participants	<p>Country: UK</p> <p>Diagnostic tool: DSM-IV</p> <p>No. screened: No detail</p> <p>No. randomised: Total : 84; Psychoanalytic psychotherapy: 21; Family therapy: 22; Cognitive analytic therapy: 22; Routine treatment: 19</p> <p>No. started trial: No detail</p> <p>No. dropped out during intervention: Total : 30; Psychoanalytic psychotherapy: 9; Family therapy: 6; Cognitive analytic therapy: 9; Routine treatment: 6; "4 failed to attend the first treatment session. 6 dropped out within the first two months and a further 19 dropped out during the later stages of treatment" (pg. 218). This adds up to 29 - but they stated 54 completed from 84 randomised - these numbers do not match with the numbers for each group.</p> <p>Number dropped out during follow-up: No detail</p> <p>Number analysed (LOCF): Total : 84; Psychoanalytic psychotherapy: 21; Family therapy: 22; Cognitive analytic therapy: 22; Routine treatment: 19</p> <p>Number analysed (observed case): Total : 54; Psychoanalytic psychotherapy: 12; Family therapy: 16; Cognitive analytic therapy: 13; Routine treatment: 13</p> <p>Mean age (SD) in years: Total : 26.3 (6.7); Psychoanalytic psychotherapy: 26.7(6.4); Family therapy: 26.6 (7.6); Cognitive analytic therapy: 27.2 (7.6); Routine treatment: 24.3 (4.5)</p> <p>Age range: No detail</p> <p>Gender %: Total: 2% male (all in the family therapy group): 98% female</p> <p>Subtype: No detail</p> <p>Age of onset in years: Total : 19.0 (5.3); Psychoanalytic psychotherapy: 18.8 (4.2); Family therapy: 20.5 (7.5); Cognitive analytic therapy: 19.9 (4.1); Routine treatment: 16.6 (4.1)</p> <p>Duration of illness in years: Total : 6.3 years (5.9); 79% had received previous treatment (43% of these as inpatients and 19% requiring multiple admissions); Psychoanalytic psychotherapy: 6.7 (5.9) (71% had received previous treatment - 24% as inpatient); Family therapy: 5.8 (4.9) (82% had received pre-</p>

Dare 2001 (Continued)

vious treatment - 55% as inpatient); Cognitive analytic therapy: 6.7 (7.6) (77% received previous treatment - 36% as inpatient); Routine treatment: 6.1 (5.0) (84% had received previous treatment - 58% as inpatient)

Baseline weight in kgs: Total: 41.1 (5.1) - mean average body weight for height (74.3%); Psychoanalytic psychotherapy: 40.8 (4.6) mean average body weight for height (72.8%); Family therapy: 41.0 (6.2) mean average body weight for height (72.8%); Cognitive analytic therapy: 41.9 (4.6) mean average body weight for height (77.3%); Routine treatment: 40.6 (5.2) mean average body weight for height (73.9%)

Baseline BMI: Total : 15.4 (1.6); Psychoanalytic psychotherapy: 15.0 (1.6); Family therapy: 15.2 (1.5); Cognitive analytic therapy: 16.0 (1.7); Routine treatment: 15.3 (1.6)

Baseline eating disorder scale score (MRS): Total: 5.5 (1.4)

Baseline purging % (vomiting daily or at least weekly): Total : 36% Daily only 13%; Psychoanalytic psychotherapy: 15% Daily only 19%; Family therapy: 14% Daily only 9%; Cognitive analytic therapy: 28% Daily only 27%; Routine treatment: 37% Daily only 11%

Comorbidity: No detail

Details on living arrangements (lived with their parents or another family member): Total : 50%; Psychoanalytic psychotherapy: 52%; Family therapy: 59%; Cognitive analytic therapy: 41%; Routine treatment: 47%

Details on living arrangements : 24% lived with a marital or common law partner and 26% alone; Psychoanalytic psychotherapy: 14% cohabiting; 33% alone; Family therapy: 27% cohabiting; 14% alone; Cognitive analytic therapy: 32% cohabiting; 27% alone; Routine treatment: 21% cohabiting; 32% alone

Family education/employment/income: No detail

Recruitment strategy: Sequential referrals to the outpatient eating-disorder service

Exclusion criteria:

1. Mental or physical state was considered so dangerous as to require urgent admission to hospital e.g. suicidal risk
2. Extremely low body weight

Interventions

Setting of care: Outpatient

Training/qualification of care provider(s): Yes: A psychologist, doctor and a social worker with training in family therapy

Treatment manual: No

Supervision of treatment: Yes: Bi-weekly 90 minute group format

Adherence to treatment: No detail

Intervention group 1

Description: Family-based therapy

Described as 'Family Therapy' in report. Phase 1 focused on the family control of refeeding but participants took an active role to oppose the anorexic eating habits

Length: Mean of 13.6 sessions of 1 hour to 1 hour 15 minutes sessions between once a week and once every 3 weeks

Intervention group 2

Description: Focal psychoanalytic psychotherapy

Non-directive with no advice given about AN or symptom management but addresses: a) conscious and unconscious meanings of the symptom in terms of the participants' history and their experience with their family, b) the effects of the symptom and its influence on the participants current relationship, and c) the manifestation of those influences in the relationship with the therapist

Length: Planned once a week for a year but mean of 24.9 sessions of 50 minute duration

Intervention group 3

Description: Cognitive analytic therapy

Dare 2001 (Continued)

Participants are helped to evolve a formal mapped-out structure of the place of the anorexia in their experience of themselves and their early and current relationships
Length: Planned weekly sessions for 20 weeks then monthly for 3 months but mean number of 12.9 sessions of 50 minute duration

Intervention group 4

Description: Routine treatment

Included low contact, outpatient management with provision of information and encouragement

Length: Planned to be a low-contact intervention with mean 10.9 sessions of 30 minute duration over approximately 1 year

Outcomes	<p><u>Eating psychopathology</u> Morgan Russell Assessment Schedule (Morgan 1988)</p> <p><u>Behavioural indices</u> BMI</p> <p>Recovered: weight > 85% ABW; menstruation returned, no bulimic symptoms</p> <p>Significantly improved: weight > 85% of ABW but amenorrhoea persists and/or occasional bulimic symptoms (< weekly)</p> <p>Improved: weight > 75% ABW and 10% weight gain and/or regular bulimic symptoms (weekly)</p> <p>Poor: weight < 75% ABW or weight gain < 10% or frequent bulimic symptoms (daily)</p>
Notes	<p>Included in family therapy vs standard care/treatment as usual</p> <p>Family therapy categorised as family-based therapy</p> <p>Also included in family therapy vs individual psychological intervention</p> <p>Family therapy categorised as family-based therapy</p> <p>Personal communication stated that the cause of death of the participant who died in the routine group was not available in research files</p> <p>Funded by: Leverhulme Foundation and the Mental Health Research Fund</p>

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	<p>Quote: "a stratified randomisation procedure...the minimization method (Pocock 1982) was used to control for age of onset and the duration of the illness." Pg. 216</p> <p>Personal communication stated that stratified randomisation with minimisation was used to control for age of onset, duration of illness, marital status, and presence of symptoms. If minimisation resulted in a tie, a random sequence had been generated by computer and was used.</p>
Allocation concealment (selection bias)	Low risk	Quote: "sealed envelopes"
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	High risk	Quote: "the follow-up research clinician was not blind to treatment" pg. 216
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	1. Dropouts and their timing are described, but numbers who completed the final assessment not stated clearly. Some discrepancy in numbers, i.e. did 30 or 29 dropout? Reasons for dropout described only for 13 who experienced serious adverse outcomes (including 1 participant who died). ITT analysis done.

Dare 2001 (Continued)

		<ol style="list-style-type: none"> States that ITT analysis done using data obtained from last session with therapist or by a combination of telephone interview with GP or a parent Personal communication states that an attempt to follow up all participants was undertaken, regardless of how much therapy they received
Selective reporting (reporting bias)	Unclear risk	<ol style="list-style-type: none"> Abstract describes specific interventions as superior, but the results suggest this was only for weight, not for any measures of psychopathology We obtained group totals for eating disorder psychopathology and weight via personal communication
Other bias	Unclear risk	<ol style="list-style-type: none"> Uneven treatment dosages and duration Expertise differed in treatment-group therapists

Eisler 2000

Methods	RCT
Participants	<p>Country: UK</p> <p>Diagnostic tool: DSM-IV or ICD 10</p> <p>No. screened: 57</p> <p>No. randomised: 40: Conjoint FT:19; Separated FT:21</p> <p>No. started trial: No details</p> <p>No. dropped out during intervention: 4 (not given by group)</p> <p>No. dropped out during follow-up: No follow-up data collected, just end of treatment</p> <p>No. analysed: 40 (LOCF): Conjoint FT: 19; Separated FT: 21</p> <p>Mean age in years (SD): Total: 15.5 (1.6); Conjoint FT: 15.5; Separated FT: 15.5</p> <p>Age range in years: Total: 11.5 - 17.8 (not given by group)</p> <p>Gender: 1 male : 39 female (not given by group)</p> <p>Subtype: No details</p> <p>Age of onset in years: Total: 14.5 (1.6) (range 10.6 - 17.0); Conjoint FT: 14.4; Separated FT: 14.5</p> <p>Duration of illness in months: Total: 12.9 (9.4) months (range 2 - 36 months); Conjoint FT: 13.9; Separated FT: 12.0</p> <p>Baseline weight in kgs: Total: 40.0 (6.4) kgs (range 28 - 53 kg); Conjoint FT: 39.3 kg; Separated FT: 40.7 kg</p> <p>Baseline ABW: Total: 74.3 (9.8) % (range 50.0% - 95%); Conjoint FT: 72.2%; Separated FT: 76.2%</p> <p>Baseline BMI: No details</p> <p>Baseline eating disorder scale score: EDI: 56.2 (33.9) (not given by group); EAT: 47.7 (25.7) (not given by group)</p> <p>Baseline purging (bulimic symptoms > weekly): Total: 25; Conjoint FT: 31.6; Separated FT: 19.0</p> <p>Comorbidity: No details</p> <p>Details on living arrangements: Total: nuclear 70%; adoptive 5%; single 10%; reconstituted 15%: Conjoint FT: nuclear 63.3%; adoptive 5.3%; single 10.5%; reconstituted 21.1%: Separated FT: nuclear 76.2%; adoptive 4.8%; single 9.5%; reconstituted 9.5%</p> <p>Family education/employment/income: Total: I - II 65%; III - V 22.5%; VI - VIII 12.5 %: Conjoint FT: I - II 63.2%; III - V 15.8%; VI - VIII 21.0 %; Separated FT: I - II 66.7%; III - V 28.6%; VI - VIII 5.8%</p> <p>Recruitment strategy: Consecutive referrals of adolescents to the eating disorders service at the Maudsely hospital</p> <p>Exclusion criteria: No details</p>
Interventions	<p>Setting of care: Outpatient</p> <p>Training/qualification of care provider(s): No details</p> <p>Treatment manual: No</p> <p>Supervision of treatment: Yes</p> <p>Adherence to treatment: No</p> <p>Intervention group 1</p> <p><u>Description:</u> Conjoint family therapy</p>

Eisler 2000 (Continued)

Family-based therapy with the whole family required to attend every session
Length: 1 year

Intervention group 2

Description: Separated family therapy

Family-based therapy but the parents are seen separately from the young person with AN. Therapy with the young person consists of supportive educational therapy

Length: 1 year

Outcomes	<p><u>Eating psychopathology</u> Morgan Russell Assessment Schedule (Morgan 1988) EDI (Garner 1983) EAT (Garner 1979) <u>Behavioural indices</u> Kilograms/% of AWB/BMI Good outcome/Intermediate outcome/poor outcome Analogous rating to score for the presence of bingeing, vomiting, laxative abuse, depression, obsessional symptoms, and psychosomatic tension <u>General psychopathology</u> Mood - Short Mood and Feeling Questionnaire (Angold 1995) Obsessionality (Hodgson 1977) <u>Global pathology and interpersonal functioning</u> Self-Esteem RSE Scale (RSE) (Rosenberg 1965) <u>Family Functioning</u> SCFI (Kinston 1984) Expressed emotions (ratings from video (Leff 1985)) FACES III (Olson 1979; Olson 1985)</p>
Notes	<p>Included in conjoint family therapy vs separated family therapy comparison Family therapy in both cases categorised as family-based therapy Funded by: Medical research Council, Greek Ministry of Health</p>

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	<p>Quote: "randomly assigned", "using a stratified design controlling for levels of critical comments using the Expressed Emotion index" - stated in abstract</p> <p>Quote: "randomised controlled trial" pg. 728, no other statement</p> <p>Personal communication stated that stratified randomisation was undertaken, taking into account parental criticism with the random-number sequence generated by computer</p>
Allocation concealment (selection bias)	Low risk	Personal communication stated that sealed envelopes were opened after consent to the study was obtained
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Quote: "assessments conducted by a research psychiatrist who was independent of the treatment team and interviewed patients and their family and administered self report questionnaires". Unclear if 'independent' means blinded.

Eisler 2000 (Continued)

Incomplete outcome data (attrition bias) All outcomes	High risk	<ol style="list-style-type: none"> 1. They describe how many dropped out, but not clear from which groups or reasons for dropout, and give information on how many sessions the rest of the cohort completed. 2. Stated they undertook an ITT analysis (pg. 730) and that assessments were carried out on all participants regardless of whether they completed the course of therapy 3. Personal communication stated that while all participants were followed up regardless of how much treatment they received (including all dropouts), data analysis was based only on those participants for whom data were available. Author also stated that using last observation carried forward data may have inflated treatment result, as it does not take into account data for participants who relapsed 4. No Intention-to-treat analysis
Selective reporting (reporting bias)	High risk	<ol style="list-style-type: none"> 1. Authors report that they collected data for family functioning (FACES). However, they do not provide the data and simply state there was no significant differences. No report of 3- or 6-month outcomes 2. No separated group scores for EAT and MR at baseline (EDI reported in Dare), just change scores
Other bias	High risk	<ol style="list-style-type: none"> 1. ABW, Purging and Family Structure show mild imbalances at baseline, significance levels not reported 2. No separated group scores for EAT and MR at baseline (EDI reported in Dare), just change scores 3. Same therapist conducted both types of therapy

Espina 2000

Methods	RCT
Participants	<p>Country: Spain</p> <p>Diagnostic tool: DSM-IV</p> <p>No. screened: No details</p> <p>No. randomised: Family therapy: 44; Group Therapy: 27</p> <p>No. started trial: No details</p> <p>No. dropped out during intervention: Family therapy: 9; Group Therapy: 2</p> <p>No. dropped out during follow-up: No details</p> <p>No. analysed: No details</p> <p>NOTE: for this study most data are not given in totals by intervention group but by subgroup: Group 1: Anorexia Restricting (FT); Group 2: Anorexia Purging (FT); Group 3: Anorexia Purging (GT). There was also a bulimia nervosa subgroup but data for them are not provided.</p> <p>Mean age in years (SD): Family therapy: Anorexia Restricting 18.66 (3.99); Anorexia Purging 19.17 (4.09); Group Therapy: Anorexia Purging 20.30 (6.41)</p> <p>Age range: No detail</p> <p>Gender %: Family therapy: Anorexia Restricting Male 7.1%; Female 92.9%; Anorexia Purging Male 0%; Female 100%, Group therapy: Anorexia Purging Male 0%; Female 100%</p> <p>Subtype: In the family therapy 14 are of the restricting type, 12 are of the purging type; In the group therapy group 100% are of the purging type</p> <p>Age of onset in years: Family therapy: Anorexia Restricting 15.64 (2.9); Anorexia Purging 16.08 (2.64); Group therapy: Anorexia Purging 16.6 (3.17)</p> <p>Duration of illness in months: Family therapy: Anorexia Restricting 33.59 months (30.88); Anorexia Purging 34.92 months (20.08); Group therapy: Anorexia Purging 35.80 months (37.41)</p> <p>Baseline weight: No detail</p>

Espina 2000 (Continued)

Baseline BMI (% of those less than 17.5): Family therapy: Anorexia Restricting 35.7%; Anorexia Purging 41.7%; Group therapy: Anorexia Purging 40%
 Baseline eating disorder scale score: No detail
 Baseline purging: No detail
 Comorbidity: No detail
 Details on living arrangements: No detail
 Family education/employment/income: No detail
 Recruitment strategy: No detail
 Exclusion criteria: No detail

Interventions

Setting of care: Outpatient
 Training/qualification of care provider(s): Unclear
 Treatment manual: Unclear
 Supervision of treatment: Unclear
 Adherence to treatment: Unclear

Intervention group 1

Description: Systemic family therapy (Selvini 1978; Minuchin 1974; Minuchin 1978)

Length: Unclear

Intervention group 2

Description: Patient support group + group therapy

Length: Unclear

Outcomes

Eating psychopathology
 EDI (Garner 1983; Garner 1991)
 EAT (Garner 1979)
 Anorectic Behavior Observation Scale (Vandereycken 1992)
 Body Shape Questionnaire (Cooper 1987a; Cooper 1987b)
 Bulimic Investigatory Test Edinburg (Henderson 1987)
Behavioural indices
 BMI
 Menstruation
General Psychopathology
 BPRS-E (Lukoff 1986)
 SCL-90-R (Derogatis 1992)
 Depression BDI (Beck 1961)
 Self Anxiety Scale (Zung 1971)
Global pathology and interpersonal functioning
 Social Adjustment Scale (Weissman 1976)

Notes

Foreign-language article, partially translated only.
 Included in family therapy vs standard care/treatment as usual
 Family therapy categorised as Systemic family therapy
 Funded by: University of the Basque Country (Spain)

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No detail: Stated 'random allocation' with no detail
Allocation concealment (selection bias)	Unclear risk	No detail
Blinding of participants and personnel (performance bias)	High risk	Therapists and participants cannot be blinded in trials of family-based therapy

Espina 2000 (Continued)

All outcomes

Blinding of outcome assessment (detection bias) All outcomes	Low risk	Quote: "Outcome assessors blind to treatment allocation"
Incomplete outcome data (attrition bias) All outcomes	High risk	No detail on dropouts. No ITT analysis.
Selective reporting (reporting bias)	Unclear risk	Authors report that they collected data on both dropouts and eating disorder psychopathology, but the data are not reported in a format that is useable for analysis
Other bias	Unclear risk	<ol style="list-style-type: none"> 1. Data extracted by Spanish-speaking colleague who was not part of main review team 2. Letters written in Spanish to the authors did not appear to reach author; no response was received

Geist 2000

Methods	RCT
Participants	<p>Country: Canada</p> <p>Diagnostic tool: DSM-IV; but current weight < 90% IBW and self-imposed food restriction</p> <p>No. screened: 120</p> <p>No. randomised: Total: 25; Family therapy: 12; Family Group Psychoeducation: 13</p> <p>No. started trial: No detail</p> <p>No. dropped out during intervention: No detail</p> <p>No. dropped out during follow-up: No detail</p> <p>No. analysed (unclear if Observed Case or LOCF): Total: 25; Family therapy: 12; Family group psychoeducation: 13</p> <p>Mean age in years (SD): Family therapy: 14.3 (1.5); Family group psychoeducation: 14.9 (1.7)</p> <p>Age range: Total: 12 - 17.3</p> <p>Gender %: Total: 0% male: 100% female</p> <p>Subtype: No detail</p> <p>Age of onset: No detail</p> <p>Duration of illness: No detail</p> <p>Baseline weight in kgs (SD): Family therapy: 41.1 (7.0); Family group psychoeducation: 41.1 (6.3)</p> <p>Baseline BMI: No detail</p> <p>Baseline eating disorder scale score (EDI drive for thinness): Family therapy: 11.1 (5.8); Family group psychoeducation: 13.7 (6.2)</p> <p>Baseline eating disorder scale score (EDI body dissatisfaction): Family therapy: 9.1 (6.6); Family group psychoeducation: 11.0 (5.0)</p> <p>Baseline eating disorder scale score (EDI bulimia): Family therapy: 1.2 (1.3); Family group psychoeducation: 1.9 (1.6)</p> <p>Baseline purging: No detail</p> <p>Comorbidity: No detail</p> <p>Details on living arrangements: No detail</p> <p>Family education/employment/income: No detail</p> <p>Recruitment strategy: "Assessed and admitted to the inpatient program"</p> <p>Exclusion criteria:</p> <ol style="list-style-type: none"> 1. < 12 years 2. > 17.4 years 3. Males

Geist 2000 (Continued)

4. Chronic medical illness
5. Considered an immediate suicide risk
6. Presented with psychotic features
7. Were unavailable over the study period
8. Were receiving individual or family therapy in the community
9. Could not communicate in English
10. States that 6 were excluded due to having had a previous admission so appears to be a population of first hospital admission
11. Abstract states "newly diagnosed"

Interventions

Setting of care: Initially inpatients at screening - once medically stable and met their weight goals - discharged to outpatient clinic for remainder of therapy
 Training/qualification of care provider(s): Family therapy: 2 social workers, 1 psychiatrist - with 4 to 10 years experience with family therapy and AN; Family Group Psychoeducation: 2 dietitians, occupational therapist and psychiatric nurse - with 2 to 6 years experience working with adolescent with eating disorders
 Treatment manual: *No detail*
 Supervision of treatment: No detail
 Adherence to treatment: No detail

Intervention group 1

Description: Family therapy

In the context of standard medical and psychosocial intervention, the main objective of family work was to facilitate the young person with AN to take an active role in the management of the disorder, support weight restoration and normalisation of eating behaviour through direct and open communication within the family. Attempts were made to distinguish the eating disorder symptoms from normal adolescent behaviour and expected parent-adolescent conflict with efforts made to support the development of adolescent autonomy and maturation with an accommodating family

Length: 4 months

Intervention group 2

Description: Family psychoeducation

Education to support attitudinal and behaviour change for both the family and young person with AN

Length: 4 months

Outcomes

Eating psychopathology
 EDI-2 ([Garner 1991](#))
 DICA ([Welner 1987](#))
Behavioural indices
 BMI
 Menstruation
General Psychopathology
 Depression CDI ([Kovacs 1992](#))
 SCL-90-R ([Derogatis 1992](#))
Family Functioning
 Family functioning ([Skinner 1991](#))

Notes

Included in family therapy vs educational intervention
 Family therapy categorised as other
 Funded by: Physician Services Inc, grant # NIF94-606

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No detail

Geist 2000 (Continued)

Allocation concealment (selection bias)	Unclear risk	No detail
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	No detail
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Quote: "not all parents completed the general or dyadic measures of the FAM-II" - results not analysed; no other statement as to why the data were missing. Unclear if ITT analysis undertaken
Selective reporting (reporting bias)	Low risk	Nothing noted
Other bias	Unclear risk	Small trial

Godart 2012

Methods	RCT
Participants	<p>Country: France Diagnostic tool: DSM- IV No. screened: 116 No. randomised: Total: 60; TAU + FT: 30; TAU: 30 No. started trial: Total: 58; TAU + FT: 29; TAU: 29 No. dropped out during intervention: Total: Total: 5; TAU + FT: 3; TAU: 2 No. dropped out during follow-up: Total: 1; TAU + FT: 0; TAU: 1 No. analysed (observed case): Total: 59; TAU + FT: 29; TAU: 30</p> <p>Mean age in years (SD): Total; 16.6 (1.6); TAU + FT: 16.4 (1.7); TAU: 16.6 (1.7) Age range in years: Total: 16.6 (1.6) years; TAU + FT: 17.3 (1.3); TAU: 16.9 (3.1) Gender %: Female 100% Subtype purging %: Total: 13.3% (8/60); TAU + FT: 16.7% (5/3); TAU: 10% (3/30) Subtype restricting %: No detail Age of onset: Total 14.8 (1.6); TAU + FT: 14.7 (1.7); TAU 15.0 (1.5) Duration of illness: Total: 16.6 (6.8) months; TAU + FT: 17.1 (8.3) months; TAU: 16.1 (5.2) months Baseline weight: Total: 83.6 (5.2) ABW% (at inclusion), 77.8 (8.9) EBW%, 42.9 (7.3) kgs; TAU + FT: 83.9 (5.6) ABW%, 75.7 (7.2) EBW%, 43.7 (5.9) kgs; TAU: 83.3 (5.0) ABW%, 80.1 (10.3) EBW%, 42.0 (8.8) kgs Baseline BMI: Total: 16.9 (1.1); TAU + FT: 17.0 (1.2); TAU: 16.9 (1.0) Baseline eating disorder scale score: Total: 60.7 (35.1) EDI; TAU + FT: 61.3 (36.2) EDI; TAU: 60.2 (34.6) EDI Baseline purging: Total: 13.3% (8/60); TAU + FT: 16.7% (5/3); TAU: 10% (3/30) Comorbidity: "The two groups were comparable in terms of comorbid mood and anxiety disorders (i.e., major depressive disorder, social phobia, panic disorder, agoraphobia, obsessive compulsive disorder, post traumatic stress disorder; details available on request from the authors)." Pg 4 Details on living arrangements: Total: 9 (15%) not intact family status Family education/employment/income: No detail Recruitment strategy: AN hospitalised inpatients</p> <p>Exclusion criteria:</p> <ol style="list-style-type: none"> 1. Psychotic disorder 2. + 19 years at illness onset

Godart 2012 (Continued)

3. AN duration > 3 years
4. Inability to speak or read French, or understand the interview questions, or both
5. Any metabolic pathology interfering with eating or digestion (e.g. diabetes)
6. Parents with a psychotic disorder

Interventions

Setting of care: Inpatient and outpatient
 Training/qualification of care provider(s): The psychiatrist and psychologist involved in the study had > 4 years of experience in the outpatient care of AN adolescents
 Treatment manual: Unclear for TAU, states manual not used for FT component
 Supervision of treatment: No detail
 Adherence to treatment: No detail

Intervention group 1

Description: Treatment as usual + family therapy

Family therapy sessions targeting intra-familial dynamics, but not eating disorder symptoms

Length: 18 months, length and number of sessions unclear (Mean FT sessions attended 11.8, SD 5.7)

Intervention group 2

Description: Treatment as usual

Consisted in ambulatory care initiated before hospital discharge and was tailored according to the mental and physical state of the participant. It included individual consultations, regular interviews involving the parents, and, if required, individual psychotherapy with another therapist. At each appointment, the psychiatrist conducted clinical investigation of the participant's mental state, eating habits, medical condition, and psychosocial environment. In addition, the psychiatrist provided support, co-ordinated services (e.g. general practitioner, psychotherapist, dietician or nutritionist, social worker, and school), prescribed medication as necessary, and offered parental support and guidance regarding conflicts they had with their daughter. Parents were advised to be supportive but to leave decisions about food to the adolescent and to discuss the difficulties they observed not directly with their daughter during or after the meal, but at the time of the consultations with the psychiatrist and their daughter. In addition, nutritional/dietetic advice was provided to the participants who were not gaining weight or not gaining sufficient weight

Length: 18 months, length and number of sessions unclear (Mean TAU sessions attended 27.2, SD 12.7)

Outcomes

Eating psychopathology

MRS Outcome measures

EDI

Behavioural indices

BMI

Amenorrhea

Rehospitalisation (psychiatric or for AN)

Global pathology and interpersonal functioning

GOAS

SAS: Social Adjustment Scale

Notes

Funded by: The study was funded by the Projet Hospitalier de Recherche Clinique (CRC- PHRC, 1997, AOM97133 AP-HP French Ministry of Health); and promoted by Assistance Publique des Hôpitaux de Paris (AP-HP). The funders had no role in study design, data collection and analysis, decision to publish or preparation of the manuscript.

Risk of bias

Godart 2012 (Continued)

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Allocation to 1 of the 2 parallel treatment groups (30 in each) was performed using the SPSS randomisation program (FC). The 2 groups were randomised by blocks of 30
Allocation concealment (selection bias)	Low risk	The result was issued to participants in a sealed envelope at inclusion by the psychiatrist in charge of signing the consent form
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Outcome assessor blinded
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Some missing data, up to 18% of total sample (e.g. at 6-month follow-up), ITT analysis and LOCF analysis undertaken.
Selective reporting (reporting bias)	High risk	MINI reportedly administered at intake and end of treatment, but not reported at end of treatment. Data at 6 and 12 months not reported
Other bias	Unclear risk	1. No details about supervision of or adherence to treatment, so fidelity of treatment unclear 2. Imbalance in treatment session numbers

Hall 1987

Methods	RCT
Participants	Country: United Kingdom Diagnostic tool: 'primary anorexia nervosa'; criteria not stated No. screened: No detail No. randomised: Individual and family: 15; Dietetic advice: 15 No. started trial: Individual and family, Dietetic advice: no detail No. dropped out during intervention: Individual and family: 1; Dietetic advice: 4 No. dropped out during follow-up: Individual and family: 0; Dietetic advice: 0 No. analysed (LOCF): Individual and family: 15; Dietetic advice: 15 Number analysed (OC): Individual and family: 15; Dietetic advice: 15 Mean age in years (SD): Individual and family: 19.55; Dietetic advice: 19.57 Age range in years: Total: 13 - 27; Individual and family: 14 - 25; Dietetic advice: 13 - 27 Gender %: All female Subtype: No detail Age of onset in years: Individual and family: 17.07 (range 12 - 21); Dietetic advice: 17.53 (range 12 - 25) Duration of illness: Total : 6 to 72 months; Individual and family: 29.7 months (10 had received previous treatment), Dietetic advice: 24.5 months (8 had received previous treatment) Baseline weight in kgs: Total : < 85% of MMPW with amenorrhoea; Individual and family: 41.00 (mean 25.35% below ABW); Dietetic advice: 39.54 (mean 28.16% below ABW) Baseline BMI: Individual and family: 15.7; Dietetic advice: 15.00 Baseline eating disorder scale score: Individual and family: mean desired body weight 42.7 kg; Dietetic advice: mean desired body weight 44.2 kg Baseline purging: No detail Comorbidity: No detail

Family therapy approaches for anorexia nervosa (Review)

Hall 1987 (Continued)

Details on living arrangements: No detail
 Family education/employment/income: Total : social classes I - III
 Recruitment strategy: Consecutive referrals to 1 of the study authors; mostly referred by general practitioner

Exclusion criteria: No detail

Interventions

Setting of care: Outpatient
 Training/qualification of care provider(s): Unclear: "therapists was trained and experienced in these therapeutic approaches" p. 186, no other statement
 Treatment manual: No: "proportions of individual psychodynamic therapy and family therapy depend on clinical judgment" pg. 186
 Supervision of treatment: No detail
 Adherence to treatment: No detail

Intervention group 1

Description: Combined individual and family psychotherapy
 Focus on the role of AN in relationship of the participant with her family and others with efforts made to change those aspects of relationship that stifled participant's development and maintained AN, especially over-protectedness, conflict avoidance enmeshment and distancing within the family. Broad goals to encourage participant development both within and separately from the family and to promote insight
Length: 12 sessions

Intervention group 2

Description: Dietary advice
Length: 12 sessions

Outcomes

Eating psychopathology
 CCEI ([Crown 1979](#))
 Morgan Russell Assessment Schedule ([Morgan 1988](#))
 Global score calculated from the mean of these

Behavioural indices
 Scores for body weight and menstrual function calculated from CCEI

Notes

Included in family therapy vs educational intervention
 Family therapy categorised as other
 Funded by: No detail

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No detail
Allocation concealment (selection bias)	Unclear risk	No detail
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Quote: "one year after the assessment interview, all the subjects were interviewed by an assessor who was blind to the treatment allocated" pg. 186

Hall 1987 (Continued)

Incomplete outcome data (attrition bias) All outcomes	Low risk	Numbers of dropouts described. No details on why participants did not complete treatment. ITT analysis undertaken
Selective reporting (reporting bias)	High risk	Authors report that they collected data on eating disorder psychopathology, but the data are not reported in a format that is useable for analysis. No reporting on eating behaviour outcomes i.e. restricting, purging behaviours No useable data
Other bias	High risk	<ol style="list-style-type: none"> 1. Family therapy group also includes some individual psychodynamic psychotherapy but no psychodynamic therapy-alone arm so impossible to draw conclusions about which part of this intervention was the active component 2. A lot of additional treatment received after end of treatment, particularly in the dietary advice group 3. Within-group analysis 4. Baseline imbalance - slightly longer duration of untreated illness in the treatment group

Herpertz-Dahlmann 2014

Methods	Randomised non-inferiority trial
Participants	<p>Country: Germany Diagnostic tool: DSM- IV No. screened: 660 No. randomised: Total: 176 No. started trial: Total: 172; IP: 85; DP: 87 No. dropped out during intervention: Total: 29; IP: 10; DP: 19 No, dropped out during follow-up: Total: 11; IP: 10; DP: 1 No. analysed (observed case): Differing N for various outcomes</p> <p>Mean age in years (SD): IP: 15.2 (1.5); DP: 15.3 (1.5) Age range in years: No detail Gender %: Female 100% Subtype purging %: No detail Subtype restricting %: No detail Age of onset: No detail Duration of illness (weeks): IP: 53.7 (39.6); DP: 42.4 (33.1) Baseline weight: No detail Baseline BMI: IP: 15.1 (1.2); DP: 14.9 (1.5) Baseline eating disorder scale score (MRAOS): IP 5.0 (1.7); DP: 5.6 (1.7) Baseline eating disorder scale score (EDI-II Global Score): IP: 272.5 (59.4); DP: 248.8 (58.2) Baseline purging: No detail Comorbidity (Any): IP: 33 (44%); DP: 28 (38%), Affective, Anxiety, Obsessive Compulsive and Attention Deficit Hyperactivity Disorders Details on living arrangements: No detail Family education/employment/income: No detail Recruitment strategy: Multi-site: 6 centres in Germany</p> <p>Exclusion criteria:</p> <ol style="list-style-type: none"> 1. Organic brain disease 2. Psychotic or bipolar disorder 3. Substance dependence or abuse 4. Serious self-injurious behaviour 5. Insufficient knowledge of the German language

Family therapy approaches for anorexia nervosa (Review)

Herpertz-Dahlmann 2014 (Continued)

6. IQ below 85

Interventions	<p>Setting of care: Inpatient and outpatient Training/qualification of care provider(s): No detail Treatment manual: No detail Supervision of treatment: No detail Adherence to treatment: No detail</p> <p>Intervention group 1 <u>Description:</u> Inpatient therapy Admission to IP for medical observation or stabilisation during the first 3 weeks of the study. Multimodal multidisciplinary treatment programme based on weight restoration, nutritional counselling, CBT, and family therapy but undertaken in inpatient setting</p> <p><u>Length:</u> Mean 14.6 weeks</p> <p>Intervention group 2 <u>Description:</u> Day patient therapy Admission to IP for medical observation or stabilisation during the first 3 weeks of the study.</p> <p>Multimodal multidisciplinary treatment programme based on weight restoration, nutritional counselling, CBT, and family therapy but undertaken in day-patient setting</p> <p><u>Length:</u> Mean 16.5 weeks</p>	
Outcomes	<p><u>Eating psychopathology</u></p> <p>Morgan Russell Outcome Scales (MRAOS)</p> <p>Eating Disorders Inventory (EDI-II) Global Score</p> <p><u>Behavioural indices</u></p> <p>BMI</p> <p>Number of eating disorder readmissions</p> <p>Costs, loss to follow-up</p> <p><u>General Psychopathology and Obsessionality</u></p> <p>Brief Symptom Inventory</p>	
Notes	<p>The differences between the IP and DP are unclear. It is not clearly stated how the treatments differed beyond the initial 3 week IP admission. Descriptions for discharge criteria and interventions appear to be the same. The family therapy component is not described.</p>	
Risk of bias		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Computer-generated randomisation sequence to randomly assign participants to continued IP or DP after 3 weeks of inpatient care
Allocation concealment (selection bias)	High risk	Patients and therapists could not be masked to treatment allocation
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy

Herpertz-Dahlmann 2014 (Continued)

Blinding of outcome assessment (detection bias) All outcomes	High risk	Assessors were initially masked but some participants inadvertently revealed their treatment allocation; masking was maintained for the primary outcome of BMI
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Differences in numbers at post-intervention analysis and 12-month follow-up. Fewer participants included in post-intervention analysis compared to follow-up. Modified ITT analysis reported. There is an imbalance in the missing data across conditions (i.e. missing data from 10 participants in inpatient condition and only missing data from 1 in day patient condition).
Selective reporting (reporting bias)	Low risk	Outcomes appear to have been reported

Herscovici 2017

Methods	RCT
Participants	<p>Country: Argentina</p> <p>Diagnostic tool: Great Ormond Street operational definition of AN (Bryant-Waugh 2000). The entire sample would have met current DSM V diagnostic criteria</p> <p>No. screened: Total: 38</p> <p>No. randomised: Total: 23</p> <p>No. started trial: 23</p> <p>No. dropped out during intervention: 2</p> <p>No. dropped out during follow-up: No detail</p> <p>No. analysed (observed case): Total: 23; FT: 12; FTFM: 11</p> <p>Mean age in years (SD): Total: 17.1 (2.3)</p> <p>Age range in years: Total: No detail</p> <p>Gender %: No detail</p> <p>Subtype purging %: Total: 35; FT: 25; FTFM 45</p> <p>Subtype restricting %: No detail</p> <p>Age of onset: No detail</p> <p>Duration of illness: Total: 21.5 (14.3) months; FT: 21.1 (12.0) months; FTFM: 21.9 (11.9); Range: 8.5 - 36 months</p> <p>Baseline weight: Most were severely underweight (21/23 had < 85% EBW), no further detail</p> <p>Baseline BMI: No detail</p> <p>Baseline eating disorder scale score: Total: 7.0 (3.0) EDI-2 Global Score; FT: 5.2 (SD, 2.1) EDI-2 GS; 9.1 (2.7) EDI-2 GS</p> <p>Baseline eating disorder scale score: No detail</p> <p>Baseline purging: No detail</p> <p>Comorbidity: FT: 51.4 (6.5) GSI of SCL90-R; 62.5 (11.1) GSI of SCL90-R</p> <p>Details on living arrangements: All residing at home with 1 or both parents as per inclusion criteria. Total: Intact 13 (57%), Blended 1 (4%), Divorced 6 (26%), Single 3 (13%); FT: Intact 6 (50%), Blended 1 (8%), Divorced 5 (42%), Single 0 (0%); FTFM: Intact 7 (64%), Blended 0 (0%), Divorced 1 (9%), Single 3 (27%)</p> <p>Family education/employment/income: Total: Socioeconomic level: Lower 3 (13%), Middle 10 (44%), Upper Middle 3 (13%), Upper 7 (30%); FT: Lower 1 (8%), Middle 4 (33%), Upper Middle 2 (17%), Upper 5 (42%); FTFM: Lower 2 (18%), Middle 6 (55%), Upper Middle 1 (9%), Upper 2 (18%)</p> <p>Recruitment strategy: Methods of recruitment of participants included: (i) agreements with eating disorder hospital services; (ii) informative presentations for parents at schools; and (iii) public service announcements in the media. 70 telephone inquiries were screened to determine eligibility. Following this, 38 adolescents and their families were scheduled for assessment at the Universidad del Salvador (supplementaries), although paper states they were from the clinician's private practice.</p> <p>Exclusion criteria:</p>

Herscovici 2017 (Continued)

1. Patients or a patient's parents with any psychotic disorder or pathology interfering with eating or digestion were excluded
2. < 12 years
3. > 20 years

Interventions

Setting of care: Outpatient
 Training/qualification of care provider(s): Family therapist
 Treatment manual: No detail
 Supervision of treatment: No detail
 Adherence to treatment: No detail

Intervention group 1

Description: Family-based therapy
 Maudsley Approach.

Length: Mean 14 sessions (range 10 - 19)

Intervention group 2

Description: Family-based therapy + family meal

As above, with family meal included

Length: Mean 18 sessions (range 14 - 25) but 1 participant received more, 90 minute sessions, 6 months

Outcomes

Eating psychopathology

EDI-2

MRGAS

Behavioural indices

Weight recovery

Amenorrhea

General Psychopathology and Obsessionality

SCL-90

Notes

Funded by: no details

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Computer-generated random sequence
Allocation concealment (selection bias)	Unclear risk	No detail
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Outcome assessors blinded

Family therapy approaches for anorexia nervosa (Review)

Herscovici 2017 (Continued)

Incomplete outcome data (attrition bias) All outcomes	Unclear risk	< 10% missing data; but despite reports that data was missing, these participants appear to have been included in the analysis. Thus it is unclear if LOCF analysis was undertaken, but not stated
Selective reporting (reporting bias)	Low risk	All measures appear to be reported across paper and supplementary tables
Other bias	Unclear risk	<ol style="list-style-type: none"> 1. Groups differed significantly on GSI score of the SCL-90-R 2. Groups differed significantly on EDI-2 3. Small trial

Le Grange 1992

Methods	RCT
Participants	<p>Country: United Kingdom Diagnostic tool: DSM-III-R No. screened: No detail No. randomised: Total: 18 No. started trial: No detail No. dropped out during intervention: No detail No. dropped out during follow-up: No detail No. analysed: Total: 18, Mean age in years (SD):, Total: 15.33 (1.81) Age range: Total: 12 - 17 years Gender %: Total: 2 male; 16 female Subtype: No details Age of onset: No details Duration of illness: Total: 13.7 months; SD: 8.83 (not stated if treated or untreated) Baseline weight: Total: ABW 77.9%, SD 7.62; Family therapy: ABW 75.9% SD 8.8; Family counselling: ABW 80.5 SD 5.3 Baseline BMI: No details Baseline eating disorder scale score (EAT): Family therapy: 36.9 (27.6); Family counselling: 35.3 (22.8) Baseline eating disorder scale score (MRS): Family therapy: 3.9 (1.7); Family counselling: 4.8 (1.5) Baseline purging: No details Comorbidity: States that those with co-morbidity were excluded Details on living arrangements: No details Family education/employment/income: No details Recruitment strategy: Referral to the Dept of Children and Adolescents at the Bethlem and Maudsley Hospital</p> <p>Exclusion criteria:</p> <ol style="list-style-type: none"> 1. > 18 years 2. < 3 years illness duration 3. If medical state of risk of suicide warranted hospitalisation 4. Comorbidity
Interventions	<p>Setting of care: Outpatient Training/qualification of care provider(s): Yes: 2 Clinical psychologists, 1 psychiatrist, 1 social worker, all experienced in working with families and with treating AN, within this context Treatment manual: No detail Supervision of treatment: Yes: "regularly by consultant psychiatrist and family therapist" Adherence to treatment: No detail</p> <p>Intervention group 1 <u>Description:</u> Conjoint family therapy</p>

Le Grange 1992 (Continued)

Family-based therapy with the whole family required to attend every session
Length: 6 months

Intervention group 2

Description: Family counselling/ separated family therapy

Family-based therapy, but the parents are seen separately from the young person with AN. Therapy with the young person consists of supportive educational therapy

Length: 6 months

Outcomes	<p><u>Eating psychopathology</u> Morgan Russell Assessment Schedule (Morgan 1988) EAT (Garner 1979)</p> <p><u>Behavioural indices</u> Weight, height, menstruation Good/intermediate/poor outcome on MR scales</p> <p><u>Global pathology and interpersonal functioning</u> Self-esteem RSE (Rosenberg 1965)</p> <p><u>Family Functioning</u> SCFI (Kingston 1984; Kingston 1988) Expressed emotions (ratings from video, Vaughn 1976) FACES III (Olson 1979; Olson 1985)</p>
Notes	<p>Included in conjoint family therapy vs separated family therapy comparison Family therapy in both cases categorised as family-based therapy. Personal communication stated this is a small pilot study with no other data apart from what were published. Funded by: No details</p>

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Personal communication stated a random number sequence was used
Allocation concealment (selection bias)	Low risk	Personal communication stated sealed envelopes were used
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	<ol style="list-style-type: none"> 1. "independent rater" pg. 350 2. "it was not possible to conduct the follow-up assessments with the investigator ignorant to which treatment the family had received" pg. 349
Incomplete outcome data (attrition bias) All outcomes	High risk	<ol style="list-style-type: none"> 1. There are no details of dropouts given 2. ITT analysis reported as undertaken in the manuscript with no apparent dropouts in terms of the analysis. 3. Personal communication stated no ITT analysis was undertaken
Selective reporting (reporting bias)	High risk	<ol style="list-style-type: none"> 1. Only T1 (baseline) and T3 (32 weeks) data reported. T2 measures also taken at 16 weeks, but not reported 2. Only 1 subscale for EE reported

Le Grange 1992 (Continued)

		<ol style="list-style-type: none"> 3. Only 1 FACES subscale reported - dissatisfaction 4. Authors report that they collected data on family functioning, but the data are not reported in a format that is useable for analysis
Other bias	High risk	<ol style="list-style-type: none"> 1. Baseline imbalance in weight participants with co-morbid BN (more BN in the counselling group) 2. Small trial 3. Unclear how many were randomised to each arm 4. Unclear duration between end of treatment and collection of outcome data

Le Grange 2016

Methods	RCT
Participants	<p>Country: Australia Diagnostic tool: DSM-IV criteria for AN (excluding amenorrhoea).</p> <p>Given the anticipated publication of the DSM-5 during the study, with its proposed deletion of the weight cut-off for AN, inclusion criteria for weight was $\leq 90\%$ median BMI for adolescents ≤ 75th percentile for height, and $< 95\%$ median BMI for adolescents ≥ 75th percentile for height No. screened: 269 clinic assessment, 196 screened by interview No. randomised: Total: 107; FBT: 55; PFT: 52 No. started trial: 107</p> <p>No. dropped out during intervention: Total: 17; FBT: 9; PFT: 7 + excluded from analysis: 1 No. dropped out during follow-up: Total: 19; FBT 9 (with another 15 only partial assessments); PFT: 10 (with another 10 only partial assessments) No. analysed (observed case): Total: 106; FBT: 55; PFT: 51, ITT</p> <p>Mean age in years (SD): Total: 15.5 (1.5); FBT: 15.4 (1.3); PFT 15.7 (1.6) Age range in years: Total: 15.5 (1.5); FBT: 15.4 (1.3); PFT: 15.7 (1.6) Gender % female: Total: 87.7; FBT: 89.1; PFT: 86.3 Subtype purging %: No detail Subtype restricting %: No detail Age of onset: No detail Duration of illness: Mean months (SD) Total: 10.5 (8.8); FBT: 11.0 (9.4); PFT: 10.0 (8.1) Baseline weight: Total: No detail Baseline BMI Mean (SD): Total: 16.5 (1.3); FBT: 16.3 (1.2); PFT: 16.7 (1.4) Baseline eating disorder scale score: EDE Globabl Total: 2.15 (1.68); FBT: 2.20 (1.81); PFT: 2.09 (1.54) Baseline purging: Total: No detail Comorbidity Mood Disorder %: Total: ; FBT: 16.4; PFT: 29.4</p> <p>Comorbidity Anxiety Disorder %: Total: 22.6; FBT: 21.8; PFT: 23.5</p> <p>Comorbidity OCD% : Total: 5.7; FBT : 3.6; PFT: 7.8</p> <p>Comorbidity Behavioural Disorder %: Total: 1.9; FBT: 3.6; PFT: 0.0</p> <p>Comorbidity suicide or self-harm risk %: Total: 10.4; FBT: 12.7; PFT: 7.8</p> <p>Details on living arrangements - "intact family" %: Total: 63.2; FBT: 61.8; PFT: 64.7 Family education/employment/income, University degree mother %: Total: 37.8; FBT: 43.1; PFT: 31.9</p> <p>Family education/employment/income, University degree father %: Total: 38.2; FBT: 40.0; PFT: 36.1 Recruitment strategy: All patients who presented to the specialist clinic during the recruitment period (July 2010 to July 2014) were assessed for eligibility.</p> <p>Exclusion criteria:</p>

Le Grange 2016 (Continued)

1. Medical instability as defined by the American Academy of Pediatrics;
2. Current psychotic disorder;
3. Drug or alcohol dependence;
4. Acute suicidality;
5. Physical condition influencing eating or weight (e.g. pregnancy, cancer);
6. Previous FBT for AN;
7. Psychotropic medication < weeks.

Must also be: living with at least 1 parent available to undertake treatment; and English proficiency by adolescents and parents at the sixth-grade level

Interventions

Setting of care: Outpatient

Training/qualification of care provider(s): "Therapist", no further details

Treatment manual: Yes

Supervision of treatment: Weekly supervision in both treatments

Adherence to treatment: All treatment sessions for which consent has been provided are audio recorded Randomly-selected recordings are reviewed by author DLG throughout the trial. No further detail

Intervention group 1

Description: Family-based therapy (FBT)

Includes the entire family in treatment sessions, and a family meal

Length: 18 sessions over 6 months. 10 minutes for participant weigh-in with therapist + 50-minute therapy session for family

Intervention group 2

Description: Parent-focused treatment (PFT)

An adaptation of FBT, but parents are seen separately from client (other than first and last sessions) and there is no family meal

Length: 18 sessions over 6 months. 15-minute sessions with nurse for client, 50-minute sessions with therapist for parents

Outcomes

Eating psychopathology

EDE global, restraint, eating concerns, weight concerns, shape concerns

Behavioural indices

Recovery - defined as: 95% mBMI and a global EDE score within 1 SD of community norms

% median BMI

Days drive exercise

General Psychopathology and Obsessionality

Child Depression Inventory

Global pathology and interpersonal functioning

Rosenberg self-esteem scale

Notes
Risk of bias
Bias
Authors' judgement
Support for judgement

Le Grange 2016 (Continued)

Random sequence generation (selection bias)	Low risk	An off-site biostatistician (RC) generated a randomisation schedule that was stratified by eating disorder severity (low versus high)
Allocation concealment (selection bias)	Low risk	The randomisation schedule is only accessible by designated staff members at the Royal Children's Hospital who are independent of the Eating Disorders Programme team including the research team
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Independent and trained assessors, who were not involved in treatment delivery, administered all assessments. No details provided about whether or not they were blinded
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	"Missing data for continuous outcome measures at EOT and follow-up were imputed using multiple imputation based on fully conditional Markov chain Monte Carlo modelling. The final analyses were based on the pooled results of 5 separate imputations. Treatment groups were then compared separately at EOT and at 6- and 12- month follow-up using a general linear model for symmetric continuous outcomes, or a generalized linear model for non symmetric data. Covariates for all models included baseline observation, sex, age at baseline, and illness severity. Sensitivity analyses were conducted using maximum likelihood imputation and last observation carried forward, with results compared across the 3 methods" pg 687.
Selective reporting (reporting bias)	High risk	The following measures stated to have been administered, but not reported on, individually, only as results in moderator analyses: Children's Yale-Brown Obsessive Compulsive Scale (CY-BOCS), ²⁹ Yale-Brown-Cornell Eating Disorder Scale (YBC-EDS), Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-Kid), ³¹ Symptom Checklist-90-Revised (SCL-90-R), ³² Five Minute Speech Sample (FMSS), Therapy Suitability and Patient Expectancy (TSPE), Helping Relationship Questionnaire (HRQ), Parents Versus Anorexia (PVA), ³⁶ Positive and Negative Affect Scale-Expanded (PANAS-X), Borderline Personality Questionnaire (BPQ), and the Family Environment Scale (FES)
Other bias	Unclear risk	Trial conducted by the developers FBT therapy treatment Funded by: Baker Foundation

Li 2006

Methods	RCT
Participants	Country: China Diagnostic tool: Chinese Classification of Mental Disorders (CCMD-3) criteria for AN No. screened: No detail No. randomised: No detail No. started trial: No detail No. dropped out during intervention: No detail No. dropped out during follow-up: No detail No. analysed (observed case): Total: 42; FT + DT: 21; DT: 21

Li 2006 (Continued)

Mean age in years (SD): Total: 41.3 (18.5); FT + DT: 40.1 (20.3); DT: 38.7 (20.5)
 Age range in years: Total: No detail
 Gender %: No detail
 Subtype purging %: 42
 Subtype restricting %: No detail
 Age of onset: No detail
 Duration of illness: FT + DT: 5.6 (2.4); DT: 5.4 (3.0)
 Baseline weight: FT + DT: 34.8 (2.8); DT: 34.8 (2.9)
 Baseline BMI: No detail
 Baseline eating disorder scale score: No detail
 Baseline eating disorder scale score: No detail
 Baseline purging: No detail
 Comorbidity, HAMD: FT + DT: 29.2 (4.7); DT: 29.0 (4.9)
 Details on living arrangements: No detail
 Family education/employment/income: No detail
 Recruitment strategy: Recruited from inpatients, no further information

Exclusion criteria:

1. Education level < senior high school;
2. Serious disable or organic disease

Interventions

Setting of care: Inpatient and 1-year follow-up as outpatient after discharge
 Training/qualification of care provider(s): Professionally-trained psychiatrists
 Treatment manual: Unclear. "The treatment was structured", no further information
 Supervision of treatment: No detail
 Adherence to treatment: This was assessed, but results not reported

Intervention group 1

Description: Family therapy + drug therapy: Citalopram (20 mg - 60 mg/day)
Length: 60 min, 6 sessions on average; 12 weeks

Intervention group 2

Description: Drug therapy: Citalopram (20 mg - 60 mg/day)
Length: 12 weeks

Outcomes

Behavioural indices
 Weight
 Relapse
General Psychopathology and Obsessionality
 HAMD ([Hamilton 1960](#))

Notes

Foreign-language article. Screened and data extracted by researcher outside of the main review team.
 Data extracted by only 1 researcher

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	Participants were randomised according to the order of their hospital admission, no further information about randomisation method
Allocation concealment (selection bias)	Unclear risk	No detail
Blinding of participants and personnel (performance bias)	High risk	Therapists and participants cannot be blinded in trials of family-based therapy

Family therapy approaches for anorexia nervosa (Review)

Li 2006 (Continued)

All outcomes

Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	No detail
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	No detail
Selective reporting (reporting bias)	High risk	The paper describes a method, LOWE, to judge the efficacy of the treatment but the results are not reported. Interview records and other psychiatric evaluation results not reported at baseline. Additional medicine used for sleeping disorders was not reported. No useable data
Other bias	Low risk	

Lock 2005

Methods	RCT
Participants	<p>Country: USA</p> <p>Diagnostic tool: DSM-IV, with some partially weight-restored participants included, and requirement of only 1 instead of 3 missed menstrual periods</p> <p>No. screened: 241</p> <p>No. randomised: 86, Short-term FT: 44; Long-term FT: 42</p> <p>No. started trial: No details</p> <p>No. dropped out during intervention: Total: 9; Short-term FT: 2; Long-term FT: 7</p> <p>No. dropped out during follow-up: Total: 8; Short-term FT: 5; Long-term FT: 3</p> <p>No. analysed: Total: 86 (at 6 and 12 months) (LOCF); Short-term FT: 44; Long-term FT: 42</p> <p>Short-term FT: OC BMI 37; EDE20 at 12 months</p> <p>Long-term FT: OC BMI 34; EDE15 at 12 months</p> <p>Mean age (SD): Short-term FT: 15.2 (1.6) years; Long-term FT: 15.2 (1.7) years</p> <p>Age range in years: 12 - 18 (not given by group)</p> <p>Gender: Total: 9 male: 77 female; Short-term FT: 5 (11%):39 (89%); Long-term FT: 4 (9%):38 (91%)</p> <p>Subtype: Short-term FT: purging (7) 16%; restricting (37) 84%; Long-term FT: purging (9) 21%; restricting (33) 79%</p> <p>Age of onset: No details</p> <p>Duration of illness: Total : 30% had been previously hospitalised but not stated by group whether treated or untreated; Short-term FT: 11.3 (10.4) months; Long-term FT: 12.0 (9.9) months</p> <p>Baseline weight (SD): Short-term FT: 44.6 (5.5) kg; Long-term FT: 46.7 (7.2) kg</p> <p>Baseline BMI: Total: 17.1 (1.4); Short-term FT: 17.0 (1.3); Long-term FT: 17.3 (1.5)</p> <p>Baseline eating disorder scale score (EDE eating concern): Short-term FT: 1.35 (1.13); Long-term FT: 1.04 (1.33)</p> <p>Baseline eating disorder scale score (EDE restraint): Short-term FT: 2.76 (1.97); Long-term FT: 2.64 (1.96)</p> <p>Baseline eating disorder scale score (EDE shape concerns): Short-term FT: 2.61 (1.73); Long-term FT: 2.41 (1.67)</p> <p>Baseline eating disorder scale score (EDE weight concern): Short-term FT: 2.32 (1.51); Long-term FT: 1.96 (1.52)</p> <p>Baseline purging: <i>No details</i></p> <p>Comorbidity: Total: 36% (n = 31) had any psychiatric illness; 24% (n = 21) had MDD or DYS; 14% (n = 12) had anxiety disorder; 5% (n = 4) other</p> <p>Details on living arrangement: Short-term FT: living in an 'intact family' 82% (n = 36); Long-term FT: living in an 'intact family' 74% (n = 31)</p>

Family therapy approaches for anorexia nervosa (Review)

Lock 2005 (Continued)

Family education/employment/income: Short-term FT: 9% < 50 K; 33% 50 - 100 K; 57% > 100 K; Long-term FT: 10% < 50 K; 43% 50 -100 K; 48%, > 100 K
Recruitment strategy: Recruited by referral from paediatricians and therapists to a specialty evaluation clinic for child and adolescent eating disorders

Exclusion criteria:

1. Serious medical condition (diabetes mellitus)
2. Psychiatric illness (psychosis)

Interventions

Setting of care: Outpatient, with some hospitalised before treatment
Training/qualification of care provider(s): Yes: 3 Masters Level psychologists, 1 child/adolescent psychiatrist
Treatment manual: Yes: "therapists were all trained in the manual based version of family based treatment"
Supervision of treatment: Yes: Weekly supervision
Adherence to treatment: Unclear: "a manual based form of family based treatment was used" pg. 667(Lock 2006)

Intervention group 1

Description: Short-term family therapy
Family-based therapy but consisting of only Phase 1 and 2 (refeeding and problem-solving for issues that interfere with refeeding)
Length: 6 months

Intervention group 2

Description: Family-based therapy

Labelled 'Long Term Family Therapy' in report. Consists of Phases 1, 2 and 3
Length: 12 months

Outcomes

Eating psychopathology
EDE (Cooper 1987a; Cooper 1987b)
Behavioural indices
BMI
Menstruation
General Psychopathology and Obsessionality
Schedule for Affective Disorders and Schizophrenia for School-Aged Children (Kaufman 1997)
YBC-ED scale (Sunday 1995)
Global pathology and interpersonal functioning
Child Behaviour Checklist; Youth Self Report Checklist (Achenbach 1991)
Family Functioning
Family Environment Scale

Notes

Included in short family therapy vs long family therapy comparison
Family therapy in both cases categorised as family-based therapy
Funded by: NIH Career Development Award

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Quote: "randomised subjects were stratified...by duration of illness"; "within each stratum using the Efron biased coin procedures by a research assistant not involved in assessments" pg. 634
Allocation concealment (selection bias)	Unclear risk	Quote: "randomised by a research assistant not involved in assessment to either a short or long term treatment"

Lock 2005 (Continued)

Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Quote: "assessments were conducted by trained assessors who were not involved with the treatment of patients-not told which group that the patient was randomised to for treatment" pg. 634
Incomplete outcome data (attrition bias) All outcomes	High risk	<ol style="list-style-type: none"> 1. Numbers are not reported for each group and reasons for dropout are reported but not for each group 2. "Primary analysis was by intention-to-treat" for analysis for year 1 appears to include all participants, but this is not the case for long-term outcomes 3. ITT analysis: for year 1 but not for long-term outcomes
Selective reporting (reporting bias)	High risk	<ol style="list-style-type: none"> 1. Authors report that they collected data on family functioning, but the data are not reported in a format that is useable for analysis 2. Authors state they collect EDE measures. However the data are not presented in a useable format, and thus the Yale-Brown Scale was used for the eating disorder psychopathology analysis measure
Other bias	Low risk	No other problems noted

Lock 2010

Methods	RCT
Participants	<p>Country: USA</p> <p>Diagnostic tool: DSM-IV criteria for AN excluding the amenorrhoea criterion</p> <p>No. screened: telephone screening N = 331, invited for an assessment interview N = 175 (53%)</p> <p>No. randomised: Total: 121; FBT: 61; AFT: 60</p> <p>No. started trial: FBT: 57; AFT: 59</p> <p>No. dropped out during intervention: Total: 12; FBT: 9; AFT: 3</p> <p>No. dropped out during follow-up: 6 months; FBT: 18; AFT: 14; 12 months: FBT:17; AFT: 11</p> <p>No. analysed (observed case): FBT end of treatment: 50; FBT 6 months: 44; FBT 12 months: 45; AFT end of treatment: 49; 6 months: 47; 12 months: 49</p> <p>Mean age in years (SD): Total: 14.4 (1.6) years; FBT: 14.1 (1.7); AFT: 14.7(1.5)</p> <p>Age range in years: Not stated, but needed to be between 12 and 18 years (inclusion criteria)</p> <p>Gender %: No detail</p> <p>Subtype purging %: 17.4% (n = 21) "Binge-purge" subtype</p> <p>Subtype restricting %: No detail</p> <p>Age of onset: No detail</p> <p>Duration of illness: Total: 11.3 (8.6) months; FBT: 12.3 (8.5) months; AFT: 10.3 (8.7) months</p> <p>Baseline weight Mean IBW%: 82</p> <p>Baseline BMI: 16.1 (1.1)</p> <p>Baseline eating disorder scale score EDE: Total: 1.77 (1.45); FBT: 1.5 (1.3): AFT: 2.1 (1.3)</p> <p>Baseline purging: No detail</p> <p>Comorbidity: Approximately ¼ of participants (24.5%, n = 29) met criteria for a current comorbid psychiatric disorder, as assessed by the Schedule for Affective Disorders and Schizophrenia for School-Aged Children. FBT: 20% with psych comorbidity; AFT: 32% with psychiatric co-morbidity</p> <p>Details on living arrangements: 79% were from intact families. All participants lived at home or with legal guardian.</p> <p>Family education/employment/income, parental education mean years (SD): FBT: 17.0 (3.1); AFT: 17.1 (2.6)</p>

Lock 2010 (Continued)

Recruitment strategy: Participants were recruited by advertising to clinicians, organisations, and clinics treating eating disorders. After telephone screening (N = 331) to determine eligibility, 175 (53%) were invited for an assessment interview

Exclusion criteria:

1. Current psychotic disorder
2. Dependence on drugs or alcohol
3. Physical condition known to influence eating or weight (e.g. diabetes mellitus, pregnancy)
4. Previous treatment with FBT or AFT

Interventions

Setting of care: Outpatients, but hospitalisation allowed if required on medical grounds

Training/qualification of care provider(s): PhD psychologists and 2 child psychiatrists

Treatment manual: "use of manualised treatments", no further information

Supervision of treatment: Weekly

Adherence to treatment: Unclear. Therapists treated 3 pilot cases satisfactorily with each treatment prior to treating randomised cases. No details about monitoring treatment adherence during trial

Intervention group 1

Description: Family-based therapy

Length: 60 mins, 24 sessions (24 hours), 12 months

Intervention group 2

Description: Adolescent-focused therapy (AFT)

Participants learn to identify and define their emotions and later to tolerate affective states rather than numbing themselves with starvation. Originally described by [Robin 1999](#) as ego-oriented individual therapy

Length: 32 x 45-minute sessions (24 hours), 12 months

Outcomes

Eating psychopathology

EDE, version 12.0

Behavioural indices

Remission: those who achieved 95% IBW, adjusted for age, sex, and height, and total EDE score within 1 SD of normal

Relapse

BMI, BMI % for age and sex and percentage EBW (% EBM), IBW

Family Functioning

McMaster FAD

Notes

Funded by: Stanford University and National Institute of Mental Health (NIMH)

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Randomisation was performed separately for each site by a biostatistician in the Data and Co-ordinating Center under independent management from either intervention site. The Efron biased coin design was used to balance treatment within sites. Participants were stratified within sites based on current use of psychiatric medication
Allocation concealment (selection bias)	Low risk	See above: Randomisation was performed separately for each site by a biostatistician in the Data and Co-ordinating Center under independent management from either intervention site.

Lock 2010 (Continued)

		This can be considered sufficient for a low risk of bias for randomisation
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Quote: "independent assessors", no further detail
Incomplete outcome data (attrition bias) All outcomes	High risk	> 29.5% data missing for some outcome/follow-up measures, paper states "Intent-to-treat mixed-effects modelling used all available data", but analysis appears to have been observed case in some instances
Selective reporting (reporting bias)	Low risk	Results from all measures appear to have been reported
Other bias	Unclear risk	Researchers involved in the trial also developed the intervention.

Lock 2015

Methods	RCT (unbalanced design)
Participants	<p>Country: Not reported (author affiliation listed as USA) Diagnostic tool: DSM-IV TR criteria for AN, except for the amenorrhoea requirement No. screened: 70 No. randomised: Total: 45; FBT: 10; FBT/IPC: 35 No. started trial: No detail No. dropped out during intervention: Total: 9; FBT: 2; FBT/IPC: 7 No. dropped out during follow-up: No detail No. analysed (observed case): Unclear, no detail</p> <p>Mean age in years (SD): FBT: 14.3 (1.5); FBT/IPC: 14.6 (1.4) Age range in years: No detail Gender % female: FBT: 90; FBT/IPC: 92.07 Subtype purging %: No detail Subtype restricting %: No detail Age of onset: No detail Duration of illness, months: Total: 12.6 (13.7) Baseline weight: No detail Baseline BMI : FBT: 16.1 (1.1); FBT/IPC: 16.2 (0.9) Baseline eating disorder scale score Global EDE: FBT: 1.8 (1.6); FBT/IPC: 1.9 (1.5) Baseline purging: No detail Comorbidity (depression, anxiety, obsessive compulsive, panic, phobia, adjustment disorders): FBT 30%; FBT/IPC: 52.4% Details on living arrangements, intact family: FBT: 80%; FBT/IPC: 85.3% Family education/employment/income: No detail Recruitment strategy: No detail</p> <p>Exclusion criteria:</p> <ol style="list-style-type: none"> 1. Psychotic illness/other mental illness requiring hospitalisation 2. Were dependent on drugs or alcohol 3. Physical illness that necessitated hospitalisation 4. Physical conditions (e.g. diabetes mellitus, pregnancy) known to influence eating or weight 5. Received previous FBT

Lock 2015 (Continued)

6. Not medically stable for outpatient treatment according to the recommended thresholds of the American Academy of Pediatrics and the Society of Adolescent Medicine

Interventions

Setting of care: Outpatient
 Training/qualification of care provider(s): No detail
 Treatment manual: Yes for FBT, unclear for FBT/IPC
 Supervision of treatment: No detail
 Adherence to treatment: No detail

Intervention group 1

Description: Family-based therapy (FBT)

Includes a family meal

Length: Sessions: Mean (SD) 12.9 (3.6); 6 months (target: 15 sessions over 6 months)

Intervention group 2

Description: Family-based therapy + intensive family coaching (FBT + IPC)

In the adaptive treatment arm, FBT/IPC+ provides 3 sessions of IPC added to standard FBT focused on meal time coaching for families whose child had not gained 2.3 kg (4.8 lbs) by session 4. The first of these sessions (new session 5) is a family session designed to present the failure in sufficient weight gain by this point as a crisis and strives to reinvigorate the family to make definitive behavioural changes to support weight restoration. Following this session (new session 6), a session with the parents only is held to identify what impediments the parents perceive might be interfering with successful re-feeding. Finally, a second family meal (new session 7) is held which includes direct coaching by the therapist to help address the specific challenges identified during the meeting with the parents alone. Following these 3 sessions, the treatment resumes the regular course of standard FBT. Participants in this arm who did gain 2.3 kg by session 4 did not receive the IPC sessions.

Length: Sessions: Mean (SD) 13.9 (4.3); 6 months (target: 18 sessions over 6 months)

Outcomes

Eating psychopathology

EDE Global Score

Behavioural indices

Recovery (% EBW \geq 95)

Weight

BMI

General Psychopathology and Obsessionality

CYBOCS

YBCEDS Total

BDI

(RSE

HRQ

Global pathology and interpersonal functioning

TSPE

Notes

Funded by: NIMH to Dr. Lock (PI) [R34-MH09349303](#), Dr. Le Grange (PI) [R34-MH093768](#), and Dr. Agras, (co-PI), [R34-MH09349303](#)

Risk of bias

Lock 2015 (Continued)

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No detail
Allocation concealment (selection bias)	Unclear risk	No detail
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	No detail
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Outcome data reported for all randomised participants (unclear if ITT or observed case outcome data used)
Selective reporting (reporting bias)	High risk	Parents Versus Anorexia Nervosa Scale, PvAn, not reported for all groups at end of treatment, Schedule for Affective Disorders and Schizophrenia for School-Aged Children (6 - 18 years) - Present and Lifetime Version (K-SADS-PL) not reported at end of treatment. Family income data discussed but not reported
Other bias	Unclear risk	Unbalanced randomised design N = 10 in FBT; N = 35 in FBT/IPC (but N = 23 in FBT/IPC had only FBT, e.g. FBT/IPC-; N = 12 in FBT/IPC had FBT and IPC, e.g. FBT/IPC+)

Madden 2015

Methods	RCT
Participants	Country: Australia Diagnostic tool: DSM-IV diagnosis of AN Total: ; MS + FBT: ; WR + FBT: No. screened: 266 No. randomised: Total: 82; MS + FBT: 41; WR + FBT: 41 No. started trial: MS + FBT: 40; WR + FBT: 38 No. dropped out during intervention: Total: 9; MS + FBT: 4; WR + FBT: 5 No. dropped out during follow-up: Total: 5; MS + FBT: 0; WR + FBT: 5 No. analysed (observed case): Variable by outcome measure and follow-up time Mean age in years (SD): Total: 14.89 (1.46); MS + FBT: 14.89 (1.36); WR + FBT: 14.88 (1.56) Age range in years: No detail, but inclusion criteria 12 to 18 years Gender % female: Total: 95.1; MS + FBT: 95.1; WR + FBT: 95.1 Subtype purging %: Total: 30.51; MS + FBT: 29.27; WR + FBT: 31.73 Subtype restricting %: Total: 69.50; MS + FBT: 70.73; WR + FBT: 68.32 Age of onset: No detail Duration of illness: Total: 7.62 (6.16) months; MS + FBT: 7.39 (5.42) months; WR + FBT: 7.85 (6.89) months Baseline weight: Total: 78.26 (6.35) %EBW; MS + FBT: 77.28 (6.67) % EBW; WR + FBT: 79.25 (5.95) % EBW Baseline BMI: No detail

Madden 2015 (Continued)

Baseline eating disorder scale score, EDE total: Total: 3.07 (1.12); MS + FBT: 2.95 (1.14); WR + FBT: 3.19 (1.11)

Baseline purging: See purging subtype above

Comorbidity:

Psychological feature: MS + FBT Mean (SD), WR + FBT mean (SD), Total Mean (SD)

Depression features: 13 (31.7), 13 (31.7), 26 (31.7)

Self-harm/suicidality: 14 (34.2), 15 (36.6), 29 (35.8)

Anxiety features: (34.2), 18 (43.9), 32 (39.0)

OCD: 6 (14.6), 9 (22.0), 15 (18.3)

PTSD/trauma/grief: 8 (19.5), 6 (14.6), 14 (17.1)

Developmental/intellectual concerns: 2 (4.9), 5 (12.2), 7 (8.5)

RCADS: Depression: 58.12 (15.51), 56.80 (14.86), 57.46 (15.11)

RCADS: Anxiety: 49.15 (12.47), 52.78 (14.28), 50.96 (13.45)

ChOCI-R: Frequency of obsessions: 16.56 (3.75), 18.02 (6.26), 17.29 (5.18)

Details on living arrangements, single parent %: Total: 26.8; MS + FBT: 29.3; WR + FBT: 24.4

Family education/employment/income: No detail

Recruitment strategy: 266 consecutive eating disorder admissions to 2 specialist paediatric medical units

Exclusion criteria:

1. Evidence of psychosis
2. Mania
3. Substance abuse
4. Illness duration of more than 3 years
5. Significant intercurrent medical illnesses other than nutrition-related complications of AN

Interventions

Setting of care: Inpatient and outpatient

Training/qualification of care provider(s): 3 psychologists and a social worker trained in the FBT model

Treatment manual: FBT component of both treatments manualised

Supervision of treatment: Weekly individual and group supervision was provided by 2 experienced FBT therapists (AW and PR) with over 5 years of experience in FBT

Adherence to treatment: Where consent was provided (89% of families), treatment sessions were recorded on digital video and a random sample of 5% of these sessions were assessed for treatment fidelity by 1 of the authors of the FBT manual (DLG). No information provided about the level of adherence to treatment

Intervention group 1

Description: Medical stabilisation + family-based therapy (MS + FBT)

MS: All participants were re-fed using a standardised protocol starting with 24 – 72 hours of continuous nasogastric feeds (ceased with daytime medical stability) followed by a combination of nocturnal nasogastric feeds and supported meals aiming for a total caloric intake of between 2400 and 3000 kcal/day. The amount and duration of nasogastric feeding was determined by markers of medical instability for a minimum of 14 days. Total caloric intake was based on a rate of weight gain of 1 kg/week (Kohn 2011). Participants in the MS arm were subsequently discharged to outpatient FBT if they had no markers of medical instability for 72 hours after nasogastric feeds were ceased

Length: Mean sessions (SD) 24.25 (8.51), 24.25 (hours), maximum of 12 months

Intervention group 2

Description: Weight restoration + family-based therapy (WR + FBT)

WR: All participants were re-fed using a standardised protocol starting with 24 – 72 hours of continuous nasogastric feeds (ceased with daytime medical stability) followed by a combination of nocturnal nasogastric feeds and supported meals aiming for a total caloric intake of between 2400 and 3000 kcal/day. The amount and duration of nasogastric feeding was determined by markers of medical instability for a minimum of 14 days. Total caloric intake was based on a rate of weight gain of 1 kg/week (Kohn 2011). Participants in the WR arm continued in hospital on supported meals without nasogastric feeding once they had no markers of medical instability for 72 hours, until they reached 90% EBW before discharge to outpatient FBT

Madden 2015 (Continued)

Length: Mean sessions (SD) 31.30 (12.60), 31.30 hours, maximum of 12 months

Outcomes	<p><u>Eating psychopathology</u></p> <p>EDE Global score</p> <p><u>Behavioural indices</u></p> <p>Number of days of hospitalisation, following initial admission, used by the 12-month follow-up</p> <p>Total number of hospital days used by the 12-month follow-up and the percentage of participants at full remission as defined by an EBW > 95% and an EDE global score within 1 SD of expected norms. Partial remission was also examined as defined by weight > 85% of EBW</p> <p>% EBW</p>
Notes	Funded by: National Health and Medical Research Council (NHMRC) of Australia (Grant ID 457235).

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Participants were randomised in clusters of 6 using a block size of 2. Each new cluster was randomised through a blind random binary list created by an external statistician
Allocation concealment (selection bias)	High risk	Although the use of clusters unblinded recruitment staff to the group status of participants, this design was chosen to prevent potential problems of dropout if participants from different groups were treated alongside one another in hospital and became dissatisfied with their allocation. Participants and families were blind to treatment assignment prior to randomisation
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Low risk	A clinical psychologist blind to treatment assignment conducted all baseline interviews and collected questionnaires at assessment time points
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Some missing outcome data and appear to have used observed case in the analysis
Selective reporting (reporting bias)	High risk	A number of measures not reported at EOT, e.g. RCADS, ChOCI-R, RSES
Other bias	Unclear risk	<ol style="list-style-type: none"> 1. Imbalance in treatment hours and sessions across groups, observed case analysis appears to have been used when data were missing 2. Researchers who developed the treatment conducted the trial

Onnis 2012

Methods	RCT
Participants	Country: Italy Diagnostic tool: DSM-IV-TR

Family therapy approaches for anorexia nervosa (Review)

Onnis 2012 (Continued)

No. screened: No detail
 No. randomised: Total: 28 (16 BN, 12 AN); SFT:14 (AN + BN); MNT:14 (AN + BN)
 No. started trial: Done
 No dropped out during intervention: Done
 No dropped out during follow-up: Done
 No. analysed (observed case): Done

Mean age in years (SD): SFT: 18; MNT: 19.3
 Age range in years: Total: Done
 Gender %: Female 100%
 Subtype purging %: No detail
 Subtype restricting %: No detail
 Age of onset: Done
 Duration of illness: SFT: 1.8 years; MNT: 2.1 years
 Baseline weight: SFT: 39.7; MNT: 36.4
 Baseline BMI: SFT: 14.5; MNT: 14.2
 Baseline eating disorder scale score: EDI - No detail
 Baseline purging: No detail
 Comorbidity: Done
 Details on living arrangements: Done
 Family education/employment/income: SFT: 1 upper-middle, 3 middle, 2 lower-middle SES; MNT: 1 upper-middle, 3 middle, 2 lower-middle
 Recruitment strategy: Recruited from non-hospitalised patients connected to the Service for Eating Disorders of the Department of Neuropsychiatric Sciences for Child Development

Exclusion criteria: Unclear

Interventions

Setting of care: Outpatient
 Training/qualification of care provider(s): No detail
 Treatment manual: No detail
 Supervision of treatment: No detail
 Adherence to treatment: No detail

Intervention group 1

Description: Minuchin's structural family therapy
Length: 20 - 25 sessions (over 12 months; 1 session every 2 weeks)

Intervention group 2

Description: Treatment as usual

Comprised Medical Nutritional Therapy and "possibly supported by psychiatric counselling" (pg. 40)
Length: No detail

Outcomes

Eating psychopathology
 EDI

EAT - Data not reported
Behavioural indices
 BMI
Family Functioning

Unclear

Notes

Mixed AN and BN sample. Based on the following quote "subdivided, with a randomisation distribution, into two homogeneous, experimental and control groups, of 14 patients each" (pg 40), we made the assumption that the 4:3 distribution (16 BN:12 AN) at inclusion was replicated in the experimental and control conditions (8 BN:6 AN per condition)

Risk of bias

Onnis 2012 (Continued)

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Quote: "... the patients were randomly assigned to the two experimental and control groups." No further detail.
Allocation concealment (selection bias)	Unclear risk	No detail
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	No detail
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Some separated AN and BN data reported, and some conjoint. SDs not reported
Selective reporting (reporting bias)	High risk	Not all measures have been reported (e.g. EAT). Unclear presentation of data. No useable data.

Rausch Herscovici 2006

Methods	RCT
Participants	Country: Argentina Diagnostic tool: Diagnostic criteria of "Great Ormond St" pg. 10 No. screened: No detail No. randomised: No detail No. started trial: No detail No. dropped out during intervention: No detail No. dropped out during follow-up: No detail No. analysed: No detail Mean age in years (SD): No detail Total: 17.49 (2.08); Family therapy: 17.35 (2.79); Family therapy plus meal: (17.63 (1.30) Age range in years: Intake criteria were 12 - 20, no other detail Gender %: Total: 8.3% (1) male; 97.79% (11) female; No detail by group Subtype: Total: 1 out of total were purging subtype; 8 out of total were restricting. No detail by group Age of onset: Total : 15.33 (2.42); Family therapy: 15.16 (3.18); Family therapy plus meal: 15.5 (1.64) Duration of illness (months): Total : 20.6 (12.73); Family therapy: 22.33 (12.79); Family therapy plus meal: 19.00 (13.65) Baseline weight in kgs (SD): Total : 43.18 (8.56); Family therapy: 41.58 (9.51); Family therapy plus meal: 44.77 (8.05) Baseline BMI: Total: 16.23 (1.92); Family therapy: 16.23 (2.57); Family therapy plus meal: 16.22 (1.23) Baseline eating disorder scale score: No detail Baseline purging: No detail Comorbidity: No detail Details on living arrangements: No detail Family education/employment/income: No detail Recruitment strategy: Subjects admitted to a clinic and subsequently discharged Exclusion criteria: No detail

Rausch Herscovici 2006 (Continued)

Interventions	Setting of care: Outpatient Training/qualification of care provider(s): No detail Treatment manual: No detail Supervision of treatment: No detail Adherence to treatment: No detail Intervention group 1 <u>Description:</u> Family-based therapy <u>Length:</u> No details Intervention group 2 <u>Description:</u> Family-based therapy + meal Labelled 'Family Meal Intervention' in report <u>Length:</u> No details	
Outcomes	<u>Eating psychopathology</u> MRS (Morgan 1988); EAT (Garner 1979) EDI-II (Garner 1983) <u>Behavioural indices</u> Weight BMI <u>General Psychopathology and Obsessionality</u> SCL-90-R, BDI-II <u>Family Functioning</u> ESF (Family Health Scale)	
Notes	Foreign-language article, partially translated only Included in family therapy vs family therapy plus meal comparison Family therapy in both cases categorised as family-based therapy Funded by: No detail	
Risk of bias		
Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No detail
Allocation concealment (selection bias)	Unclear risk	No detail
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Quote: "Outcome assessors blind to allocation"
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	<ol style="list-style-type: none"> 1. No detail on dropouts 2. Correspondence from author indicated "dropout occurred at 4 weeks of commencement of treatment" with no other information 3. No ITT analysis.

Rausch Herscovici 2006 (Continued)

Selective reporting (reporting bias)	Unclear risk	<ol style="list-style-type: none"> 1. Authors report that they collected data on general functioning, but the data are not reported in a format that is useable for analysis. 2. From personal correspondence it is noted that Family Health Scale is not administered at follow-up
Other bias	Unclear risk	Data extracted by Spanish-speaking colleague who was not part of the main review team

Rhodes 2008

Methods	RCT
Participants	<p>Country: United Kingdom Diagnostic tool: DSM-IV TR diagnosis of AN No. screened: No detail No. randomised: Total: 20 No. started trial: No. dropped out during intervention: Total: "13.3% of data was missing due to dropout from treatment" No. dropped out during follow-up: No detail No. analysed (observed case): No detail</p> <p>Mean age in years (SD): Total: 14; FBT: 14.3; FBT + PPC 13.7 Age range in years: Total: 12.2 - 16.1; FBT: 13.1 - 16.1; FBT + PPC: 12.2 - 15.9 Gender %: Female 100% Subtype purging %: No detail Subtype restricting %: No detail Age of onset: Duration of illness: Total: < 6 months = 9; 6 - 12 months = 10; > 12 months = 1; FBT: < 6 months = 5; 6 - 12 months = 4; > 12 months = 1; FBT + PPC: < 6 months = 4; 6 - 12 months = 6; > 12 months = 0 Baseline weight: Total: %IBW 81.21; FBT: %IBW 83.85; FBT + PPC: %IBW 81.21 Baseline BMI: No detail Baseline eating disorder scale score: No detail Baseline eating disorder scale score: No detail Baseline purging: No detail Comorbidity: Total: Depression = 3; OCD = 5; FBT: Depression = 2; OCD = 3; FBT + PPC: Depression = 1; OCD = 2 Details on living arrangements: Total: Intact family: 12; lived with sole parent (and no contact with other biological parent): 2 ; 2 lived with 1 custodial parent and had fortnightly contact with other parent; FBT: Intact: 8; separated (both parents): 0; separated (1 parent): 2; FBT + PPC: Intact: 4; separated (both): 2; separated (1): 4 Family education/employment/income: No detail Recruitment strategy: Patients admitted to hospital via casualty, presenting with protein calorie malnutrition and associated medical compromise.</p> <p>Exclusion criteria: No detail</p>
Interventions	<p>Setting of care: Outpatient (all participants had previously been admitted to hospital via casualty) Training/qualification of care provider(s): All therapists conducting these interviews had extensive experience, both in the Maudsley model (mean = 33 months) and generic family therapy (mean = 49 months). Specific training was also provided for the consultations (training was 3 hours, followed a structured interview protocol and included role plays) Treatment manual: Yes Supervision of treatment: No detail Adherence to treatment: No detail</p>

Intervention group 1
Family therapy approaches for anorexia nervosa (Review)

Rhodes 2008 (Continued)

Description: Family-based therapy (FBT) Maudsley approach.

Length: 60 mins , 20 sessions. 20 hours. Duration (e.g. months, not reported)

Intervention group 2

Description: FBT + parent-to-parent consultation (FBT + PPC)

The technique of "parent to parent consultation" is derived from narrative therapy and involves a joint interview with new parents and parents who have completed treatment. New parents listen as the therapist interviews graduated parents, with the aim of circulating liberative stories. PPC is a practice that has the capacity to build solidarity between parents rather than explore and resolve any unique family dysfunction

Length: 60 mins, 20 FBT session + 60 mins PPC (+ 10 minutes for parents to talk at the end without therapist present). 21 hours. Duration (e.g. months, not reported)

Outcomes

Eating psychopathology
 Morgan–Russell categories ([Morgan 1975](#))
Behavioural indices
 % IBW
General Psychopathology and Obsessionality
 Patient distress was measured using the DASS
Family Functioning
 Parental efficacy was measured using the Parent versus Anorexia Scale (PVA)

Notes
Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	A list of random numbers was generated using SPSS random-number generation process
Allocation concealment (selection bias)	Low risk	Therapists were given a sealed envelope containing the group allocations at week 1 of treatment
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	No detail
Incomplete outcome data (attrition bias) All outcomes	High risk	2 types of missing data: 1) participants engaged in treatment but temporarily unable or unwilling to complete valid measures: 3.6% (out of 501 observations) 2) participants who dropped out of treatment, make an overt decision to stop responding to measures or complete treatment in less than 20 sessions. 38% missing for this reason; 13.3 % due to dropout from treatment, 11.3 % due to completion of treatment and 13.4% due to decision to stop responding to measures. 1) first type of missing data: LOCF 2) second type: analysis was restricted to 6 sessions after the consultation, resulting in a decrease in percentage of missing data in the poor outcome category, from 48% to 9.5%. This was seen as appropriate, given the analysis aimed to isolate any immediate effects of parent-to-parent consultations between sessions 3 and 5. Second, the remaining

Rhodes 2008 (Continued)

		missing data were replaced by calculating the average score on all measures for each session
Selective reporting (reporting bias)	High risk	Parental efficacy measured using the PVA and depression/anxiety measured using the DASS were administered weekly for all parents, but not reported
Other bias	Unclear risk	Small trial

Robin 1999

Methods	RCT
Participants	<p>Country: USA</p> <p>Diagnostic tool: DSM-III-R</p> <p>No. screened: "approximately 120 telephone enquiries and scheduled 60 for intake interviews"</p> <p>No. randomised: "41 agreed to participate and 4 dropped out, leaving 37 participants". Does not say when participants dropped out. BFST: 19, EOIT: 18</p> <p>No. started trial: No detail</p> <p>No. dropped out during intervention: "41 agreed to participate and 4 dropped out, leaving 37 participants". Does not say when pp dropped out. 7 dropped out - different numbers for different outcomes</p> <p>No. dropped out during follow-up: "41 agreed to participate and 4 dropped out, leaving 37 participants". Does not say when pp dropped out</p> <p>No. analysed: Total: 37 (LOCF) BFST: Different N's for each measure, EOIT: Different N's for each measure</p> <p>Mean age in years (SD): BFST: 14.9; EOIT: 13.4</p> <p>Age range in years: Total: 11 - 20</p> <p>Gender %: Total: 0 male, 37 female; BFST: 0 male, 19 Female; EOIT: 0 male, 18 Female</p> <p>Subtype: No detail</p> <p>Age of onset: No detail</p> <p>Duration of illness: Total: ≤ 12 months</p> <p>Baseline weight: Total: BFST: 86.5 pounds (39.3 kg); EOIT: 86.8 pounds (39.5 kg)</p> <p>Baseline BMI: Total: BFST: 15.0 (1.4), EOIT: 16.3 (2.8)</p> <p>Baseline eating disorder scale score (EAT): BFST: n = 19 32.6 (SD 15.6); EOIT: n = 16 20.6 (SD 15.6)</p> <p>Baseline purging: BFST: 0; EOIT: 0</p> <p>Comorbidity: Total: 54% mood disorder, 13% anxiety disorder; BFST: BDI score 19.4 (12.3); EOIT: BDI score 11.3 (10.5)</p> <p>Details on living arrangements: Total: All residing at home with 1 or both parents (34 in 2-parent homes; 3 in single-mother households)</p> <p>Family education/employment/income (Socioeconomic Status (Hollingshead Four Factor Scale):, BFST: 47.5 (13.6); EOIT: 47.9 (12.0)</p> <p>Recruitment strategy: Investigator's practice settings, letters sent to physicians, psychologists, clergy, community agencies and schools, public service announcements/media stories, presentations to schools and clinics by the investigators</p> <p>Exclusion criteria: No detail</p>
Interventions	<p>Setting of care: Outpatient treatment provided. Some participants hospitalised with treatment provided as inpatients (11 in the family group and 5 in the individual group)</p> <p>Training/qualification of care provider(s): Yes: 4 doctoral psychologists, 1 masters social worker</p> <p>Treatment manual: Yes</p> <p>Supervision of treatment: No details</p> <p>Adherence to treatment: Yes: All audiotaped and 40 sessions sampled with checklist</p> <p>Intervention group 1</p> <p><u>Description:</u> Behavioral family systems</p> <p>Description in the report similar to family-based therapy including all 3 phases</p> <p><u>Length:</u> Average 15.9 months</p>

Robin 1999 (Continued)

Intervention group 2

Description: Ego-oriented individual therapy

Aimed to build ego strength, autonomy and insight. Parents also met with therapists bimonthly

Length: Average 15.9 months

Outcomes	<p><u>Eating psychopathology</u> EAT (Garner 1979) The body shape questionnaire and the dissatisfaction scale of EDI (Garner 1983)</p> <p><u>Behavioural indices</u> BMI Percentage who reached/exceeded target weight Menstruation</p> <p><u>General psychopathology</u> BDI (Beck 1961) Child Behaviour Checklists Internalising Behaviour Problems Score (Achenbach 1991)</p> <p><u>Global pathology and interpersonal functioning</u> Ego functioning - the ineffectiveness interpersonal distrust and interoceptive awareness scale (Garner 1983).</p> <p><u>Family functioning</u> General and Eating-Related Conflict (Robin 1990) Observed family conflict - Interaction Behaviour Code for videotaped interactions (Robin 1989)</p>
Notes	Included in family therapy vs individual psychological intervention Family therapy categorised as family-based therapy Funded by: National Institute of Mental Health Grant

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Correspondence from author stated "coin tossing" was used
Allocation concealment (selection bias)	Unclear risk	Correspondence from author suggested concealment was not possible, but this was followed by a description of blinding
Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	High risk	Correspondence from author stated that this was not possible except for those coding the family interactions.
Incomplete outcome data (attrition bias) All outcomes	High risk	<ol style="list-style-type: none"> From the text of the paper, data for dropouts not reported or analysed. There appear to be 7 dropouts from the tables but it is unclear from the description of numbers and reasons in the text Correspondence from the author suggested 1 out of 20 dropped out from the family therapy group during intervention and 4 out of 21 dropped out from the individual psychotherapy group. Dropouts by follow-up reported as 5 out of 20 for the family therapy group and 6 out of 21 from the individual psychotherapy group ITT data not provided nor analysed in paper.
Selective reporting (reporting bias)	High risk	<ol style="list-style-type: none"> Measures taken and reported in earlier papers (1995; BSQ and EDI BD) not reported in later paper. Family conflict not reported in 1999 paper. 1994 paper mentions body shape questionnaire, EDI and EAT however not reported in

Robin 1999 (Continued)

the 1999 paper. Authors do report on every measure described in the Methods section in the 1999 paper

2. Report on within-group changes for many outcomes
3. Authors report that they collected data on dropouts, but the data are not reported in a format that is useable for analysis

Other bias	High risk	<ol style="list-style-type: none"> 1. (1999 paper) Imbalance at the start of treatment: 11 participants from BFST and 5 participants from EOIT were hospitalised for refeeding. Duration of stay not specified by group, or for all participants 2. Uneven treatment duration - not standardised and not reported for all groups 3. Uneven/inconsistent Ns for most measures with no explanation of why Ns vary across measures 4. Baseline imbalances: mean age in EOIT Group significantly younger; difference in EAT scores and BDI scores with the BFST group in the clinical range on the BDI and the EOIT group not in the clinical range 5. No reporting of between-group differences 6. Randomised before final assessment for inclusion
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Russell 1987

Methods	RCT
Participants	<p>Country: United Kingdom</p> <p>Diagnostic tool: DSM-III + extreme self-induced weight loss, fear of fatness psychopathology, endocrine disorder (amenorrhoea in females, sexual dysfunction in males)</p> <p>No. screened: No detail</p> <p>No. randomised: Total : 80; Family therapy: 41 (includes the BN participants); Individual therapy: 38 (includes the BN participants)</p> <p>No. dropped out after randomisation and before start of trial: Total: Group 1 (AN, onset \leq 18 onset, < 3 yrs duration): 1a - 0, 1b - 0, Group 2 (AN \leq 18 onset, \geq 3 yrs duration): 2a - 1, 2b - 1, Group 3 (AN \geq 19 onset): 3a - 1, 3b - 0</p> <p>No. dropped out during intervention (did not receive a year of therapy): Total : 17; Family Therapy (a) Group 1 = 1, Group 2 = 2; Group 3 = 3; Individual therapy (b) Group 1 = 7, Group 2 = 3; Group 3 = 0</p> <p>No. dropped out during follow-up: 5 years (total only): 3 died; had data on 77 (63 from clinical interview; 1 telephone interview; 3 returned a questionnaire; indirect information from parents or GP) (for 7 participants who refused 5-year follow-up they used 3-year outcomes)</p> <p>No. analysed: 1 year: Family therapy 5 did not get included in 1-year analysis; Individual therapy 2 in individual therapy did not get included in 1-year analysis, 5 years: total 77</p> <p>NOTE: for this study most data are not given by intervention group but by subgroup: Group 1: AN, onset \leq 18 onset, < 3 yrs duration; Group 2: AN \leq 18 onset, \geq 3 yrs duration; Group 3: AN \geq 19 onset (Group 4 was made up of participants with BN)</p> <p>Mean age in years (SD): Group 1 (AN, onset \leq 18 onset, < 3 yrs duration): 16.6 (1.7); Group 2 (AN \leq 18 onset, \geq 3 yrs duration): 20.6 (4.0); Group 3 (AN \geq 19 onset): 27.7 (7.8)</p> <p>Age Range: No details</p> <p>Gender %: Total (including BN group): 9% male; 91% female</p> <p>Subtype: No details</p> <p>Age of onset in years (SD): Group 1 (AN, onset \leq 18 onset, < 3 yrs duration): 15.3 (1.8); Group 2 (AN \leq 18 onset, \geq 3 yrs duration): 14.3 (2.4); Group 3 (AN \geq 19 onset): 24.6 (5.8)</p> <p>Duration of illness: Group 1: by definition < 3 yrs duration; Group 2: by definition \geq 3 yrs duration; Group 3: by definition no details</p> <p>Baseline weight (on discharge from inpatient admission): Group 1 (AN, onset \leq 18 onset, < 3 yrs duration): 88.9 (7.4) ABW%; Group 2 (AN \leq 18 onset, \geq 3 yrs duration): 91.4 (5.5) ABW%; Group 3 (AN \geq 19 onset): 85.8 (7.3) ABW%</p>

Russell 1987 (Continued)

Paper stated that the participants were generally severe with an average admission weight of 69.9% ABW
 Baseline BMI: No details
 Baseline eating disorder scale score: No details
 Baseline purging: No details
 Comorbidity: Paper stated "most patients-complicated by episodes of self harm severe depression or personality disorder" with no other details given
 Details on living arrangements: Total : 64 single, 8 married, 3 separated/divorced; 60 were living with parents, 12 were living with a spouse or co-habiting, 8 lived alone
 Family education/employment/income: No details
 Recruitment strategy: *No details*

Exclusion criteria: No details

Interventions

Setting of care: Outpatient (following inpatient refeeding for an average of 10.4 weeks)
 Training/qualification of care provider(s): Yes: 3 social workers and 1 psychologist
 Treatment manual: No details
 Supervision of treatment: Yes
 Adherence to treatment: No details

Intervention group 1

Description: Family-based therapy
Length: 1 year from the date of discharge from hospital

Intervention group 2

Description: Individual supportive therapy
 Included supportive problem-centred counselling, education with elements of cognitive, interpretive and strategic therapy
Length: 1 year from the date of discharge from hospital

Outcomes

Eating psychopathology
 Morgan Russell Assessment Schedule ([Morgan 1988](#))

Behavioural indices
 BMI
 Menstruation
 Good outcome/Intermediate outcome/
 Poor outcome
 Need for readmission

General psychopathology and Obsessionality
 CCEI ([Crown 1979](#))

Notes

Included in family therapy vs individual psychological intervention. Family therapy categorised as family-based therapy
[Dare 1990](#) and [Russell 1987](#) refer to the acute study and [Eisler 1997](#) is the follow-up study.
 1-year follow-up data are the equivalent to end of treatment
 5-year mortality data are still being checked by authors and will be provided
 Funded by: Medical Research Council, Britain

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Personal communication stated stratified randomisation by diagnostic and prognostic groups
Allocation concealment (selection bias)	Low risk	Personal communication stated sealed envelopes were used

Russell 1987 (Continued)

Blinding of participants and personnel (performance bias) All outcomes	High risk	Therapists and participants cannot be blinded in trials of family-based therapy
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	<ol style="list-style-type: none"> 1. "it was not possible to maintain "blindness to the two forms of treatment...to facilitate objective assessments, one of us...assessed the patients at follow-up and was not involved in the provision of therapy" pg. 1048. 2. 5-year outcomes - "assessed by 1 of 2 independent research psychologists" pg. 1026 Eisler 1997 3. Personal communication confirmed that a number of research assistants were involved over the years in the study, all of whom were independent of the treatment and delivery team. Participants were reminded not to reveal their treatment but it was not always possible
Incomplete outcome data (attrition bias) All outcomes	High risk	<ol style="list-style-type: none"> 1. It appears that ITT analysis was undertaken for those who started therapy (i.e. excluding the 7 who dropped out prior to start). However, in Table 7 it states "Data on one patient were not available" and no other information is provided 2. ITT analysis was not undertaken for the outcome 'good outcome'. However, there is some discussion in the section <i>Interpretation of the Effects of "Dropping Out"</i> on outcome results (page 1054), and the types of dropouts and their distribution 3. Personal communication stated that all participants were followed up regardless of how much treatment they received 4. ITT analysis was used for the main comparison of the general outcome on the MR scale, which included all participants regardless of the treatment they received 5. Other comparisons excluded participants who refused treatment, but participants were followed up
Selective reporting (reporting bias)	High risk	<ol style="list-style-type: none"> 1. There is no publication of 3-year outcomes, despite mention that assessments were undertaken at three years 2. There is no reporting for some of the subgroups and no overall results for each intervention group. They state they could not do the analysis of the whole group (i.e. with subgroups collapsed for each intervention group) due to the interaction between the type of treatment and prognostic group 3. Group totals for eating disorder psychopathology and weight obtained by personal communication
Other bias	High risk	<ol style="list-style-type: none"> 1. Virtually no between-intervention group data or information 2. Uneven treatment dosages (FT = 10.5 sessions; Indv = 15.9 sessions) which was stated to be due to the fact that if a participant lost weight, the intensity of treatment was increased 3. Pre-therapy imbalance - ABW % on start of therapy (i.e. reported discharge ABW%) in Group 2 (AN ≤ 18 onset, ≥ 3 yrs duration) 4. Differences in the mean ABW% given for Group 2 (compare tables 1 and 7), due to missing data unaccounted for from 1 participant). Difficult to judge whether pre-therapy ABWs are significantly different. 5. Data reporting anomalies - subgroup numbers are inconsistently reported. Compare tables 1 and 7. Table 1 indicates that there were just 15 people in Group 2 at the start of the therapy, but in table 7 it indicates there are 18. This relates to difficulties in assessing numbers of dropouts and the numbers included in analyses 6. Possible contamination with therapists delivering both interventions

Russell 1987a

Methods	See Russell 1987
Participants	See Russell 1987
Interventions	See Russell 1987
Outcomes	See Russell 1987
Notes	

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	See Russell 1987
Allocation concealment (selection bias)	Unclear risk	See Russell 1987
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	See Russell 1987
Selective reporting (reporting bias)	Unclear risk	See Russell 1987
Other bias	Unclear risk	See Russell 1987

Russell 1987b

Methods	See Russell 1987
Participants	See Russell 1987
Interventions	See Russell 1987
Outcomes	See Russell 1987
Notes	

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	See Russell 1987
Allocation concealment (selection bias)	Unclear risk	See Russell 1987
Incomplete outcome data (attrition bias)	Unclear risk	See Russell 1987

Family therapy approaches for anorexia nervosa (Review)

Russell 1987b (Continued)

All outcomes

Selective reporting (reporting bias)	Unclear risk	See Russell 1987
Other bias	Unclear risk	See Russell 1987

Russell 1987c

Methods	See Russell 1987
Participants	See Russell 1987
Interventions	See Russell 1987
Outcomes	See Russell 1987
Notes	

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	See Russell 1987
Allocation concealment (selection bias)	Unclear risk	See Russell 1987
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	See Russell 1987
Selective reporting (reporting bias)	Unclear risk	See Russell 1987
Other bias	Unclear risk	See Russell 1987

Whitney 2012

Methods	RCT
Participants	Country: UK Diagnostic tool: DSM-IV No. screened: 95 No. randomised: Total: 48; IFW: 23; FDW: 25 No. started trial: No detail No. dropped out during intervention: Total: 6; IFW: 3; FDW: 3 No. dropped out during follow-up: Total: 11; IFW: 5; FDW: 6 No. analysed (OC): BMI (long-term follow-up), IFW: 21, FDW: 23, SEED AN (long-term follow-up), IFW 15, FWD 14, SEED BN (long-term follow-up), IFW: 15, FWD: 14, IIP (long-term follow-up), IFW: 11, FWD: 14 Mean age in years (SD): Total: 25 (9.15) Age range: No detail Gender %: Total: 4% (1) male; 96% (47) female, IFW: 1 male; 22 female, FDW: 0 male; 25 female

Family therapy approaches for anorexia nervosa (Review)

Whitney 2012 (Continued)

Subtype: Total: no specific detail on subtype but text states “the patients primarily had the restricting type of AN. Approximately 20-25% used vomiting or laxatives, and approximately half reported using excessive exercise”

No detail by group

Age of onset: No detail

Duration of illness (months): Total : 56% had a duration of \pm 5 years; 25% had \pm 10 years, IFW: range 1 - 20 years, FDW: range <1 - >20 years

Baseline weight: No detail

Baseline BMI: Total : 13.3 (1.6); No detail by group

Baseline eating disorder scale score, IFW: SEED AN 13.3 (1.6), FDW: SEED AN 13.2 (1.5)

Baseline purging (vomiting at least once a day): Total: IFW: 6 (26%), FDW: 4 (16%)

Comorbidity: No detail

Details on living arrangements: Total: IFW: 65% living in family unit (52% parents; 9% spouse; 4% children); FDW: 88% living in family unit (80% parents; 8% spouse; 0% children)

Family education/employment/income: Detail of highest education, occupation, employment status and income/support for participants reported in Table 2

Recruitment strategy: Consecutive referrals to the inpatient eating disorder unit

Exclusion criteria:

1. Previous family work on the Gerald Russell Eating Disorders Unit
2. Currently receiving family therapy at the Michael Rutter Centre for Children and Adolescents
3. Required more intensive family work due to disclosed abuse within the family
4. Self-discharge (within 6 weeks, before randomisation)

Interventions

Setting of care: Inpatient

Training/qualification of care provider(s): Yes: “six experienced eating disorder therapists from diverse mental health professional backgrounds (e.g. nurses, social workers, and doctors) all with training in family work” pg. 9

Treatment manual: No detail

Supervision of treatment: Yes: “All participated in training workshops prior to the commencement of the study with regular supervision throughout the study” pg. 9

Adherence to treatment: Yes: “Typically two therapists were involved in both interventions. The sessions were video-taped for supervision and to ensure treatment fidelity” pg. 9

Intervention group 1

Description: Specific family therapy

Involved 2 phases: 1. engaging family, dispelling myths about AN, reducing parental guilt, instilling confidence in parents that they can help child; 2. problem- and symptoms-oriented focus with emphasis on parental coping strategies, functional analysis of difficulties in managing AN in the home, reduction of hostile, over-critical or over-protective interactions

Length: 18 hours of treatment in 1 - 2 hour weekly or fortnightly sessions with 3 follow-up sessions

Intervention group 2

Description: Standard family systems therapy

Highly structured intervention working with 2 families over 3 days with the aim to promote rapport between families to share difficulties and strengths in managing and including shared meals. Day 1 focus on family difficulties; Day 2 focus on current family functioning and organisation around AN; Day 3 teaching philosophies that underpin health behaviour change

Length: 18 hours of treatment over 3 days followed by 3 hour-long follow-up sessions

Outcomes

Eating psychopathology
SEED (Kordy 2005)

Behavioural indices
Weight change (BMI)

Global pathology and interpersonal functioning
Inventory of Interpersonal Problems

Whitney 2012 (Continued)

Family functioning

LEE scale

Other

Measurement at baseline, discharge (mean 5.3 months (6 months for carers)) and at 3-year follow-up

Notes

 Included in individual family therapy vs group family therapy comparison
 Family therapy in both cases categorised as other
 Funded by: Psychiatry Research Trust

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Quote: "randomly allocated" pg. 4, no detail
Allocation concealment (selection bias)	Low risk	Quote: "the randomisation administrator informed the clinical team of the group assignment. The randomisation sequence had been generated independently from the clinical team and was placed in numbered sealed envelopes" pg. 5
Blinding of participants and personnel (performance bias) All outcomes	Unclear risk	Therapists and participants cannot be blinded in trials of family-based therapy
Incomplete outcome data (attrition bias) All outcomes	High risk	<ol style="list-style-type: none"> Reasons for missing data were not clearly reported and there was no investigation of the impact of missing data on the outcome No ITT analysis There were large amounts of missing data for the secondary outcomes
Selective reporting (reporting bias)	Low risk	<ol style="list-style-type: none"> Means and SDs for all measures stated in the Methods section were reported There is no remission measure included
Other bias	Unclear risk	<ol style="list-style-type: none"> Baseline imbalance - numbers of participants living with parents Therapist delivered both interventions Unclear reporting of dropouts/missing data In text report 2 family randomised to FDW received IFW but were analysed according to randomisation In Figure 5 flow chart it is evident that one other family received work but refused assessment, but figure indicates that there are primary outcome measure data for the full 25 randomised (notes suggest BMI was obtained from clinical notes) Figure 5 also indicates 3 families randomised to IFW did not receive this intervention and it is unclear how they were analysed In the IFW group only 22 of the 23 randomised had primary outcome measured For the 3-year follow-up, Figure 5 indicates 23 out of 25 had data for the primary outcome in the FDW group, and 21 of 23 had data for the primary outcome Far fewer had data for the secondary outcomes Numbers also vary between Figure 5 and Table 4 BMI was often obtained through participant notes, and it is unclear if this assessment was blinded

ABW: average body weight; BFT: behavioural family therapy; BMI: body mass index; BN: bulimia nervosa; BPRS-E: brief psychiatric rating scale-expanded; CBT: cognitive behavioural therapy; CCEI: Crown-Crisp experimental index; CDI: children's depression inventory; CYBOCS: children's Yale-Brown obsessive-compulsive scale; DASS: depression, anxiety and stress scale; DICA: diagnostic interview for children and adolescents; DP: day patient; EAT: eating attitudes test; EDE: eating disorder examination; EDI: eating disorder inventory; EDS: eating disorder scale; EFS: family health scale; FAD: family assessment device; FBT: family-based therapy; GOAS: global outcome assessment scale; IBC: interactive behaviour code; HAMD: Hamilton depression scale; HRQ: helping relationship questionnaire; IBW: ideal body weight; IP: inpatient; ITT: intention-to-treat; LOCF: last observation carried forward; MDD: major depressive disorder; MI: motivational interviewing; MMPW: mean matched population weight; MRAOF: Morgan-Russell outcome scale; MRGAS: Morgan-Russell global assessment scale; MRS: Morgan Russell scale; OC: observed case; OP: outpatient; PVA: parent versus anorexia; RSE: Rosenberg self-esteem (scale); SAS: social adjustment scale; SCFI: standardised clinical family interview; SCL-90-R: symptom check list-revised; SD: standard deviation; SEED: short evaluation of eating disorders; STAI: state-trait anxiety inventory; SyFT: systematic family therapy; TAU: treatment as usual; TSPE: Therapy suitability and patient expectancy; YBCSEDS: Yale-Brown-Cornell eating disorder scale

Characteristics of excluded studies [ordered by study ID]

Study	Reason for exclusion
Attia 2012	Not an RCT
Buddeberg 1979	2 case histories presented
Ciao 2015	Not Anorexia Nervosa
Dalle Grave 2010	Not family therapy, describes but does not report on RCT
Fettes 1992	Not Anorexia Nervosa
George 1997	Not an RCT
Gilbert 2008	Not an RCT
Goddard 2013	Not family therapy
Gowers 2010	Not family therapy
Karwautz 2015	Not family therapy
Keshen 2013	Not family therapy
Le Grange 2005a	Not an RCT
Loeb 2007	Not an RCT
Perkins 2005	Not Anorexia Nervosa
Reyes-Rodriguez 2011	Not Anorexia Nervosa
Salbach 2006	Not an RCT
Schmidt 2005	Not Anorexia Nervosa (participants are carers)
Schmidt 2013	Not family therapy
Slagerman 1989	Not an RCT
Spettigue 2015	Not family therapy

Study	Reason for exclusion
Treasure 2006	Not family therapy
Treasure 2007	Not an RCT
Vandereycken 1977	Not family therapy
Vandereycken 1978	Not family therapy
Wallin 2000	All participants received family therapy and were randomised to receive individual body awareness therapy
Whitney 2012b	Not Anorexia Nervosa (participants are carers)
Woidislawsky 1996	Not family therapy. Mixed sample - unable to separate AN data

Characteristics of studies awaiting assessment [ordered by study ID]

Bulik 2009

Methods	Randomised parallel assignment
Participants	<p>Inclusion Criteria:</p> <ul style="list-style-type: none"> • Anorexia Nervosa • 18 years and older • BMI of 16 or higher • In a committed relationship with a partner for 1 year or longer and currently living together <p>Exclusion Criteria:</p> <ul style="list-style-type: none"> • Alcohol or drug dependence in past year • Current significant suicidal ideation • Developmental disability that would impair the ability of the participant to benefit from the intervention • Psychosis • BMI less than 16
Interventions	<p>Intervention group 1</p> <p><u>Description:</u> CBCT. CBCT consists of 1-hour weekly sessions between a couple and a therapist. In this programme, couples learn about ways to communicate about their relationship in the context of experiencing anorexia nervosa. CBCT focuses on couple-specific skills such as communication and targets relationship domains such as exercise, body image and sexuality, eating together as a couple, and broader relationship concerns outside of anorexia nervosa</p> <p><u>Length:</u> 20 weeks</p> <p>Intervention group 2</p> <p><u>Description:</u> Family supportive therapy</p> <p>Couples meet once a week for an hour for couples therapy. Family supportive therapy is not manualised and is the standard form of care at the UNC Eating Disorders Programme</p> <p><u>Length:</u> 20 weeks</p>

Bulik 2009 *(Continued)*

Outcomes	Not provided
Notes	clinicaltrials.gov/show/NCT00928109

Dimitropoulos 2014

Methods	Randomised parallel assignment
Participants	<p>Inclusion criteria:</p> <ul style="list-style-type: none"> • 16 years of age and over • Any patient attending the eating disorders programme at University Health Network, Toronto General Hospital and their family members over the age of 16 (siblings, parents, partners) <p>Exclusion criteria:</p> <ul style="list-style-type: none"> • Current family violence
Interventions	<p>Intervention group 1</p> <p><u>Description:</u> Multi-family therapy</p> <p>Involves 8 - 10 families who meet as a group with 2 therapists for a duration of 8 x 1½-hour sessions. Group topics are set and cover material on eating disorder psychoeducation, caregiving styles, meal support and relapse prevention.</p> <p><u>Length:</u> ~ 8 weeks</p> <p>Intervention group 2</p> <p><u>Description:</u> Supportive family therapy</p> <p>Families meet independently with a therapist once a week for 1-hour session of supportive counselling. The length of the therapy and the topics of therapy are decided upon collaboratively with the therapist and the family.</p> <p><u>Length:</u> ~ 10 weeks</p>
Outcomes	<p>Primary outcomes:</p> <ol style="list-style-type: none"> 1. Dropouts 2. Change in weight <p>Secondary outcomes:</p> <ol style="list-style-type: none"> 1. Change in caregiver functioning
Notes	clinicaltrials.gov/show/NCT02106728 [Study results available, July 2016]

Eisler 2006

Methods	Multi-centre randomised treatment trial
Participants	Participants are referred to 5 eating disorder services (South London and Maudsley NHS Trust, St Georges and South West London NHS Trust , Blackwater Valley Primary Health Care Trust, Cen-

Eisler 2006 (Continued)

tral & Northwest London Trust, The Child and Adolescent Eating Disorder Service of the Royal Free Hampstead Trust)

Inclusion criteria

- Aged 13 to 20 years old
- DSM-IV criteria for anorexia nervosa or eating disorders not otherwise specified and who are aged between 13 and 20 years.

Exclusion criteria:

- In care
- With learning disabilities
- Psychosis or alcohol/substance dependence
- With medical conditions that may lead to significant weight loss (e.g. Crohn's disease)

Interventions
Intervention group 1

Description: Inpatient treatment

"Inpatient treatment is based around a carefully structured nursing regimen, the main aims of which are:

1. To form a therapeutic alliance
2. To achieve weight restoration

Other members of the multidisciplinary team provide additional therapeutic input depending on the needs of individual participants. Participants allocated to inpatient treatment will be admitted to a specialist Eating Disorder Unit for approximately 12 weeks. The actual length of inpatient stay will be determined by the time needed for each individual participant to reach a healthy weight. The study design, however, will limit the length of time from reaching a healthy weight to discharge from hospital to 2 weeks. Following discharge from hospital they will receive regular follow-up treatment for 6 months for themselves and their families. To ensure continuity of treatment the therapist responsible for the follow-up treatment will engage the participant and her family during the last 2 weeks of the inpatient stay" (from website: <http://www.isrctn.com/ISRCTN11275465>).

Length: 12 months (inpatient stay plus follow-up)

Intervention group 2

Description: Family-based therapy

Outpatient therapy. "These are mainly conjoint family meetings, although some individual sessions are included where appropriate (particularly with older adolescents at later stages of the treatment)" (from website: <http://www.isrctn.com/ISRCTN11275465>).

Length: 12 months

Intervention group 3

Description: Multi-family day treatment (MFTD)

"MFTD is a new treatment programme that has been developed over the past 3 years at the Maudsley Hospital and at the Eating Disorder Service in Dresden. The treatment provides a more intensive form of family intervention than the usual outpatient family therapy, but is conceptually very similar. In common with our outpatient family therapy, MFTD aims to help families rediscover their own resources by emphasising ways in which parents can take control of re-nutrition. At the same time the families are encouraged to use the group setting to explore how the eating disorder and the interactional patterns in the family have become entangled, making it difficult for the family to follow the normal developmental course of the family life-cycle. The sharing of experiences and the dynamics of the multiple family group are important components of the treatment. The treatment starts with an intensive one-week multiple family day programme for up to 6 families and is followed by a further 4 to 5 one-day meetings at 4- to 8-week intervals. Individual family meetings are scheduled in the intervals between group meetings as needed, with the overall length of treatment for each family being 12 months. A wide range of intervention techniques is used (including group, family, psycho-educational and creative techniques) with multiple family, parent or adoles-

Eisler 2006 (Continued)

cent groups as well as individual family meetings. There is also practical input around managing mealtimes and food" (from website: <http://www.isrctn.com/ISRCTN11275465>).

Length: 12 months

Outcomes

Primary outcomes:

1. Symptomatic change:
 - a. BMI (kg/m²)
 - b. SEED symptomatology
 - c. EDE
 - d. C-EDE
2. Health economic costs
 - a. Client service receipt inventory

Secondary outcomes:

1. Participants/family satisfaction questionnaire
2. Experience of caregiving

Notes

www.controlled-trials.com (2007) ISRCTN11275465

Gore-Rees 2001

Methods

Randomisation of cases of anorexia nervosa to receive any of 3 treatments

Participants

Anorexia Nervosa

Interventions

Inpatient against outpatient treatment

Outcomes

Primary Outcomes:

Composite clinical measure of physical, social and psychological outcome

Secondary Outcomes:

Percentage weight for height, family functioning, HoNOSCA score, participant and family acceptability

Notes

Jacobi 2012

Methods

Randomised controlled trial of 1 active intervention and 1 control condition

Participants

Inclusion criteria:

- Girls aged 11 to 17 with combination of selected risk factors (e.g. excessive participation in physical activities, strong weight and shape concerns) or early symptoms of AN (e.g. lower than 90% of her ideal body weight, amenorrhoea), or both

Interventions

Intervention group 1

Description: Family-oriented, internet-based intervention. The intervention consists of an online programme for parents of adolescent daughters moderated by eating disorder experts (e.g. diploma-level psychologists). Parents are educated on the danger of AN and the need to intervene to

Jacobi 2012 (Continued)

prevent this outcome. In addition, parents are encouraged to take definitive steps to intervene with any weight loss efforts (dieting, diet pills, over-exercise) in order to prevent the elaboration of these behaviours with an attendant escalation in medical and psychological problems. Additional features are an online discussion group, 2 phone calls to enable individualised feedback on the child's problems with eating, weight and shape, and referral to other resources (self-help guide, [Lock 2004](#)); in- or outpatient treatment) if necessary

Length: 6 sessions over 6 weeks

Control group

Description: Non-intervention control group

Length: 'non-intervention'

Outcomes	<p>Primary outcomes:</p> <ol style="list-style-type: none"> 1. Weight normalisation (changes in BMI) 2. Weight and shape concerns, eating concerns, restraint (restrictive eating): EDE interview <p>Secondary outcomes:</p> <ol style="list-style-type: none"> 1. Risk status (as described in inclusion criteria, questionnaire) 2. Full or partial AN diagnoses: EDE interview 3. Drive for thinness, body dissatisfaction: EDI-2 questionnaire 4. Self-esteem: RSE questionnaire 5. Depression: BDI-II questionnaire 6. Perfectionism: MPS-F questionnaire 7. Social adjustment: SAS, German version: Fragebogen zur sozialen Integration, FSI, questionnaire
Notes	<p>www.isrctn.com/ISRCTN18614564</p>

Le Grange 2005

Methods	<p>Participants in this open-label study will be randomly assigned to 1 of 3 treatment groups. Study visits will occur at baseline, immediately post-intervention, and again 6 months and 1 year post-intervention</p>
Participants	<p>Inclusion criteria:</p> <ul style="list-style-type: none"> • Adolescents aged 12 to 18 years • Meets DSM-IV criteria for anorexia nervosa <p>Exclusion criteria:</p> <ul style="list-style-type: none"> • Any psychotic illness
Interventions	<p>Intervention group 1</p> <p><u>Description</u>: Family-based therapy</p> <p>Labelled 'Standard Family Therapy' in report</p> <p><u>Length</u>: 24 hours over 12 months</p>

Le Grange 2005 (Continued)

Intervention group 2

Description: Individual adolescent-focused therapy

An ego-oriented psychotherapy treatment

Length: 24 hours over 12 months

Intervention group 3

Description: Specific family therapy (not described in report)

Length: 24 hours over 12 months

Outcomes	<p>Primary outcomes:</p> <p>1. Weight (BMI)</p> <p>Secondary outcomes:</p> <p>1. Changes in weight and shape concerns as measured with EDE subscales</p>
Notes	clinicaltrials.gov/show/NCT00183586

Lock 2014

Methods	Randomised parallel assignment
Participants	<p>Inclusion criteria:</p> <ul style="list-style-type: none"> • 11 to 19 years of age • Meets DSM-IV criteria for AN • Lives with at least 1 English-speaking parent who is willing to participate • Medically stable • Endorses obsessions/compulsions • Adequate transportation to clinic • Proficient at speaking, reading, and writing English <p>Exclusion criteria:</p> <ul style="list-style-type: none"> • Previous FBT or CRT for AN • Medical instability • Medical condition that may affect eating or weight
Interventions	<p>Intervention group 1</p> <p><u>Description:</u> Family-based therapy with CRT</p> <p><u>Length:</u> 15 sessions over 6 months</p> <p>Intervention group 2</p> <p><u>Description:</u> Family-based therapy and art therapy</p> <p><u>Length:</u> 15 sessions over 6 months</p>
Outcomes	<p>Primary outcome measures:</p> <p>1. Full remission from AN (weight restoration to at least 95% of median body weight)</p>

Lock 2014 (Continued)

Notes

clinicaltrials.gov/show/NCT02054364
Nevonen 2015

Methods	Single-centre randomised control trial
Participants	Inclusion criteria: <ul style="list-style-type: none"> • Young women aged 17 - 25
Interventions	<p>Intervention group 1</p> <p><u>Description:</u> Individual cognitive behavioural therapy (I-CBT)</p> <p>This intervention aims to target specific factors related to the eating disorder psychopathology that are involved in the development and maintenance of the disorder. The treatment is manual-based and tailored for each participant for attitudes and behaviours associated with weight, shape and eating control and general psychopathology such as perfectionism, low self-esteem and interpersonal problems. The treatment consists of sessions divided into 3 phases. Phase 1 focuses on alliance, motivation and treatment formulation. One family session is included for the purpose of educating about eating disorders and its consequences and how the family can support the participant. Phase 2 lasts for a year with 1 session a week targeting the psychopathology of the eating disorder in order to change the dysfunctional thoughts and behaviours related to eating, body image and weight</p> <p><u>Length:</u> 60 1-hour sessions over 18 months</p> <p>Intervention group 2</p> <p><u>Description:</u> Family-based therapy</p> <p>Maudsley approach.</p> <p><u>Length:</u> 40 ninety-minute sessions over 18 months</p>
Outcomes	Primary outcomes: <ol style="list-style-type: none"> 1. BMI 2. The Rating of Anorexia and Bulimia Interview-revised version (RAB-R) is a Swedish semi-structured interview for clinical and research purposes for a wide range of eating disorder symptoms and related psychopathology through which the patient receives a DSM-IV diagnosis Secondary outcomes: <ol style="list-style-type: none"> 1. Eating Disorder Inventory-3 (EDI-3) 2. Beck's Depression Inventory (BDI) 3. Family Relation Scale (FARS) 4. Inventory of Interpersonal Problems (IIP) 5. Eating Disorder Expectations and Experiences (EDPEX) 6. Body Shape Questionnaire (BSQ) 7. Treatment credibility 8. Visual Analogue Scale regarding Parental burden (VAS) 9. Rosenber Self-Esteem Scale (RSE)

Nevonen 2015 (Continued)

10. Treatment Satisfaction Scale (TSS)
11. Background questionnaire

Notes www.isrctn.com/ISRCTN25181390

Rugiu 1999

Methods	The participants selected for the study were randomly allocated to 2 groups. All patients were given clinical examinations and tests before and after the treatment
Participants	Individuals with anorexia nervosa or bulimia
Interventions	Family therapy according to a paradoxical approach (elementary Pragmatic Model) and Day Hospital integrated approach
Outcomes	The results of follow-up indicated a greater efficacy of day hospitals in bulimia and family therapy in anorexia
Notes	From CCDAN Studies Register

Zucker 2008

Methods	<p>Two-stage research design. Phase 1 will consist of focus groups comprising members of parent-training groups. Results from Phase I will be used to improve the intervention. She will then subject the improved intervention to a pilot, pre-post, randomised design to assess preliminary efficacy in Phase 2. This initial trial will lead to further enhancements of the programme, will define the populations most suited to a group parent-training model, will permit exploration of potential mechanisms of action, and will highlight additional participant needs for further treatment development.</p> <p>Allocation: Randomised Control: Active control Endpoint classification: Safety/efficacy study Intervention Model: Parallel assignment Masking: Single-blind (outcomes assessor) Primary Purpose: Treatment</p>
Participants	<p>Inclusion Criteria:</p> <ul style="list-style-type: none"> • Age 11 to 18 years old • Living at home • Meet criteria for anorexia nervosa or sub-threshold anorexia nervosa <p>Exclusion Criteria:</p> <ul style="list-style-type: none"> • Active psychosis • Current suicidality • Medically unsafe for outpatient treatment
Interventions	<p>Intervention group 1</p> <p><u>Description:</u> Group parent-training skills</p> <p>Group for parents that provides psychoeducation for eating disorder and skills in behaviour management, self-regulation, and emotion regulation</p>

Family therapy approaches for anorexia nervosa (Review)

Zucker 2008 (Continued)

Length: not stated

Intervention group 2

Description: Family-based therapy

Maudsley approach

Length: not stated

Outcomes	Primary outcomes: 1. BMI Secondary outcomes: 2. Eating disorder symptoms other than body weight
Notes	clinicaltrials.gov/ct2/show/NCT00672906

AN: anorexia nervosa; BDI: Beck depression inventory; BMI: body mass index; BSQ: body shape questionnaire; CBCT: cognitive behavioural couple therapy; C-EDE: children's eating disorder examination; CRT: cognitive remediation therapy; EDE: eating disorder examination; EDI: eating disorder inventory; EDPEX: eating disorder expectations and experience; FARS: family relation scale; FBT: family-based therapy; IIP: inventory of interpersonal problems; MPS-F: Frost multidimensional perfectionism scale; RAB-R: Rating of Anorexia and Bulimia Interview-revised version; RSE: Rosenberg self-esteem; SAS: social adjustment scale; SEED: severity of eating disorder; TSS: treatment satisfaction scale; VAS: visual analogue scale;

Characteristics of ongoing studies [ordered by study ID]

Bilyk 2017

Trial name or title	Effectiveness of a Cognitive Behavioral Management Pilot Program in a sample of Brazilian adolescents with Anorexia Nervosa
Methods	Clinical treatment trial, parallel, open, non-randomized controlled with two arms.
Participants	Adolescents aged 12 to 17 with Anorexia Nervosa with significant weight loss, marked by the decrease of at least a percentile below the expected for the age, based on the body mass index (BMI) curve for age, gender and compared to the patient's weight before disease onset
Interventions	Cognitive-Behavioral Psychotherapy delivered in groups; 24 90-minute sessions. The patients also received psychiatric, nutritional and family treatment during the 6 months. Comparison group received psychiatric, nutritional and family treatment for 6 months without cognitive behavioral therapy.
Outcomes	Weight recovery based on the adequacy or improvement of the percentile expected for the age verified by the growth curve of Body Mass Index for the age of the World Health Organization, associated with decreased symptoms of Eating Disorder evaluated by decreased scores on the Questionnaire of examination for eating disorders applied in the pre-, post-intervention and follow-up.
Starting date	2015-02-04
Contact information	bacy@uol.com.br
Notes	

Bulik 2012

Trial name or title	Enhancing treatment for adult anorexia with a couple-based approach
Methods	Randomised parallel assignment
Participants	<p>Inclusion criteria</p> <ul style="list-style-type: none"> • Participants with AN must have: <ul style="list-style-type: none"> ◦ Current DSM-IV-TR criteria for AN, restricting or binge/purge subtype; BMI between 15.0 and 19.0 or sometime in the past 3 months ◦ Adequate insurance coverage to support a higher level of care including but not limited to partial hospitalisation or inpatient treatment • Both members of couple must be: <ul style="list-style-type: none"> ◦ At least 18 years of age ◦ English-speaking ◦ Involved in a committed relationship for at least 6 months, regardless of sexual orientation ◦ Willing to participate in treatment <p>Exclusion criteria</p> <ul style="list-style-type: none"> • Unwilling to suspend other treatment for AN for the duration of the study • Partner cannot meet: current DSM-IV-TR criteria for AN, restricting or binge/purge subtype. Couples in which both individuals have a diagnosis of AN will be excluded • Neither member of couple can have: <ul style="list-style-type: none"> ◦ Alcohol or drug dependence in past year ◦ Current significant suicidal ideation (from interview or depression assessment) ◦ Severe depression that would seriously interfere with functional capacity, as judged by the PIs or study physician ◦ Developmental disability that would impair the ability to benefit from the intervention ◦ Any psychosis, schizophrenia, or bipolar I disorder unless stably remitted on maintenance therapy for at least 1 year ◦ Moderate to high levels of physical violence from participant/partner as reported during baseline interview ◦ Previously participated in the UCAN couple treatment condition in the preliminary couples treatment study (#07-1429. UCAN: Uniting Couples (in the treatment of) Anorexia Nervosa)
Interventions	<p>Intervention group 1</p> <p><u>Description:</u> Uniting Couples in the Treatment of Anorexia Nervosa (UCAN) + Cognitive Behavioural Therapy (CBT)</p> <p>This condition includes 22 UCAN sessions and 22 CBT sessions, totaling 44 psychotherapy sessions. UCAN is a manualised, 22-session Cognitive Behavioral Couple Therapy (CBCT) intervention that engages the couple to target the core psychopathology of AN and address the uniquely challenging stress that AN places on intimate relationships. The CBT proposed for this study is a 22-session adaptation of the manualised intervention that has been employed successfully as an outpatient post-hospitalisation therapy and in an National Institute of Mental Health multi-site study of fluoxetine with elements from the CBT manual used in McIntosh 2005.</p> <p>Intervention group 2</p> <p><u>Description:</u> CBT</p> <p>In this condition, participants will receive a higher "dose" of individual CBT, with 44 total sessions. Our experience with patients in the pilot strongly suggests that a higher dose of CBT will allow for further, fruitful discussion and exploration of key individual issues and is unlikely to be experienced as diluted or a slow approach to treatment. Most of these patients have complicated histories, long-standing eating disorders, and complex comorbid conditions.</p>
Outcomes	Primary outcomes:

Bulik 2012 (Continued)

1. Change in BMI from baseline through 12 month follow-up
 2. Change in Global EDE Scores from baseline through 12 month follow-up
- Secondary outcomes:
1. Dropout (the percentage of individuals who withdrew participation from treatment)
 2. Treatment satisfaction scores as measured with the CSQ
 3. Relationship satisfaction as measured with the DAS and DAS-4 (measures extent to which someone is happy in his or her relationship)
- Other outcomes:
1. Cost effectiveness ratio (= the ratio of the change in costs to incremental benefits of a therapeutic intervention or treatment. It will be calculated using data from the MFED)

Starting date	July 2012
Contact information	Camden Matherne, Ph.D; ph: 9119-843-2483; email: ucan @unc.edu
Notes	clinicaltrials.gov/show/NCT01740752

Carrot 2017

Trial name or title	Family Therapy and Anorexia Nervosa : Which is the Best Approach? (THERAFAMBEST)
Methods	Non inferiority randomised trial
Participants	13 to 19 year olds; Anorexia Nervosa according to DSM-5 criteria
Interventions	Multiple Family Therapy (MFT) within a multi-disciplinary treatment program for Anorexia Nervosa (AN) versus single Systemic Family Therapy (SyFT)
Outcomes	Change from baseline Body Mass Index (Weight in KG / Height in m ²) at 12 months
Starting date	January 8, 2018
Contact information	benjamin.carrot@imm.fr
Notes	

Hildebrandt 2016

Trial name or title	Reward Systems and Food Avoidance in Eating Disorders
Methods	Randomised controlled trial
Participants	12 to 18 year olds; Refusal to maintain greater than minimally low body weight based on BMI for age percentiles and growth trajectories; Clinically significant restriction of food intake on the dietary restraint subscale of the EDE or evidence of persistent food avoidance as reported by patient or guardians
Interventions	Interceptive Exposure (IE) versus Family-Based Therapy (FBT))

Family therapy approaches for anorexia nervosa (Review)

Hildebrandt 2016 *(Continued)*

Outcomes	fMRI-EMG: Change in the emotional responses from facial muscle movements to food pictures and non-food pictures as measured with the fMRI-EMG; KCal Intake; Eating Disorder Examination (EDE); Clinical Impairment Assessment; Anxiety Sensitivity Index-III
Starting date	November 2016
Contact information	tom.hildebrandt@mssm.edu ; robyn.sysko@mssm.edu
Notes	

Lock 2017

Trial name or title	Adaptive Treatment for Adolescent Anorexia Nervosa
Methods	Randomized controlled trial using an adaptive design
Participants	12 to 18 year olds; living with participants' families; meeting DSM-5 criteria for AN (both subtypes) except for the amenorrhea requirement; medically stable for outpatient treatment according to the recommended thresholds of the American Academy of Pediatrics and the Society of Adolescent Medicine
Interventions	Standard Family Based Treatment (FBT) to adaptive FBT with an Intensive Parental Coaching (IPC) component
Outcomes	Estimated Body Weight (EBW) [Time Frame: following 9 months of treatment]
Starting date	
Contact information	mvierhil@stanford.edu
Notes	September 1, 2017

McCormack 2014

Trial name or title	Know and grow: An investigation into parent and family involvement in eating disorder treatment
Methods	Randomised controlled trial
Participants	<p>Inclusion criteria:</p> <ul style="list-style-type: none"> • 8 to 16 years of age • Eating disorder diagnosis • Be engaged in treatment at the study site <p>Exclusion criteria:</p> <ul style="list-style-type: none"> • Not living with parent • No eating disorder diagnosis • Active major psychiatric disorder in child or parent • Non-English-speaking child or parent.
Interventions	Intervention group 1

McCormack 2014 (Continued)

Description: Parent skills training (otherwise known as Collaborative Caring for Loved Ones with an Eating Disorder)

This intervention uses parent-training skills based on motivational interviewing, behavioural analysis, cognitive and interpersonal therapy, dialectical behavioural therapy, problem-solving skills, and psychoeducation. It is delivered in a group therapeutic workshop face-to-face format with mental health practitioner

Length: 12 hours of workshop content delivered over 2 consecutive days

Intervention group 2

Description: Treatment as usual

This means standard treatment at the study site delivered by a multidisciplinary team and includes medical and psychological care and education services

Length: not stated

Outcomes	<p>Primary outcome measures:</p> <ol style="list-style-type: none"> 1. Global Eating Disorder Psychopathology using scores on the EDE 2. Child self-esteem using scores on the RSE scale 3. Family Functioning measured by the Family Assessment Device and the Inventory of Parent and Peer Attachment. <p>Secondary outcome measures:</p> <ol style="list-style-type: none"> 1. Childhood medical status and measured by BMI, Body fat percentage, mid-upper arm circumference, ferritin, insulin-like growth factor and amenorrhoea status (self and parent report) as measured and calculated by paediatrician during medical examination including laboratory blood tests and BODPOD assessments 2. Child levels of depression and anxiety as measured by the Children's Depression Inventory and the Multidimensional Anxiety Scale for Children 3. Carer Distress as measured by the DASS 4. Parent care-giving burden as measured by the Experience of Care-giving Inventory 5. Quality of life as measured by the Child Health Questionnaire and the Quality of life Enjoyment and Satisfaction Questionnaire 6. Expressed Emotion as measured by the Family Questionnaire
Starting date	February 2015
Contact information	Ms Julie McCormack, Princess Margaret Hospital, Roberts Road, Subiaco 6008 WA, Australia. +61 8 9340 7012. julie.mccormack@health.wa.gov.au
Notes	<p>www.anzctr.org.au/ACTRN12614001296628</p> <p>2014</p>

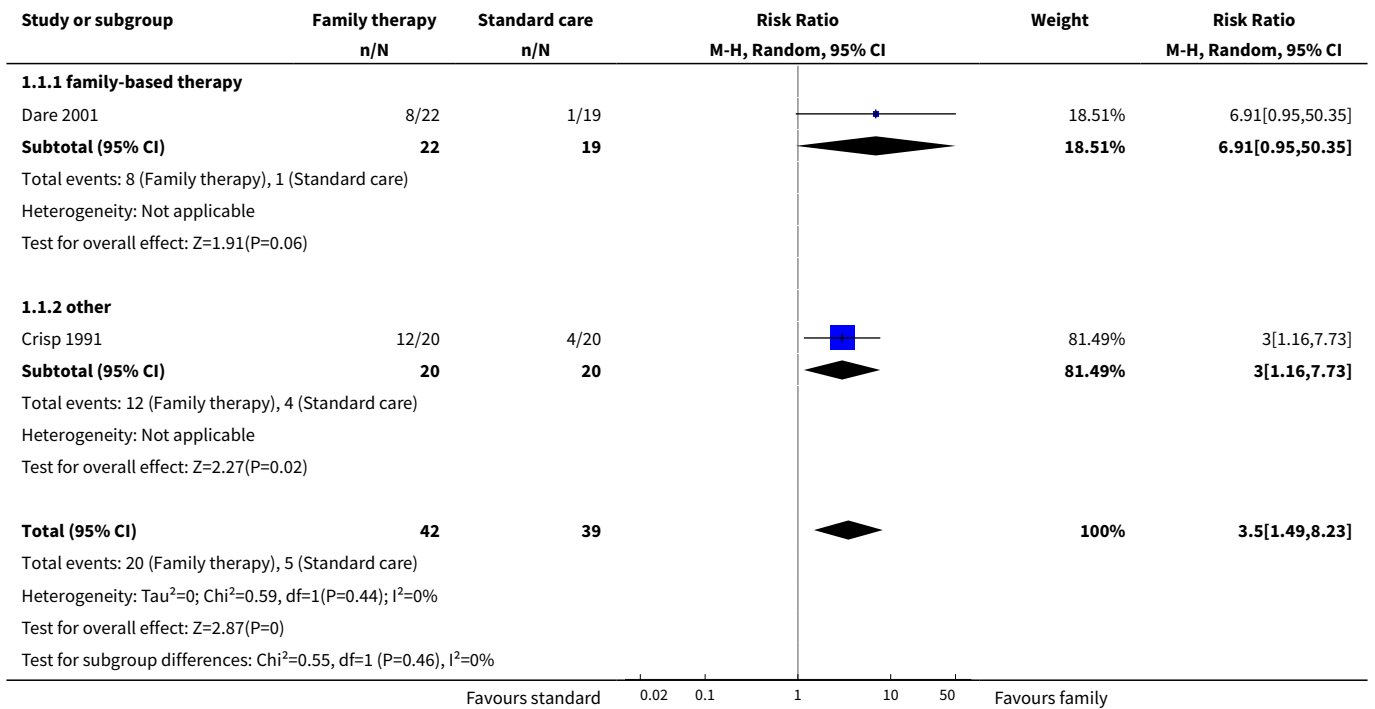
BMI: body mass index; EDE: eating disorder examination; CBCT: cognitive behavioural couples therapy; CSQ: client satisfaction questionnaire; DASS: depression, anxiety and stress scale; MFED: McKnight follow-up of eating disorders; RSE: Rosenberg self-esteem

DATA AND ANALYSES

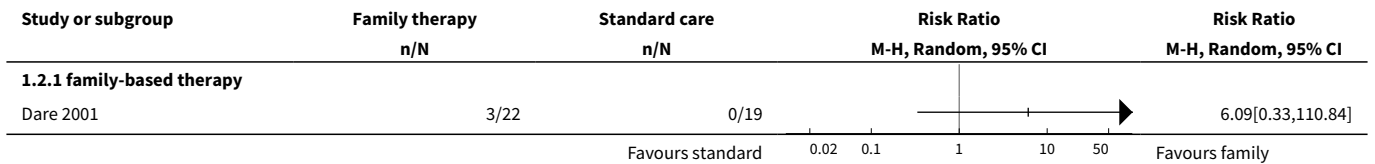
Comparison 1. Family therapy approaches vs standard care/treatment as usual

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission post-intervention	2	81	Risk Ratio (M-H, Random, 95% CI)	3.50 [1.49, 8.23]
1.1 family-based therapy	1	41	Risk Ratio (M-H, Random, 95% CI)	6.91 [0.95, 50.35]
1.2 other	1	40	Risk Ratio (M-H, Random, 95% CI)	3.0 [1.16, 7.73]
2 Remission long-term follow-up	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
2.1 family-based therapy	1		Risk Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
3 General Functioning	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
3.1 Other	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4 Dropouts during therapy	3	137	Risk Ratio (M-H, Random, 95% CI)	1.01 [0.44, 2.34]
4.1 systems family therapy	1	36	Risk Ratio (M-H, Random, 95% CI)	0.58 [0.11, 2.96]
4.2 family-based therapy	1	41	Risk Ratio (M-H, Random, 95% CI)	1.15 [0.29, 4.51]
4.3 Other	1	60	Risk Ratio (M-H, Random, 95% CI)	1.33 [0.33, 5.45]
5 Eating disorder psychopathology post-intervention	2	109	Std. Mean Difference (IV, Random, 95% CI)	-0.11 [-0.49, 0.27]
5.1 other	2	109	Std. Mean Difference (IV, Random, 95% CI)	-0.11 [-0.49, 0.27]
6 Weight (BMI)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
6.1 Other	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
7 Relapse during treatment	2	100	Risk Ratio (M-H, Random, 95% CI)	0.65 [0.37, 1.15]
7.1 family-based therapy	1	41	Risk Ratio (M-H, Random, 95% CI)	0.52 [0.14, 1.89]
7.2 Other	1	59	Risk Ratio (M-H, Random, 95% CI)	0.69 [0.37, 1.30]

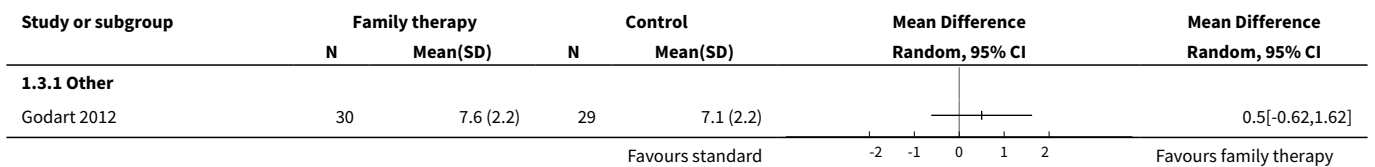
Analysis 1.1. Comparison 1 Family therapy approaches vs standard care/treatment as usual, Outcome 1 Remission post-intervention.



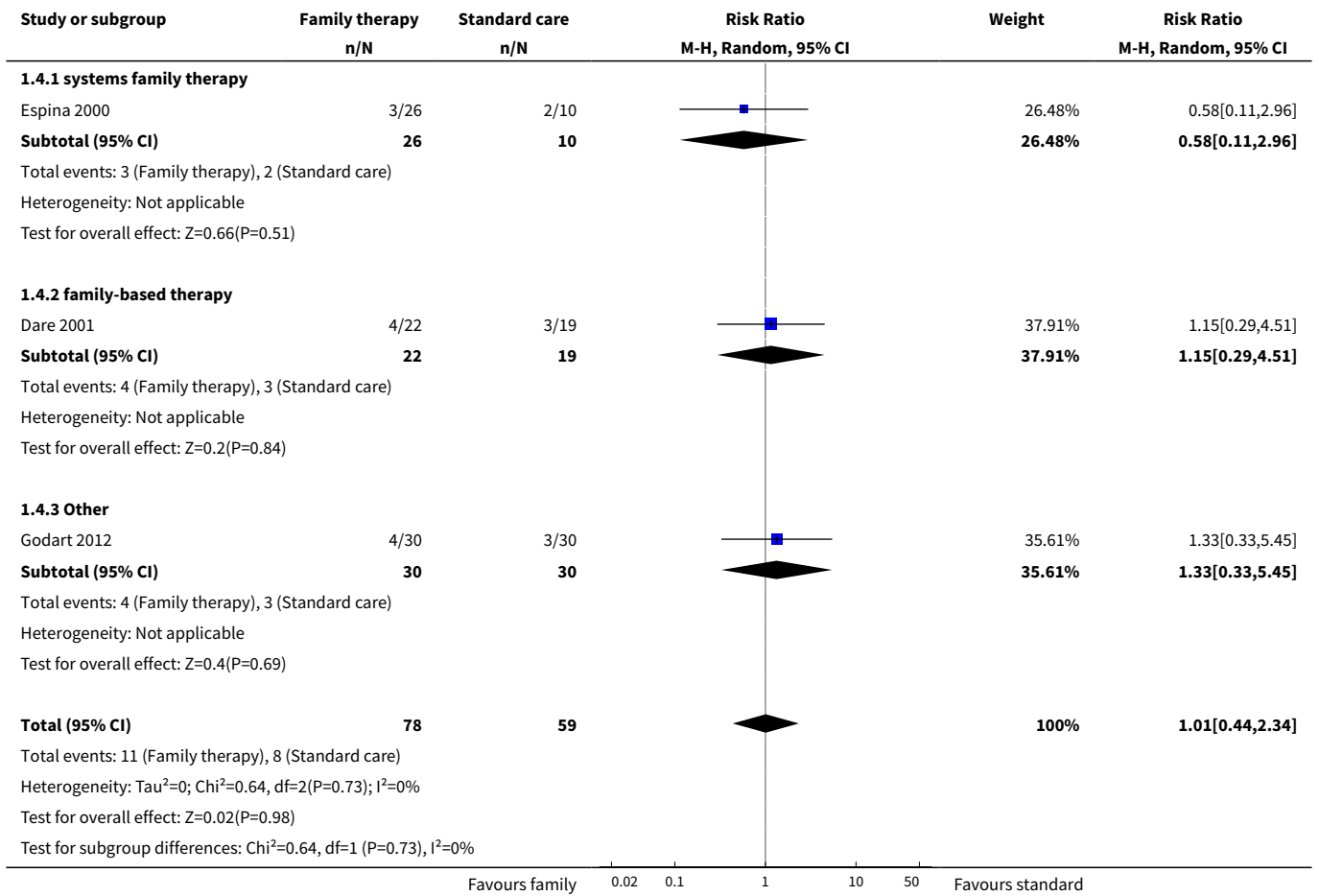
Analysis 1.2. Comparison 1 Family therapy approaches vs standard care/treatment as usual, Outcome 2 Remission long-term follow-up.



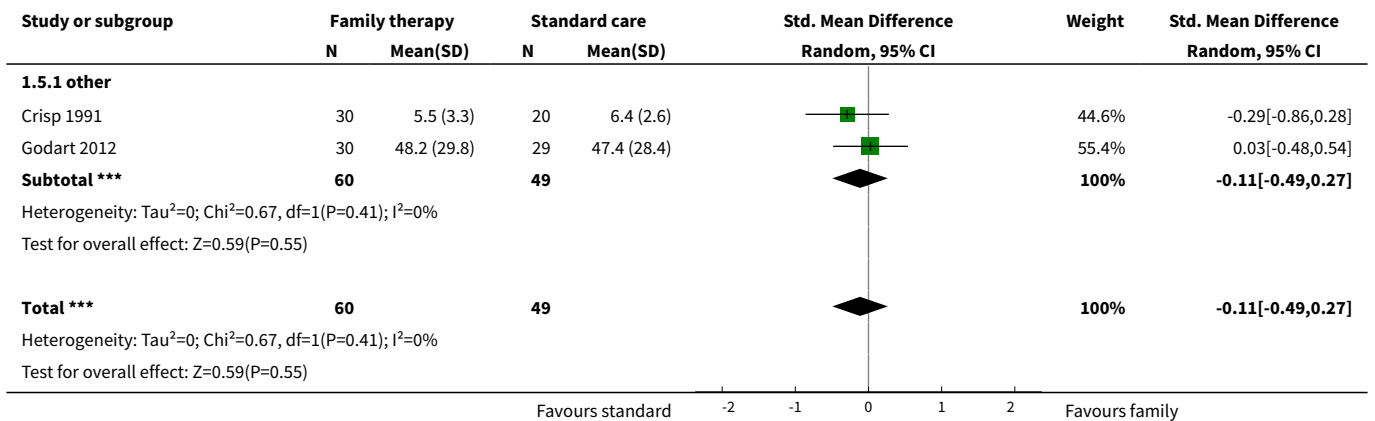
Analysis 1.3. Comparison 1 Family therapy approaches vs standard care/treatment as usual, Outcome 3 General Functioning.



Analysis 1.4. Comparison 1 Family therapy approaches vs standard care/treatment as usual, Outcome 4 Dropouts during therapy.



Analysis 1.5. Comparison 1 Family therapy approaches vs standard care/treatment as usual, Outcome 5 Eating disorder psychopathology post-intervention.



Analysis 1.6. Comparison 1 Family therapy approaches vs standard care/treatment as usual, Outcome 6 Weight (BMI).

Study or subgroup	Family therapy		Control		Mean Difference Random, 95% CI	Mean Difference Random, 95% CI
	N	Mean(SD)	N	Mean(SD)		
1.6.1 Other						
Godart 2012	30	17.8 (2.1)	29	17.4 (2.4)		0.4[-0.75,1.55]
					Favours standard -2 -1 0 1 2	Favours family therapy

Analysis 1.7. Comparison 1 Family therapy approaches vs standard care/treatment as usual, Outcome 7 Relapse during treatment.

Study or subgroup	Family therapy n/N	Standard Care n/N	Risk Ratio M-H, Random, 95% CI	Weight	Risk Ratio M-H, Random, 95% CI
Dare 2001	3/22	5/19		19.23%	0.52[0.14,1.89]
Subtotal (95% CI)	22	19		19.23%	0.52[0.14,1.89]
Total events: 3 (Family therapy), 5 (Standard Care)					
Heterogeneity: Not applicable					
Test for overall effect: Z=1(P=0.32)					
1.7.2 Other					
Godart 2012	10/30	14/29		80.77%	0.69[0.37,1.3]
Subtotal (95% CI)	30	29		80.77%	0.69[0.37,1.3]
Total events: 10 (Family therapy), 14 (Standard Care)					
Heterogeneity: Not applicable					
Test for overall effect: Z=1.15(P=0.25)					
Total (95% CI)	52	48		100%	0.65[0.37,1.15]
Total events: 13 (Family therapy), 19 (Standard Care)					
Heterogeneity: Tau ² =0; Chi ² =0.16, df=1(P=0.69); I ² =0%					
Test for overall effect: Z=1.47(P=0.14)					
Test for subgroup differences: Chi ² =0.15, df=1 (P=0.7), I ² =0%					
			Favours family 0.02 0.1 1 10 50 Favours standard		

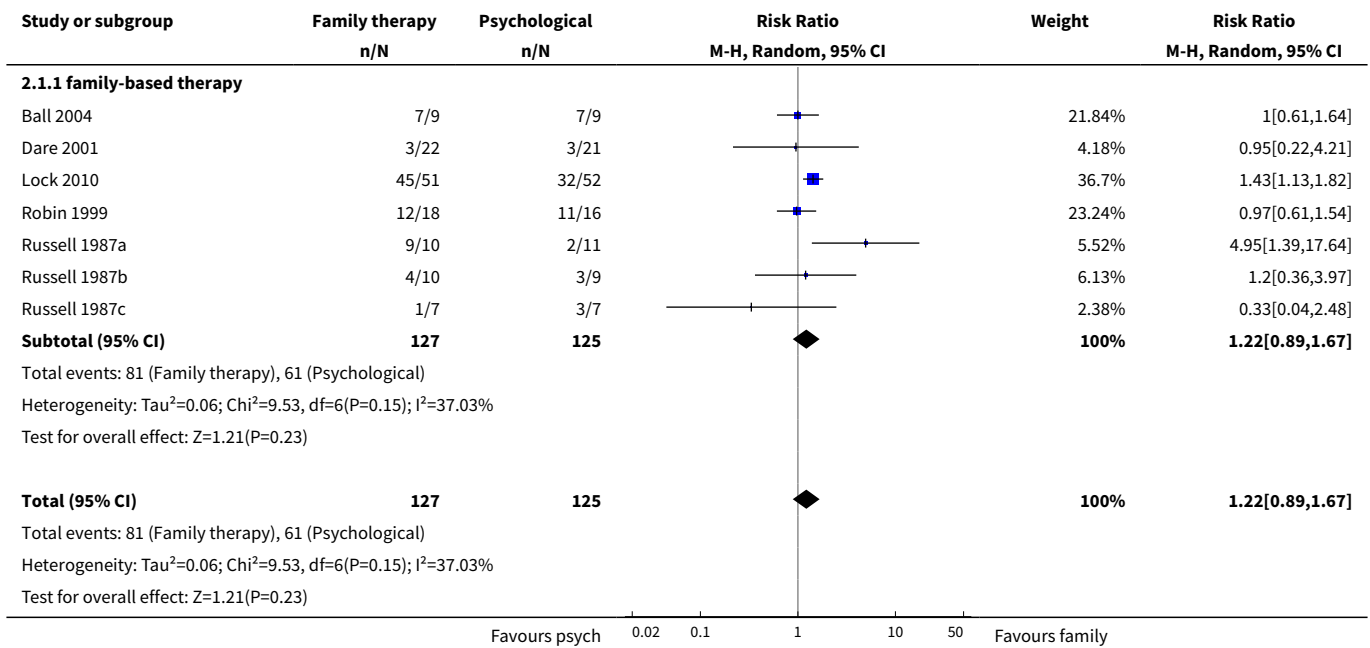
Comparison 2. Family therapy approaches vs psychological interventions

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission post-intervention	7	252	Risk Ratio (M-H, Random, 95% CI)	1.22 [0.89, 1.67]
1.1 family-based therapy	7	252	Risk Ratio (M-H, Random, 95% CI)	1.22 [0.89, 1.67]
2 Remission short-term follow-up	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
2.1 family-based therapy	1		Risk Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
3 Remission long-term follow-up	6	200	Risk Ratio (M-H, Random, 95% CI)	1.08 [0.91, 1.28]

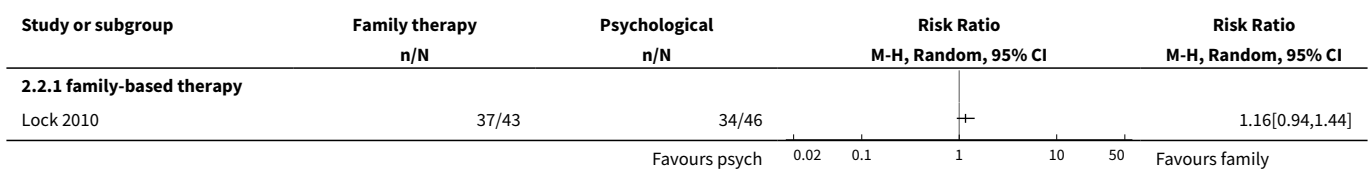
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
3.1 family-based therapy	6	200	Risk Ratio (M-H, Random, 95% CI)	1.08 [0.91, 1.28]
4 Dropouts during treatment	6	229	Risk Ratio (M-H, Random, 95% CI)	1.13 [0.46, 2.78]
4.1 family-based therapy	6	229	Risk Ratio (M-H, Random, 95% CI)	1.13 [0.46, 2.78]
5 Eating disorder psychopathology post-intervention	7	262	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.32, 0.66]
5.1 family-based therapy	6	212	Std. Mean Difference (IV, Random, 95% CI)	0.25 [-0.32, 0.83]
5.2 other	1	50	Std. Mean Difference (IV, Random, 95% CI)	-0.21 [-0.78, 0.35]
6 Eating disorder psychopathology short-term follow-up	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
6.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
7 Eating disorder psychopathology long-term follow-up	6	197	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.50, 0.47]
7.1 family based therapy	6	197	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.50, 0.47]
8 Weight (BMI, BMI%ile, %ABW) post-intervention	6	210	Std. Mean Difference (IV, Random, 95% CI)	0.32 [0.01, 0.63]
8.1 family-based therapy	6	210	Std. Mean Difference (IV, Random, 95% CI)	0.32 [0.01, 0.63]
9 Weight (BMI%ile) short-term follow-up	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
9.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
10 Weight (BMI, BMI%ile, %ABW) long-term follow-up	6	198	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.16, 0.45]
10.1 family-based therapy	6	198	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.16, 0.45]
11 Relapse during treatment	4	101	Risk Ratio (M-H, Random, 95% CI)	1.06 [0.54, 2.08]
11.1 family-based therapy	4	101	Risk Ratio (M-H, Random, 95% CI)	1.06 [0.54, 2.08]
12 Relapse long-term follow-up	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
12.1 Family based therapy	1		Risk Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]

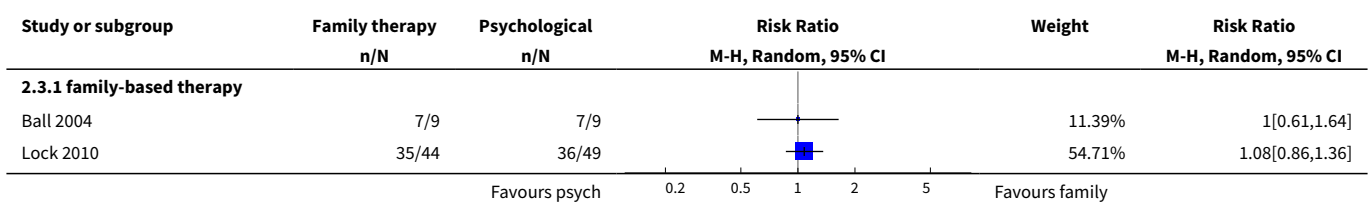
Analysis 2.1. Comparison 2 Family therapy approaches vs psychological interventions, Outcome 1 Remission post-intervention.

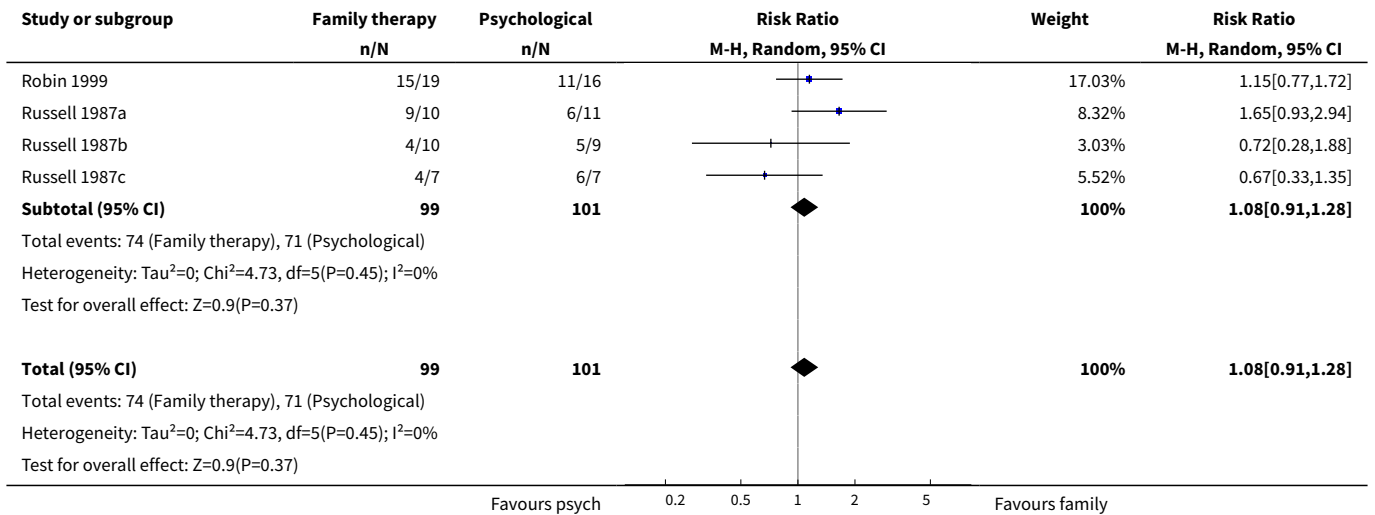


Analysis 2.2. Comparison 2 Family therapy approaches vs psychological interventions, Outcome 2 Remission short-term follow-up.

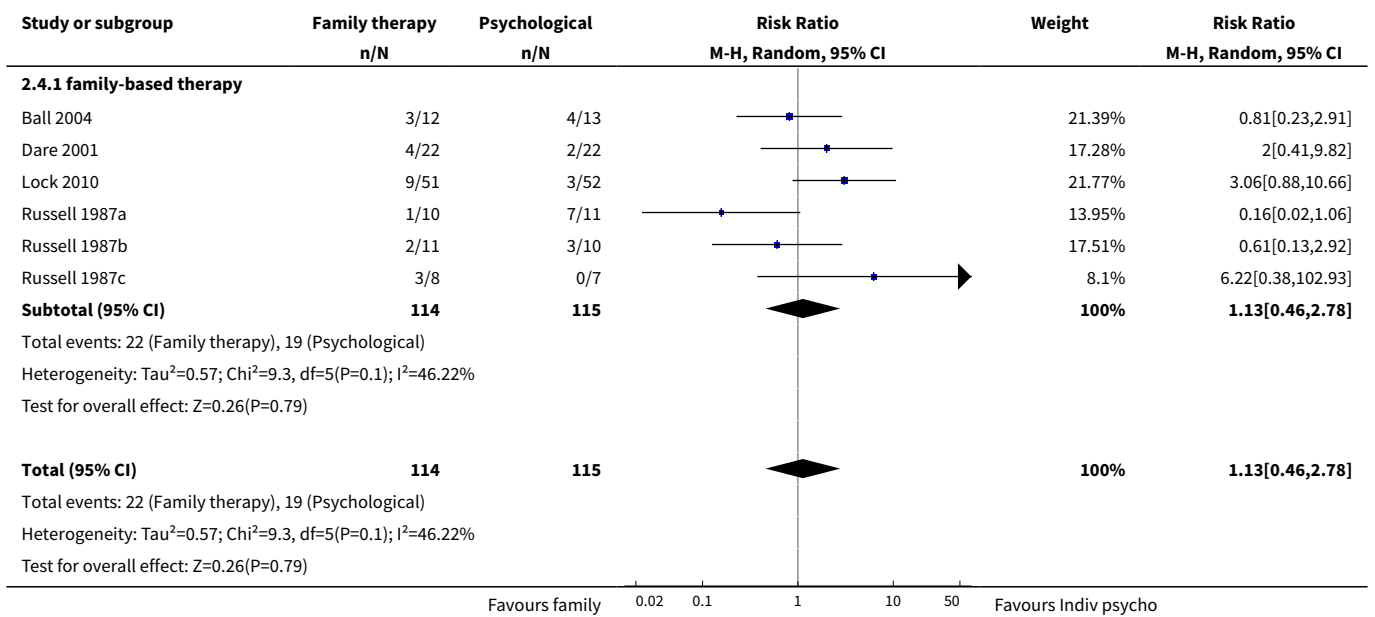


Analysis 2.3. Comparison 2 Family therapy approaches vs psychological interventions, Outcome 3 Remission long-term follow-up.

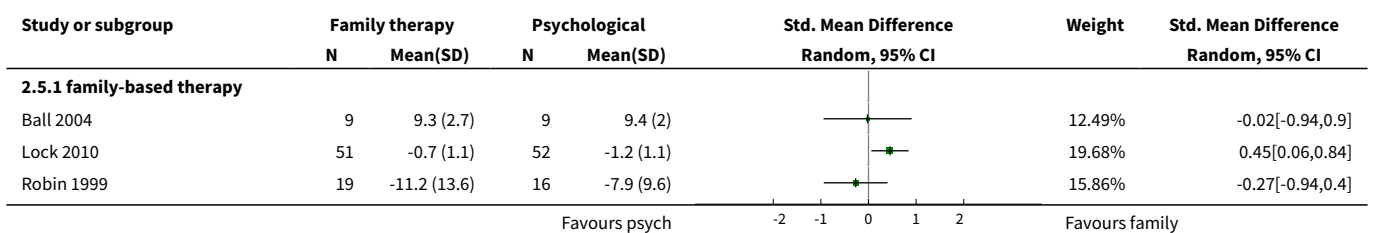


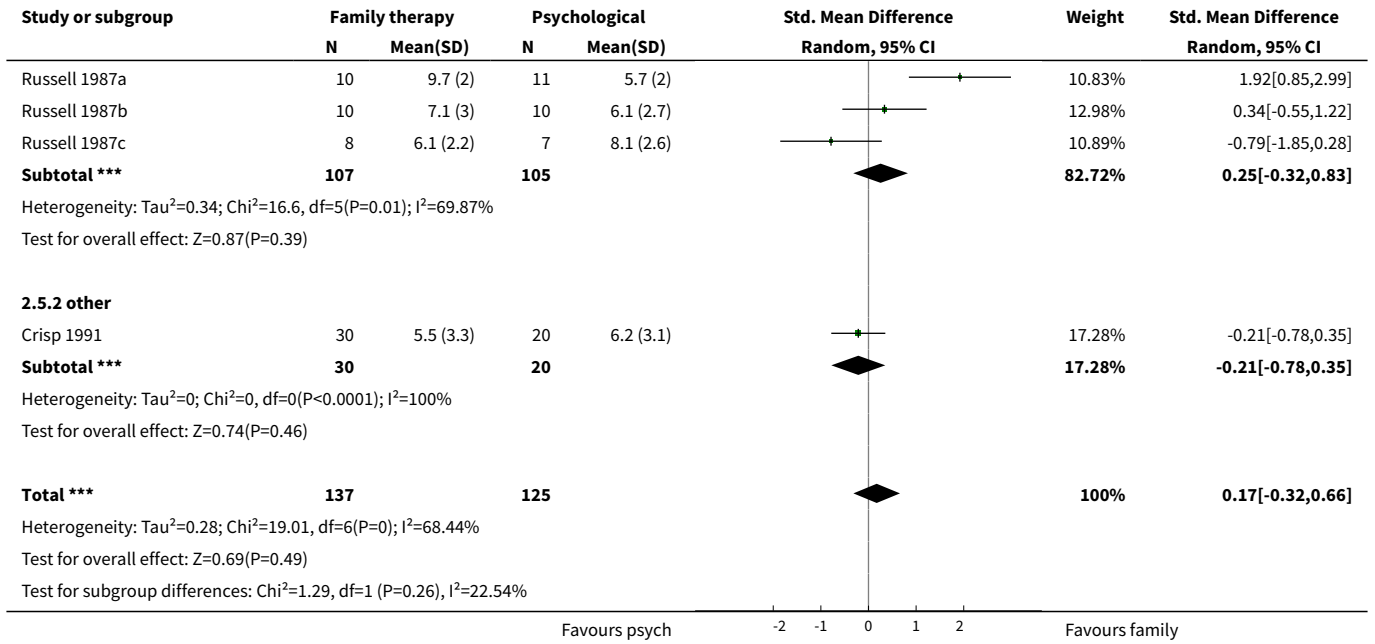


Analysis 2.4. Comparison 2 Family therapy approaches vs psychological interventions, Outcome 4 Dropouts during treatment.

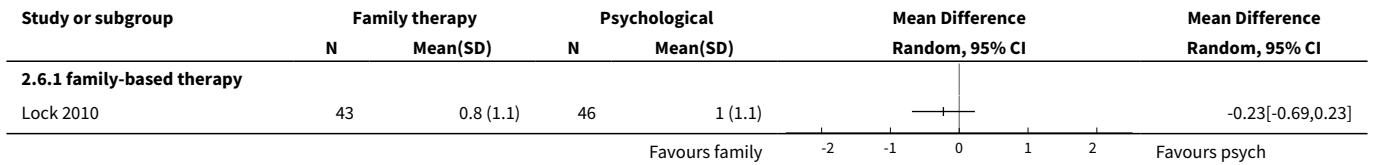


Analysis 2.5. Comparison 2 Family therapy approaches vs psychological interventions, Outcome 5 Eating disorder psychopathology post-intervention.

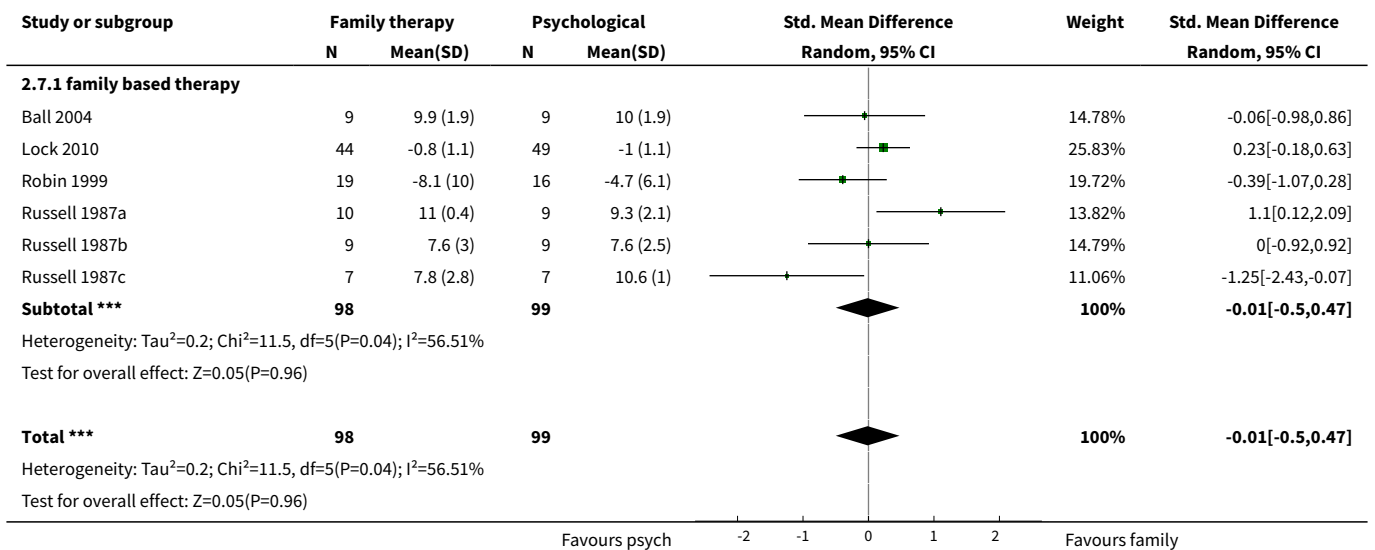




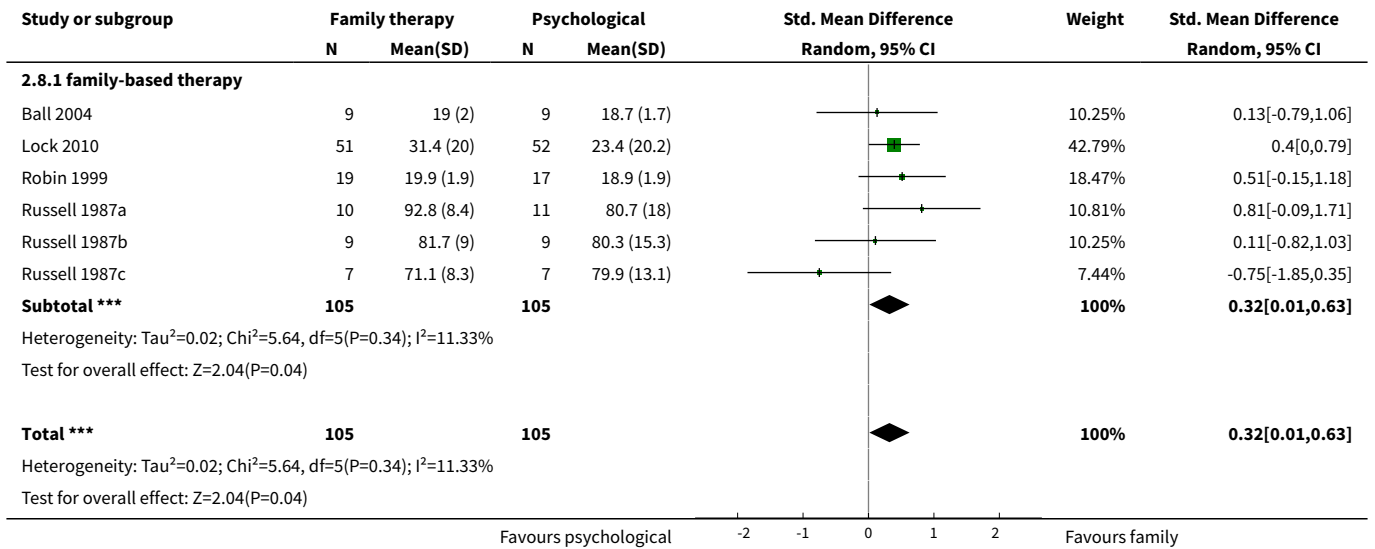
Analysis 2.6. Comparison 2 Family therapy approaches vs psychological interventions, Outcome 6 Eating disorder psychopathology short-term follow-up.



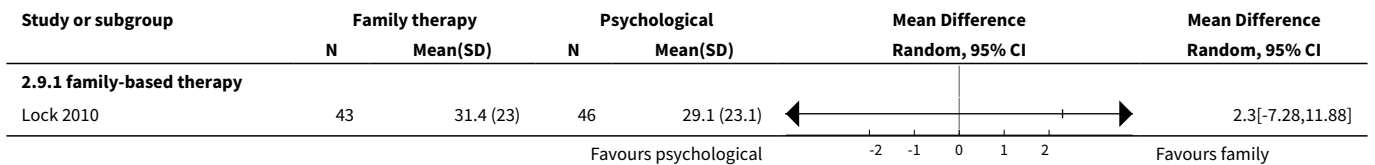
Analysis 2.7. Comparison 2 Family therapy approaches vs psychological interventions, Outcome 7 Eating disorder psychopathology long-term follow-up.



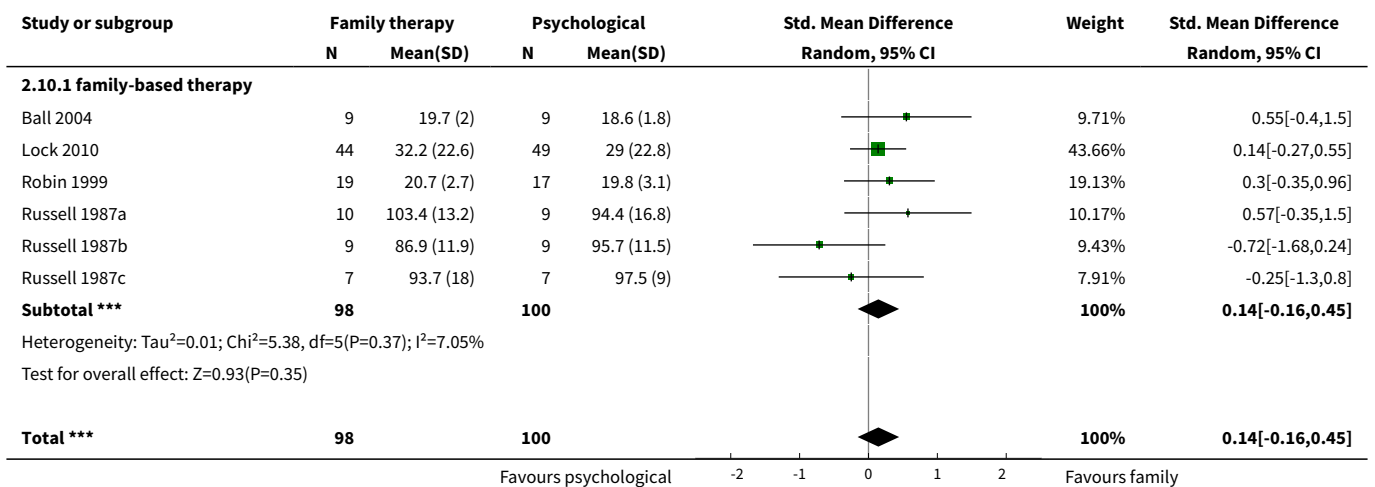
Analysis 2.8. Comparison 2 Family therapy approaches vs psychological interventions, Outcome 8 Weight (BMI, BMI%ile, %ABW) post-intervention.

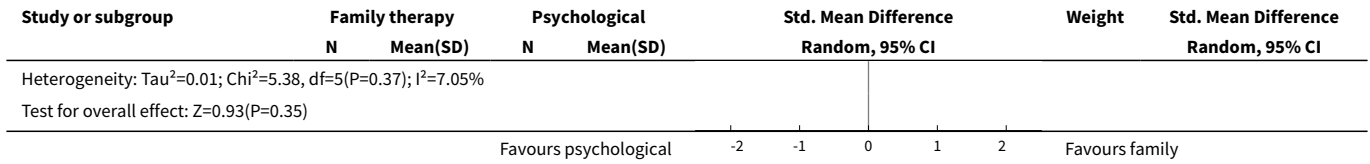


Analysis 2.9. Comparison 2 Family therapy approaches vs psychological interventions, Outcome 9 Weight (BMI%ile) short-term follow-up.

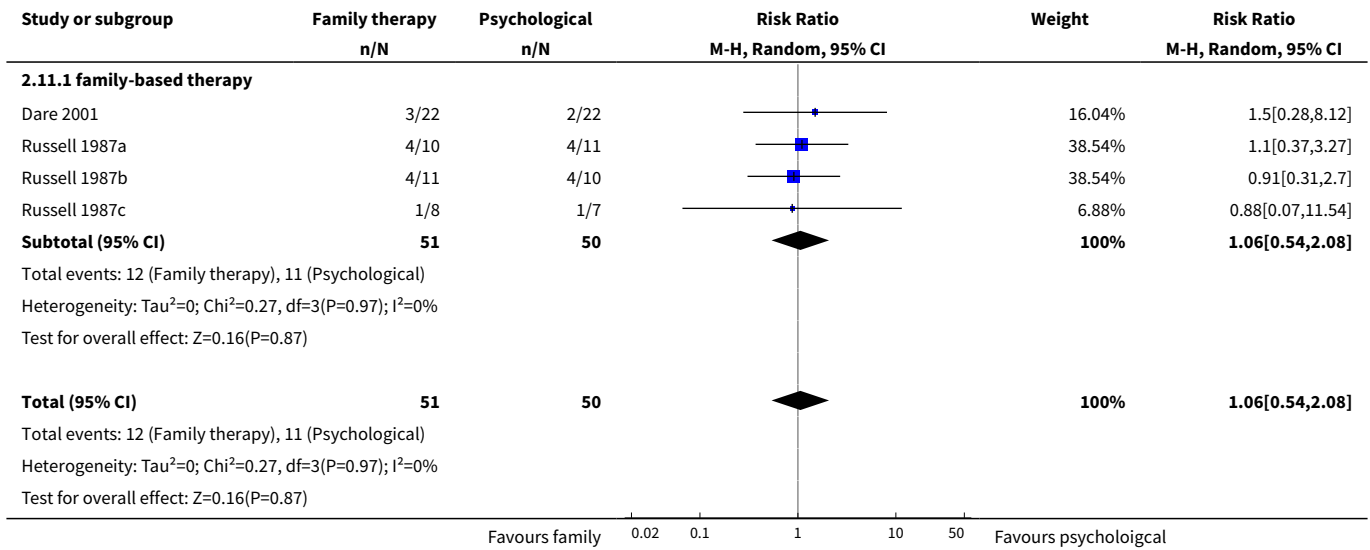


Analysis 2.10. Comparison 2 Family therapy approaches vs psychological interventions, Outcome 10 Weight (BMI, BMI%ile, %ABW) long-term follow-up.

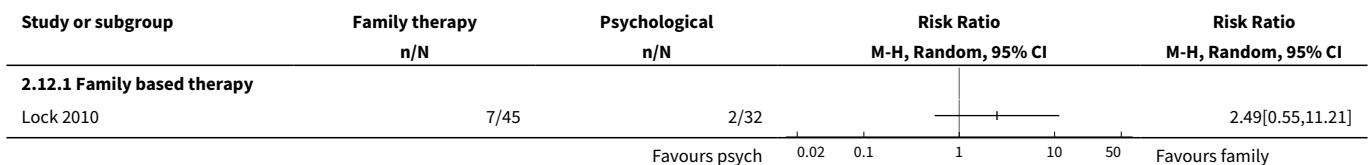




Analysis 2.11. Comparison 2 Family therapy approaches vs psychological interventions, Outcome 11 Relapse during treatment.



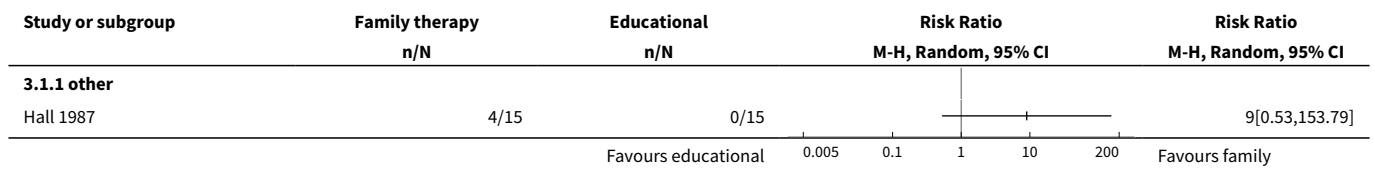
Analysis 2.12. Comparison 2 Family therapy approaches vs psychological interventions, Outcome 12 Relapse long-term follow-up.



Comparison 3. Family therapy approaches vs educational interventions

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission long-term follow-up	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
1.1 other	1		Risk Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]

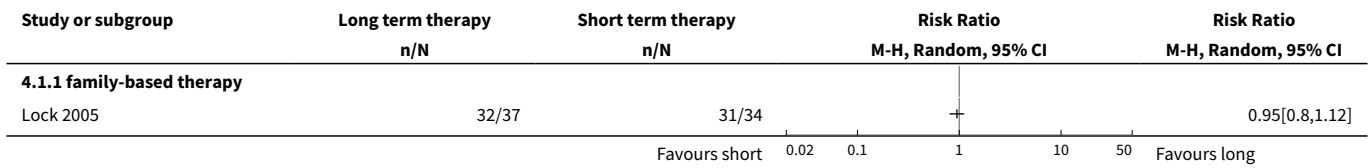
Analysis 3.1. Comparison 3 Family therapy approaches vs educational interventions, Outcome 1 Remission long-term follow-up.



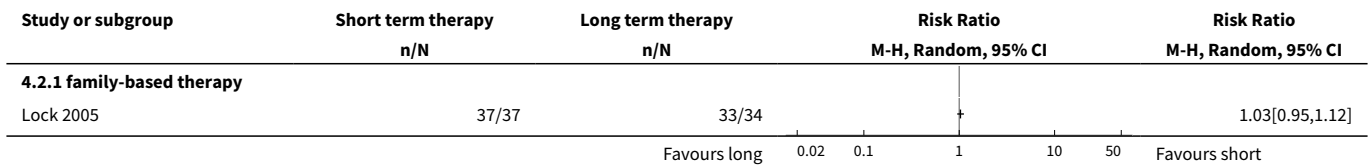
Comparison 4. Family therapy approaches short-term vs family therapy approaches long-term

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission long-term follow-up (mean 3.96 years)	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
1.1 family-based therapy	1		Risk Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
2 Return to functioning (school or work) follow-up	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
2.1 family-based therapy	1		Risk Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
3 Dropouts during therapy	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
3.1 family-based therapy	1		Risk Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
4 Eating disorder psychopathology long-term follow-up (EDE) note large dropout	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
4.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5 Weight (BMI) post-intervention	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
5.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
6 Weight (BMI) follow-up	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
6.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
7 Relapse during treatment	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
7.1 family-based therapy	1		Risk Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]

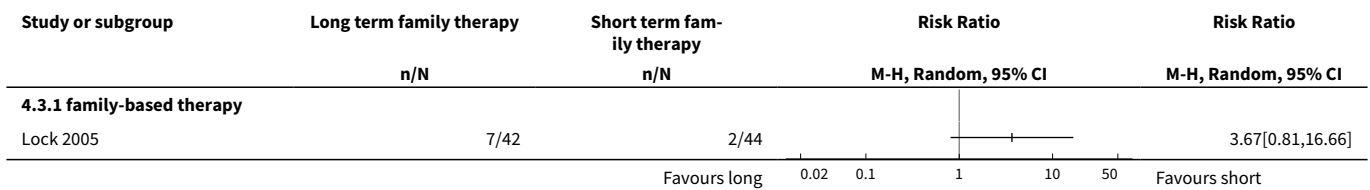
Analysis 4.1. Comparison 4 Family therapy approaches short-term vs family therapy approaches long-term, Outcome 1 Remission long-term follow-up (mean 3.96 years).



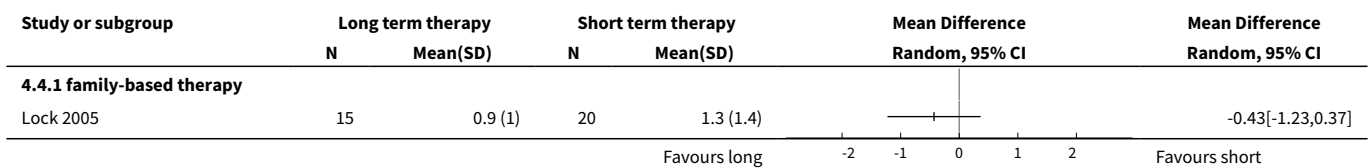
Analysis 4.2. Comparison 4 Family therapy approaches short-term vs family therapy approaches long-term, Outcome 2 Return to functioning (school or work) follow-up.



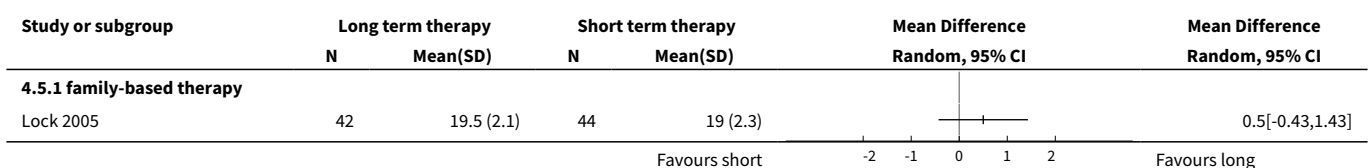
Analysis 4.3. Comparison 4 Family therapy approaches short-term vs family therapy approaches long-term, Outcome 3 Dropouts during therapy.



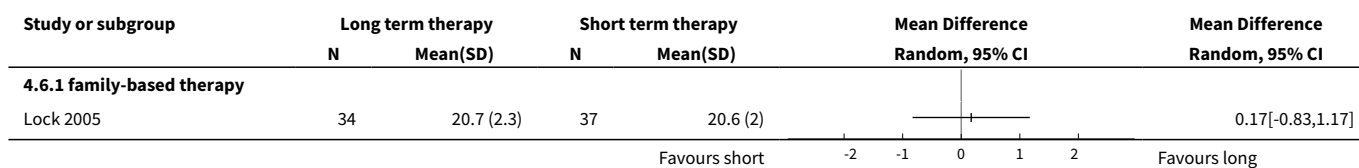
Analysis 4.4. Comparison 4 Family therapy approaches short-term vs family therapy approaches long-term, Outcome 4 Eating disorder psychopathology long-term follow-up (EDE) note large dropout.



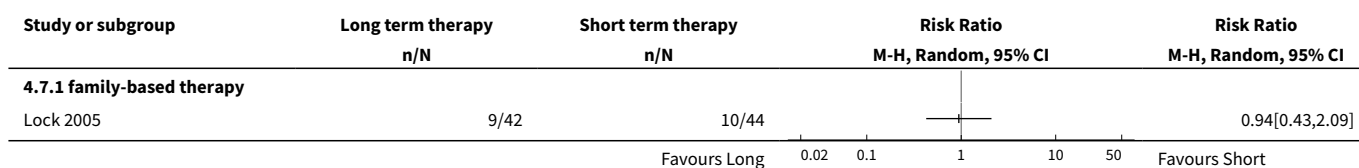
Analysis 4.5. Comparison 4 Family therapy approaches short-term vs family therapy approaches long-term, Outcome 5 Weight (BMI) post-intervention.



Analysis 4.6. Comparison 4 Family therapy approaches short-term vs family therapy approaches long-term, Outcome 6 Weight (BMI) follow-up.



Analysis 4.7. Comparison 4 Family therapy approaches short-term vs family therapy approaches long-term, Outcome 7 Relapse during treatment.



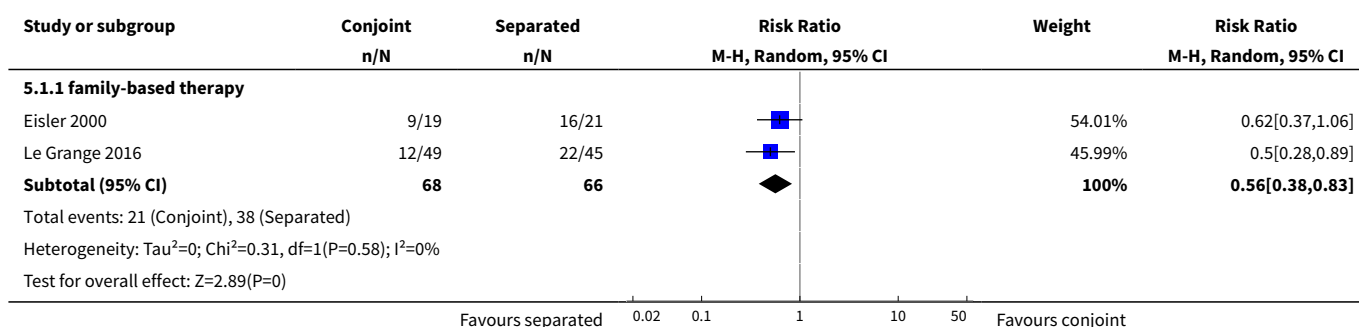
Comparison 5. Family therapy approaches conjoint vs family therapy approaches separated

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission post-intervention	2		Risk Ratio (M-H, Random, 95% CI)	Subtotals only
1.1 family-based therapy	2	134	Risk Ratio (M-H, Random, 95% CI)	0.56 [0.38, 0.83]
2 Remission short-term follow-up	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
2.1 family-based therapy	1		Risk Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
3 Remission long-term follow-up	2		Risk Ratio (M-H, Random, 95% CI)	Subtotals only
3.1 family-based therapy	2	100	Risk Ratio (M-H, Random, 95% CI)	0.86 [0.67, 1.09]
4 Dropouts during therapy	2		Risk Ratio (M-H, Random, 95% CI)	Subtotals only
4.1 family-based therapy	2	134	Risk Ratio (M-H, Random, 95% CI)	1.26 [0.60, 2.68]
5 Dropouts during follow-up (5 years)	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
5.1 family-based therapy	1		Risk Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
6 Eating disorder psychopathology post-intervention (EAT)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only

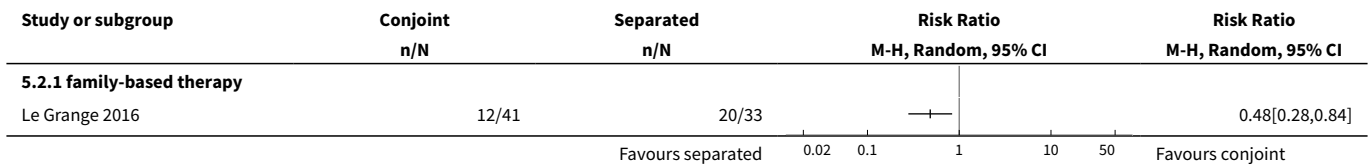
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
6.1 family-based therapy	2	58	Mean Difference (IV, Random, 95% CI)	-1.85 [-10.01, 6.31]
7 Eating disorder psychopathology follow-up (EAT)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
7.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
8 Eating disorder psychopathology post-intervention (MR)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
8.1 family-based therapy	2	58	Mean Difference (IV, Random, 95% CI)	-0.96 [-1.95, 0.03]
9 Eating disorder psychopathology post-intervention (EDI)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
9.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
10 Eating disorder psychopathology follow-up (EDI)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
10.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
11 Eating disorder psychopathology post-intervention (EDE)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
11.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
12 Eating disorder psychopathology short-term follow-up (EDE)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
12.1 family based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
13 Eating disorder psychopathology long-term follow-up (EDE)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
13.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
14 Weight (%Median BMI) post-intervention	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
14.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
15 Weight (%Median BMI) short-term follow-up	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
15.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
16 Weight (%Median BMI) long-term follow-up	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
16.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
17 Weight (%ABW) post-intervention	2	58	Mean Difference (IV, Random, 95% CI)	-2.75 [-18.50, 13.00]
17.1 family-based therapy	2	58	Mean Difference (IV, Random, 95% CI)	-2.75 [-18.50, 13.00]
18 Weight (%ABW) follow-up (5 years)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
18.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
19 Relapse post-intervention	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
19.1 family-based therapy	1		Risk Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
20 Relapse follow-up (5 years)	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
20.1 familybased therapy	1		Risk Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]

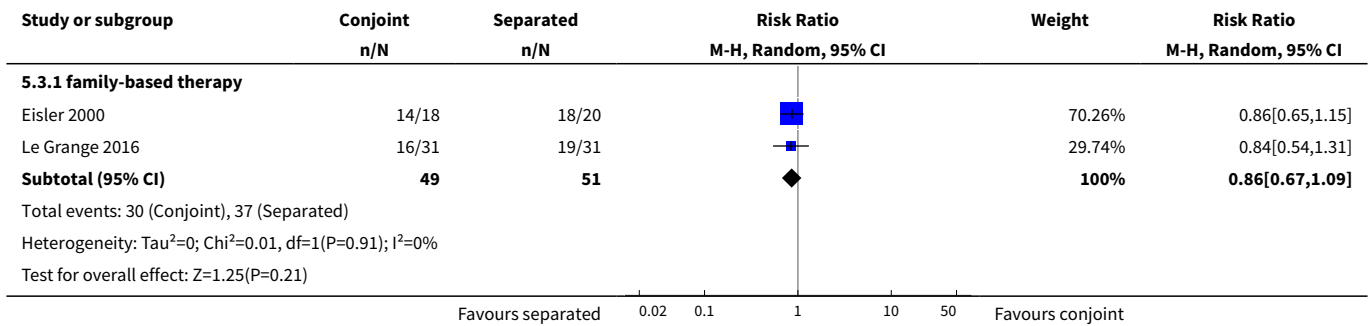
Analysis 5.1. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 1 Remission post-intervention.



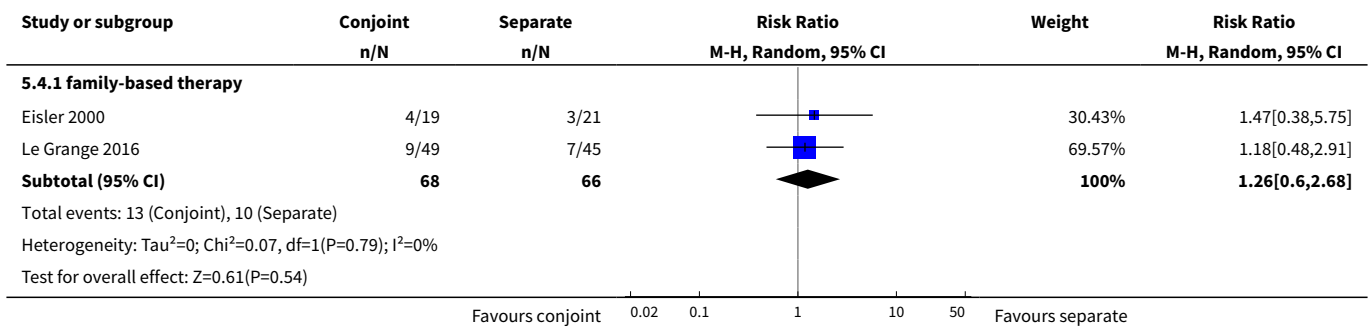
Analysis 5.2. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 2 Remission short-term follow-up.



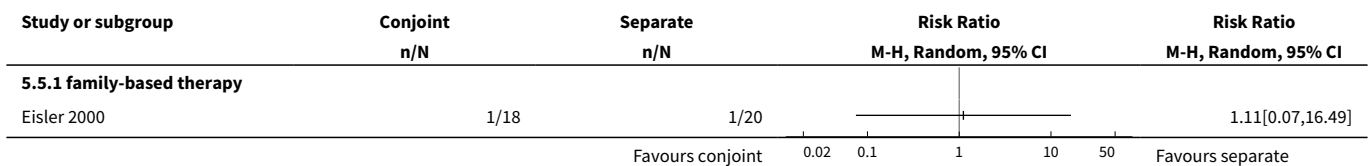
Analysis 5.3. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 3 Remission long-term follow-up.



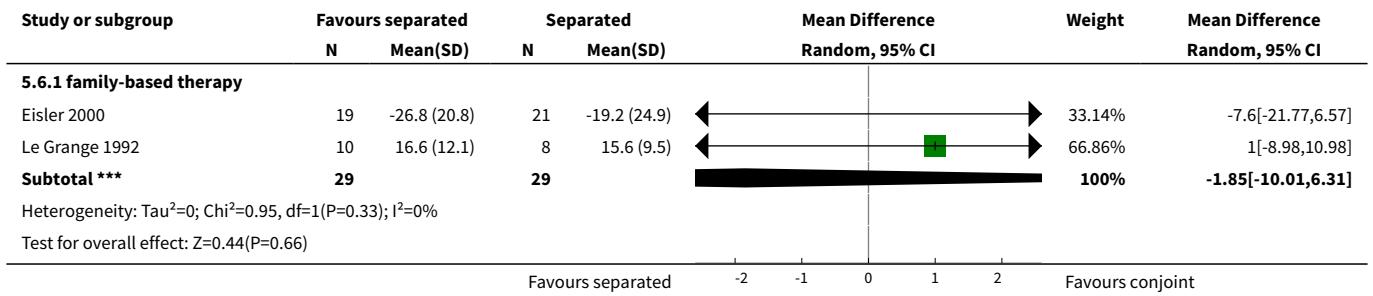
Analysis 5.4. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 4 Dropouts during therapy.



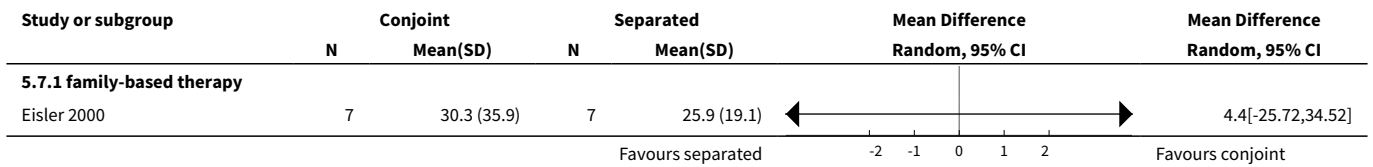
Analysis 5.5. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 5 Dropouts during follow-up (5 years).



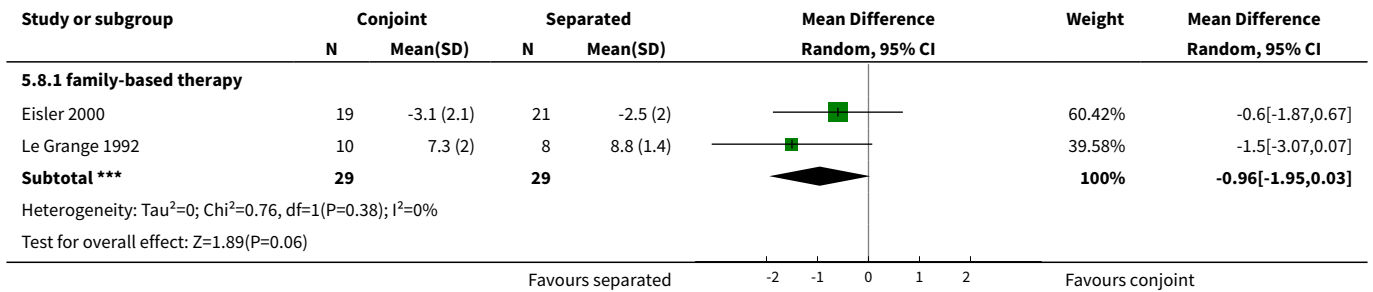
Analysis 5.6. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 6 Eating disorder psychopathology post-intervention (EAT).



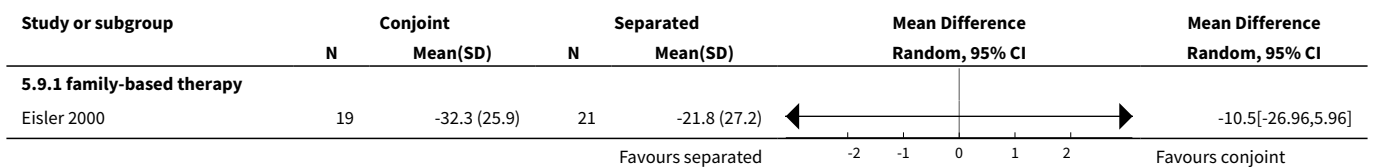
Analysis 5.7. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 7 Eating disorder psychopathology follow-up (EAT).



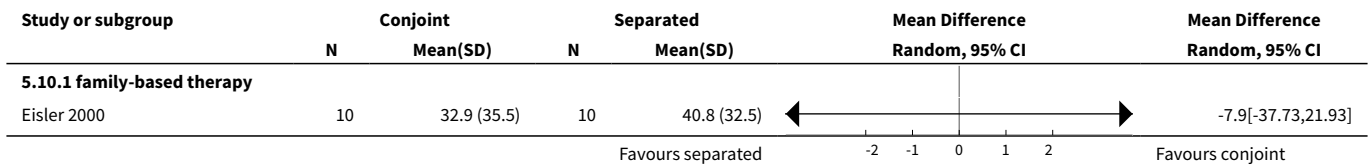
Analysis 5.8. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 8 Eating disorder psychopathology post-intervention (MR).



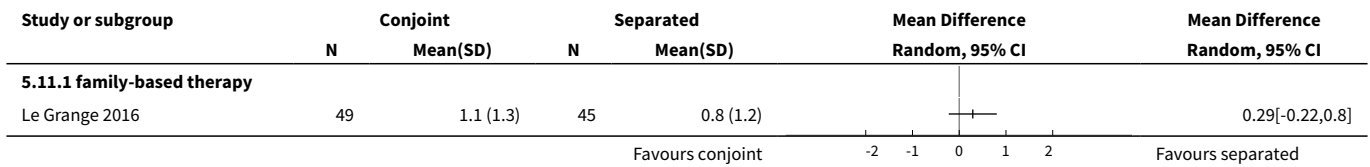
Analysis 5.9. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 9 Eating disorder psychopathology post-intervention (EDI).



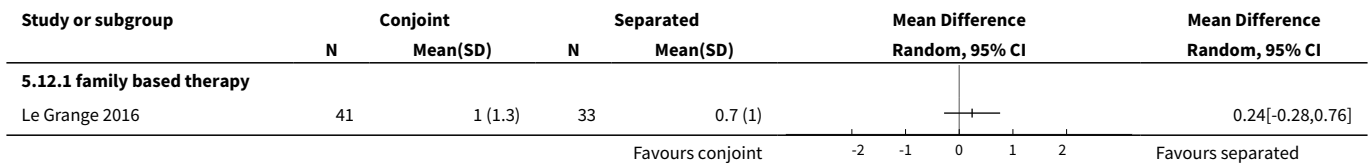
Analysis 5.10. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 10 Eating disorder psychopathology follow-up (EDI).



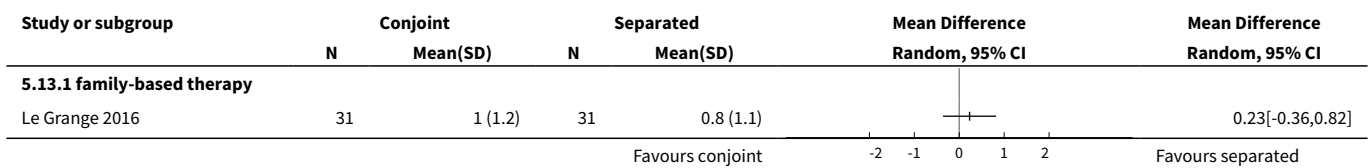
Analysis 5.11. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 11 Eating disorder psychopathology post-intervention (EDE).



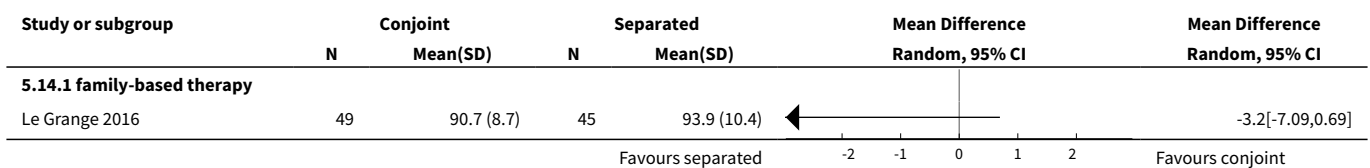
Analysis 5.12. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 12 Eating disorder psychopathology short-term follow-up (EDE).



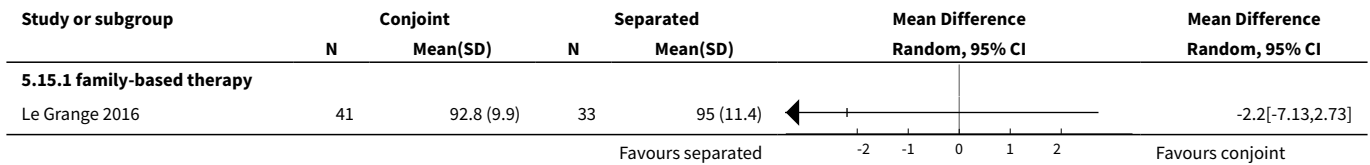
Analysis 5.13. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 13 Eating disorder psychopathology long-term follow-up (EDE).



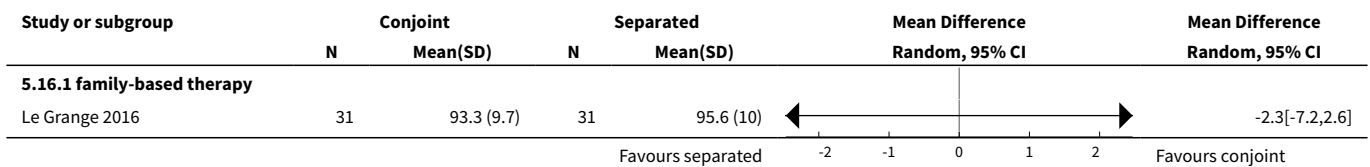
Analysis 5.14. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 14 Weight (%Median BMI) post-intervention.



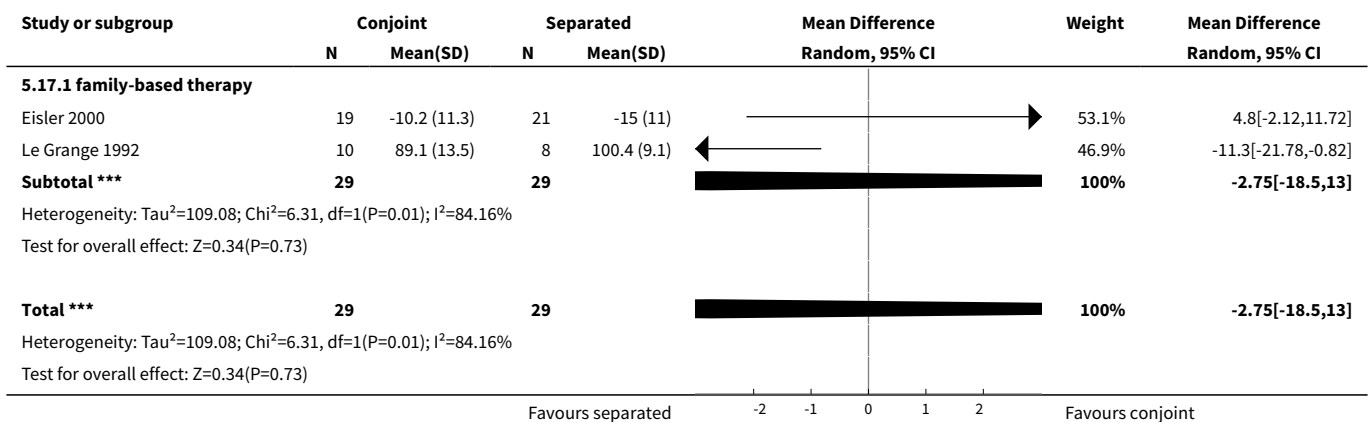
Analysis 5.15. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 15 Weight (%Median BMI) short-term follow-up.



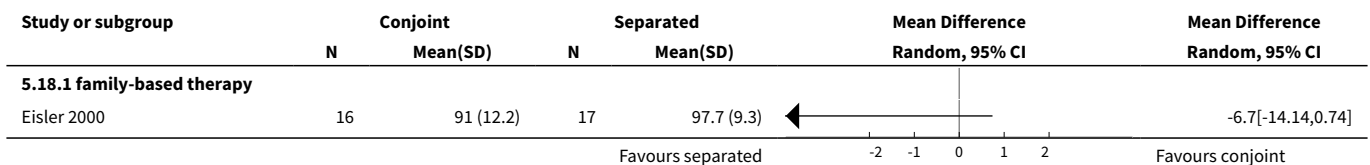
Analysis 5.16. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 16 Weight (%Median BMI) long-term follow-up.



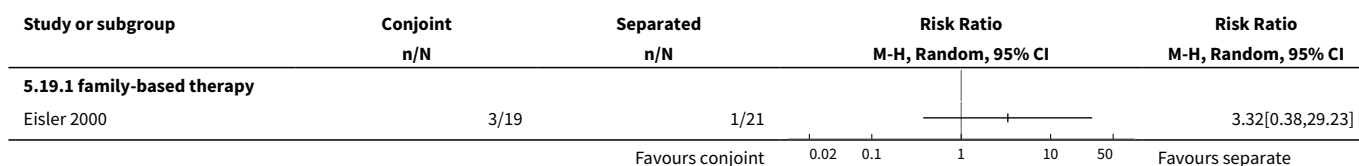
Analysis 5.17. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 17 Weight (%ABW) post-intervention.



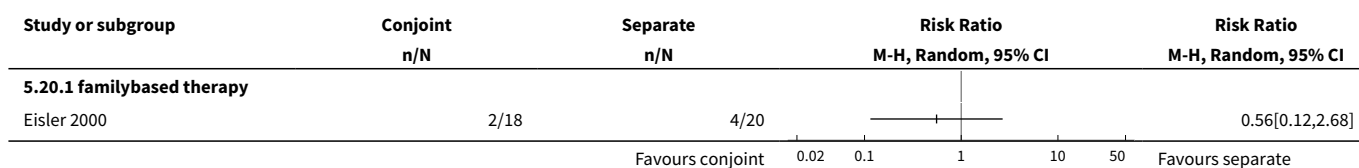
Analysis 5.18. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 18 Weight (%ABW) follow-up (5 years).



Analysis 5.19. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 19 Relapse post-intervention.



Analysis 5.20. Comparison 5 Family therapy approaches conjoint vs family therapy approaches separated, Outcome 20 Relapse follow-up (5 years).

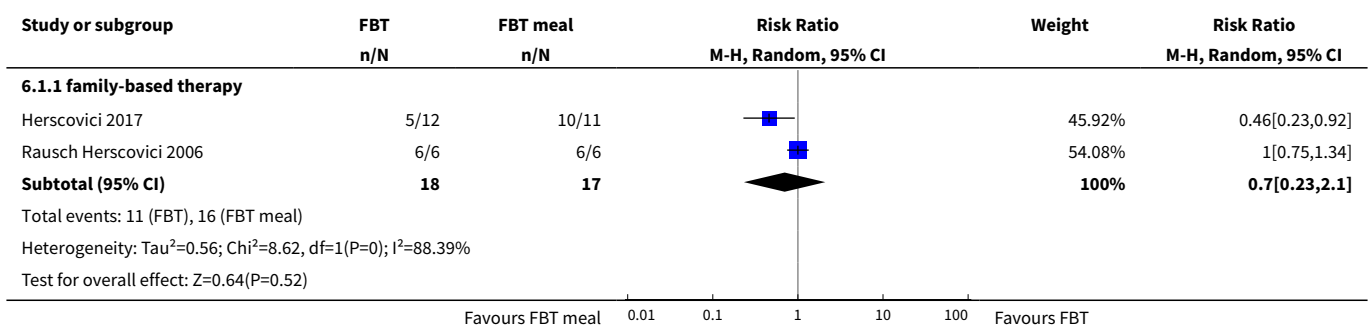


Comparison 6. Family therapy approaches vs family therapy approaches plus meal

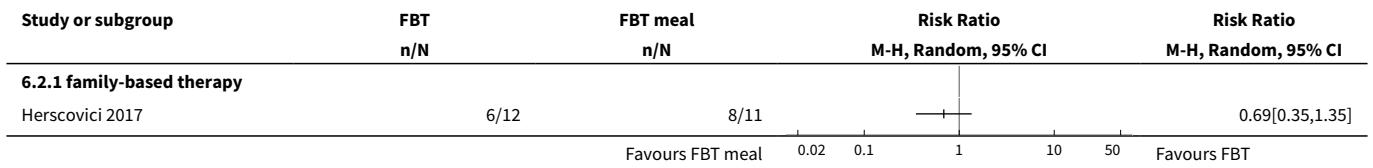
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission post-intervention	2		Risk Ratio (M-H, Random, 95% CI)	Subtotals only
1.1 family-based therapy	2	35	Risk Ratio (M-H, Random, 95% CI)	0.70 [0.23, 2.10]
2 Remission short-term follow-up	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
2.1 family-based therapy	1		Risk Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
3 Remission long-term follow-up	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
3.1 family-based therapy	1		Risk Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
4 Family function post-intervention Family Health Scale	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
4.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5 Dropouts	2		Risk Ratio (M-H, Random, 95% CI)	Subtotals only
5.1 family-based therapy	2	35	Risk Ratio (M-H, Random, 95% CI)	0.33 [0.02, 6.86]
6 Eating disorder psychopathology post-intervention (MR)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
6.1 family-based therapy	2	35	Mean Difference (IV, Random, 95% CI)	0.54 [-0.78, 1.85]

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
7 Eating disorder psychopathology short-term follow-up (MR)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
7.1 family based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
8 Eating disorder psychopathology long-term follow-up (MR)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
8.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
9 Weight (BMI, EBW%) post-intervention	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
9.1 family-based therapy	2	35	Std. Mean Difference (IV, Random, 95% CI)	-0.19 [-0.85, 0.48]
10 Weight (EBW%) short-term follow-up	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
10.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
11 Weight (BMI) long-term follow-up	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
11.1 family-based therapy	1		Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

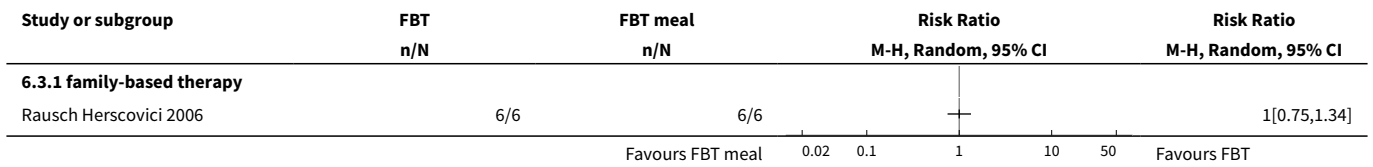
Analysis 6.1. Comparison 6 Family therapy approaches vs family therapy approaches plus meal, Outcome 1 Remission post-intervention.



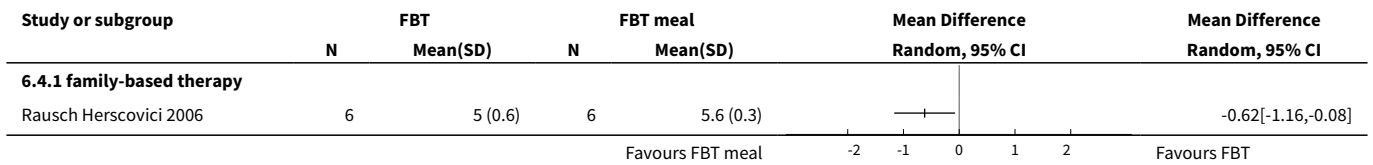
Analysis 6.2. Comparison 6 Family therapy approaches vs family therapy approaches plus meal, Outcome 2 Remission short-term follow-up.



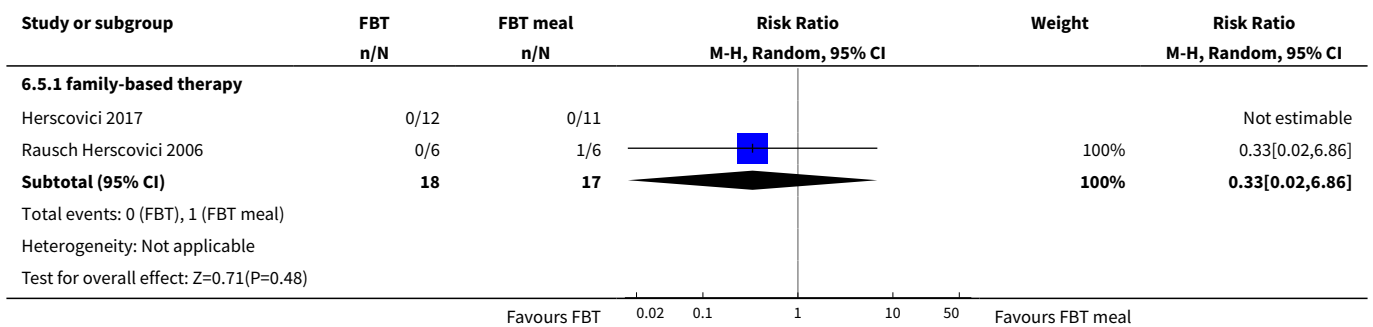
Analysis 6.3. Comparison 6 Family therapy approaches vs family therapy approaches plus meal, Outcome 3 Remission long-term follow-up.



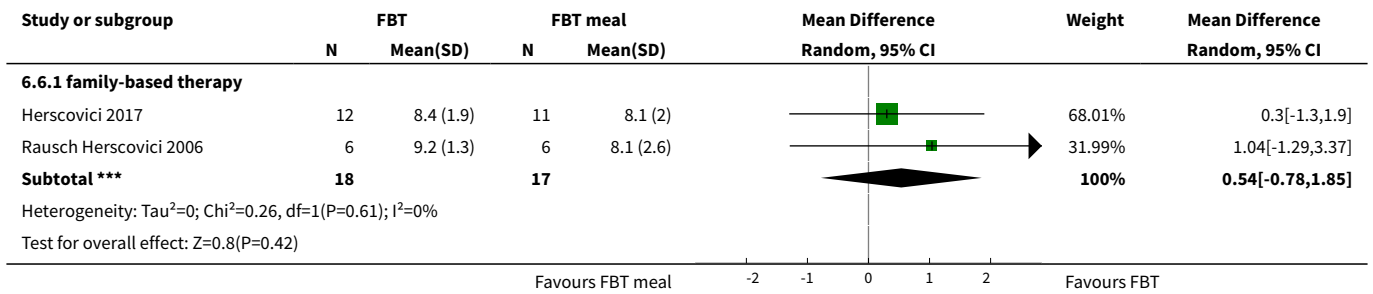
Analysis 6.4. Comparison 6 Family therapy approaches vs family therapy approaches plus meal, Outcome 4 Family function post-intervention Family Health Scale.



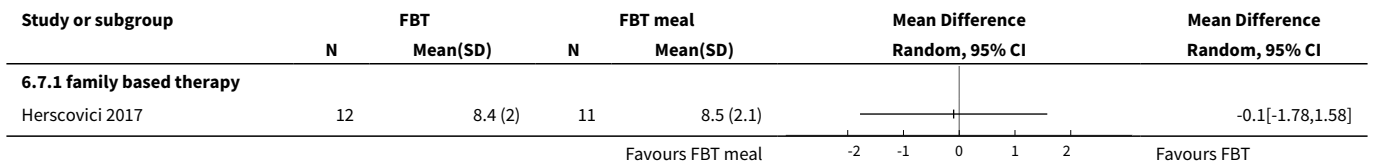
Analysis 6.5. Comparison 6 Family therapy approaches vs family therapy approaches plus meal, Outcome 5 Dropouts.



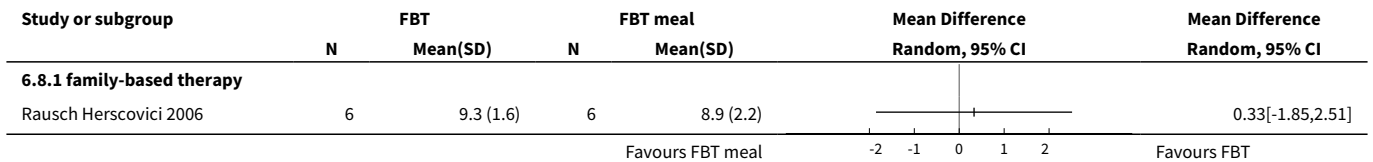
Analysis 6.6. Comparison 6 Family therapy approaches vs family therapy approaches plus meal, Outcome 6 Eating disorder psychopathology post-intervention (MR).



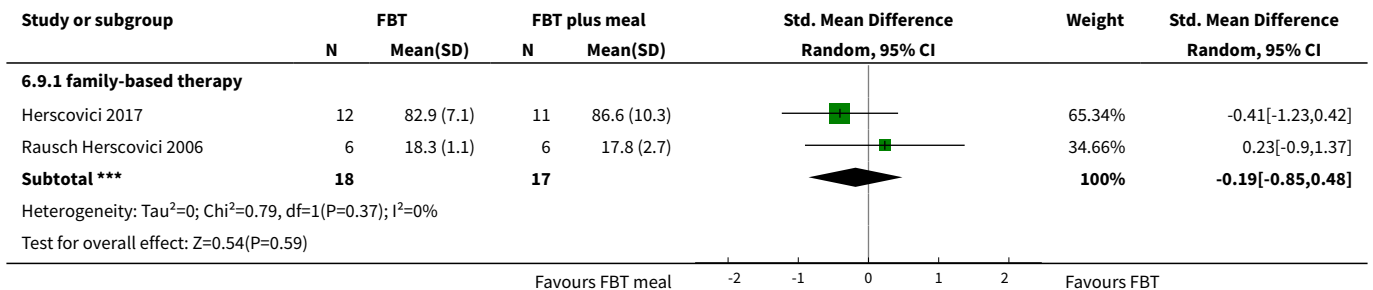
Analysis 6.7. Comparison 6 Family therapy approaches vs family therapy approaches plus meal, Outcome 7 Eating disorder psychopathology short-term follow-up (MR).



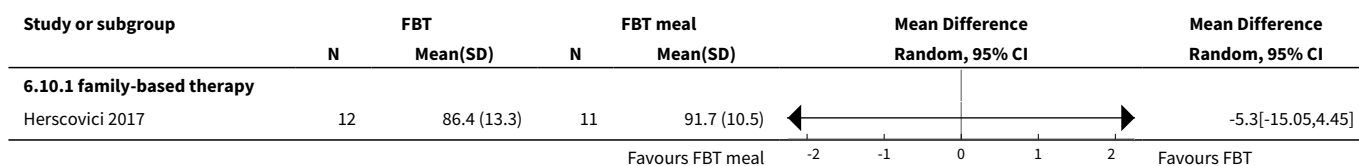
Analysis 6.8. Comparison 6 Family therapy approaches vs family therapy approaches plus meal, Outcome 8 Eating disorder psychopathology long-term follow-up (MR).



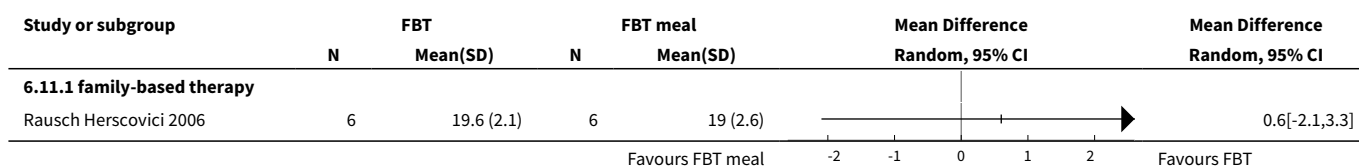
Analysis 6.9. Comparison 6 Family therapy approaches vs family therapy approaches plus meal, Outcome 9 Weight (BMI, EBW%) post-intervention.



Analysis 6.10. Comparison 6 Family therapy approaches vs family therapy approaches plus meal, Outcome 10 Weight (EBW%) short-term follow-up.



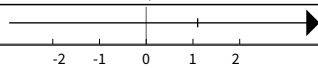
Analysis 6.11. Comparison 6 Family therapy approaches vs family therapy approaches plus meal, Outcome 11 Weight (BMI) long-term follow-up.



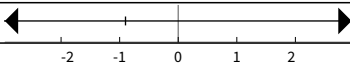
Comparison 7. Individual family therapy approaches vs group family therapy approaches

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Family function post-intervention (carers' LEE)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
2 Family function follow-up (carers' LEE)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
3 Dropouts	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
4 Eating disorder psychopathology post-intervention (SEED-AN)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
5 Eating disorder psychopathology follow-up (SEED-AN)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
6 Weight (BMI) post-intervention	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
7 Weight (BMI) follow-up	1		Mean Difference (IV, Random, 95% CI)	Totals not selected

Analysis 7.1. Comparison 7 Individual family therapy approaches vs group family therapy approaches, Outcome 1 Family function post-intervention (carers' LEE).

Study or subgroup	Individual		Group		Mean Difference Random, 95% CI	Mean Difference Random, 95% CI
	N	Mean(SD)	N	Mean(SD)		
Whitney 2012	33	72.9 (8.7)	33	71.8 (8)		1.1[-2.93,5.13]

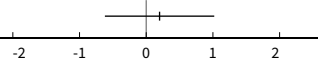
Analysis 7.2. Comparison 7 Individual family therapy approaches vs group family therapy approaches, Outcome 2 Family function follow-up (carers' LEE).

Study or subgroup	Individual		Group		Mean Difference Random, 95% CI	Mean Difference Random, 95% CI
	N	Mean(SD)	N	Mean(SD)		
Whitney 2012	29	69.5 (6.9)	29	70.4 (9.7)		-0.9[-5.23,3.43]

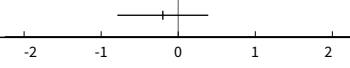
Analysis 7.3. Comparison 7 Individual family therapy approaches vs group family therapy approaches, Outcome 3 Dropouts.

Study or subgroup	Individual n/N	Group n/N	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI

Analysis 7.4. Comparison 7 Individual family therapy approaches vs group family therapy approaches, Outcome 4 Eating disorder psychopathology post-intervention (SEED-AN).

Study or subgroup	Individual		Group		Mean Difference Random, 95% CI	Mean Difference Random, 95% CI
	N	Mean(SD)	N	Mean(SD)		
Whitney 2012	10	2 (1.1)	15	1.8 (0.9)		0.2[-0.62,1.02]

Analysis 7.5. Comparison 7 Individual family therapy approaches vs group family therapy approaches, Outcome 5 Eating disorder psychopathology follow-up (SEED-AN).

Study or subgroup	Individual		Group		Mean Difference Random, 95% CI	Mean Difference Random, 95% CI
	N	Mean(SD)	N	Mean(SD)		
Whitney 2012	15	1.7 (0.7)	14	1.9 (0.9)		-0.2[-0.79,0.39]

Analysis 7.6. Comparison 7 Individual family therapy approaches vs group family therapy approaches, Outcome 6 Weight (BMI) post-intervention.

Study or subgroup	Individual		Group		Mean Difference Random, 95% CI	Mean Difference Random, 95% CI
	N	Mean(SD)	N	Mean(SD)		
Whitney 2012	22	17.6 (1.9)	25	18.4 (1.8)		-0.8[-1.86,0.26]

Analysis 7.7. Comparison 7 Individual family therapy approaches vs group family therapy approaches, Outcome 7 Weight (BMI) follow-up.

Study or subgroup	Individual		Group		Mean Difference Random, 95% CI	Mean Difference Random, 95% CI
	N	Mean(SD)	N	Mean(SD)		
Whitney 2012	21	16.8 (2.2)	23	15.8 (2.6)		1[-0.42,2.42]

Comparison 8. Family-based therapy vs systemic family therapy

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission post-intervention	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
2 Remission short-term follow-up	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
3 Dropouts during therapy	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected

Analysis 8.1. Comparison 8 Family-based therapy vs systemic family therapy, Outcome 1 Remission post-intervention.

Study or subgroup	FBT	SFT	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
	n/N	n/N		
Agras 2014	26/78	20/80		1.33[0.81,2.18]

Analysis 8.2. Comparison 8 Family-based therapy vs systemic family therapy, Outcome 2 Remission short-term follow-up.

Study or subgroup	FBT	SFT	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
	n/N	n/N		
Agras 2014	32/78	31/80		1.06[0.72,1.55]

Analysis 8.3. Comparison 8 Family-based therapy vs systemic family therapy, Outcome 3 Dropouts during therapy.

Study or subgroup	FBT n/N	SFT n/N	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
Agras 2014	20/78	20/80		1.03[0.6,1.75]

Comparison 9. Inpatient family therapy approaches vs day-patient family therapy approaches

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission short-term follow-up	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
2 Dropouts	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
3 Eating disorder psychopathology short-term follow-up (EDI)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
4 Weight (%EBW) short-term follow-up	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
5 Relapse at short-term follow-up	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected

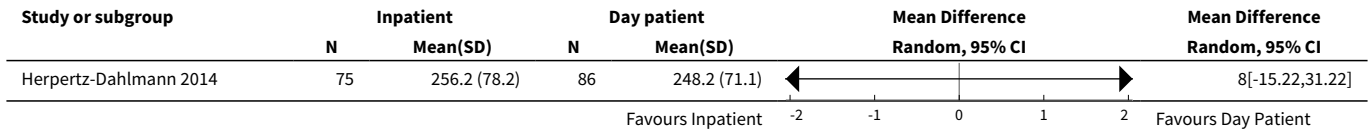
Analysis 9.1. Comparison 9 Inpatient family therapy approaches vs day-patient family therapy approaches, Outcome 1 Remission short-term follow-up.

Study or subgroup	Inpatient n/N	Day patient n/N	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
Herpertz-Dahlmann 2014	33/75	33/86		1.15[0.79,1.66]

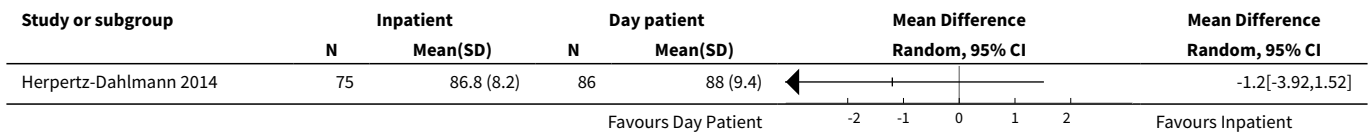
Analysis 9.2. Comparison 9 Inpatient family therapy approaches vs day-patient family therapy approaches, Outcome 2 Dropouts.

Study or subgroup	Inpatient n/N	Day patient n/N	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
Herpertz-Dahlmann 2014	10/75	19/86		0.6[0.3,1.22]

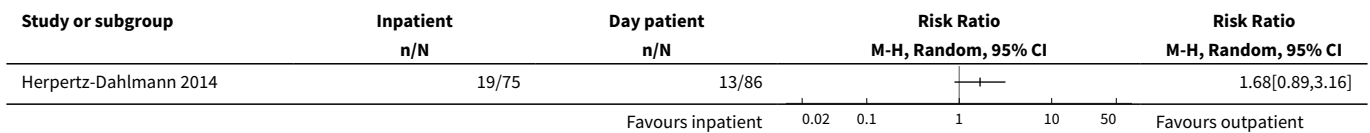
Analysis 9.3. Comparison 9 Inpatient family therapy approaches vs day-patient family therapy approaches, Outcome 3 Eating disorder psychopathology short-term follow-up (EDI).



Analysis 9.4. Comparison 9 Inpatient family therapy approaches vs day-patient family therapy approaches, Outcome 4 Weight (%EBW) short-term follow-up.



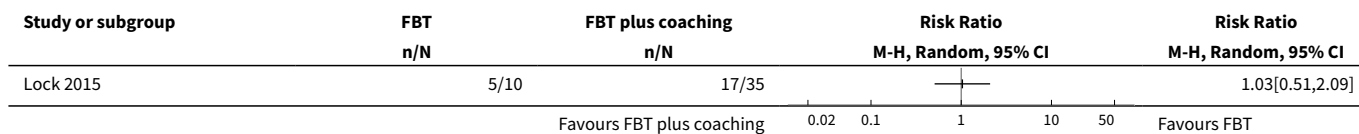
Analysis 9.5. Comparison 9 Inpatient family therapy approaches vs day-patient family therapy approaches, Outcome 5 Relapse at short-term follow-up.



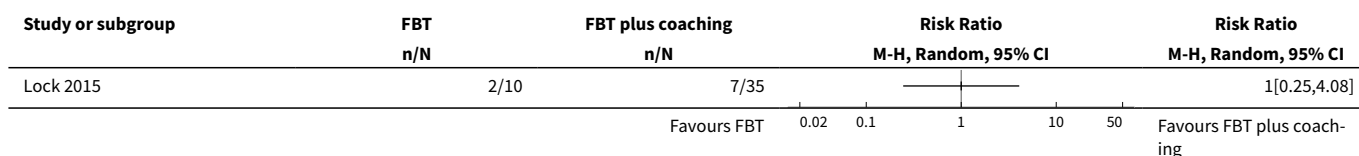
Comparison 10. Family-based therapy vs family-based therapy plus parent coaching

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission post-intervention	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
2 Dropouts	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
3 Eating disorder psychopathology post-intervention (EDE)	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
4 Weight (BMI) post-intervention	1		Mean Difference (IV, Random, 95% CI)	Totals not selected

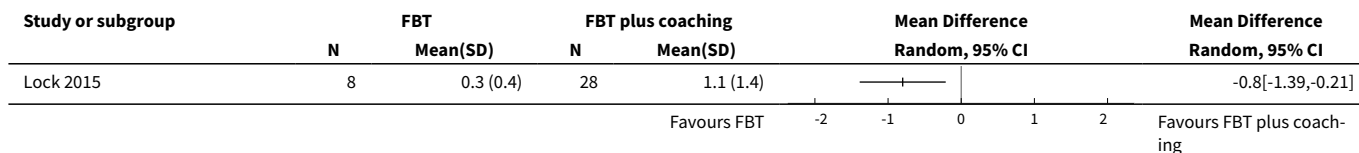
Analysis 10.1. Comparison 10 Family-based therapy vs family-based therapy plus parent coaching, Outcome 1 Remission post-intervention.



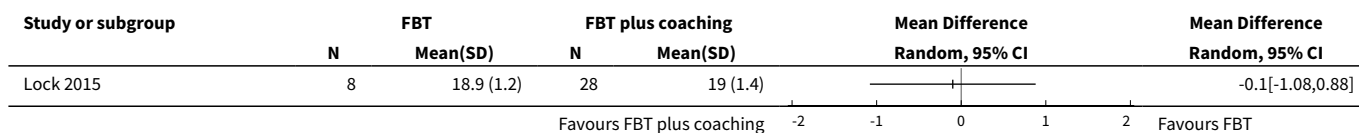
Analysis 10.2. Comparison 10 Family-based therapy vs family-based therapy plus parent coaching, Outcome 2 Dropouts.



Analysis 10.3. Comparison 10 Family-based therapy vs family-based therapy plus parent coaching, Outcome 3 Eating disorder psychopathology post-intervention (EDE).



Analysis 10.4. Comparison 10 Family-based therapy vs family-based therapy plus parent coaching, Outcome 4 Weight (BMI) post-intervention.



Comparison 11. Family-based therapy plus medical stabilisation vs family-based therapy plus weight restoration

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission post-intervention	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
2 Remission short-term follow-up	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
3 Remission long-term follow-up	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
4 Dropouts	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected
5 Eating disorder psychopathology (EDE) long-term follow-up	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
6 Weight (%EBW change) long-term follow-up	1		Mean Difference (IV, Random, 95% CI)	Totals not selected
7 Relapse at long-term follow-up	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected

Analysis 11.1. Comparison 11 Family-based therapy plus medical stabilisation vs family-based therapy plus weight restoration, Outcome 1 Remission post-intervention.

Study or subgroup	FBT plus stability n/N	FBT plus restoration n/N	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
Madden 2015	25/40	21/38		1.13[0.78,1.64]

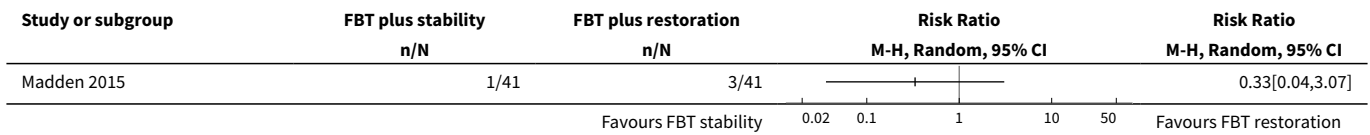
Analysis 11.2. Comparison 11 Family-based therapy plus medical stabilisation vs family-based therapy plus weight restoration, Outcome 2 Remission short-term follow-up.

Study or subgroup	FBT plus stability n/N	FBT plus restoration n/N	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
Madden 2015	23/40	28/38		0.78[0.56,1.08]

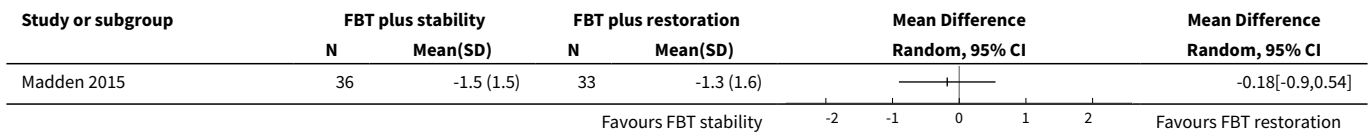
Analysis 11.3. Comparison 11 Family-based therapy plus medical stabilisation vs family-based therapy plus weight restoration, Outcome 3 Remission long-term follow-up.

Study or subgroup	FBT plus stability n/N	FBT plus restoration n/N	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
Madden 2015	30/40	33/38		0.86[0.69,1.07]

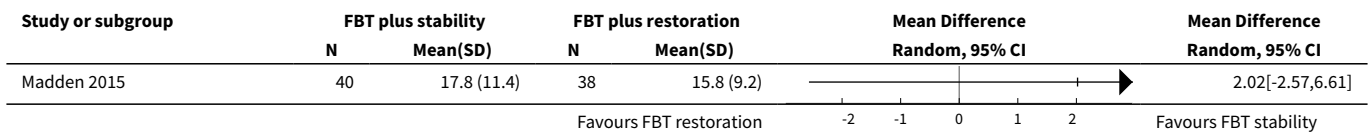
Analysis 11.4. Comparison 11 Family-based therapy plus medical stabilisation vs family-based therapy plus weight restoration, Outcome 4 Dropouts.



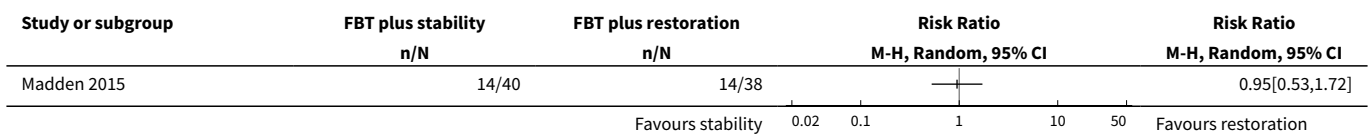
Analysis 11.5. Comparison 11 Family-based therapy plus medical stabilisation vs family-based therapy plus weight restoration, Outcome 5 Eating disorder psychopathology (EDE) long-term follow-up.



Analysis 11.6. Comparison 11 Family-based therapy plus medical stabilisation vs family-based therapy plus weight restoration, Outcome 6 Weight (%EBW change) long-term follow-up.



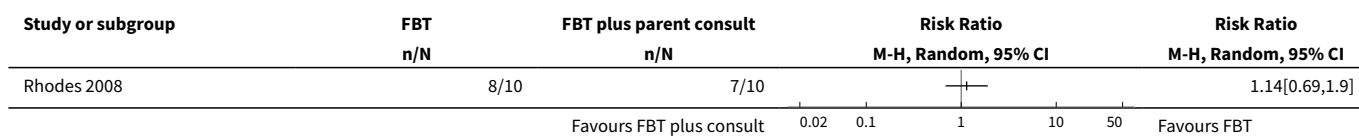
Analysis 11.7. Comparison 11 Family-based therapy plus medical stabilisation vs family-based therapy plus weight restoration, Outcome 7 Relapse at long-term follow-up.



Comparison 12. Family-based therapy vs family-based therapy plus consultation

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission post-intervention	1		Risk Ratio (M-H, Random, 95% CI)	Totals not selected

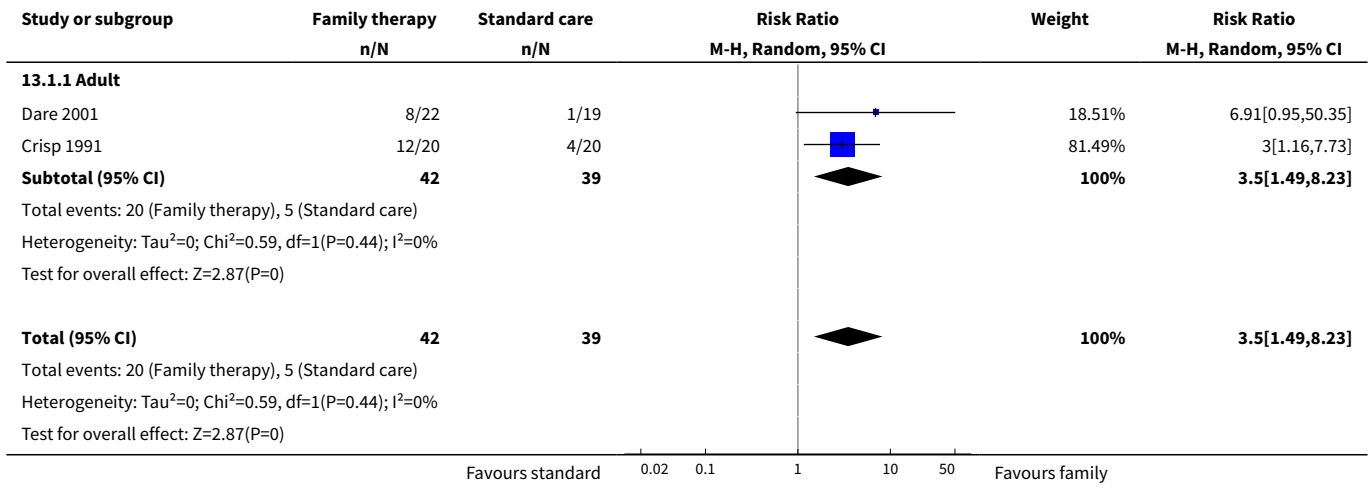
Analysis 12.1. Comparison 12 Family-based therapy vs family-based therapy plus consultation, Outcome 1 Remission post-intervention.



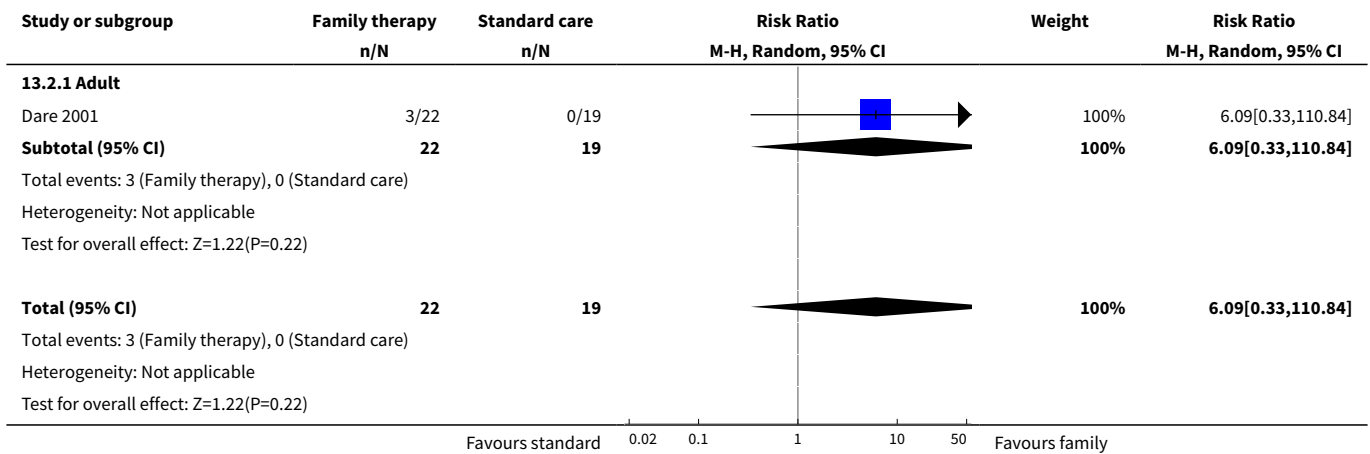
Comparison 13. Family therapy approaches vs standard care/treatment as usual (subgroup by age)

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission post-intervention (subgroup by age)	2	81	Risk Ratio (M-H, Random, 95% CI)	3.50 [1.49, 8.23]
1.1 Adult	2	81	Risk Ratio (M-H, Random, 95% CI)	3.50 [1.49, 8.23]
2 Remission long-term follow-up	1	41	Risk Ratio (M-H, Random, 95% CI)	6.09 [0.33, 110.84]
2.1 Adult	1	41	Risk Ratio (M-H, Random, 95% CI)	6.09 [0.33, 110.84]
3 General Functioning	1	59	Mean Difference (IV, Random, 95% CI)	0.5 [-0.62, 1.62]
3.1 Adolescent	1	59	Mean Difference (IV, Random, 95% CI)	0.5 [-0.62, 1.62]
4 Dropouts during therapy	3	137	Risk Ratio (M-H, Random, 95% CI)	1.01 [0.44, 2.34]
4.1 Adult	1	41	Risk Ratio (M-H, Random, 95% CI)	1.15 [0.29, 4.51]
4.2 Adolescent	2	96	Risk Ratio (M-H, Random, 95% CI)	0.93 [0.32, 2.71]
5 Eating disorder psychopathology post-intervention	2	109	Std. Mean Difference (IV, Random, 95% CI)	-0.11 [-0.49, 0.27]
5.1 Adult	1	50	Std. Mean Difference (IV, Random, 95% CI)	-0.29 [-0.86, 0.28]
5.2 Adolescent	1	59	Std. Mean Difference (IV, Random, 95% CI)	0.03 [-0.48, 0.54]
6 Weight (BMI)	1	59	Mean Difference (IV, Random, 95% CI)	0.40 [-0.75, 1.55]
6.1 Adolescent	1	59	Mean Difference (IV, Random, 95% CI)	0.40 [-0.75, 1.55]
7 Relapse during treatment	2	100	Risk Ratio (M-H, Random, 95% CI)	0.65 [0.37, 1.15]
7.1 Adult	1	41	Risk Ratio (M-H, Random, 95% CI)	0.52 [0.14, 1.89]
7.2 Adolescent	1	59	Risk Ratio (M-H, Random, 95% CI)	0.69 [0.37, 1.30]

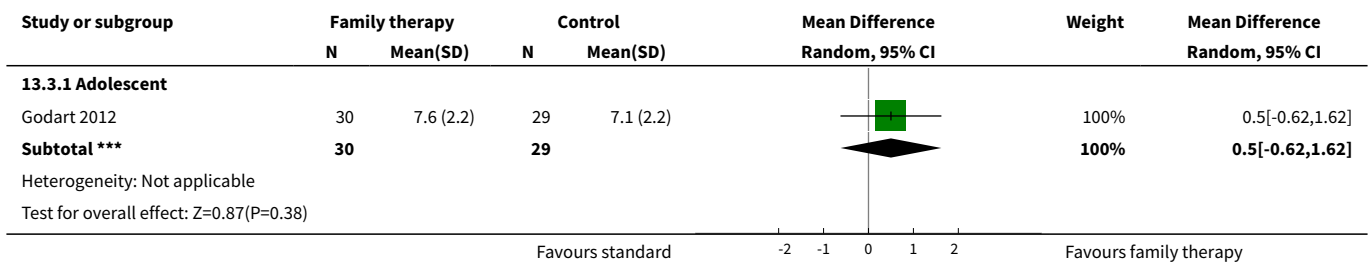
Analysis 13.1. Comparison 13 Family therapy approaches vs standard care/treatment as usual (subgroup by age), Outcome 1 Remission post-intervention (subgroup by age).

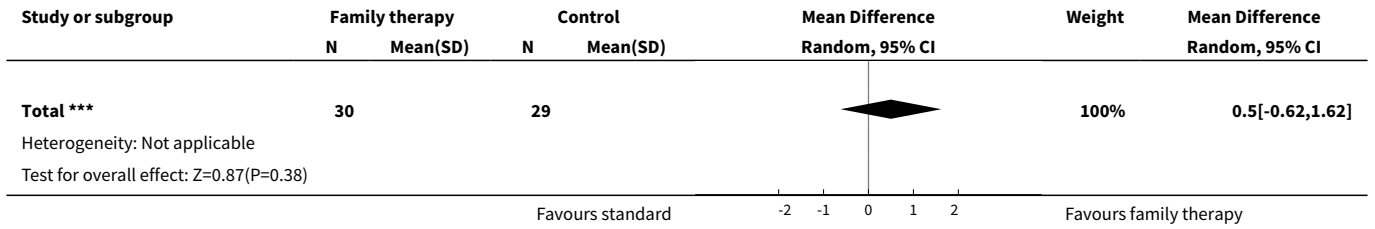


Analysis 13.2. Comparison 13 Family therapy approaches vs standard care/treatment as usual (subgroup by age), Outcome 2 Remission long-term follow-up.

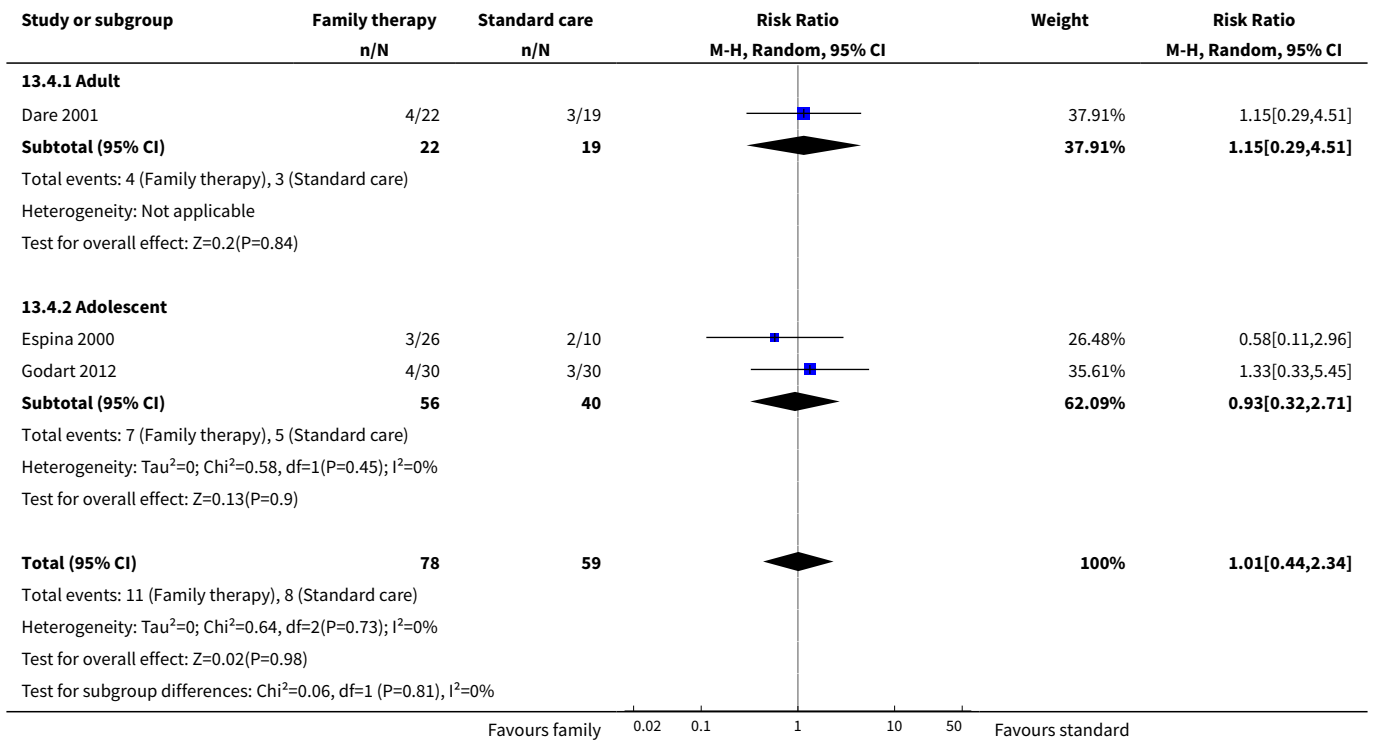


Analysis 13.3. Comparison 13 Family therapy approaches vs standard care/treatment as usual (subgroup by age), Outcome 3 General Functioning.

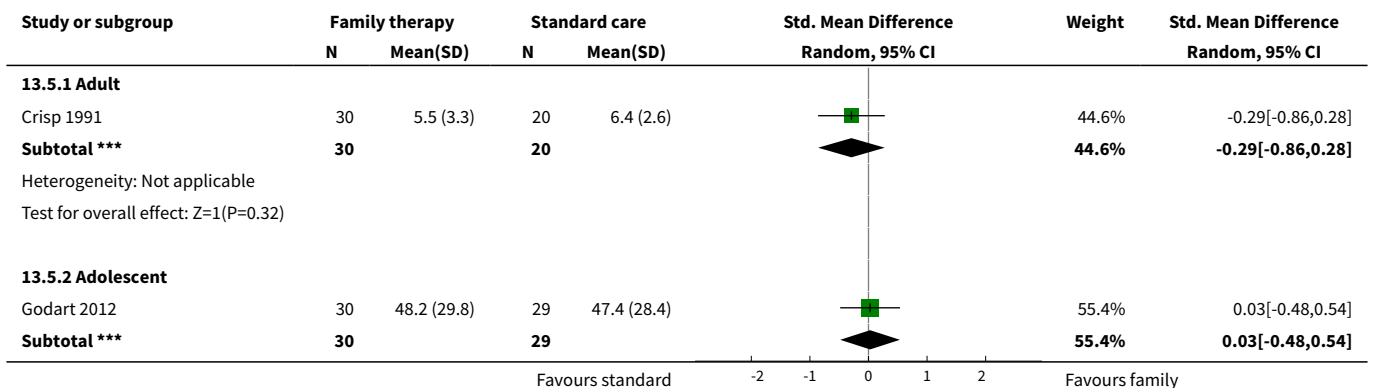


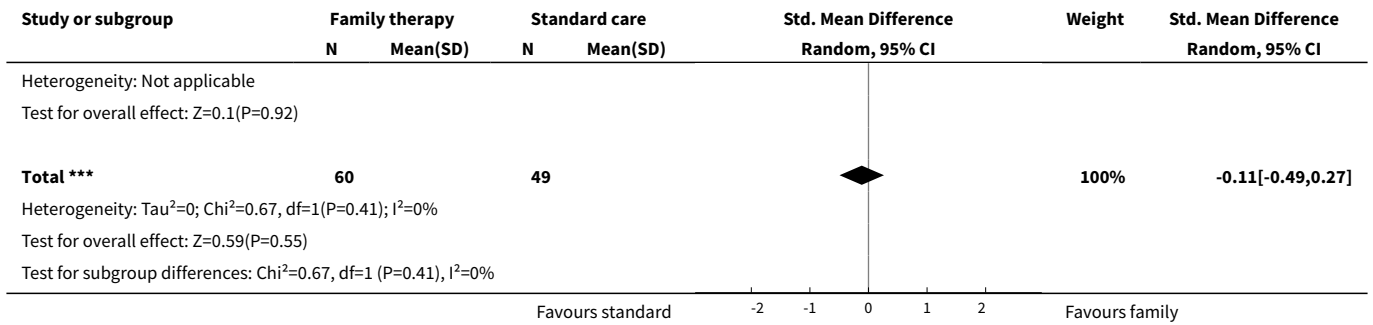


Analysis 13.4. Comparison 13 Family therapy approaches vs standard care/ treatment as usual (subgroup by age), Outcome 4 Dropouts during therapy.

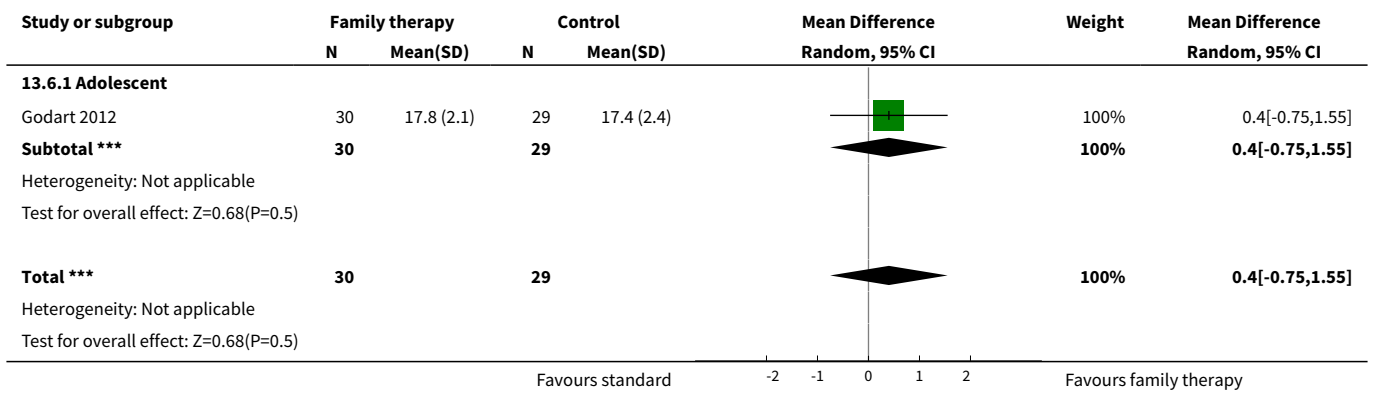


Analysis 13.5. Comparison 13 Family therapy approaches vs standard care/treatment as usual (subgroup by age), Outcome 5 Eating disorder psychopathology post-intervention.

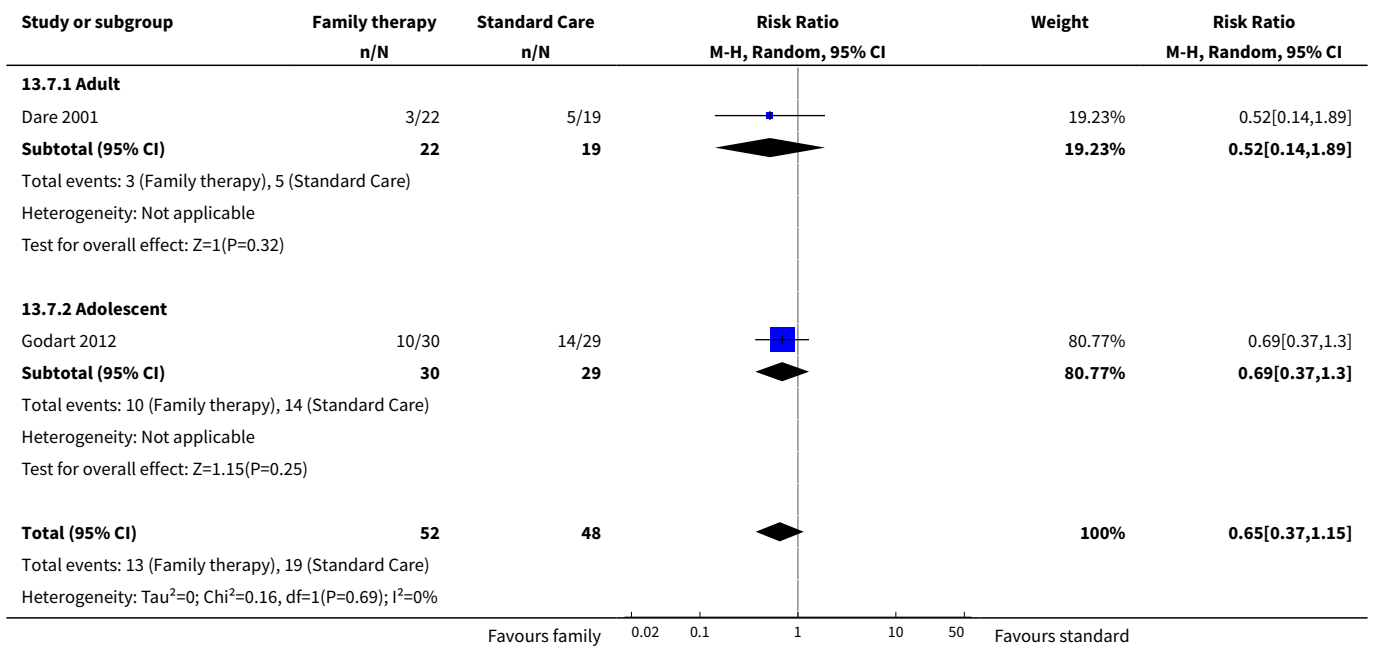


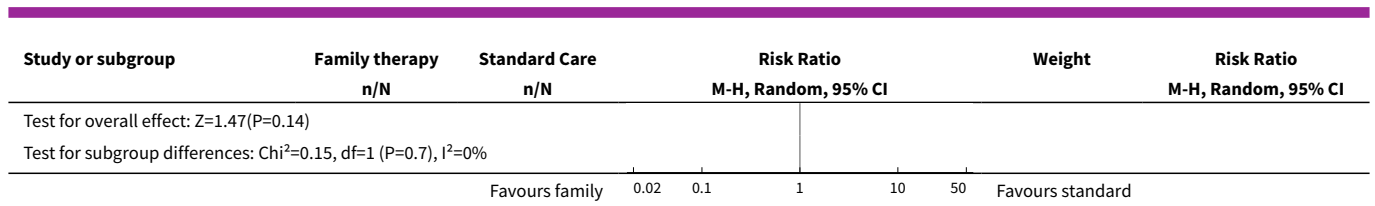


Analysis 13.6. Comparison 13 Family therapy approaches vs standard care/treatment as usual (subgroup by age), Outcome 6 Weight (BMI).



Analysis 13.7. Comparison 13 Family therapy approaches vs standard care/ treatment as usual (subgroup by age), Outcome 7 Relapse during treatment.



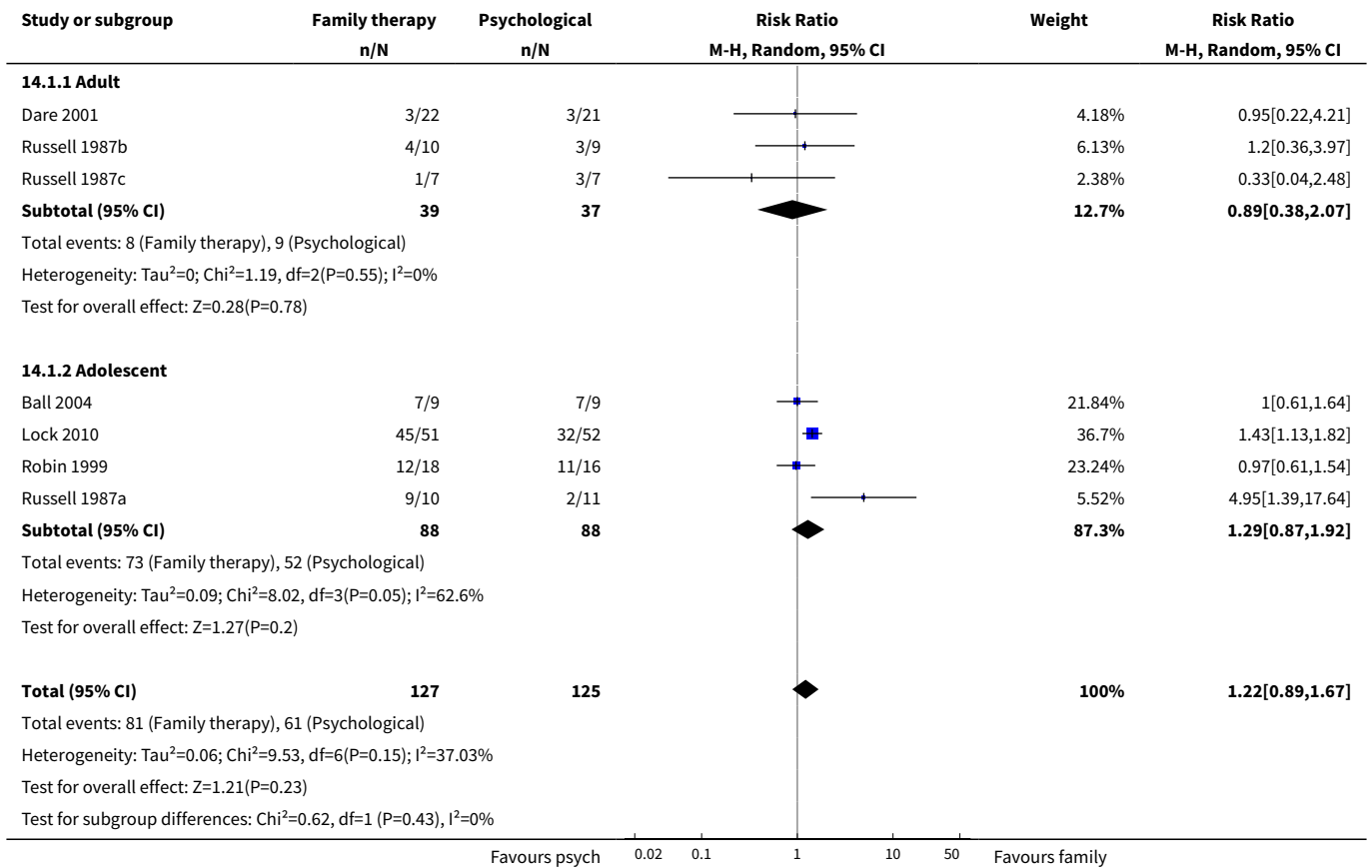


Comparison 14. Family therapy approaches vs psychological interventions (sugroup by age)

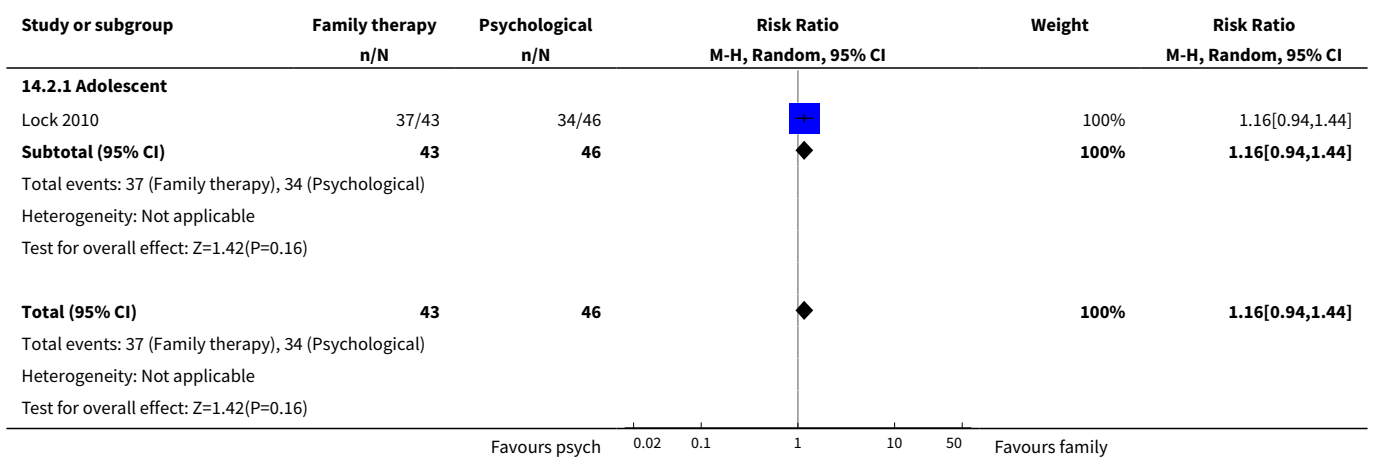
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission post-intervention	7	252	Risk Ratio (M-H, Random, 95% CI)	1.22 [0.89, 1.67]
1.1 Adult	3	76	Risk Ratio (M-H, Random, 95% CI)	0.89 [0.38, 2.07]
1.2 Adolescent	4	176	Risk Ratio (M-H, Random, 95% CI)	1.29 [0.87, 1.92]
2 Remission short-term follow-up	1	89	Risk Ratio (M-H, Random, 95% CI)	1.16 [0.94, 1.44]
2.1 Adolescent	1	89	Risk Ratio (M-H, Random, 95% CI)	1.16 [0.94, 1.44]
3 Remission long-term follow-up	6	200	Risk Ratio (M-H, Random, 95% CI)	1.08 [0.91, 1.28]
3.1 Adult (note russell is 5 year)	2	33	Risk Ratio (M-H, Random, 95% CI)	0.69 [0.39, 1.21]
3.2 Adolescent	4	167	Risk Ratio (M-H, Random, 95% CI)	1.13 [0.95, 1.34]
4 Dropouts during treatment	6	229	Risk Ratio (M-H, Random, 95% CI)	1.13 [0.46, 2.78]
4.1 Adult	3	80	Risk Ratio (M-H, Random, 95% CI)	1.45 [0.44, 4.70]
4.2 Adolescent	3	149	Risk Ratio (M-H, Random, 95% CI)	0.84 [0.18, 3.91]
5 Eating disorder psychopathology post-intervention	7	262	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.32, 0.66]
5.1 Adult	3	85	Std. Mean Difference (IV, Random, 95% CI)	-0.18 [-0.70, 0.34]
5.2 Adolescent	4	177	Std. Mean Difference (IV, Random, 95% CI)	0.44 [-0.28, 1.17]
6 Eating disorder psychopathology short-term follow-up (Lock 2010-EDE)	1	89	Mean Difference (IV, Random, 95% CI)	-0.23 [-0.69, 0.23]
6.1 Adolescent	1	89	Mean Difference (IV, Random, 95% CI)	-0.23 [-0.69, 0.23]

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
7 Eating disorder psychopathology long-term follow-up	6	197	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.50, 0.47]
7.1 Adult	2	32	Std. Mean Difference (IV, Random, 95% CI)	-0.57 [-1.78, 0.65]
7.2 Adolescent	4	165	Std. Mean Difference (IV, Random, 95% CI)	0.16 [-0.35, 0.68]
8 Weight (BMI, BMI%ile, %ABW) post-intervention	6	210	Std. Mean Difference (IV, Random, 95% CI)	0.32 [0.01, 0.63]
8.1 Adult	2	32	Std. Mean Difference (IV, Random, 95% CI)	-0.27 [-1.10, 0.56]
8.2 Adolescent	4	178	Std. Mean Difference (IV, Random, 95% CI)	0.44 [0.14, 0.74]
9 Weight (BMI%ile) short-term follow-up	1	89	Mean Difference (IV, Random, 95% CI)	2.30 [-7.28, 11.88]
9.1 Adolescent	1	89	Mean Difference (IV, Random, 95% CI)	2.30 [-7.28, 11.88]
10 Weight (BMI, BMI%ile, %ABW) long-term follow-up	6	198	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.16, 0.45]
10.1 Adult	2	32	Std. Mean Difference (IV, Random, 95% CI)	-0.50 [-1.21, 0.21]
10.2 Adolescent	4	166	Std. Mean Difference (IV, Random, 95% CI)	0.27 [-0.04, 0.57]
11 Relapse during treatment	4	101	Risk Ratio (M-H, Random, 95% CI)	1.06 [0.54, 2.08]
11.1 Adult	3	80	Risk Ratio (M-H, Random, 95% CI)	1.03 [0.44, 2.44]
11.2 Adolescent	1	21	Risk Ratio (M-H, Random, 95% CI)	1.1 [0.37, 3.27]
12 Relapse long-term follow-up	1	77	Risk Ratio (M-H, Random, 95% CI)	2.49 [0.55, 11.21]
12.1 Adolescent	1	77	Risk Ratio (M-H, Random, 95% CI)	2.49 [0.55, 11.21]

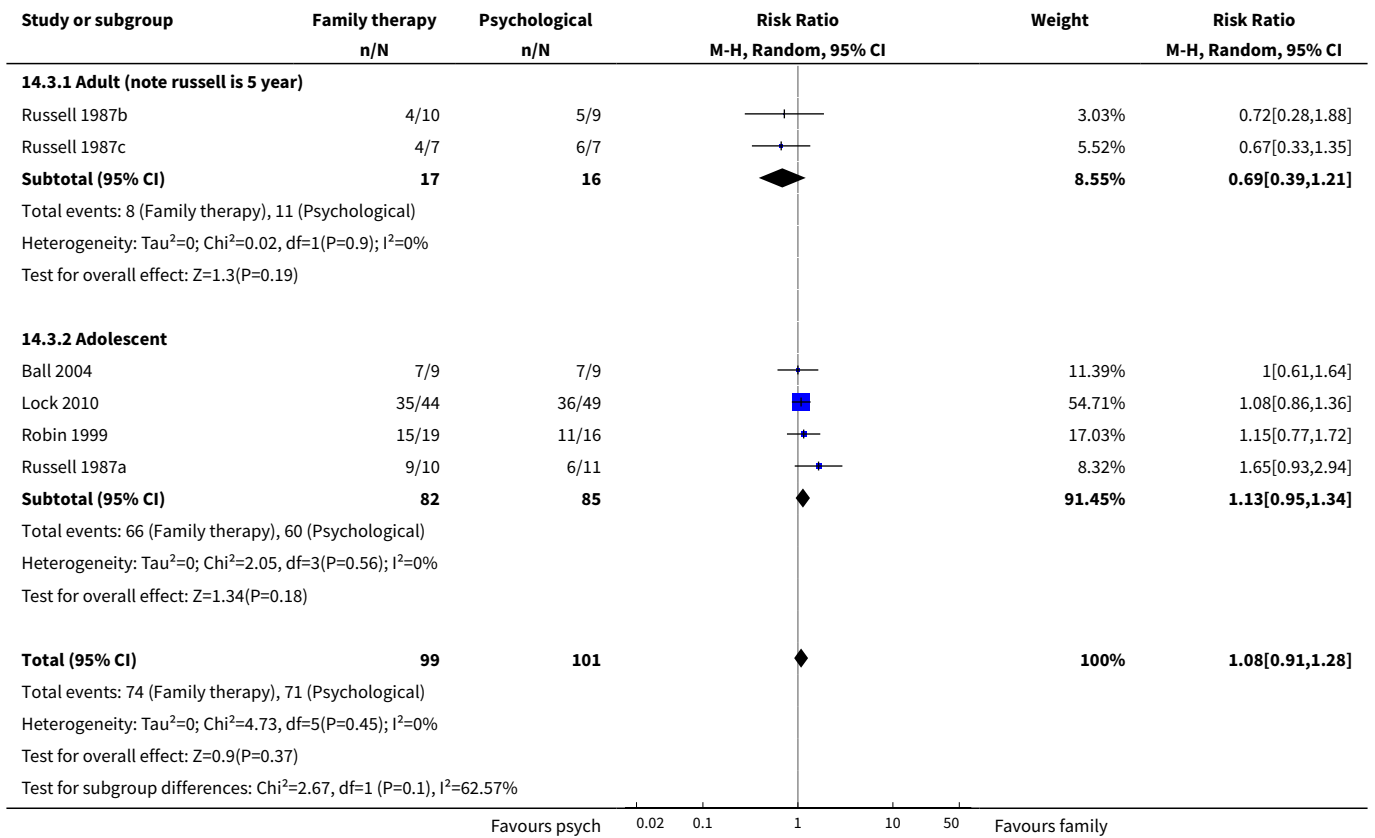
Analysis 14.1. Comparison 14 Family therapy approaches vs psychological interventions (sugroup by age), Outcome 1 Remission post-intervention.



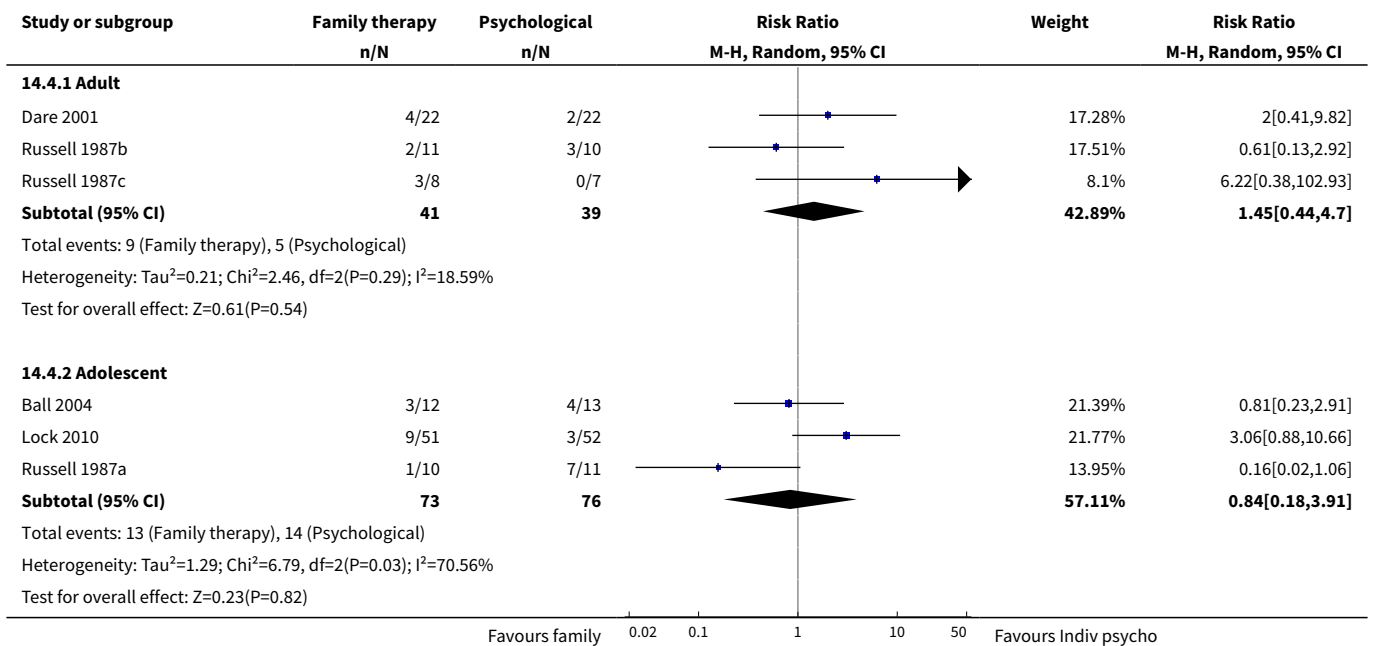
Analysis 14.2. Comparison 14 Family therapy approaches vs psychological interventions (sugroup by age), Outcome 2 Remission short-term follow-up.

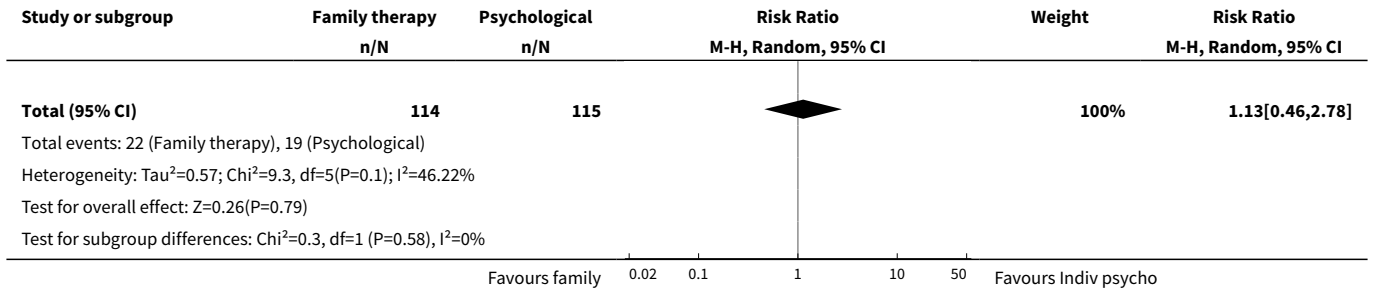


Analysis 14.3. Comparison 14 Family therapy approaches vs psychological interventions (sugroup by age), Outcome 3 Remission long-term follow-up.

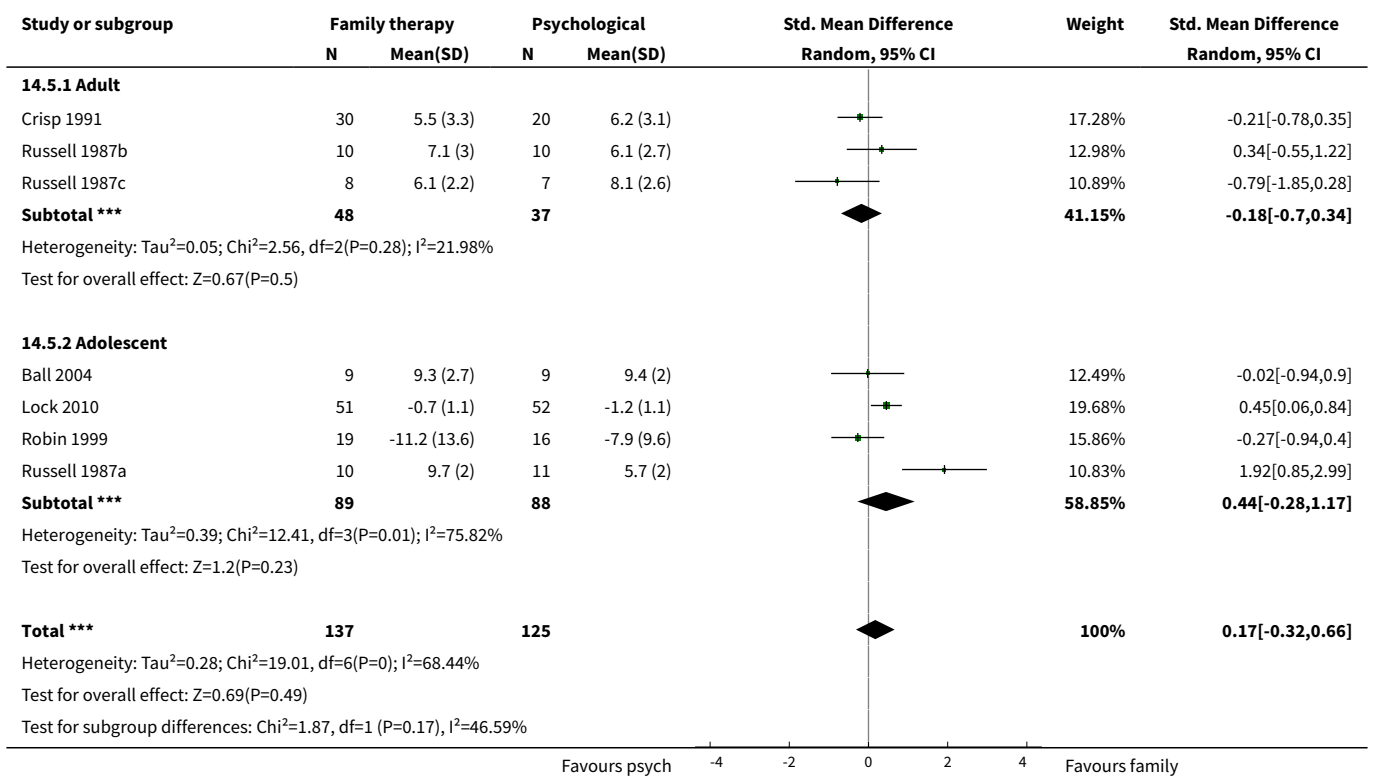


Analysis 14.4. Comparison 14 Family therapy approaches vs psychological interventions (sugroup by age), Outcome 4 Dropouts during treatment.



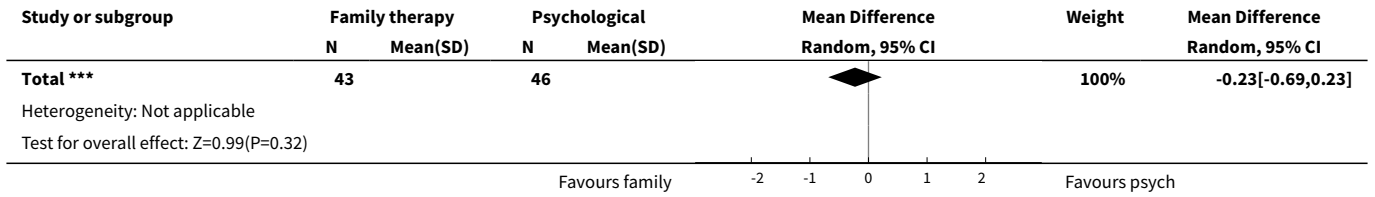


Analysis 14.5. Comparison 14 Family therapy approaches vs psychological interventions (sugroup by age), Outcome 5 Eating disorder psychopathology post-intervention.

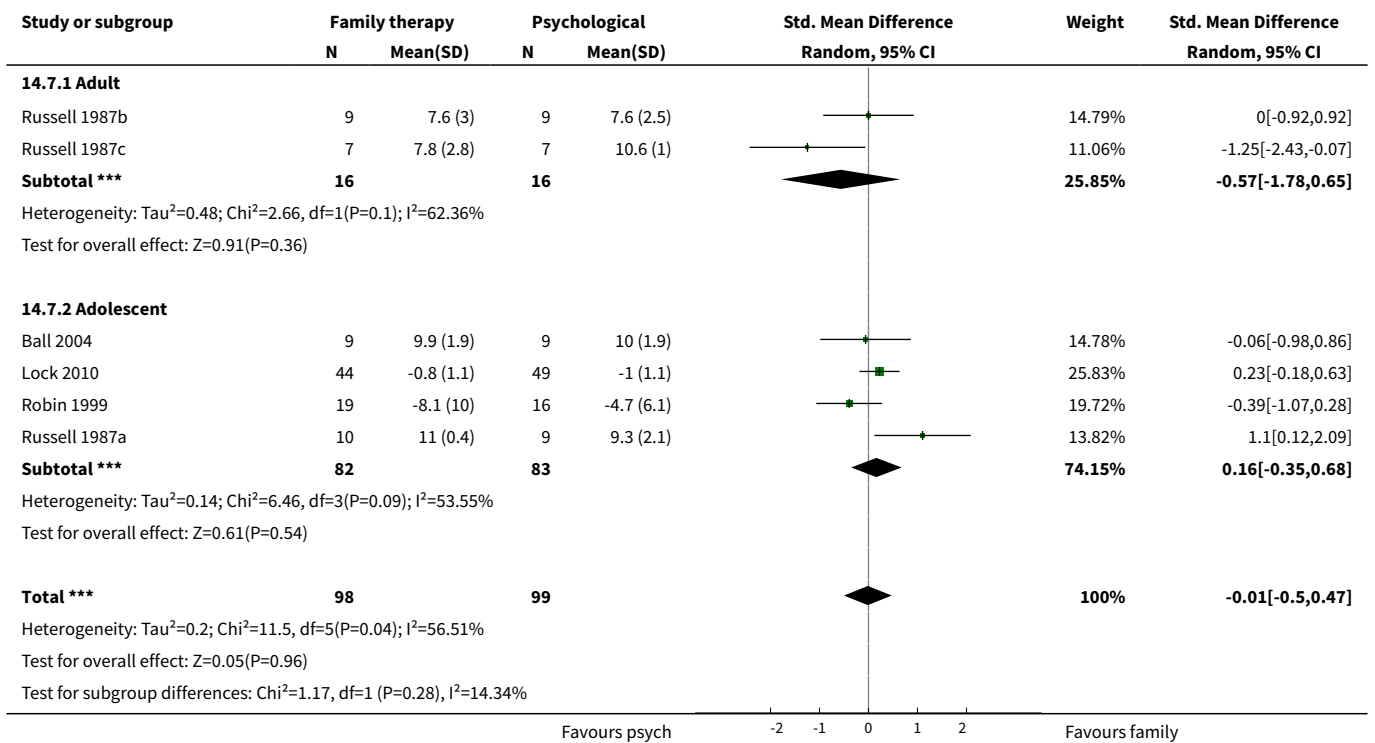


Analysis 14.6. Comparison 14 Family therapy approaches vs psychological interventions (sugroup by age), Outcome 6 Eating disorder psychopathology short-term follow-up (Lock 2010-EDE).

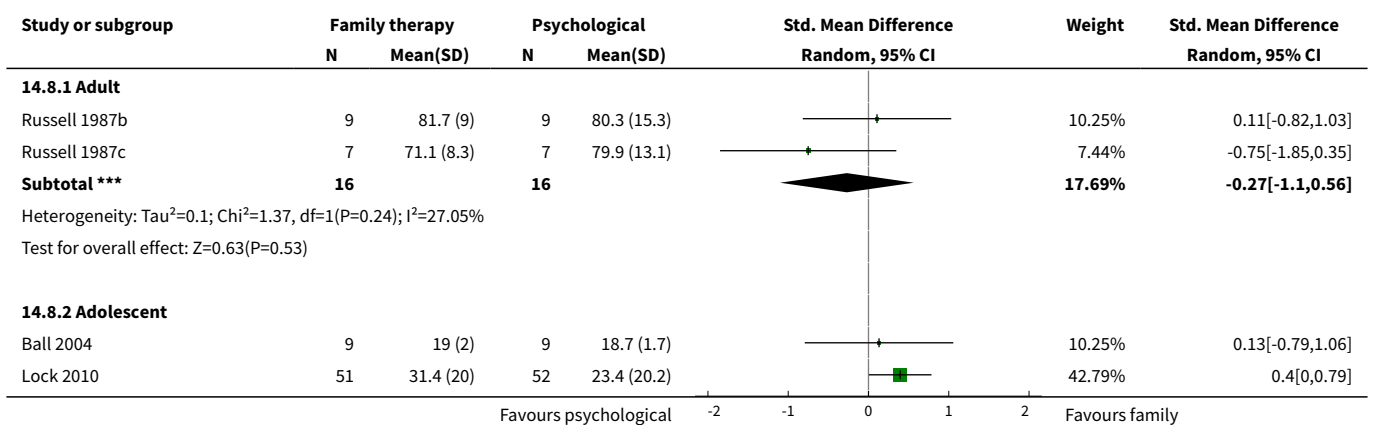


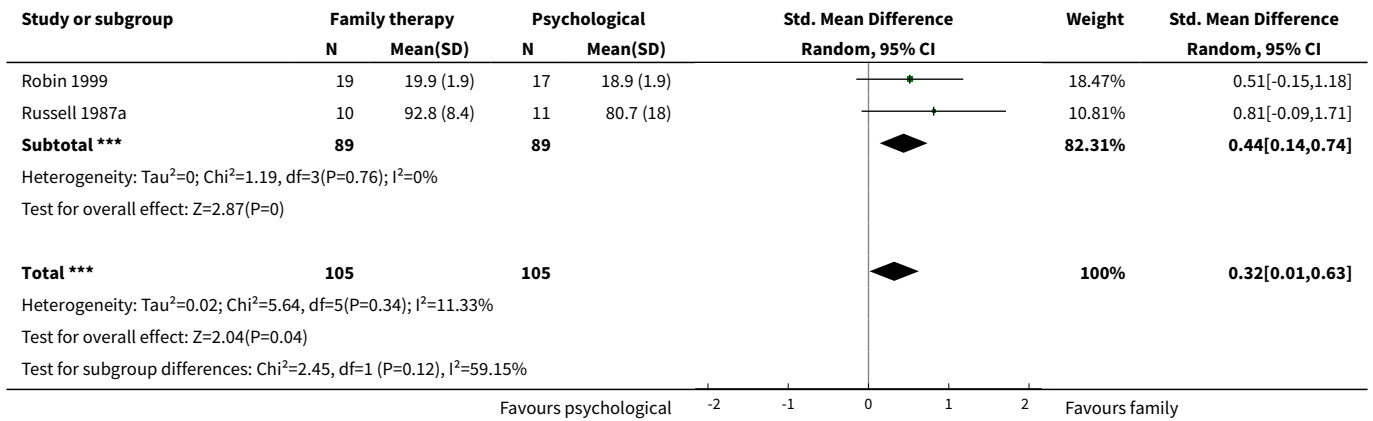


Analysis 14.7. Comparison 14 Family therapy approaches vs psychological interventions (sugroup by age), Outcome 7 Eating disorder psychopathology long-term follow-up.

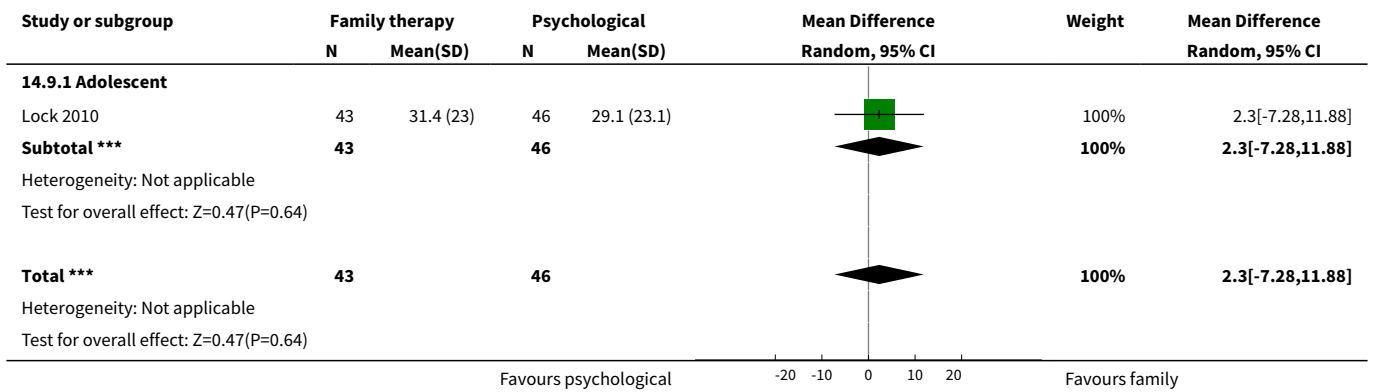


Analysis 14.8. Comparison 14 Family therapy approaches vs psychological interventions (sugroup by age), Outcome 8 Weight (BMI, BMI%ile, %ABW) post-intervention.

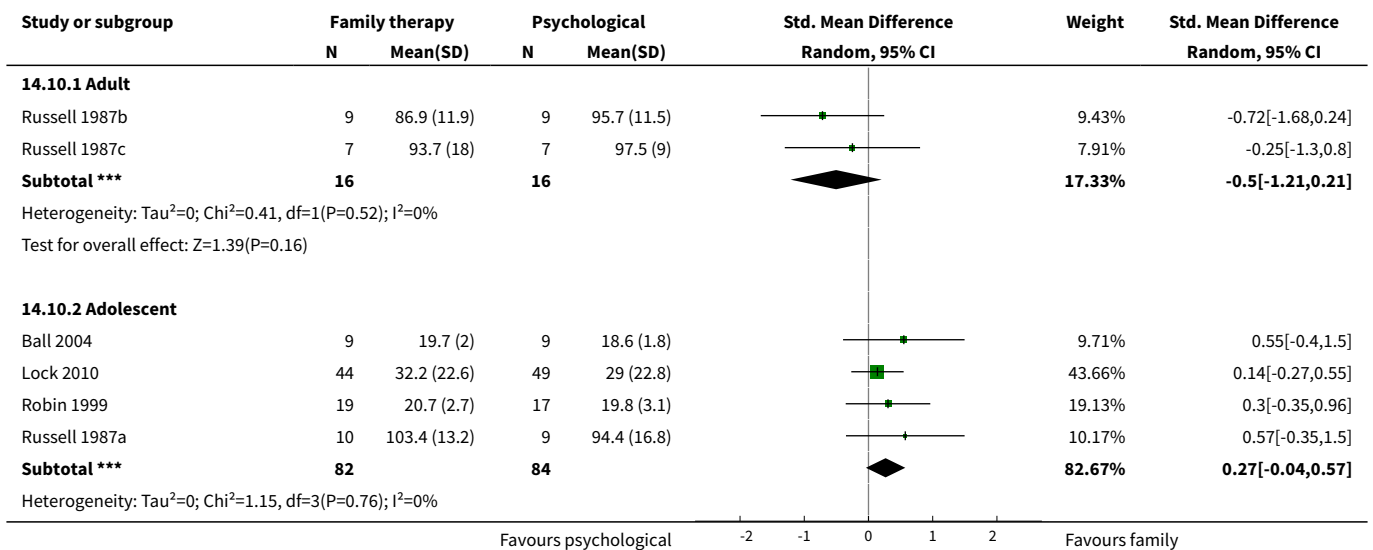


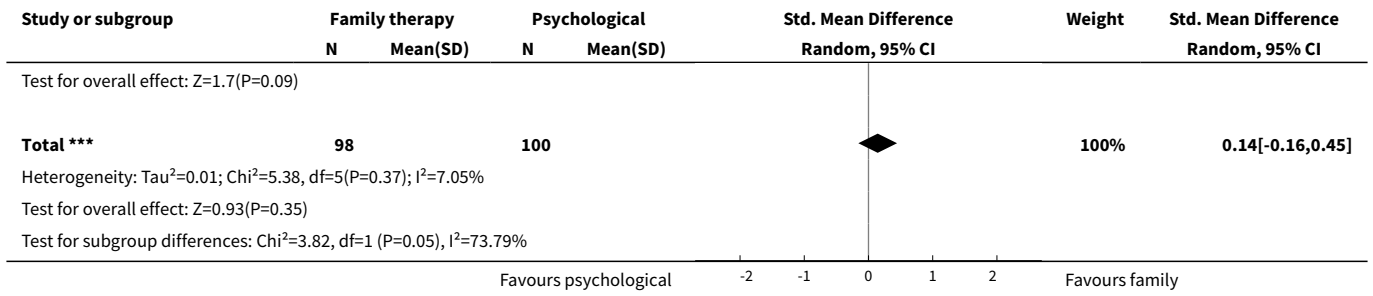


Analysis 14.9. Comparison 14 Family therapy approaches vs psychological interventions (sugroup by age), Outcome 9 Weight (BMI%ile) short-term follow-up.

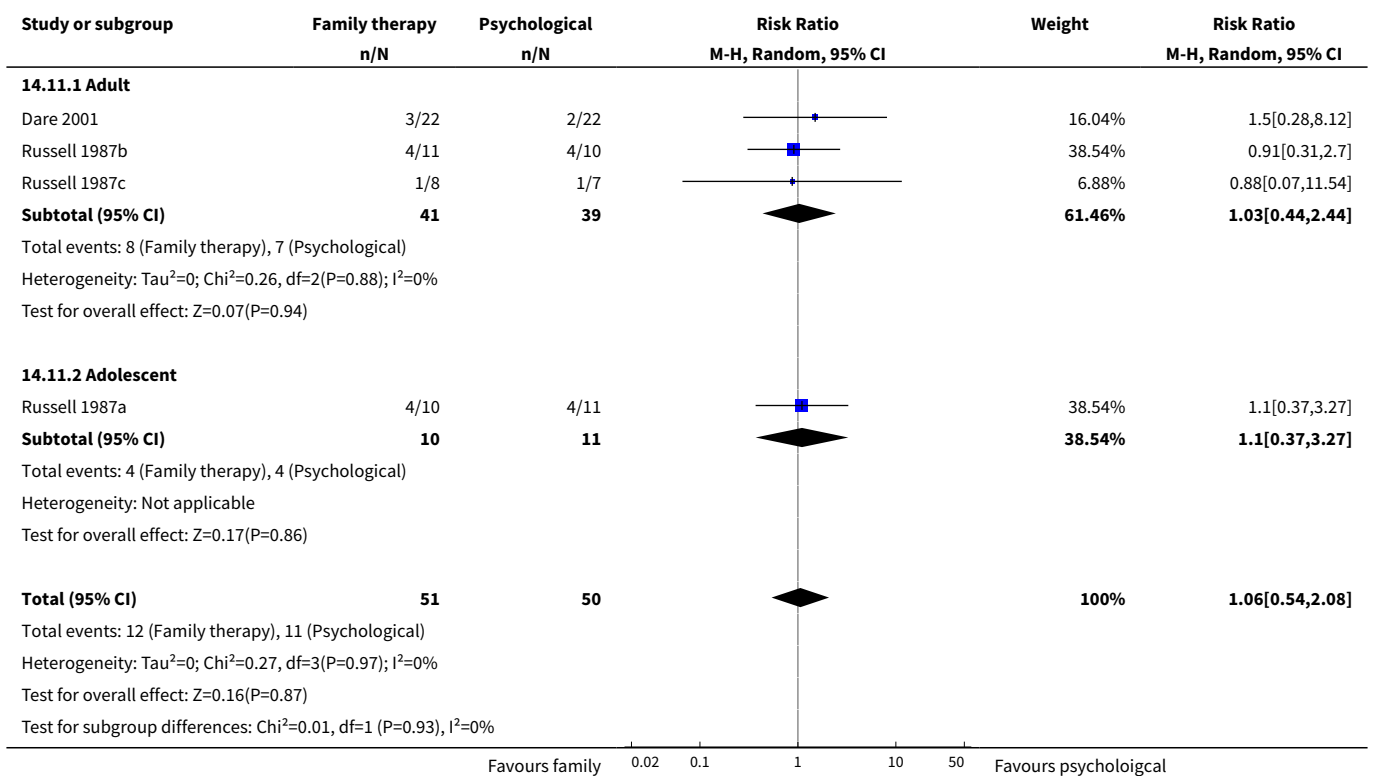


Analysis 14.10. Comparison 14 Family therapy approaches vs psychological interventions (sugroup by age), Outcome 10 Weight (BMI, BMI%ile, %ABW) long-term follow-up.

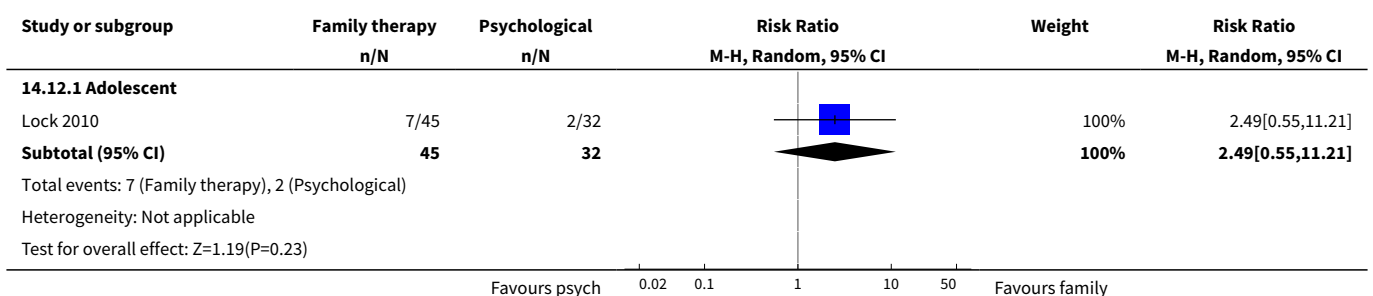


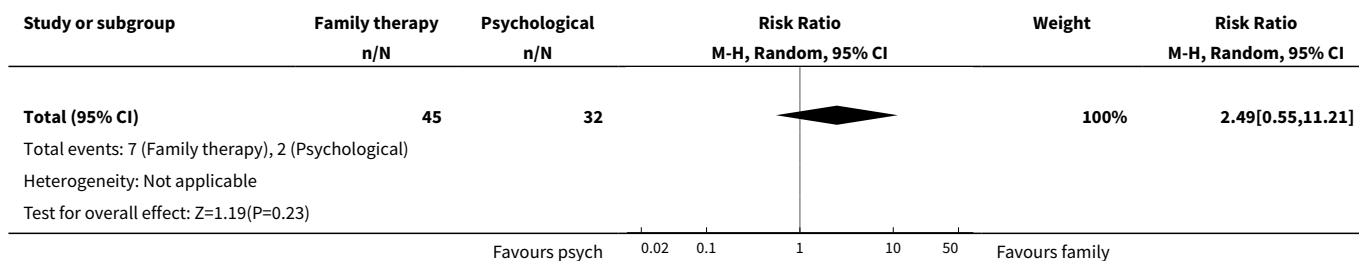


Analysis 14.11. Comparison 14 Family therapy approaches vs psychological interventions (sugroup by age), Outcome 11 Relapse during treatment.



Analysis 14.12. Comparison 14 Family therapy approaches vs psychological interventions (sugroup by age), Outcome 12 Relapse long-term follow-up.





ADDITIONAL TABLES

Table 1. Search Strings

Medline	PsycInfo	Embase
1. exp Eating Disorders/	1. exp Eating Disorders/	1. exp Eating Disorders/
2. Anorexia/ or Anorexia Nervosa/	2. Anorexia Nervosa/	2. Anorexia Nervosa/
3. 1 or 2	3. 1 or 2	3. 1 or 2
4. Family Therapy/	4. Family Therapy/	4. Family Therapy/
5. family therap\$.tw.	5. Family Intervention/	5. Family Intervention/
6. family based therap\$.tw.	6. Conjoint Therapy/	6. family therap\$.tw.
7. family-based therap\$.tw.	7. family therap\$.tw.	7. family based therap\$.tw.
8. systems therap\$.tw.	8. family based therap\$.tw.	8. family-based therap\$.tw.
9. family system\$ therap\$.tw.	9. family-based therap\$.tw.	9. systems therap\$.tw.
10. family treatment\$.tw.	10. systems therap\$.tw.	10. family system\$ therap\$.tw.
11. family intervention\$.tw.	11. family system\$ therap\$.tw.	11. family treatment\$.tw.
12. or/4-11	12. family treatment\$.tw.	12. family intervention\$.tw.
13. 3 and 12	13. family intervention\$.tw.	13. conjoint therap\$.tw.
14. clinical trial.pt.	14. conjoint therap\$.tw.	14. or/4-13
15. clinical trial\$.mp.	15. or/4-14	15. exp controlled study/
16. random\$.mp.	16. 3 and 15	16. (controlled trial\$ or controlled study or controlled studies).tw.
17. placebo.ti,ab.	17. Clinical Trials/	17. exp clinical trial/
18. groups.ti,ab.	18. controlled trial\$.tw.	18. (clinical trial\$ or clinical study or clinical studies).tw.
19. or/14-18		19. random\$.tw.
20. 13 and 19		20. single blind procedure/
		21. double blind procedure/
		22. ((singl\$ or doubl\$ or trebl\$ or tripl\$) adj (blind\$ or mask\$ or dummy)).tw.
		23. placebo\$.mp.
		24. or/15-23

Table 1. Search Strings *(Continued)*

19. (controlled studies or controlled study).tw.	25. 3 and 4 and 24
20. random\$.tw.	
21. Random Sampling/	
22. ((singl\$ or doubl\$ or trebl\$ or tripl\$) adj5 (blind\$ or dummy or mask\$)).tw.	
23. placebo\$.mp.	
24. or/17-23	
25. 16 and 24	

APPENDICES

Appendix 1. Specialised Register: CCMD's core Medline search strategy

The search strategy listed below is the weekly OVID Medline search used to inform the Group's specialised register. It is based on a list of terms for all conditions within the scope of the Cochrane Common Mental Disorders Group plus a sensitive RCT filter.

1. [MeSH Headings]:

eating disorders/ or anorexia nervosa/ or binge-eating disorder/ or bulimia nervosa/ or female athlete triad syndrome/ or pica/ or hyperphagia/ or bulimia/ or self-injurious behavior/ or self mutilation/ or suicide/ or suicidal ideation/ or suicide, attempted/ or mood disorders/ or affective disorders, psychotic/ or bipolar disorder/ or cyclothymic disorder/ or depressive disorder/ or depression, postpartum/ or depressive disorder, major/ or depressive disorder, treatment-resistant/ or dysthymic disorder/ or seasonal affective disorder/ or neurotic disorders/ or depression/ or adjustment disorders/ or exp antidepressive agents/ or anxiety disorders/ or agoraphobia/ or neurocirculatory asthenia/ or obsessive-compulsive disorder/ or obsessive hoarding/ or panic disorder/ or phobic disorders/ or stress disorders, traumatic/ or combat disorders/ or stress disorders, post-traumatic/ or stress disorders, traumatic, acute/ or anxiety/ or anxiety, castration/ or koro/ or anxiety, separation/ or panic/ or exp anti-anxiety agents/ or somatoform disorders/ or body dysmorphic disorders/ or conversion disorder/ or hypochondriasis/ or neurasthenia/ or hysteria/ or munchausen syndrome by proxy/ or munchausen syndrome/ or fatigue syndrome, chronic/ or obsessive behavior/ or compulsive behavior/ or behavior, addictive/ or impulse control disorders/ or firesetting behavior/ or gambling/ or trichotillomania/ or stress, psychological/ or burnout, professional/ or sexual dysfunctions, psychological/ or vaginismus/ or Anhedonia/ or Affective Symptoms/ or *Mental Disorders/

2. [Title/ Author Keywords]:

(eating disorder* or anorexia nervosa or bulimi* or binge eat* or (self adj (injur* or mutilat*)) or suicide* or suicidal or parasuicid* or mood disorder* or affective disorder* or bipolar i or bipolar ii or (bipolar and (affective or disorder*)) or mania or manic or cyclothymic* or depression or depressive or dysthymi* or neurotic or neurosis or adjustment disorder* or antidepress* or anxiety disorder* or agoraphobia or obsess* or compulsi* or panic or phobi* or ptsd or posttrauma* or post trauma* or combat or somatoform or somati#ation or medical* unexplained or body dysmorphi* or conversion disorder or hypochondria* or neurastheni* or hysteria or munchausen or chronic fatigue* or gambling or trichotillomania or vaginismus or anhedoni* or affective symptoms or mental disorder* or mental health).ti,kf.

3. [RCT filter]:

(controlled clinical trial.pt. or randomised controlled trial.pt. or (randomi#ed or randomi#ation).ab,ti. or randomly.ab. or (random* adj3 (administ* or allocat* or assign* or class* or control* or determine* or divide* or distribut* or expose* or fashion or number* or place* or recruit* or substitut* or treat*)).ab. or placebo*.ab,ti. or drug therapy.fs. or trial.ab,ti. or groups.ab. or (control* adj3 (trial* or study or studies)).ab,ti. or ((singl* or doubl* or tripl* or trebl*) adj3 (blind* or mask* or dummy*)).mp. or clinical trial, phase ii/ or clinical trial, phase iii/ or clinical trial, phase iv/ or randomised controlled trial/ or pragmatic clinical trial/ or (quasi adj (experimental or random*))ti,ab. or ((waitlist* or wait* list* or treatment as usual or TAU) adj3 (control or group)).ab.)

4. (1 and 2 and 3)

Records are screened for reports of RCTs within the scope of the Cochrane Common Mental Disorders Group. Secondary reports of RCTs are tagged to the appropriate study record.

Appendix 2. Database searches (2008)

The Cochrane Collaboration Depression, Anxiety and Neuroses Controlled Trials Register (CCDANCTR) was searched in August 2008 using the following terms:

CCDANCTR-Studies

Diagnosis = Anorexia or "Eating Disorders"

and

Intervention = "Family Therapy"

CCDANCTR-References

Keyword = Anorexia or "Eating Disorders"

and

Title = "Family Therapy" or "Family Intervention" or "Family Treatment" or "Family-Based" or "Family Based"

or

Abstract = "Family Therapy" or "Family Intervention" or "Family Treatment" or "Family-Based" or "Family Based"

or

Keyword = "Family Therapy" or "Family Intervention" or "Family Treatment" or "Family Based" or "Family-Based"

A search of the following electronic databases was undertaken by the review authors:

- MEDLINE (1950-Week 2 January 2008)
- PSYCINFO (1950-Week 2 January 2008)
- EMBASE (1950-Week 2 January 2008)

The search string used to search each of these databases is listed below:

Medline	PsycInfo	Embase
1. exp Eating Disorders/	1. exp Eating Disorders/	1. exp Eating Disorders/
2. Anorexia/ or Anorexia Nervosa/	2. Anorexia Nervosa/	2. Anorexia Nervosa/
3. 1 or 2	3. 1 or 2	3. 1 or 2
4. Family Therapy/	4. Family Therapy/	4. Family Therapy/
5. family therap\$.tw.	5. Family Intervention/	5. Family Intervention/
6. family based therap\$.tw.	6. Conjoint Therapy/	6. family therap\$.tw.
7. family-based therap\$.tw.	7. family therap\$.tw.	7. family based therap\$.tw.
8. systems therap\$.tw.	8. family based therap\$.tw.	8. family-based therap\$.tw.
9. family system\$ therap\$.tw.	9. family-based therap\$.tw.	9. systems therap\$.tw.
10. family treatment\$.tw.	10. systems therap\$.tw.	10. family system\$ therap\$.tw.
11. family intervention\$.tw.	11. family system\$ therap\$.tw.	11. family treatment\$.tw.
12. or/4-11	12. family treatment\$.tw.	12. family intervention\$.tw.
13. 3 and 12	13. family intervention\$.tw.	13. conjoint therap\$.tw.
14. clinical trial.pt.	14. conjoint therap\$.tw.	14. or/4-13
15. clinical trial\$.mp.	15. or/4-14	15. exp controlled study/
16. random\$.mp.	16. 3 and 15	16. (controlled trial\$ or controlled study or controlled studies).tw.

(Continued)

17. placebo.ti,ab.	17. Clinical Trials/	17. exp clinical trial/
18. groups.ti,ab.	18. controlled trial\$.tw.	18. (clinical trial\$ or clinical study or clinical studies).tw.
19. or/14-18	19. (controlled studies or controlled study).tw.	19. random\$.tw.
20. 13 and 19	20. random\$.tw.	20. single blind procedure/
	21. Random Sampling/	21. double blind procedure/
	22. ((singl\$ or doubl\$ or trebl\$ or tripl\$) adj5 (blind\$ or dummy or mask\$)).tw.	22. ((singl\$ or doubl\$ or trebl\$ or tripl\$) adj (blind\$ or mask\$ or dummy)).tw.
	23. placebo\$.mp.	23. placebo\$.mp.
	24. or/17-23	24. or/15-23
	25. 16 and 24	25. 3 and 4 and 24

Additionally, ClinicalTrials.gov and the ANZAED Conference abstract book (to 2007) were also searched at this time.

Appendix 3. Database searches (2016)

OVID PsycINFO (21-Apr-2016)

[RCT filter]

1. treatment effectiveness evaluation.sh.
2. clinical trials.sh.
3. mental health program evaluation.sh.
4. placebo.sh.
5. placebo\$.ti,ab.
6. randomly.ab.
7. randomi#ed.ti,ab.
8. trial\$.ti,ab.
9. ((singl\$ or doubl\$ or trebl\$ or tripl\$) adj3 (blind\$ or mask\$ or dummy)).mp.
10. (control\$ adj3 (trial\$ or study or studies or group\$)).ti,ab.
11. "2000".md.
12. factorial\$.ti,ab.
13. allocat\$.ti,ab.
14. assign\$.ti,ab.
15. volunteer\$.ti,ab.
16. (crossover\$ or cross over\$).ti,ab.
17. (quasi adj (experimental or random\$)).mp.
18. ((waitlist* or wait* list* or treatment as usual or TAU) adj3 (control or group)).ab.
19. (random* adj3 (administ* or class* or control* or determine* or divide* or distribut* or expose* or fashion or number* or place* or recruit* or substitut* or treat*)).ab.
20. or/1-19

[Condition]

21. exp Anorexia Nervosa/
22. anorexi*.ti,ab,id.
23. or/21-22

[Intervention]

24. exp FAMILY THERAPY/
25. FAMILY INTERVENTION/
26. "3313".cc.
27. family based.ti,ab,id.
28. (family adj2 (therap* or psychotherap* or intervention* or treatment*)).ti,ab,id.
29. FBT.ab.
30. or/24-29
31. (20 and 23 and 30)
32. (2008* or 2009* or 2010* or 2011* or 2012* or 2013* or 2014* or 2015* or 2016*).yr,an,up.

Family therapy approaches for anorexia nervosa (Review)

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33. (31 and 32)

PubMed (all years to 21-Apr-2016)

#15 (#6 AND #9 AND #14)

#14 (#10 OR #11 OR #12 OR #13))

#13 "eating disorder" OR "eating disorders"

#12 "Feeding and Eating Disorders"[Majr]

#11 anorexi*[Title/Abstract]

#10 "Anorexia Nervosa"[Mesh]

#9 (#7 OR #8)

#8 (family[Title/Abstract] OR multifamily[Title/Abstract] OR families[Title/Abstract])

#7 "Family Therapy"[Mesh]

#6 (#1 OR #2 OR #3 OR #4 OR #5)

#5 (randomised OR randomised OR RCT)

#4 (random* AND (allocat* OR assign* OR divid*))

#3 randomly[Title/Abstract]

#2 (treatment as usual[Title/Abstract]) OR TAU[Title/Abstract]

#1 (((waitlist OR (wait* AND list*)) AND (control OR group)))

Appendix 4. Database searches (2018)

- CENTRAL 31
- MEDLINE 10
- Embase 30
- PsycINFO 24

Total=95

Duplicates=38

To screen, n=57

- World Health Organisations' trials portal (ICTRP), n=8
- ClinicalTrials.gov, n=14
- DART-Europe E-theses Portal, n= 3
- EThOS - the British Libraries e-theses online service, n= 2
- Open Access Theses and Dissertations, n=18
- ProQuest Dissertations and theses database, n=3

Search Strategies

1. Bibliographic Databases

Cochrane Central Register of Controlled Trials : Issue 5 of 12, May 2018

Date Run:01/06/18 10:50:40.895

#1 MeSH descriptor: [Feeding and Eating Disorders] 1 tree(s) exploded 1400

#2 (eat* near/3 disorder*) 2628

#3 MeSH descriptor: [Anorexia] this term only 327

#4 MeSH descriptor: [Anorexia Nervosa] this term only 483

#5 anorexi* 4852

#6 #1 or #2 or #3 or #4 or #5 6972

#7 MeSH descriptor: [Family Therapy] this term only 942

#8 (famil* near/3 therap*) 3415

#9 family based 11793

#10 fbt 117

#11 (famil* near/2 (therap* or psychotherap* or intervention* or treatment*)) 4809

#12 (#7 or #8 or #9 or #10 or #11) 14938

#13 (#6 and #12) 515

[170, became 31 when pre 2016 results were removed]

Ovid MEDLINE(R) ALL 1946 to May 31, 2018

1 exp Eating Disorders/ 27799

2 (eat\$ adj3 disorder\$).ti,ab,kw,ot. 18202

3 Anorexia/ 4699

Family therapy approaches for anorexia nervosa (Review)

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4 Anorexia Nervosa/ 12187
5 anorexi*.ti,ab,kw,ot. 30509
6 (1 or 2 or 3 or 4 or 5) 53264
7 Family Therapy/ 8478
8 (famil\$ adj3 therap\$).ti,ab,kw,ot. 6096
9 family based.ti,ab,kw,ot. 6515
10 fbt.ti,ab,kw,ot. 334
11 (famil\$ adj2 (therap* or psychotherap* or intervention* or treatment*)).ti,ab,kw,ot. 14676
12 (7 or 8 or 9 or 10 or 11) 26208
13 (6 and 12) 825
14 randomized controlled trial.pt.462930
15 controlled clinical trial.pt.92455
16 (randomized or randomised).ab.495272
17 placebo.ab.189699
18 clinical trials as topic.sh.183920
19 randomly.ab.291800
20 trial.ti.183563
21 (13 and 20) 30
22 (2016* or 2017* or 2018*).yr,dt,ed,ep.3784603
23 (21 and 22) 10

Ovid Embase 1974 to 2018 May 31

Search Strategy

1 exp eating disorder/46316
2 (eat\$ adj3 disorder\$).ti,ab,kw,ot.25280
3 anorexia/54644
4 anorexi*.ti,ab,kw,ot.42798
5 Family Therapy/12941
6 (famil\$ adj3 therap\$).ti,ab,kw,ot.9601
7 family based.ti,ab,kw,ot.7846
8 fbt.ti,ab,kw,ot.453
9 (famil\$ adj2 (therap* or psychotherap* or intervention* or treatment*)).ti,ab,kw,ot.16805
10 or/1-4113157
11 or/5-931751
12 (10 and 11) 1323
13 random\$.ti,ab,kw,ot.1311508
14 (12 and 13) 163
15 (2016* or 2017* or 2018*).yr,dc.4325141
16 (14 and 15) 30

Ovid PsycINFO 1987 to May Week 4 2018

1 exp eating disorders/26155
2 (eat\$ adj3 disorder\$).ti,ab.23032
3 anorexi\$.ti,ab.13073
4 (1 or 2 or 3) 33827
5 exp family therapy/16661
6 exp Family Intervention/2748
7 (famil\$ adj3 therap\$).ti,ab.16649
8 family based.ti,ab.3663
9 fbt.ti,ab.234
10 (famil\$ adj2 (therap* or psychotherap* or intervention* or treatment*)).ti,ab.22732
11 (5 or 6 or 7 or 8 or 9 or 10) 32113
12 (4 and 11) 1233
13 random\$.ti,ab.160444
14 (12 and 13) 139
15 (2016* or 2017* or 2018*).yr,an,up. 502889
16 (14 and 15) 24

2. Theses Databases**DART-Europe E-theses Portal**Searched via: <http://www.dart-europe.eu/>**Family therapy approaches for anorexia nervosa (Review)**

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Searched on: Monday June 4th 2018
((anorexia) and (family))

ETHOS - the British Libraries e-theses online service

Searched via: <http://ethos.bl.uk/>
Searched on: Monday June 4th 2018
((anorexia) and (family))

Open Access Theses and Dissertations

Searched via: <https://oatd.org>
Searched on: Monday June 4th 2018
((anorexia) and (family))

Dissertations and theses database

Searched via: ProQuest
Searched on: Monday June 4th 2018
((anorexia) and (family))

3. Trial Registries

ICTRP
Searched via: <http://apps.who.int/trialsearch/default.aspx>
Searched on: Monday June 4th 2018
Search terms:
((anorexia) and (family))

Clinical Trials.Gov
Searched via: <https://www.clinicaltrials.gov/>
Searched on: Monday June 4th 2018
Search terms:
((anorexia) and (family))

FEEDBACK

Recommendations for revisions to the 'Family therapy for anorexia nervosa' review, 11 May 2010

Summary

First, I would like Cochrane to consider revising the 'Main Results', 'Authors' Conclusions', and 'Plain Language Summary' sections, which currently say that family based therapy has "no significant advantage," and "little advantage," compared to other interventions.

Those statements are inconsistent with the main body of the paper, including page 14, where it is acknowledged that for anorexia nervosa patients with an age of onset of less than 18, who have been ill less than three years, the "Maudsley" model of family based therapy has a "statistically significant" advantage over other forms of therapy. Consequently, it is inconsistent and misleading to say in the 'Main Results', 'Authors' Conclusions' and 'Plain Language Summary' that all forms of family therapy have "no significant advantage" or "little advantage" over other interventions. A "statistically significant" advantage is not the same as "no significant" or "little" advantage. In this respect, please note two other reviews that have been published on the subject of treatments for anorexia nervosa. One, Berkman, et al. 2006 (under contract with the U.S. Agency for Healthcare Research and Quality (<http://www.ahrq.gov/downloads/pub/evidence/pdf/eatingdisorders/eatdis.pdf>)) concludes that the "Maudsley model is 'efficacious in treating adolescents' and leads to 'clinically meaningful weight gain and psychological change.'" A second, Keel, et al (<http://www.ncbi.nlm.nih.gov/pubmed/18444053>) judges that the evidence base is "strongest" for the Maudsley model of family therapy. I ask, therefore, that the Cochrane review restate its main result, conclusions, and summary so that they are consistent with its own findings and with the conclusions of other published reviews, including Berkman and Keel.

Second, I request that the Cochrane review delete all existing references to risk factors or etiology, including but not limited to the statement on page 3 that "family conflict" is a risk factor for anorexia nervosa. None of the six studies cited on page 3 provide evidence to support that assertion, and as noted by the American Psychiatric Association, no evidence exists to prove that families cause eating disorders. The APA further cautions that clinicians should avoid articulating theories that imply blame or permit family members to blame one another or themselves, and warns that doing so is harmful to both families and to patients (http://www.psychiatryonline.com/pracGuide/pracGuideTopic_12.aspx)

The subject of risk factors and etiology with respect to anorexia nervosa should not be addressed in a review focused on treatment of anorexia nervosa. The topics of risk factors and etiology are simply too complex, and not enough is known about them at this time, to be

able to reach conclusions that meet Cochrane's standard of "conclusive evidence." To the extent that Cochrane wishes to publish a review of available evidence of risk factors and etiology, I suggest that it do so in a separate paper where full attention can be given to the subject.

Chris Berka
Chairman of the Board
F.E.A.S.T. (Families Empowered and Supporting Treatment of Eating Disorders)
www.FEAST-ED.org

Reply

We would like to thank Mr Berka for his extremely helpful and detailed feedback on our recently published Cochrane review, *Family Therapy for Anorexia Nervosa*. Our goal was to make this review helpful to patients, their families and the healthcare professionals who support them and commentaries like this one provide invaluable on-going peer-review post-publication. We are most grateful to Mr Berka for taking the time to provide these comments and for querying some of the methodology and the information presented. We are pleased to have the opportunity to respond to these points and hope that our replies and any associated changes will increase the value of the review to organisations like F.E.A.S.T.

In response, firstly, we thank Mr Berka for sending details of some significant reviews of family therapy (FT) for anorexia nervosa (AN). We have included a discussion of their findings in relation to our review in the final section of the 'Discussion'. We are in agreement with these reviews about the paucity of studies in this area. This is why we have, based on the careful consideration of the results of our systematic review and meta-analysis, concluded that more research is required before definitive conclusions can be drawn about the effectiveness of family therapy compared with other psychological interventions or of one type of family therapy compared to others. We have indicated that there is evidence from a subgroup of 22 participants in the study by Russell and his colleagues that family therapy is beneficial, as have the reviews Mr Berka pointed out. However, we believe that this does not constitute a sufficiently large enough evidence base on which to draw conclusions about efficacy. We have highlighted that this is a promising finding that should be followed up with more research.

Where possible throughout the review, we have now clarified that this means there is insufficient evidence to be able to conclude that there are differences between FT and other psychological interventions or between different types of FT, as opposed to no evidence that one form of therapy is more effective than another. We think this conclusion is consistent with the approach of F.E.A.S.T who have recommended the Maudsley/Family Based Treatment in the absence of evidence for other treatments.

Secondly, we were very concerned to see that the 'Background' section on risk factors might be interpreted to suggest that parents are in some way responsible for or contribute to the development of anorexia in their children. The potential risk factors listed are simply the social, cultural, demographic and personality factors that appear to place an individual at an increased level of risk of having a particular disorder. While a number of risk factors are listed we did not intend to imply that these risk factors are causally associated with the development of an eating disorder.

We would like to clarify that it is not our opinion, nor do we think the literature indicates that the family or family structure is causal in the aetiology of eating disorders. We hoped this was clear from the information in the section summarising how the intervention might work: "Whether or not the family dynamic acts as a major contributing factor to the development of an eating disorder is still being debated". However, to ensure that it is clear, we have altered the wording and removed reference to family factors in the Background and hope that this makes clear that family factors are in no way regarded as being causative of eating disorders.

Mr Berka kindly identified the statement by the American Psychiatric Association that highlights the point that there is no evidence that families cause eating disorders. We agree that the Background section would benefit from updating and we are grateful for Mr Berka's contribution to this aspect of our review. We have not included reference to this statement from the APA, however; as we thought it preferable to remove any reference to the family when we discussed risk. We think that the Background now presents a broader discussion of risk factors and we will continue to take account of future publications each time the review is updated.

Caroline Fisher and Sarah Hetrick

Contributors

This feedback was prepared by Rachel Churchill and Jane Dennis, Coordinating Editor and Managing Editor for CCDAN, in consultation with the submitter and the authors of the review.

Feedback received by email, 19 December 2018

Summary

The authors of this review and Cochrane Common Mental Disorders received feedback via email about the review from an anonymous contributor. Concern was expressed that information presented in the background section of the review might be misleading, specifically with regard to the aetiology of eating disorders and the family environment.

Reply

The authors and Cochrane Common Mental Disorders are grateful for the helpful feedback provided. It was not the intention of the authors to be misleading. The author team has worked with Cochrane Common Mental Disorders and an external expert to amend the [Description of the condition](#) and [How the intervention might work](#) sections of the background to improve the text and avoid any possible misrepresentation of the literature. Correspondence also revealed that [Besharat 2001](#) was undertaken in the UK, the review has also been updated to include this information. The authors would like to acknowledge the very helpful advisory input of Professor Ivan Eisler, Maudsley Centre for Child Adolescent Eating Disorders, London.

Contributors

This feedback was prepared by Peter Coventry and Jessica Hendon, Feedback Editor and Managing Editor for Cochrane Common Mental Disorders, in consultation with the contributor and the authors of the review.

WHAT'S NEW

Date	Event	Description
15 April 2019	New citation required but conclusions have not changed	The background has been substantively updated and new references added following feedback on the review
15 April 2019	Feedback has been incorporated	Feedback was received and the authors have responded
15 April 2019	Amended	A section in the background of the review has been amended to improve the text and avoid any possible misrepresentation of the literature

HISTORY

Protocol first published: Issue 2, 2004

Review first published: Issue 4, 2010

Date	Event	Description
12 October 2018	New search has been performed	The review has been updated.
12 October 2018	New citation required but conclusions have not changed	The title of the review has been changed. Conclusions not changed. This update includes 12 new studies not included in the original 2010 review.
12 May 2010	Feedback has been incorporated	In response to comments from a reader (reproduced in the 'Feedback' section of this review), we have made changes to the review in the 'Background', 'Discussion', the 'Conclusions', 'Abstract' and 'Plain Language Summary'.
14 April 2010	Amended	Data on some ongoing studies has been added
14 July 2008	Amended	Converted to new review format.
14 March 2008	Amended	New author team produced revised and updated protocol

CONTRIBUTIONS OF AUTHORS

All authors were involved in the inclusion/exclusion assessment of studies. CF, SS and KR extracted the information about trials (for the Table of Included Studies) and outcome data and undertook 'Risk of bias' assessment. CF and SH analysed the data, and all authors contributed to the write-up of the review. All authors contributed to the write-up of the Discussion and final preparation of the manuscript.

DECLARATIONS OF INTEREST

Caroline Fisher: None known;
Sonja Skocic: None known;
Katheleen Rutherford: None known;
Sarah Hetrick: None known.

SOURCES OF SUPPORT

Internal sources

- Orygen Youth Health Research Centre funded and supported by The Colonial Foundation, Australia.

External sources

- No sources of support supplied

DIFFERENCES BETWEEN PROTOCOL AND REVIEW

There were some changes between the methods undertaken in the original protocol (Fisher 2008), and the original version of the published review (Fisher 2010). The current review has one objective (to evaluate the efficacy of family therapy compared with standard treatment and other treatments in AN). This has been simplified from the four objectives in the previous versions (i.e. 1. To evaluate the efficacy of family therapy compared with standard treatment and other treatments; 2. To investigate the relative efficacy of different forms of family therapy (see section below on 'Types of Interventions'; 3. To investigate the efficacy of family therapy in patients with chronic AN vs non-chronic AN; 4. To investigate the efficacy of family therapy in adolescents with AN compared to adults with AN). This rationalisation occurred as there were insufficient data in the available studies to investigate the effects of age or of chronicity, effectively in the original review, and similarly in this version. The review authors also decided that the single objective covered the previous second objective, of investigating different forms of family therapy, with analysis of this conducted in the current review.

In the current version of the review we have replaced the term 'cognitive distortion' with 'eating disorder psychopathology', to reflect the current terminology in the literature. This assessed variable relates to scores on eating disorder assessment scales and we are of the opinion that 'eating disorder psychopathology' reflects this more accurately than 'cognitive distortion', as some of the items on these scales do not relate to cognitions but rather to behaviours.

Rates of missing data in the newly-included studies in this version of the review were lower than in the studies in the original version of the review. Where data directly relevant to the specific outcome measures were reported to have been obtained during the study (based on the outlined methodology) but were not reported, we contacted authors (i.e. Besharat 2001) in an attempt to acquire these data. However, we were unable to obtain the data that related directly to the primary and secondary outcomes of the review.

New Summary of findings tables have been included in this update of the review.

NOTES

The current review is an update of the original review, published by the research team in 2010 (Fisher 2010).

INDEX TERMS

Medical Subject Headings (MeSH)

Anorexia Nervosa [*therapy]; Body Weight; Family Therapy [*methods]; Psychotherapy [*methods]; Randomized Controlled Trials as Topic; Treatment Outcome

MeSH check words

Adolescent; Adult; Humans; Young Adult