Family therapy for anorexia nervosa (Review)

Fisher CA, Hetrick SE, Rushford N

THE COCHRANE COLLABORATION®

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2010, Issue 6

http://www.thecochranelibrary.com

TABLE OF CONTENTS

[Intervention Review]

Family therapy for anorexia nervosa

Caroline A Fisher[1], Sarah E Hetrick[2], Nola Rushford[3]

[1]Department of Clinical Neuropsychology, Austin Health, Heidelberg Repatriation Hospital, and Centre of Excellence in Youth Mental Health, Orygen Youth Health Research Centre, Centre for Youth Mental Health, University of Melbourne, Heidelberg West, Australia. [2]Centre of Excellence in Youth Mental Health, Orygen Youth Health Research Centre, Centre for Youth Mental Health, University of Melbourne, Melbourne, Australia. [3]Psychological Sciences, University of Melbourne, Parkville, Australia

Contact address: Caroline A Fisher, Department of Clinical Neuropsychology, Austin Health, Heidelberg Repatriation Hospital, and Centre of Excellence in Youth Mental Health, Orygen Youth Health Research Centre, Centre for Youth Mental Health, University of Melbourne, PO Box 5444, Heidelberg West, Victoria, 3081, Australia. Caroline.Fisher@austin.org.au.

Editorial group: Cochrane Depression, Anxiety and Neurosis Group.
Publication status and date: Edited (no change to conclusions), comment added to review, published in Issue 6, 2010.
Review content assessed as up-to-date: 31 July 2008.

Citation: Fisher CA, Hetrick SE, Rushford N. Family therapy for anorexia nervosa. *Cochrane Database of Systematic Reviews* 2010, Issue 4. Art. No.: CD004780. DOI: 10.1002/14651858.CD004780.pub2.

ABSTRACT

Background

Anorexia Nervosa (AN) is characterised by distorted body image and deliberately maintained low body weight. The long term prognosis is often poor, with severe medical, developmental and psychosocial complications, high rates of relapse and mortality. Different variants of family therapy have been commonly used for intervention.

Objectives

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

Search methods

The Cochrane Collaboration Depression, Anxiety and Neuroses Controlled Trials Register (CCDANCTR) was searched until August 2008; MEDLINE, PsycInfo and EMBASE and ClinicalTrials.gov were searched up to January 2008. A conference abstract book and included studies reference lists were searched. All lead authors of included studies were also contacted.

Selection criteria

Randomised controlled trials (RCTS) of interventions described as 'family therapy' compared to any other intervention or other types of family therapy were eligible for inclusion.

Patients of any age or gender with a primary clinical diagnosis of anorexia nervosa (AN) were included.

Data collection and analysis

Two review authors selected the studies, assessed quality and extracted data. We used a random effects meta-analysis. Relative risk was used to summarise dichotomous outcomes and both the standardised mean difference and mean difference to summarise continuous measures.

Main results

13 trials were included, the majority investigating family based therapy, or variants. Reporting of trial conduct was generally inadequate. The full extent of the risk of bias is unclear.

There was some evidence (from two studies, 81 participants) to suggest that family therapy may be more effective than treatment as usual on rates of remission, in the short term (RR 3.83 95% CI 1.60 to 9.13). Based on one study (30 participants) there was no significant advantage for family therapy over educational interventions (RR 9.00 95% CI 0.53, 153.79) or over other psychological interventions (RR 1.13 95% CI 0.72 to 1.76) based on four studies (N=149).

All other reported comparisons for relapse rates, cognitive distortion, weight measures and dropouts yielded non-significant results.

Authors' conclusions

There is some evidence to suggest that family therapy may be effective compared to treatment as usual in the short term. However, this is based on few trials that included only a small number of participants, all of which had issues regarding potential bias. There is 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. The field would benefit from a large, well-conducted trial.

PLAIN LANGUAGE SUMMARY

Family therapy for those diagnosed with anorexia nervosa

Anorexia nervosa (AN) is a disorder characterised by deliberately maintained low body weight and distorted body image. Those with AN have many medical and psychological complications and the risk of dying from the disease is relatively high.

One form of intervention commonly utilised to treat patients with AN is family therapy. Although there are a number of different forms of family therapy, the current review of 13 trials indicated that the therapy most often tested in trials is family based therapy. The trials included in the review had limitations in the reporting of trial conduct and meaningful outcomes. Overall there was some evidence to suggest family therapy may be effective compared to treatment as usual. However, there is not enough evidence to determine whether family therapy is effective compared to other psychological interventions for rates of remission. There were no differences in relapse rates, symptom scores, weight measures, or the number of drop outs between those treated with family therapy versus any other comparison group. Mortality was not measured or reported sufficiently to determine whether it is reduced for those treated with family therapy compared to other interventions. There were very little data about general or family functioning.

BACKGROUND

Description of the condition

The standard diagnostic criteria for anorexia nervosa (AN), based on ICD (WHO 1992) and DSM (APA 1994) diagnostic systems, are characterised by distorted body image and deliberately maintained low body weight . The criteria include the refusal of an individual to maintain a normal body weight, fear of gaining weight, perception of being heavier than the reality of the actual body weight, denial of the associated health risks of low body weight, and the sense of self being intrinsically linked to body weight and shape. The major weight loss strategies observed in individuals with AN include 1) food restriction, 2) binge-purge behaviours and 3) excessive exercise. The loss of menses in females is also common. The long term prognosis of patients is often poor, with high rates of relapse (Berkman 2007) and high rates of severe medical, developmental and psychosocial complications (Katzman 2005; Zipfel 2003). AN is associated with high morbidity and mortality rates when compared to most other psychiatric disorders (Harris 1998). In longitudinal follow-up studies of chronically ill adults with the disorder, mortality rates of between 9 to 20 percent have been observed over 12 to 20 year follow-up periods (Fichter 2006; Sullivan 1995). Many patients never receive treatment, and there are high rates of treatment refusal and avoidance, as well as high rates of dropout from commenced treatment (Tolkien II Team 2006).

AN most commonly emerges in adolescence or early adulthood (Fairburn 2003). The point prevalence for strictly defined AN is around 0.9% in young females and around 0.3% in adult females (Hoek 2003). Prevalence rates in males have not been well studied, but research indicates that for every 10 to 12 females diagnosed with the disorder, there is at least one male (Lucas 1999; Nielsen 1990). While a number of personality, interpersonal, psychological, and biological factors have been associated with the disorder (see Fairburn 2003 and Treasure 2010, for reviews), to date the causal mechanisms are unclear and likely to be multi-factorial (Fairburn 2003).

Description of the intervention

One common goal of treatment for AN is weight restoration or 'refeeding', with treatment typically beginning with nutritional rehabilitation (Fairburn 2003). In addition, a range of psychological and pharmacological therapies have been employed to augment, or follow, the refeeding phase. There is a lack of evidence to support the use of antidepressant (Claudino 2006) or antipsychotic (Court 2008) medication in AN. Several recent reviews found little evidence to support the efficacy of any specific psychological interventions, including cognitive behavioural therapy, interpersonal therapy, cognitive analytic therapy, behavioural therapy, or psychodynamic therapy, for patients with AN (Bulik 2007; Hay 2003; le Grange 1992). Nevertheless, specific types of psychological intervention may be effective in specific populations, for example, cognitive behavioural therapy may reduce relapse rates in adults who have already achieved restoration of a normal body weight (Bulik 2007), while family therapies may be effective in treating adolescents with the disorder (Bulik 2007; le Grange 2005).

How the intervention might work

AN is also most commonly diagnosed during adolescence (Fairburn 2003), when the individual is generally living within a family unit. Thus, clinicians have attempted to utilise the family system to help support the recovery of the affected individual using a range of different family therapy methods. Each has a different emphasis on causative and maintaining factors and different therapeutic targets and outcomes.

(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).

The focus of *structural* family therapy (Liebman 1974; Minuchin 1978) centres on individual physiological vulnerability, dysfunctional transactional styles, and the role the sick child plays in facilitating conflict avoidance. A second approach, derived from structural therapy, is *systems* therapy, including Milan and Post-Milan family therapy. This approach attempts to elicit changes in the family dynamic by presenting information that encourages family members to reflect on their own behaviour within the family dynamic (Selvini 1978). In these approaches the family is not included in the therapy process until after weight restoration has been achieved (Selvini 1978; Minuchin 1978).

Rather than considering the impact of the family dynamic on the onset of the illness, *strategic* family therapy acknowledges the effect of the illness on all family members and focuses on inducing change in the eating disorder symptoms. This is often achieved through highlighting paradoxical intentions of family members (Madanes 1981). Like strategic family therapy, the Maudsley model, termed *family based* therapy, disregards the notion that the family dynamic is a direct causative agent in the pathogenesis of the disorder (Lock 2005). It emphasises behavioural recovery, rather than insight or understanding, and empowers family members to support the recovery of their child in the home setting. Families are helped to manage the eating behaviours of their child by providing education about AN, encouraging parents to generate strategies for increasing food intake and limiting physical activity. Emphasis is also placed on applying these strategies consistently and calmly (Dare 1997; le Grange 1992). There are three principal phases to the treatment process. In the first phase, the principal focus is on refeeding and weight gain. This is achieved by placing responsibility for the child's eating patterns in the hands of the parents and emphasising the adolescent's inability to control his or her eating patterns due to the effects of starvation. The second phase focuses on problem-solving regarding family and psychological issues that interfere with refeeding. The final phase centres around more general family and psychological issues, particularly those related to increasing autonomy for the adolescent and family boundaries. This is generally achieved through working with the adolescent and family members in joint family therapy sessions. More recent studies have investigated the efficacy of implementing this therapy in sessions where the patient is seen separately from their parents (termed *separated family based* therapy) (Eisler 2000). When implemented with adult patients, parents are not encouraged to take control of the patients' eating behaviour in the same way as when working with younger patients (e.g. Dare 2001).

A further therapy described in the literature, *behavioural* family systems therapy, has a number of similarities with the *family based* therapy described above. *Behavioural* family systems therapy also has three stages to treatment, which are highly similar in nature to those utilised in *family based* therapy (Robin 1994; Robin 1995; Ball 2004). The major principles of this therapy include the acknowledgment that the adolescent lacks control over their weight and eating habits, work to address cognitive distortions and problems with the family structure, as well as work to overcome cognitive distortions of the patient, and in later stages, to promote autonomy (Robin 1994; Robin 1995).

In addition to these formally described family therapy interventions, families are involved in other treatment approaches that

support the recovery of the affected family member. This involvement may take various forms, and while not necessarily having such a well described theoretical underpinning, may also have an important influence on recovery.

Why it is important to do this review

A recent narrative review suggested that family therapy may be effective at increasing weight and improving psychological functioning in younger, non-chronic individuals with AN (Bulik 2007). It is important to determine whether family involvement in therapy, of any description, is beneficial to those with AN and what effect this involvement might have. There remain issues that need to be addressed, including determining the efficacy of different models of family therapy and understanding the impact of age and chronicity on outcome, and emergent characterological traits. These issues would be best investigated in a systematic review and meta-analysis of all the relevant studies in this area. This review will add to the current suite of Cochrane systemic reviews on anorexia nervosa.

OBJECTIVES

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.

METHODS

Criteria for considering studies for this review

Types of studies

All published or unpublished randomised clinical trials were included. Cluster randomised controlled trials and cross over trials would have been included, however, none were located.
There were no language restrictions, nor were studies excluded on the basis of the date of publication.

Types of participants

Patients of any age or gender with a primary clinical diagnosis of anorexia nervosa (AN), either or both purging or restricting subtype based on DSM (APA 1994) or ICD criteria (WHO 1992) or clinicians' judgement, of any severity. Those with psychiatric comorbidity were included and the details of comorbidity were documented. Those with chronic and non-chronic AN were included.
Participants may have received intervention in any setting (including in-, day- or outpatient) and may have commenced 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).
Those living in a family unit (of any nature, as described/defined by study authors) and living outside of a family unit were included.

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 types of family therapy considered were:
1. *Structural* family therapy
2. *Systems* 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 utilise family involvement in therapy but are less specific about the theoretical underpinning of the therapy and its procedures).

Control Conditions
Family therapies were compared with:
1. Standard care or treatment as usual
2. Biological interventions (for example, antidepressants, antipsychotics, mood stabilisers, anxiolytics, neutraceuticals, and other agents such as anti-glucocorticoids)
3. Educational interventions (for example, nutritional interventions and dietetics)
4. Psychological interventions (for example, cognitive behavioural therapy 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 were compared to each other. The addition of family therapy to other interventions

(including standard care) was also compared to other interventions alone.

Main comparisons

The main comparisons made included:

1. Family therapy vs standard care/treatment as usual
2. Family therapy vs biological interventions
3. Family therapy vs educational interventions
4. Family therapy vs psychological interventions
5. Family therapy vs complementary interventions
6. Family therapy vs other type of family therapy

In future versions of this review, we anticipate reducing the number of comparisons and outcomes given the large number of analyses these may result in (which increase the chances of spurious findings). In the update we will include the following comparisons only:

1. Family therapy versus standard care/ TAU
2. Family therapy versus other psychological interventions

Types of outcome measures

Primary outcomes

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

Secondary outcomes

1. Relapse (by DSM or ICD or trialist defined criteria for relapse or hospitalisation)
2. Dropout (by rates per group during treatment)
3. Family functioning as measured on standardised, validated and reliable measures e.g. Family Environment Scale (Moos 1994), Expressed Emotions (Vaughan 1976), FACES III (Olsen 1985)
4. 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)
5. Cognitive distortion (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).
6. Weight, including all representations of this measures such as kilograms, body mass index (BMI, kg/m^2) and average body weight (ABW) calculations. This measure was included after the finalisation of the initial protocol, due to the lack of universal reporting on remission, and the differing definitions used for remission.

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

We planned to classify outcomes as: 1) immediate post-intervention; 2) short term (<12 months) follow-up, and; 3) long term (>12 months) follow-up. However, no trials had follow-up less than 12 months.

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. Outcomes will be limited to:

- Remission
- Mortality
- Family functioning
- Cognitive distortions
- Weight

Search methods for identification of studies

Electronic searches

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 are in Table 1.

Additionally, ClinicalTrials.gov was searched.

Searching other resources

1. Hand searching

The ANZAED Conference abstract book 2007 was hand searched.

2. Reference lists

Reference lists of relevant articles were searched.

3. Personal communication

The first author on all included trials and experts in the field were contacted for information regarding published and unpublished RCTs.

Data collection and analysis

Selection of studies

Two review authors (SH and CF) independently selected trials for possible inclusion in the study. Firstly, the titles and abstracts of trials identified from the search were independently reviewed. Secondly, two review authors (SH and CF) 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. The contents of each review author's list was compared, and any discrepancies discussed. Any disagreement was resolved by discussion and consensus between all of the review authors (SH, CF and NR).

Data extraction and management

Two review authors (SH and CF) independently extracted data using specially developed data extraction forms. Information provided about the descriptors that may have an impact on the treatment effect were collected as listed below.

In order to understand the context to which the trial results are relevant, and to inform generalisability, the following descriptors were documented: age, gender, how the diagnosis was made, setting of care, the subtype of AN, length of treated and untreated illness, age of 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. Also documented were the recruitment strategies, the exclusion criteria and the country in which the trial was undertaken.

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

Also documented was 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 had planned to collect information on baseline levels of restricting, purging, exercise, bone density, body image, suicide-related behaviours/level of suicidal ideation/risk of suicide, temperament, family history of physical and mental illness including anorexia and psychosis. However, this information was not reported in the majority of the trials.

The point estimates and measures of variability as well as relevant frequency counts for dichotomous variables were independently extracted (SH and CF). Attempts were made to obtain data that had not been included in published reports by sending a standardised letter to trial authors (or second authors) of the trials. Letters and emails were sent to authors of all included trials and six responses with data clarifications were received.

One review author compiled all comparisons and entered outcome data into RevMan for meta-analysis. A second review author performed double-data entry to ensure accuracy of results.

Assessment of risk of bias in included studies

Two review authors independently assessed the risk of bias of the included trials using a descriptive approach as advocated by the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2008). For the following items a description of methods was noted and described in a risk of bias table, and the review authors' judgement about the resulting risk of bias was made:

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 (participant/personnel/outcome assessors)?
4. Were incomplete outcome data adequately addressed (numbers and reasons for dropout per group and intention-to-treat analysis)?
5. Are reports of the trial free of the suggestion of selective outcome reporting? To assess reporting bias, we recorded which of the review outcomes were available with usable data from each included trial, as well as noting which of the review outcomes were only reported in terms of whether there were significant differences between groups. Additionally, the other outcomes (not collected for the review) reported by the trialists in the paper publication(s) were noted.
6. Was the trial apparently free of other problems that could put it at a high risk of bias?

Each criterion was graded as yes (low risk of bias), no (high risk of bias) or unclear (uncertain risk of bias), according to the guidelines in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2008). When criteria were scored 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 risk of bias to reach a consensus.

Measures of treatment effect

For dichotomous outcomes, such as 'remission', results from each trial were expressed as a Risk Ratio (RR) with 95% confidence intervals, and combined in meta-analysis.

Continuous outcomes, such as symptom measures, were presented in several ways. When absolute values of post-treatment means and standard deviations (SD) were given, using the same rating scale across trials, these were used to calculate the mean difference (MD) and 95% confidence intervals. If different scales were used to measure the same outcomes, the standardised mean difference (SMD) was calculated with 95% confidence intervals and then combined for meta-analysis. Results from linear regression models were not commonly reported and therefore were not extracted or pooled using inverse variance meta-analysis. For all meta-analyses, a random effects model was used (DerSimonian 1986) in a post-protocol change to methods. When the pooled summary statistic differed clinically between models, it is reported.

Unit of analysis issues

Where a trial had more than one active treatment arm, the appropriate arms for each of our main comparisons were extracted. If more than one comparison was relevant, both were included in the comparison, however, only subtotals rather than totals were allowed in the meta-analysis, so that double counting of data did not occur.

Dealing with missing data

Missing data were obtained from trial authors wherever possible. Missing data were imputed where necessary (e.g. calculating SDs from standard errors and p-values) and this is clearly documented in the review. If available, intention-to-treat data were used, with a note of the methods used (such as last observation carried forward or other types of modelling) for imputing missing data. 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 participants, interventions and outcome measures were considered to be similar. For trials that were clinically heterogeneous or presented insufficient information for pooling, a descriptive analysis is provided. Statistical homogeneity was assessed on the basis of the Cochrane Handbooks' recommendations (I^2 values of 0-40%: 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 χ^2 and its p-value and considered 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 χ^2 test is underpowered to detect heterogeneity in meta-analysis that includes only a few studies, a p-value of 0.10 is used as a threshold of statistical significance.

When statistical heterogeneity was found (>50%) it was examined using specified subgroup and sensitivity analyses. It should be noted that sensitivity analyses were also carried out regardless of heterogeneity to assess the robustness of results to methods used.

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 and/or symptoms. 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. As such we have not included a funnel plot for publication bias. For this reason, an assessment of the risk of reporting bias was also included as stated above.

Data synthesis

When appropriate, meta-analysis was performed and pooled effect estimates obtained, using the Review Manager 5.0 statistical software program. Meta-analytic methods used are presented below.

Subgroup analysis and investigation of heterogeneity

Given the paucity of trials, subgroup analysis by age and chronicity was not possible. Although, for Russell 1987 data were able to be entered separately so that some estimation of outcomes according to chronicity and age of onset was possible. However, it should be noted that this is only on the basis of one relatively small trial.

Subgroup analysis by the type of family therapy was undertaken; however, in most comparisons there were only trials using one type of family therapy.

Sensitivity analysis

Sensitivity analyses were planned 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. Intention-to-treat analysis is not done or probably not done (and attempts to clarify with authors fail) (C).

These criteria for assessing the risk of bias have been shown to influence estimates of treatment effect (Juni 2001). Sensitivity analyses were planned 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 2008) and tools for assessing the necessity for an update.

RESULTS

Description of studies

See: Characteristics of included studies; Characteristics of excluded studies; Characteristics of studies awaiting classification; Characteristics of ongoing studies.

Results of the search

The searches yielded 26 retrievals from EMBASE, 45 from MEDLINE, 35 hits from PsycInfo and 19 from the CCDAN trials group register (3 references and 16 studies). Four ongoing trials were identified from trials registers. When duplicates were discarded, 56 retrievals were required. Of these, 13 studies were identified and included, five were classified as 'ongoing' (Ongoing studies), four await assessment (Studies awaiting classification).

Ten of the included studies had data that could be used in at least one meta-analysis.

Included studies

Participants

The majority of the trials were conducted in English-speaking western countries with seven trials occurring in the United Kingdom (Crisp 1991 and follow-up trial; Dare 2001; Eisler 2000 and follow-up trial; Hall 1987; le Grange 1992; Russell 1987 and follow-up trials; Whitney unpublished), two in the United States (Lock 2005; Robin 1999), one in Canada (Geist 2000) and one in Australia (Ball 2004). The remaining two trials were conducted in the Spanish-speaking countries of Spain (Espina 2000) and Argentina (Rausch 2006).

The majority of the trials reported utilising referrals to specialist eating disorder treatment units for recruitment (Ball 2004; Crisp 1991; Dare 2001; Eisler 2000; Geist 2000; Hall 1987; Lock 2005; Rausch 2006; Whitney unpublished). One trial sought potential participants by sending letters to community care providers and schools, and publicised the trial using presentations and announcements (Robin 1999). Two trials provided no details about their recruitment strategy (Espina 2000; Russell 1987).

Most trials were conducted on an outpatient basis. Six trials reported solely outpatient treatment (Ball 2004; Dare 2001; Eisler 2000; Hall 1987; le Grange 1992; Rausch 2006), three reported that the selection of participants occurred whilst participants were receiving inpatient treatment, but that therapy commenced after discharge (Geist 2000; Lock 2005; Russell 1987), one further trial involved the provision of outpatient therapy but investigators noted that some participants required hospitalisation during the trial (Robin 1999). One trial utilised both inpatient and outpatient treatment (Crisp 1991) and only one trial reported the provision of solely inpatient treatment (Whitney unpublished). In one trial the treatment setting was not specified (Espina 2000).

Generally, most trials utilised some form of the DSM diagnostic criteria for the selection of participants with AN. Five trials utilised the relevant DSM criteria of the era, e.g. DSM-III, DSM-IIIR or DSM-IV, without variation (Dare 2001; le Grange 1992; Robin 1999; Russell 1987; Whitney unpublished). Three trials utilised DSM criteria but included participants whose current body weight exceeded the diagnostic weight criterion of being less than 85 percent of the expected body weight (Ball 2004; Geist 2000; Lock 2005). Thus, these trials may represent samples of patients 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 (Crisp 1991), possibly representing a less chronic sample of participants. One trial utilised the diagnostic criteria of "Great Ormond Street" (Rausch 2006), while in two trials the method used to diagnose was not specified (Hall 1987; Espina 2000). Only two trials defined participants according to purging or restricting diagnostic subtypes (Ball 2004; Lock 2005).

Both the reporting of exclusion criteria, and the types of exclusion criteria used, were mixed. Six trials provided no details about whether exclusion criteria were utilised (Eisler 2000; Espina 2000; Hall 1987; Rausch 2006; Robin 1999; Russell 1987). Of the trials that provided details, four trials excluded participants on the basis of suicidal ideation/high suicide risk (Ball 2004; Dare 2001; Geist 2000; le Grange 1992). Four excluded participants due to serious comorbid medical or psychiatric/psychological conditions (Ball 2004; Geist 2000; le Grange 1992; Lock 2005). Three excluded participants who were currently receiving psychological therapy (Ball 2004; Geist 2000; Whitney unpublished). Several trials also utilised upper or lower age limits for participants (Geist 2000; le Grange 1992). Some reported exclusion criteria based on the chronicity of participants' AN (Crisp 1991; le Grange 1992) while others excluded participants due to very low baseline BMI/ABW scores (Ball 2004; Dare 2001). One trial excluded male participants (Geist 2000).

There was some variation in the average ages and age ranges of trial participants. Six trials included participants from early puberty through to the ages of 18 or 20 years, with the average ages of participants in these trials falling between 13 and 17 years (Eisler 2000; Geist 2000; le Grange 1992; Lock 2005; Rausch 2006; Robin 1999). Two trials reported participants with comparatively large age ranges, with the average age for the participant groups falling in the late teenage years (Ball 2004; Hall 1987). 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 (Russell 1987). Finally, three trials were comprised of older participant populations with the average ages falling in the early- to mid-20s (Crisp 1991; Dare 2001; Whitney unpublished).

In regard to participant gender, the majority of participants across all trials were female. Seven trials included male participants (Eisler 2000; Dare 2001; Espina 2000;le Grange 1992; Lock 2005; Rausch 2006; Russell 1987; Whitney unpublished), with males not exceeding 12 percent of the total participants in any trial.

The provision of details about the severity of participants' AN at baseline was mixed. Seven trials provided information regarding the age of onset of participants' AN (Crisp 1991; Dare 2001; Eisler 2000; Espina 2000; Hall 1987; Rausch 2006; Russell 1987), while all but two (Ball 2004; Geist 2000) provided information about the duration of the participants' AN. Four trials provided information about previous treatment received by participants (Dare 2001; Hall 1987; Lock 2005; Whitney unpublished). All but two trials (Ball 2004; Whitney unpublished) reported information about participants' baseline weight, while eight provided baseline BMI data (Ball 2004; Crisp 1991; Dare 2001; Hall 1987; Lock 2005; Rausch 2006; Robin 1999; Whitney unpublished). The average BMIs ranged between 15.0 and 17.1 across these trials, with the exception of Whitney unpublished, who reported a low average baseline BMI of 13.3 (SD. 1.6). Nine trials utilised an established eating disorders scale (e.g. Morgan-Russell Scales, Eating Attitudes Test) to indicate the severity of participants' core eating disorder psychopathology at baseline (Ball 2004; Crisp 1991; Dare 2001; Eisler 2000; Geist 2000; le Grange 1992; Lock 2005; Robin 1999; Whitney unpublished).

Three trials provided information about participants' comorbid psychiatric diagnoses (Lock 2005; Robin 1999; Russell 1987), and one trial excluded participants on the basis of a co-existing psychiatric condition (le Grange 1992).

Seven trials provided information about the living arrangements of the participants, such as whether they resided with their primary family unit, alone, with partners or in shared accommodation (Ball 2004; Dare 2001; Eisler 2000; Lock 2005; Robin 1999; Russell 1987; Whitney unpublished). Five trials provided information about the educational/occupational background or social class of the participants or their families (Eisler 2000; Hall 1987; Lock 2005; Robin 1999; Whitney unpublished).

Interventions and comparisons

Three trials (Crisp 1991; Dare 2001; Espina 2000) compared family therapy with standard care or treatment as usual. Pooling was possible only for remission (Crisp 1991; Dare 2001) and for drop outs (Dare 2001; Espina 2000). Two trials compared family therapy with educational interventions (Geist 2000 with family psychoeducation and Hall 1987 with psychoeducation). Five trials compared family therapy with other psychological interventions (including cognitive behavioural therapy - Ball 2004, cognitive analytic therapy - Dare 2001, 'psychotherapy' - Crisp 1991, individual supportive counselling - Russell 1987, and ego oriented individual therapy - Robin 1999). Five trials compared variants of family therapy with each other (Eisler 2000; Lock 2005; le Grange 1992; Rausch 2006; Whitney unpublished). It should be noted that Crisp 1991 and Dare 2001 were included in two separate comparisons, due to the use of multiple treatment conditions in each trial.

The majority of trials used *family based* therapy (and its variants, including short term, long term and separated) (Ball 2004; Dare 2001; Eisler 2000; Lock 2005; le Grange 1992; Rausch 2006; Robin 1999; Russell 1987). Espina 2000 and Whitney unpublished used *systems* family therapy. Four trials employed family therapy approaches that utilised family involvement, but did not provide specific details about the theoretic underpinning of the therapy and its procedures (Crisp 1991; Geist 2000; Hall 1987; Whitney unpublished). These approaches were, thus, categorised as *other* family therapy.

Outcomes

We extracted 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; 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 4 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. No remission data were reported for Crisp 1991 or le Grange 1992. Hall 1987 provided data for the remission outcome, for which no definition was given, except that patients were "considered recovered and did not require further treatment". Robin 1999 provided data for the remission outcome, the definition of which was the target weight set by the clinician. Lock 2005 provided data for the remission outcome, the definition for which was ideal body weight (IBW) greater than 90%. For Lock 2005 we calculated the numbers who recovered from percentages reported in the abstract in a later publication (Lock 2006). Thus, most of the trials that reported on the remission outcome used different definitions of remission.

In four trials there were no data provided on remission, and no definition given for what this might equate to (Espina 2000; Geist 2000; Rausch 2006; Whitney unpublished).

The trialists used a range a measures to assess core eating disorder psychopathology. Of the trials that provided outcome data for these measures, five trials (Crisp 1991; Ball 2004; Dare 2001; Russell 1987; Rausch 2006) used the Morgan Russell Assessment Schedule (Morgan 1988) and three trials (Robin 1999; Eisler 2000; le Grange 1992) used the Eating Attitudes Test (EAT; Garner 1979; Garner 1983). One trial (Lock 2005) used the Eating Disorders Examination (EDE) (Cooper 1987a). However, Lock only provided global EDE scores for follow-up and thus the other measure utilised in this trial, the Yale Brown Cornell Eating Disorders Scale (Mazure 1995) total score, was used for post-intervention outcome in our analysis. One trial (Whitney unpublished) used the Short Evaluation of Eating Disorders (SEED) (Kordy 2005).

Three of the trials did not provide core eating disorder psychopathology outcome measures in a useable format. Of these, Espina 2000 stated that they had used the Eating Disorders Inventory (EDI; Garner 1983; Garner 1991), Eating Attitudes Test (EAT; Garner 1979; Garner 1983), the Anorectic Behaviour Observation Scale (Vandereycken 1992) and the Body Shape Questionnaire (Cooper 1987). Geist 2000 stated that the EDI (Garner 1991) had been used. Hall 1987 stated they had used the Morgan Russell Assessment Schedule (Morgan 1988) and the Crown-Crisp Experimental Index (Crown 1979).

Few trials measured family functioning. Of those that did, le Grange 1992 and Eisler 2000 used the Standardised Clinical Family Interview (Kinston 1984), Expressed Emotions measure (Vaughan 1976), and FACES III (Olsen 1979; Olsen 1985). 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 (Robin 1989). Geist 2000 used a general family functioning measure (Skinner 1991). Rausch 2006 used the Family Health Scale. Whitney unpublished used several scales of which data are extracted from the Level of Expressed Emotion scale (LEE) (Cole 1988). Of these, only Rausch 2006 and Whitney unpublished provided outcome data.

Excluded studies

See Excluded studies for reasons for excluding trials.

Risk of bias in included studies

Allocation

The allocation sequence was adequately generated in five trials (Dare 2001; Eisler 2000; le Grange 1992; Robin 1999; Russell 1987). The remaining trials did not clearly describe the method of allocation. Allocation was adequately concealed in one trial (Whitney unpublished), with no clear description provided about allocation in the remaining trials.

Blinding

The blinding of participants and personnel to treatment is not possible for family therapy interventions. Blinding of outcome assessors is not possible for self-reported outcomes, only for clinician-rated outcomes. Where there were clinician-rated outcomes, blinding was carried out in two trials (Espina 2000; Lock 2005), not carried out in two trials (Dare 2001; Robin 1999) and was unclear in the remaining trials.

Incomplete outcome data

A trial was considered to have adequately addressed incomplete data if both the numbers of dropouts for each intervention group were given and intention-to-treat analysis was undertaken. This was the case in two trials (Crisp 1991; Hall 1987). In one trial, the authors did describe dropouts and undertook intention-to-treat analysis (using last observation carried forward); however, there was some discrepancy in the numbers of dropouts reported throughout the paper, and this remained unclear, despite attempts to contact the authors (Dare 2001).

Selective reporting

The most common type of reporting bias detected involved the lack of reporting of data from an outcome measure that was stated to have been collected (e.g. Dare 2001 - FACES), the lack of reporting of a subscale(s) from an outcome measure (e.g. Ball 2004 - Eating Conflict scale of IBC; le Grange 1992 - only one subscale for EE reported, only one FACES subscale reported) or the presentation of outcome measures in a format that did not allow the data to be extracted for analysis (e.g. Ball 2004 - general functioning, family functioning; Crisp 1991 - weight, relapse, dropouts; Espina 2000 - dropouts, cognitive distortion; Hall 1987 - cognitive distortion; le Grange 1992 - family functioning; Lock 2005 - family functioning, cognitive distortion; Rausch 2006 - general functioning, Robin 1999 - dropouts, cognitive distortion, family conflict not reported at all outcome points). Several trials also did not collect data from core baseline measures at follow-up (Rausch 2006 -family functioning; Crisp 1991 - restricting/purging behaviour).

In one trial the follow-up outcome data for two entire groups were not reported (Crisp 1991 - two year follow-up data). Several trials failed to report their short/medium term outcome data, despite reporting that it had been collected (Dare 2001 - 3 and 6 month outcome data; le Grange 1992 - T2 16 week outcome data not

reported; Russell 1987 - 3 year outcome data). In two trials, combined outcomes for all participants were reported for certain measures, rather than treatment group outcomes, making comparison analysis impossible (e.g. Dare 2001; Russell 1987).

Other potential sources of bias

In a large number of trials baseline group imbalances were found for particular core characteristics (Ball 2004 - AN subtype; Crisp 1991 illness duration, age, weight; Dare 2001 - ABW, purging behaviour, and family structure; Hall 1987 - duration of untreated illness; le Grange 1992 weight; Robin 1999 age; Russell 1987 ABW percentage).

In several trials there were inconsistencies between the description of the results contained in the text, and the actual outcome data reported in tables. For example, the description in Ball 2004 of patients obtaining a 'Good' outcome and the percentage reported in the data were different; Crisp 1991 states that follow-up weight for one participant could not be obtained; however, all follow-up data are reported with N= 20, when it should be N= 19. The abstract of Dare 2001 describes specific interventions as superior, however, the results suggest this was only for weight, not for any other measures of psychopathology.

There were also inconsistencies in the participant numbers reported for various outcome measures throughout trials (Robin 1999 and Russell 1987) with no, or unclear, explanations for the inconsistencies.

Other problems encountered in more than one trial included small sample sizes (Ball 2004; Geist 2000; Rausch 2006; le Grange 1992); uneven or unspecified treatment dosages/durations (Crisp 1991; Dare 2001; Robin 1999; Russell 1987); the use of within group analysis (Hall 1987; Robin 1999); no, or very little, between group analysis reported (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 a considerable risk of bias in the included studies.

Effects of interventions

Comparison 1: Family therapy vs standard care/treatment as usual

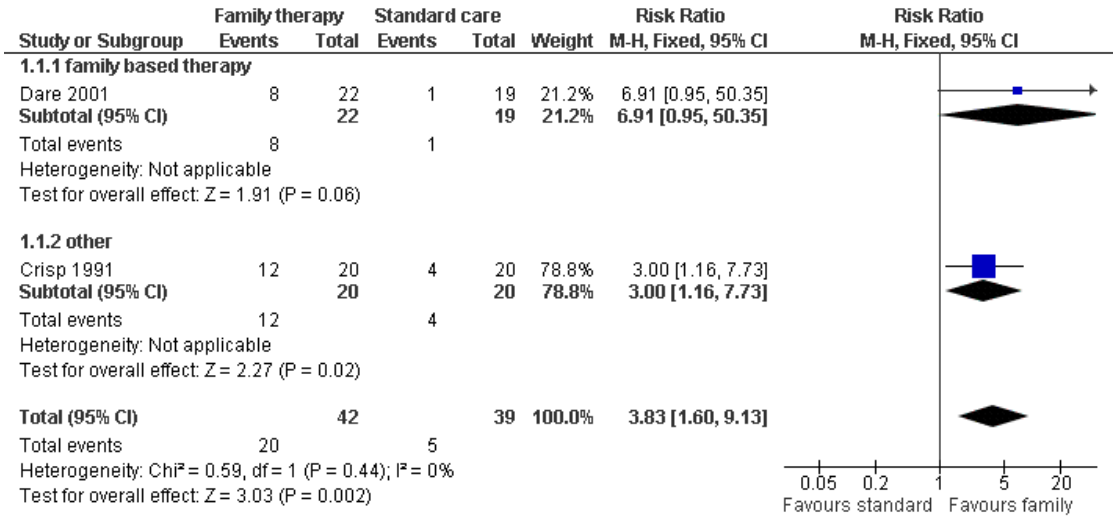
Efficacy outcomes

Three trials compared family therapy with treatment as usual that included a total of 81 participants. Dare 2001 used *family based* therapy, Espina 2000 used a *systems* approach and Crisp 1991 used a more general form of family therapy, which was classified under the '*other*' family therapy category.

Remission

Two trials reported on remission post intervention (Crisp 1991; Dare 2001). There was a significant increase in the rate of remission post intervention for those being treated with family therapy compared to those in the standard care/treatment as usual groups (RR 3.83 95% CI 1.60 to 9.13) (Figure 1). Only one of these trials (Dare 2001) collected data on remission at follow-up and showed no statistically significant difference in the percentage of patients who recovered between those receiving family therapy and those receiving standard care/treatment as usual (RR 6.09 95% CI 0.33 to 110.84).

Figure 1. Forest plot of comparison: 1 Family therapy vs standard care/treatment as usual, outcome: 1.1 Remission post intervention.



Functioning

None of the trials within this comparison reported on family or general functioning.

Dropouts

Two trials reported on dropouts during therapy (Dare 2001; Espina 2000) and there was no significant difference in the number of dropouts between those receiving family therapy and those receiving standard care/treatment as usual (RR 0.88 95% CI 0.31 to 2.47).

Cognitive distortion

One trial (Crisp 1991) reported Morgan Russell scores which showed no statistically significant differences in cognitive distortion outcomes (MD -0.90; 95% CI -2.54 to 0.74) between the treatment groups, post intervention.

Weight

None of the trials reported on weight outcomes.

Adverse outcomes

Mortality

Only one trial (Dare 2001) reported on mortality, stating that there was one participant from the standard care/treatment as usual who died during the treatment phase.

Relapse

Only one trial (Dare 2001) reported on relapse and found no evidence of a treatment effect (RR 0.52 95% CI 0.14 to1.89).

Comparison 2: Family therapy vs psychological interventions

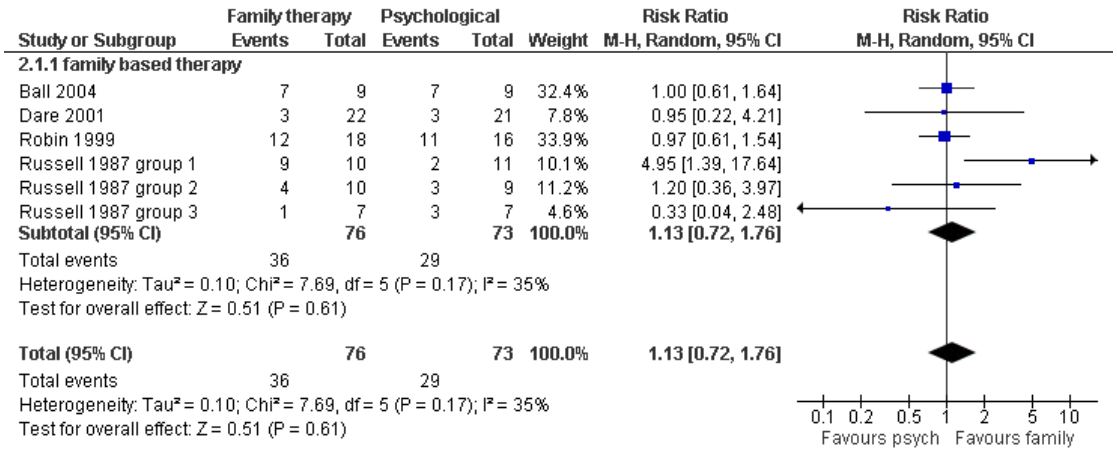
Efficacy outcomes

Five trials including 150 participants compared family therapy with psychological interventions. Four trials used *family based* therapy (Ball 2004; Dare 2001; Robin 1999 and Russell 1987). One (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 *a priori* grouped by age of onset and duration of illness. The comparison group in Russell 1987 was individual supportive therapy, in Robin 1999 ego oriented psychotherapy, in Crisp 1991 group sessions of more general psychotherapy, in Ball 2004 cognitive behaviour therapy and in Dare 2001 the cognitive analytical group was used as a comparator (rather than the psychoanalytic psychotherapy arm).

Remission

Four trials reported on remission post intervention (all but Crisp 1991), with Russell 1987 reporting results for three subgroups separately. There was no statistically significant difference in the rate of remission between those receiving family therapy and those receiving psychological therapy (RR 1.13 95% CI 0.72 to 1.76) (Figure 2).

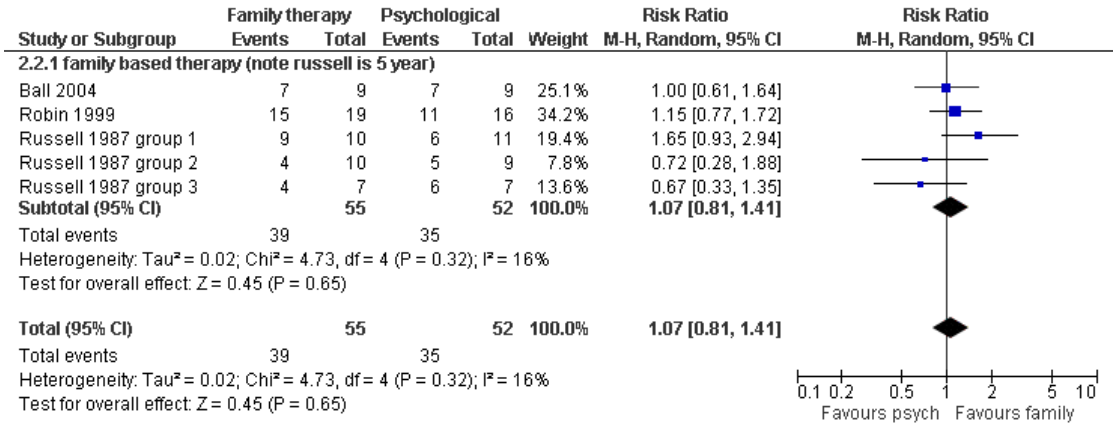
Figure 2. Forest plot of comparison: 2 Family therapy vs psychological interventions, outcome: 2.1 Remission post intervention.



We report the data from the Russell 1987 trial separately, in three subgroups. For subgroup 2, which included those aged less than 18 with greater than 3 years duration of illness there were no differences between those who received family therapy and those who received individual supportive therapy (RR 1.20 95% CI 0.36 to 3.97). Similarly, there are no differences between those who received family therapy and those who received individual supportive therapy in subgroup 3 who were older than 19 years of age (RR 0.33 95% CI 0.04 to 2.48). However, in subgroup 1, which included younger participants (with an age of onset less than 18, and who had less than three years duration of illness) there is a statistically significant increase in the percentage of those experiencing remission in the family therapy group compared to those in individual supportive therapy group (RR 4.95 95% CI 1.39 to 17.64) (Figure 2).

Results are similar for remission at follow-up (RR 1.07 95% CI 0.81 to 1.41), although the difference between the family therapy and individual supportive therapy groups in subgroup 1 of the Russell 1987 is no longer significant at 5 year follow-up (Figure 3).

Figure 3. Forest plot of comparison: 2 Family therapy vs psychological interventions, outcome: 2.2 Maintenance of remission (follow-up) follow-up.



Functioning

None of the five trials reported on family or general functioning.

Dropouts

Three trials reported on dropouts during therapy (Ball 2004; Dare 2001; Russell 1987) and there was no significant difference in the number of dropouts between those receiving family therapy and those receiving psychological interventions (RR 0.85; 95% CI 0.33 to 2.21).

Cognitive distortion (immediate post-treatment)

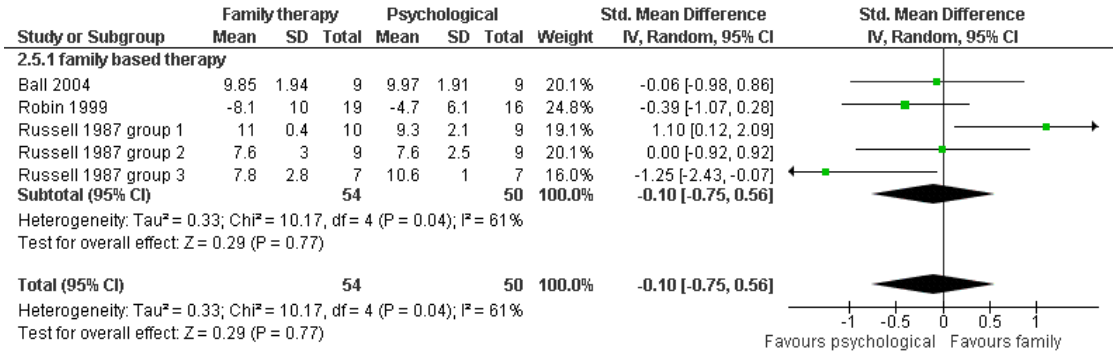
We combined the Morgan Russell data from Ball 2004, Crisp 1991 and Russell 1987 (Russell we report separately, in three subgroups; these data are reported in Eisler 2008) with the EAT data from Robin 1999. This analysis showed no statistically significant differences on cognitive distortion scores at the end of treatment (SMD 0.11 95% CI -0.49, 0.72). There was considerable heterogeneity (Tau² = 0.39; Chi² = 16.14, df = 5 (P = 0.0006); I² = 69%) that was not accounted for by type of family therapy alone.

While we were not strictly able to undertake subgroup analysis for age and chronicity, when data from Russell subgroup 1 (age of onset less than 18 and less than 3 years duration of illness) were removed the I^2 was 0% (Tau² = 0.00; Chi² = 2.75, df = 4 (P = 0.60); I² = 0%).

Cognitive distortion (at follow-up)

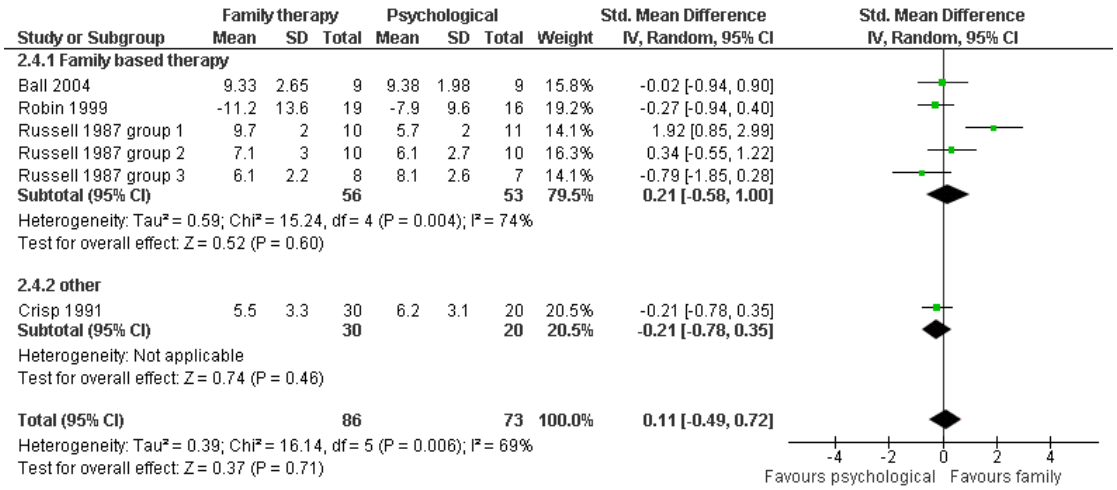
Three trials (Ball 2004; Robin 1999; Russell 1987 - we report separately, in three subgroups; these data are reported in Eisler 1997) measured cognitive distortion at follow-up and showed no statistically significant difference between the group receiving family therapy and the group receiving other psychological interventions (SMD -0.10 95% CI -7.5 to 0.56) (Figure 4). There was significant heterogeneity (Tau² = 0.33; Chi² = 10.17, df = 4 (P = 0.04); I² = 61%). This was not accounted for by type of family therapy alone. When data from Russell subgroup 1 (age of onset less than 18 and less than 3 years duration of illness) were removed the I^2 was 5% (Tau² = 0.01; Chi² = 3.16, df = 3 (P = 0.37); I² = 5%).

Figure 4. Forest plot of comparison: 2 Family therapy vs psychological interventions, outcome: 2.9 Cognitive distortion follow-up (Robin-EAT; Ball, Russell, Crisp-MR).



There are no overall significant differences between groups in cognitive distortions post intervention and at follow-up. However, in Russell 1987 (which we report separately, in three subgroups), subgroup 1, which included younger participants (with an age of onset less than 18, and who had experienced less than three years duration of illness) there is a statistically significant change indicating greater improvement in the family therapy group compared to the individual supportive counselling group (Figure 5). This effect was maintained at five years follow-up (Figure 4). It should be noted that these are post hoc analyses based on a subgroup of one trial.

Figure 5. Forest plot of comparison: 2 Family therapy vs psychological interventions, outcome: 2.8 Cognitive distortion post intervention (Robin-EAT; Ball, Russell, Crisp-MR).



Weight

Two trials (Ball 2004; Robin 1999) reported on BMI at the end of intervention and at follow-up. At the end of intervention there were no significant differences between the groups (MD 0.75 95% CI -0.26 to 1.76) (Figure 6). Neither was there evidence of a treatment effect at follow-up (MD 1.01 95% CI -0.29 to 2.30) (Figure 7).

Figure 6. Forest plot of comparison: 2 Family therapy vs individual psychological interventions, outcome: 2.10 Weight (BMI) post intervention.

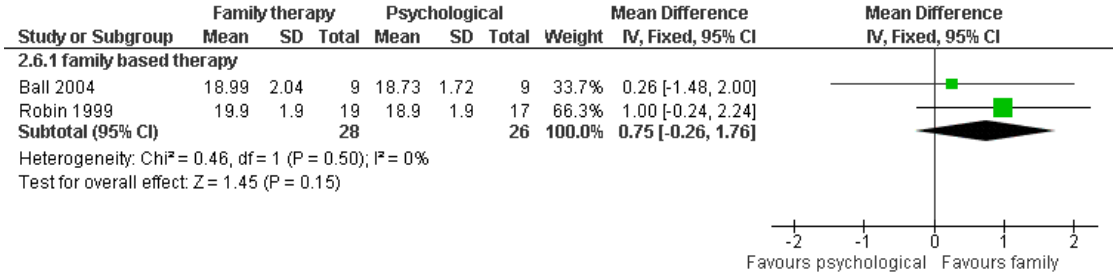
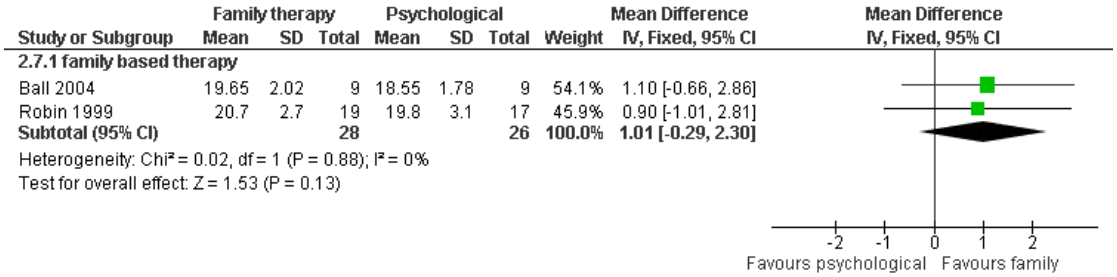


Figure 7. Forest plot of comparison: 2 Family therapy vs individual psychological interventions, outcome: 2.11 Weight (BMI) follow-up.



One trial (Russell 1987) reported on percentage of Average Body Weight (ABW) at the end of intervention (Eisler 2008) and at follow-up (Eisler 1997) for each of the three relevant subgroups. There were no significant differences between the group receiving family therapy and the group receiving individual supportive therapy at the end of treatment (MD 1.50; 95% CI -10.30 to 13.30) (Figure 8), or after five years follow-up (MD -1.71; 95% CI -12.41 to 8.99) (Figure 9).

Figure 8. Forest plot of comparison: 2 Family therapy vs individual psychological interventions, outcome: 2.12 Weight (%ABW) post intervention.

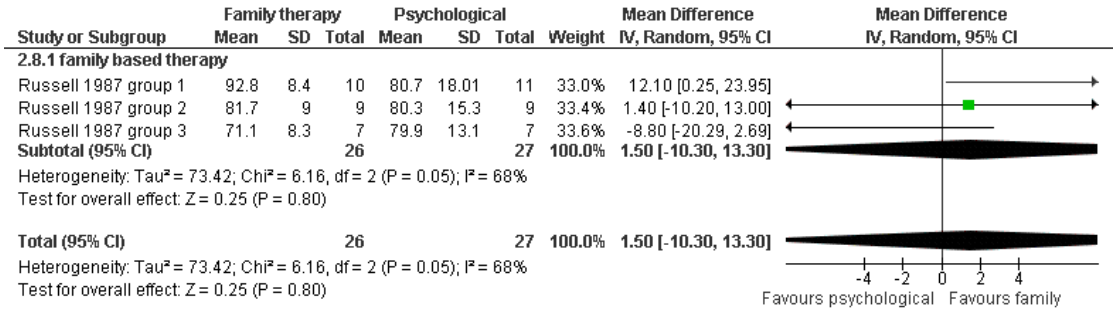
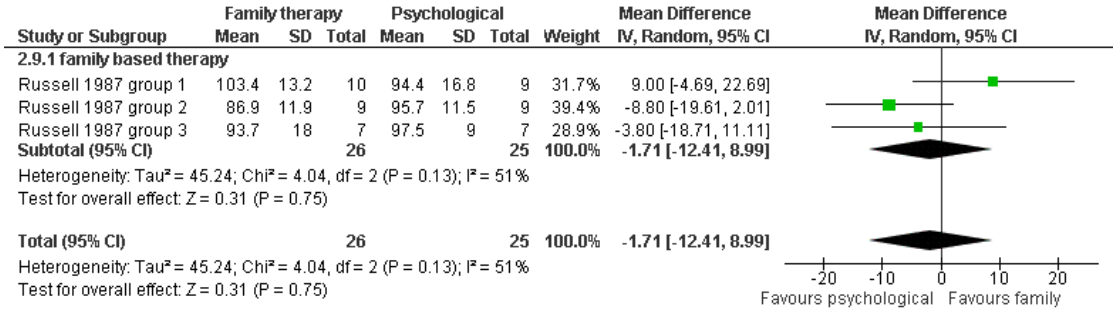


Figure 9. Forest plot of comparison: 2 Family therapy vs individual psychological interventions, outcome: 2.13 Weight (%ABW) follow-up (5 years).



The results from the Russell 1987 trial show that there are no significant differences between groups for the two subgroups with a later age of onset and greater duration of illness (subgroups 2 and 3) in percentage ABW at the end of intervention. However, there is a statistically significant increase in percentage ABW in the family therapy group compared to the individual supportive therapy group in subgroup 1, who had an age of onset less than 18 and less than 3 years duration of illness (MD 12.10 95% CI 0.25 to 23.95) (Figure 8). This effect was not maintained at five years follow-up (Figure 9).

Adverse outcomes

Mortality

Two trials (Dare 2001; Russell 1987) reported on mortality. Russell 1987 states that there were no deaths at the post intervention assessment. The paper reporting follow-up (Eisler 1997), states that by five year follow-up three patients had died, however, it does not state what treatment group they were in. No participants in the family therapy or individual psychological treatment group had died in Dare 2001.

Relapse

Two trials (Dare 2001; Russell 1987 - we report separately, in three subgroups) reported on relapse and found no evidence of a treatment effect (RR 1.06 95% CI 0.54 to 2.08).

Comparison 3. Family therapy vs educational interventions

Efficacy outcomes

There was one trial comparing family therapy with an educational intervention that included a total of 30 participants (Hall 1987). The trial compared an intervention utilising a combination of individual and family work (categorised as *other* family therapy) to dietary advice.

Remission

There were no data on remission post intervention. At nine month follow-up there was no statistically significant difference in the percentage of patients who recovered between those receiving family therapy and those receiving dietary advice (RR 9.00 95% CI 0.53 to 153.79).

Functioning

There were no data reported on family or general functioning.

Dropouts

There were no dropouts reported in either intervention group.

Cognitive distortion and weight

There were no data reported on cognitive distortion or weight outcomes.

Adverse outcomes

Mortality

Mortality was not reported.

Relapse

There were no data on relapse reported.

Comparison 4. Short term vs long term family therapy

Efficacy outcomes

One trial examined the effectiveness of six months (short term) compared with 12 months (long term) of *family based* therapy (Lock 2005).

Remission

Data on remission post intervention were not reported. At follow-up (mean 3.96 years) there was no statistically significant difference in the percentage of patients who recovered across the short and long term family therapy conditions (RR 0.95 95% CI 0.80 to 1.12).

Functioning

Lock 2005 examined attending school or work as a way of estimating general functioning and found no statistically significant differences in functioning at follow-up between those receiving short term and those receiving long term family therapy (RR 1.03 95% CI 0.95 to 1.12).

Dropouts

There was no statistically significant differences in the rate of dropouts during therapy between the group receiving short term and long term family therapy (RR 3.67 95% CI 0.81 to 16.66).

Cognitive distortion

Lock 2005 provided Yale Brown Cornell Scale data for each group post intervention. EDE data was also collected but the total scores for each group were not available post intervention. On the Yale Brown Cornell there was a statistically significant difference between the groups on cognitive distortion, favouring the long term family therapy group (MD -4.50 95% CI -7.96 to -1.04). At follow-up, the EDE scale scores were provided (but not the Yale Brown Cornell) and showed no statistically significant difference between the short term and long term family therapy groups (MD -0.43 95% CI -1.23 to 0.37).

Weight

There were no significant differences in BMI between the group receiving short term and long term family therapy at the end of treatment (MD 0.50 95% CI -0.43 to 1.43) or at follow-up (MD 0.17 95% CI -0.83 to 1.17).

Adverse outcomes

Mortality

Mortality was not reported.

Relapse

There was no statistically significant differences in relapse during therapy between the group receiving short term and long term family therapy (RR 0.94 95% CI 0.43 to 2.09).

Comparison 5. Conjoint family therapy vs separated family therapy

Efficacy outcomes

There were two trials comparing *conjoint family based* therapy where the family and the patient were seen together, with *separated family based* therapy where the family and participant were seen separately, yielding a total of 58 participants (Eisler 2000; le Grange 1992).

Remission

Only Eisler 2000 reported on remission. There was no significant difference in the percentage of participants who recovered across the conjoint and separated conditions at the end of treatment (RR 0.62 95% CI 0.37 to 1.06) or at follow-up (RR 0.86 95% CI 0.65 to 1.15).

Functioning

Neither trial reported on family or general functioning.

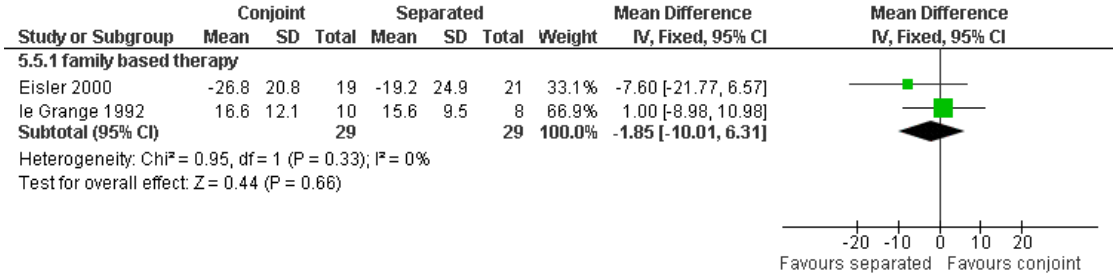
Dropouts

Only Eisler 2000 reported on dropouts at post treatment and follow-up. At the end of treatment there was no statistically significant difference in the number of dropouts between those receiving conjoint family therapy and those receiving separate family therapy (RR 1.47 95% CI 0.38 to 5.75), with this also replicated at follow-up (RR 1.11 95% CI 0.07 to 16.49).

Cognitive distortion

Both trials (Eisler 2000; le Grange 1992) reported EAT scores and showed no statistically significant differences in cognitive distortion at the end of treatment (MD 1.85, 95% CI -10.01 to 6.31) (Figure 10). Only Eisler reported follow-up (5 years) and showed no statistically significant differences (MD 4.40 95% CI -25.72 to 34.52).

Figure 10. Forest plot of comparison: 5 Family therapy conjoint vs family therapy separated, outcome: 5.9 Cognitive distortion post intervention (EAT).

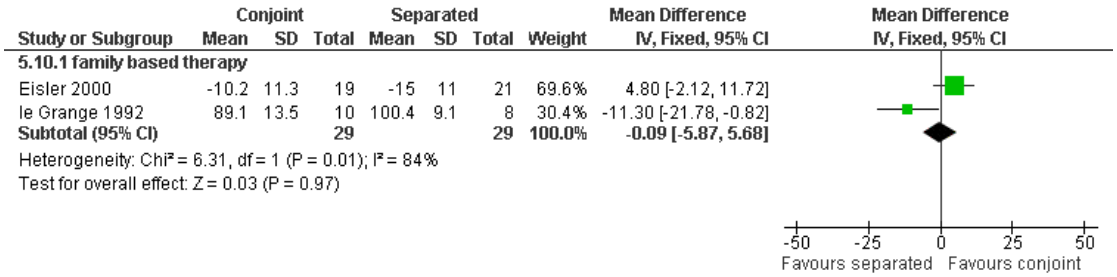


Eisler 2000 also reported on post intervention and five year follow-up using the EDI. At both post intervention (MD -10.50 95% CI 26.96 to 5.96) and follow-up (MD-7.90 95% CI -37.73 to 21.93) there was no statistically significant differences between the groups.

Weight

Eisler 2000 and le Grange 1992 both reported percentage ABW at post intervention. When these results are combined no statistically significant difference was observed between the conjoint and separated family therapy groups (MD -0.09 95% CI -5.87 to 5.68) (Figure 11).

Figure 11. Forest plot of comparison: 5 Family therapy conjoint vs family therapy separated, outcome: 5.14 Weight (%ABW) post intervention.



After five year follow-up Eisler 2000 showed no statistically significant differences in percentage ABW between the groups (MD -6.70 95% CI -14.14 to 0.74).

Adverse outcomes

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.

Relapse

Only one trial (Eisler 2000) reported on relapse and found no evidence of a treatment effect post intervention (RR 3.32 95% CI 0.38 to 29.23) or after five years follow-up (RR 0.56 95% CI 0.12 to 2.68).

Comparison 6. Family therapy vs family therapy plus meal

Efficacy outcomes

One trial examined the efficacy of *family based* therapy compared with *family based therapy* that included a family meal as an intervention (Rausch 2006).

Remission

At the end of intervention, there were no differences between the groups, with participants in both groups (N=6 in each group) recovered. This was maintained at follow-up.

Functioning

Family functioning was measured on the Family Health Scale with a statistically significant improvement in the family therapy plus meal group compared to the family therapy alone group after intervention (MD -0.62 95% CI-1.16 to -0.08).
There were no data on family functioning at follow-up.
There were no data on general functioning.

Dropouts

There were no statistically significant differences in the rate of dropouts during therapy between the groups (RR 0.38 95% CI 0.02 to 7.93) with no dropouts in the family therapy group and one dropout in the family therapy plus meal group.

Cognitive distortion

On the Morgan Russell scale there was no statistically significant difference between the groups on cognitive distortion at the end of intervention (MD 1.04 95% CI -1.29 to -3.37) or at follow-up (MD 0.33 95% CI -1.85 to 2.51).

Weight

There were no significant differences in BMI between the group receiving family therapy and the group receiving family therapy plus meal at the end of treatment (MD 0.60 95% CI -2.10 to 3.30) or at follow-up (MD 0.52 95% CI -1.81 to 2.85).

Adverse outcomes

Mortality

Mortality was not reported.

Relapse

There were no data on relapse.

Comparison 7. Individual family therapy vs group family therapy

Efficacy outcomes

There was one trial in this condition (Whitney unpublished). 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 utilised to treat families in a group setting in the other.

Remission

No data on remission were provided.

Functioning

Family functioning was measured using the carers' LEE (Cole 1988). There was no statistically significant difference between the groups on family functioning at the end of treatment (MD 1.10 95% CI -2.93 to 5.13) or at follow-up (MD -0.90 95% CI -5.23 to 3.43).
There were no data on general functioning provided.

Dropouts

There was no statistically significant difference in the rate of dropouts between individual and group family therapy groups (RR 1.09 95% CI 0.24 to 4.86).

Cognitive distortion

Whitney unpublished measured cognitive distortion using the SEED-AN and showed no statistically significant difference between the groups post intervention (MD 0.20 95% CI -0.62 to 1.02) or at follow-up (MD -0.20 95% CI -0.79 to 0.39).

Weight

There was no statistically significant difference between the groups in BMI at the end of treatment (MD -0.80 95% CI -1.86 to 0.26) or at follow-up (MD 1.00 95% CI -0.42 to 2.42).

Adverse outcomes

Mortality

Mortality was not reported.

Relapse

No data on relapse were provided.

DISCUSSION

Summary of main results

The primary outcome measure of interest for this review was remission. Of the eight trials that investigated the efficacy of family therapy versus another, non-family therapy based intervention, six provided data regarding remission following the interventions, and six provided information about remission at follow-up. Based on the results of these trials, there is some evidence to suggest that family therapy may be more effective than treatment as usual in the short term, but not enough evidence to indicate whether this effect persists long term (based on two studies with 81 participants). Overall, there is not enough evidence to determine whether there is any significant advantage of family therapy, in terms of remission, compared to educational interventions (one study with 30 participants) or other psychological interventions (four studies with 149 participants). Data from a post hoc subgroup analysis of younger, less chronic patients (N=21) in one of the included studies (Russell 1987) suggested a possible benefit of family therapy compared to another psychological intervention.
Relapse rates for participants treated with family therapy versus other, non-family therapy based interventions, as reported in three trials, indicated no significant difference between family and non-family based interventions. All other reported comparisons of family therapy and non-family therapy interventions indicated no significant differences in cognitive distortion, weight measures and dropout from treatment. Again, based on a post hoc analysis, there was some suggestion of a difference in treatment response for a subgroup of younger, less chronic patients (N=21) for whom greater improvements in weight and measures of cognitive distortion were indicated at the end of treatment (Russell 1987) but not at five year follow-up. No conclusions can be drawn on the basis of these subgroup analyses, but they would be interesting to explore in future studies.
In regard to adverse outcomes, only three out of the 13 trials reported explicitly on participant mortality. 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 the Russell 1987 study, 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 do 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 patients would not have been included in the trials or may be a reflection of an improvement in care.

Very few trials provided usable data on the other key measures of general functioning (1/13) and family functioning (2/13). This is particularly disappointing for the family functioning measures. As all trials utilised some form of family therapy, it was expected that the trialists would be interested in assessing the impact of the interventions on functioning within the family structure.

In 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. There were only two results of note from these trials. Firstly, a greater level of improvement in cognitive distortion measures were found in participants treated with long term family therapy versus short term family therapy, at the end of treatment. However, this effect was not maintained at follow-up (although the reporting of different psychopathology outcome measures at these two time points complicates the interpretation of these results). This result is based on one study that included 86 participants. Secondly, a higher degree of improvement was observed on a measure of family functioning in patients treated with family therapy plus a family meal, compared to family therapy alone (although it should be noted that this result reflects the outcome of one small trial with 12 participants)

Overall completeness and applicability of evidence

The available trials allowed for the comparison of family therapy to standard treatment, and to other treatments, meeting the first major objective of the review. However, overall there were few trials with small numbers of participants. The comparison which included the greatest number of trials was family therapy and other psychological interventions, which involved five trials yielding a total of 150 patients. We identified were fewer trials investigating family therapy versus standard treatment (or 'treatment as usual') and just one trial investigating family therapy compared to educational interventions.

The second major objective of the review was to compare the efficacy of different forms of family therapy. Five available trials directly compared the efficacy of different forms of family therapy. However, it is important to note that the majority of these involved the use of two interventions that were theoretically very similar, with a single point of difference, or modification between the two interventions. For example, the theoretical underpinning for all of the treatments in the following trials was *family based therapy* with a single modification: Lock 2005 short term versus long term therapy, Eisler 2000 and le Grange 1992 conjoint versus separated family therapy, Rausch 2006 family therapy versus family therapy plus meal. The only trial that directly investigated the efficacy of two forms of family therapy with differing theoretical underpinnings was Whitney unpublished. In this trial a 'specific family therapy' approach is applied to individual families in one condition (categorised as *other* family therapy), while *systems* family therapy is utilised to treat families in a group setting in the other.

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

The third major objective of the review was to investigate the efficacy of family therapy in patients with chronic AN vs non-chronic AN. Again the limited number of the trials and lack of specificity of the level of participants' AN chronicity made this difficult. Although eleven of the thirteen trials specified the duration of illness of their participants, only three trials provided this information by individual intervention groups for all included groups (Dare 2001; Lock 2005; Rausch 2006). There was some evidence in the trial by Russell 1987 that family therapy may be more effective than individual supportive therapy in patients with a shorter duration of illness in terms of remission, cognitive distortion and weight (this subgroup contained 21 participants).

The final major objective of the review was to investigate the efficacy of family therapy in adolescents versus adults with AN. Just one trial segregated participants by age (Russell 1987). The results of this single trial indicated some possible differences between the responses of the younger, less chronic group to the other groups within the trial, in regard to remission, cognitive distortion and weight at the end of treatment (this subgroup contained 21 participants). While this may indicate that family therapy can be more effective in younger, less chronic patients compared with other psychological interventions, this reflects the results of just one subgroup of one trial. Of the remaining two comparison analyses that contained more than one trial, neither allowed for analysis by age, as similar age groups were compared in both trials (e.g. conjoint versus separated family therapy - both trials with participants' mean age below 18 years; family therapy versus treatment as usual - all three trials with participants' mean age above 18 years). Overall it is difficult to draw any conclusion from the data in this review about the effect of chronicity or age of onset on treatment efficacy.

Generally, the young people included in these trials were similar to those seen in clinical practice. The mean BMI ranged from 13 to 17, with the majority of participants in the middle of this range. Only six trials provided details of exclusion criteria, with

Ball 2004 and Dare 2001 excluding on the basis of very low weight. Participants with comorbidities, including suicidal risk and other psychiatric disorders, were often excluded. Participants were included both from inpatient and outpatient settings. However, the majority were outpatients and consequently were more likely to be stabilised. Given the few numbers of males included in the trials it may be that the results are not generalisable to males with AN.

Quality of the evidence

Overall the reporting of aspects of risk of bias was inadequate in the publications. Thus, it is difficult to estimate what the effect of bias on the treatment might be. This was particularly notable for the concealment of allocation, as it is know that inadequate concealment has a large effect of treatment estimates Juni 2001.
The blinding of care providers and participants is not possible in trials of therapy. In this case, blinding on self-reported outcome measures is also not possible. However, in this review clinician assessed outcomes were common, especially related to cognitive distortion. Again, there was little detail about blinding of assessors; it was carried out in two trials, not carried out in two trials and unclear in the remainder.
The primary outcome of the review was remission however this was variably defined across trials and in fact only reported in eight of the 13 trials at end of treatment and in seven at follow-up. While improvements in cognitive distortion and weight are important to patients, returning to normal functioning is likely to be a more important outcome measure. Unfortunately, however, only one trial reported useable data for a measure of general functioning. Thus overall a lack of consistency in the reporting of key outcome measures, and a lack of utilisation of more generalised assessments of functioning, significantly impacted on the capacity of the 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).
Given the high level of chronicity associated with the disorder, long term follow-up of outcomes from these trials is of particular importance. Unfortunately, however, other than for remission, very little follow-up data were provided. This may be related to the design of trials. However, it also highlights apparent reporting biases in the trials, where data were often not reported, despite indications that it had been collected.
Ten trials reported on the rate of dropouts. The total trial dropouts ranged between 0 and 28 percent, with the majority of dropout rates falling between 10 and 20 percent. In many cases, the status of the participants following dropout was unclear. This would be less problematic if intention-to-treat analysis had been conducted in all trials; however, only two trials reported the use of this method of analysis. Given the nature of the disorder it is possible that a large proportion of participants who dropped out of the intervention faired poorly, in regard to clinical outcomes. Thus, the numbers of dropouts in the reviewed trials may have the effect of artificially inflating the effectiveness of the investigated interventions.
A number of trials suffered from other problems relating to eccentricities of trials conducted in this field. For example, there were a number of trials that appeared to have baseline imbalances (e.g. Crisp 1991; Eisler 2000; Hall 1987; le Grange 1992; Robin 1999; Whitney unpublished). In several cases the same therapist conducted the therapy in both family therapy and comparison treatment groups (e.g. Eisler 2000Russell 1987). There were often issues with the delivery of treatment or 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 patients also received individual psychodynamic therapy but there was no psychodynamic therapy alone comparison group Hall 1987.
Overall, from what is reported, there appeared to be a considerable risk of bias in the included studies.

Potential biases in the review process

Two of the trials included in the review were not published in English. Both of these trials were reported in Spanish and thus the data for these trials were extracted by a Spanish-speaking colleague. Every effort was made to ensure the accuracy and consistency of these extractions. However, the fact that the data were extracted by another individual, not as well-practiced in extraction for this particular trial, may have affected the quality of the information obtained from these papers.
In most cases end point data were used in the review, rather than change scores, as change scores were not generally available. End point data are more sensitive to baseline imbalances in the data, and thus may have impacted on the accuracy of the results.
The majority of the data were obtained via the published trial reports. However, some of the data were obtained via personal correspondence after letters were sent to 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 existing data that were not able to be included in this review. Also, as extra data were obtained from a number of the responding authors via personal communication, the current review potentially under-represents the extent of the level of reporting bias in the published papers, as originally published.

Agreements and disagreements with other studies or reviews

Several reviews of the efficacy of family therapy have previously been published. Typically, these have based their conclusions on narrative summaries of individual trial results, not meta-analyses. Of these, the review of intervention studies for the treatment of AN in adolescents by Keel 2008 highlights the paucity of studies

for this population. They conclude 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 state that the efficacy of family therapy in treating adults with AN has not yet been completely addressed and that 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 patients with shorter duration of illness in the Russell 1987 trial. This review contextualizes 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

AUTHORS' CONCLUSIONS

Implications for practice

Overall, very few trials have been undertaken in this area. The majority of these trials include small sample sizes, and all have potentially significant risks of bias, with many details about the conduct not reported. What evidence there is suggests that family therapy may be effective compared to standard or routine treatment (outpatient management that may be in the format of groups) in the short term. There is insufficient evidence to be able to determine whether family therapy offers any advantage over other types of psychological intervention. The review generated a hypothesis for testing in future trials regarding the potential superior effectiveness of family therapy for younger patients with a shorter duration of illness. The major type of family therapy investigated is 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 types of FT.

Implications for research

The effectiveness of different types of family therapy has not been well studied, with some major schools of family therapy intervention not investigated in trials at all 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 utilising 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.

ACKNOWLEDGEMENTS

Thanks to the CCDAN editorial team for ongoing support and advice.

Thanks to Mario Álvarez-Jiménez for his translation of and assistance with the foreign language articles.

Orygen Research Centre is thankful for the support of the Colonial Foundation. **headspace**: The National Youth Mental Health Foundation is funded by the Australian Government.

Thanks to authors who sent us data, including Ivan Eilser (provided data for Russell 1987, Dare 2001, Eisler 2000, Le Grange 1992), Herscovi Rausch, Robin, Dr Whitney.

REFERENCES

References to studies included in this review

Ball 2004 *{published data only (unpublished sought but not used)}*

* Ball J, Mitchell P. A randomized controlled study of cognitive behaviour therapy and behavioral family therapy for anorexia nervosa patients. *Eating Disorders* 2004;**12**: 303–314.

Ball JR. A controlled evaluation of psychological treatments for anorexia nervosa. (cognitive behavior therapy, behavioral family therapy). *Dissertation Abstracts International* 1999;**59** (11-B):5781.

Ball JR, Mitchell PB, Touyz SW, Griffiths RA, Beumont PJ. Clinical utility of the modified Stroop task as a treatment outcome measure: Questions raised. *Clinical Psychologist* 2004;**8**(2):76–80.

Crisp 1991 *{published data only (unpublished sought but not used)}*

* Crisp AH, Norton K, Gowers S, Halek C, Bowyer C, Yeldham D, Levett G, Bhat A. A controlled study of

the effect of therapies aimed at adolescent and family psychopathology in anorexia nervosa. *British Journal of Psychiatry* 1991;**159**:325–33.
Gowers S, Norton K, Halek C, Crisp AH. Outcome of outpatient psychotherapy in a random allocation treatment study of anorexia nervosa. *International Journal of Eating Disorders* 1994;**15**(2):165–77.
Gowers S, Phil M, Norton K, Yeldham D, Bowyer C, Levett G, Heavey A, Bhat A, Crisp A. The St. George's prospective treatment study of anorexia nervosa: A discussion of methodological problems. *International Journal of Eating Disorders* 1989;**8**(4):445–54.

Dare 2001 ***{published and unpublished data}***
Dare C, Eisler I, Russell G, Treasure J, Dodge L. Psychological therapies for adults with anorexia nervosa: Randomised controlled trial of out-patient treatments. *British Journal of Psychiatry* 2001;**178**(3):216–21.

Eisler 2000 ***{published and unpublished data}***
Dare C, Chania E, Eisler I, Hodes M, & Dodge E. The Eating Disorder Inventory as an instrument to explore change in adolescents in family therapy for anorexia nervosa. *European Eating Disorders Review* 2000;**8**(5):369–83.
Eisler I, Dare C, Hodes M, Russell G, Dodge E, Le Grange D. Family therapy for adolescent anorexia nervosa: the results of a controlled comparison of two family interventions. *Journal of Child Psychology and Psychiatry & Allied Disciplines* 2000;**41**(6):727–36.
Eisler I, Simic M, Russell GFN, Dare C. A randomised controlled treatment trial of two forms of family therapy in adolescent anorexia nervosa; a five year follow-up. *Journal of Child Psychology and Psychiatry* 2007;**48**(6):552–560.

Espina 2000 ***{published data only (unpublished sought but not used)}***
Espina A, Joaristi L, Ortego MA, de Alda IO. disorders, family interventions and changes in MMPI profiles. An exploratory study. *Estudios de Psicologia* 2003;**24**(3):359–75.
* Espina EA, Ortego Saenz de Cabezon M A, Ochoa de Alda Martinez de Apellaniz I. A controlled trial of family interventions in eating disorders [Un ensayo controlado de intervenciones familiares en trstornos alimentarios]. *Anales de Psiquiatria* 2000;**16**(8):322–36.
Espina EA, Ortego Saenz De Calderon MA, Ochoa De Alda Apellaniz I. A controlled trial of family interventions in eating disorders. Changes in psychopathology and social adjustment. *Apuntes de Psicologia* 2002;**20**(1):49–62.

Geist 2000 ***{published data only (unpublished sought but not used)}***
Geist R, Heinmaa M, Stephens D, Davis R, Katzman DK. Comparison of family therapy and family group psychoeducation in adolescents with anorexia nervosa. *Canadian Journal of Psychiatry. Revue Canadienne de Psychiatrie* 2000;**45**(2):173–8.

Hall 1987 ***{published data only (unpublished sought but not used)}***
Hall A, Crisp AH. Brief psychotherapy in the treatment of anorexia nervosa. Outcome at one year. *British Journal of Psychiatry* 1987;**151**:185–91.

le Grange 1992 ***{published and unpublished data}***
le Grange D, Eisler I, Dare C, Hodes M. Evaluation of family therapy in adolescent anorexia nervosa: A pilot study. *INternational Journal of Eating Disorders* 1992;**12**(4):347–57.

Lock 2005 ***{published data only (unpublished sought but not used)}***
Lee HY, Lock J. Anorexia nervosa in Asian-American adolescents: Do they differ from their non-Asian peers. *International Journal of Eating Disorders* 2007;**40**(3):227–231.
Lock J, Agras WS, Bryson S, Kraemer HC. A comparison of short- and long-term family therapy for adolescent anorexia nervosa. *Journal of the American Academy of Child and Adolescent Psychiatry* 2005;**44**(7):632–9.
Lock J, Couturier J, Agras WS. Comparison of long-term outcomes in adolescents with anorexia nervosa treated with family therapy. *Journal of the American Academy of Child and Adolescent Psychiatry* 2006;**45**(6):666–72.
Lock J, Couturier J, Bryson S, Agras S. Predictors of dropout and remission in family therapy for adolescent anorexia nervosa in a randomized clinical trial. *International Journal of Eating Disorders* 2006;**39**(8):639–47.
Pereira T, Lock J, Oggins J. Role of therapeutic alliance in family therapy for adolescent anorexia nervosa. *International Journal of Eating Disorders* 2006;**39**(8):677–84.

Rausch 2006 ***{published data only (unpublished sought but not used)}***
* Rausch Herscovici, C. Lunch session, weight gain and their interaction with the psychopathology of anorexia nervosa in adolescents. *Vertex: Revista Argentina de Psiquiatria* 2006;**17**(65):7–15.

Robin 1999 ***{published and unpublished data}***
Robin AL. Behavioral family systems therapy for adolescents with anorexia nervosa. In: Kazdin, AE editor(s). *Evidence-based Psychotherapies for Children and Adolescents*. New York: Guilford Press, 2003:358–73.
Robin AL, Siegel P. The limited effectiveness of short-term therapy for anorexia nervosa. 155th Annual Meeting of the American Psychiatric Association. Philadelphia, PA, 2002, May 18–23:No. 10C.
Robin AL, Siegel PT, Koepke T, Moye AW, Tice S. Family therapy versus individual therapy for adolescent females with anorexia nervosa. *Journal of Developmental and Behavioral Pediatrics* 1994;**15**(2):111–6.
Robin AL, Siegel PT, Moye A. Family versus individual therapy for anorexia: Impact on family conflict. *International Journal of Eating Disorders* 1995;**17**(4):313–22.
* Robin AL, Siegel PT, Moye AW, Gilroy M, Dennis AB, Sikand A. A controlled comparison of family versus individual therapy for adolescents with anorexia nervosa. *Journal of the American Academy of Child and Adolescent Psychiatry* 1999;**38**(12):1482–9.

Russell 1987 ***{published and unpublished data}***
Dare C, Eisler I, Russell GF, Szmukler GI. The clinical and theoretical impact of a controlled trial of family therapy in

anorexia nervosa. *Journal of Marital and Family Therapy* 1990;**16**(1):39–57.
Eisler I. Data sent for post intervention outcomes by subgroup. Letter (postmark 13.10.08) 2008.
Eisler I, Dare C, Russell GF, Szmukler G, le Grange D, Dodge E. Family and individual therapy in anorexia nervosa. A 5-year follow-up. *Archives of General Psychiatry* 1997;**54**(11):1025–30.
Hewell K, Hoste RR, Le Grange D. Recruitment for an adolescent bulimia nervosa treatment study. *International Journal of Eating Disorders* 2006;**39**(7):594–7.
* Russell GF, Szmukler GI, Dare C, Eisler I. An evaluation of family therapy in anorexia nervosa and bulimia nervosa. *Archives of General Psychiatry* 1987;**44**(12):1047–56.
Smukler GI, Dare C. The Maudsley study of family therapy in anorexia and bulimia nervosa. In: Blake D, Shekter-Wolfson L editor(s). *Family approaches in treatment of eating disorders*. Washington, DC: American Psychiatric Press, 1991:1–21.

Russell 1987 group 1 ***{published and unpublished data}***
Russell GF, Szmukler GI, Dare C, Eisler I. An evaluation of family therapy in anorexia nervosa and bulimia nervosa. *Archives of General Psychiatry* 1987;**44**(12):1047–56.

Russell 1987 group 2 ***{published data only}***
Russell GF, Szmukler GI, Dare C, Eisler I. An evaluation of family therapy in anorexia nervosa and bulimia nervosa. *Archives of General Psychiatry* 1987;**44**(12):1047–56.

Russell 1987 group 3 ***{published data only}***
Russell GF, Szmukler GI, Dare C, Eisler I. An evaluation of family therapy in anorexia nervosa and bulimia nervosa. *Archives of General Psychiatry* 1987;**44**(12):1047–56.

Whitney unpublished ***{unpublished data only}***
Todd G, Gavan K, Murphy T. Family work in the treatment of patients with anorexia nervosa. 29th Annual Conference of the British Association for Behavioural and Cognitive Psychotherapies. Glasgow, 2001, June 20–23.
Whitney J, Murphy T, Landau S, Gavan K, Todd G, Whitaker W, Treasure J. Exploratory RCT of family day workshops and individual family work as a supplement to inpatient care for anorexia nervosa. International Journal of Eating Disorders submitted.

References to studies excluded from this review

Buddeberg 1979 ***{published data only}***
Buddeberg B, Buddeberg C. Family therapy of anorexia nervosa. *Praxis der Kinderpsychologie und Kinderpsychiatrie* 1979;**28**(2):37–43.

Le Grange 2005 ***{published data only}***
Le Grange D, Binford R, Loeb KL. Manualized family-based treatment for anorexia nervosa: A case series. *Journal of the American Academy of Child & Adolescent Psychiatry* 2005;**44**:41–46.

Loeb 2007 ***{published data only}***
Loeb K, Alfano L. Early identification and treatment of anorexia nervosa. ClinicalTrials.com. [: NCT00418977]
Loeb L, Walsh TB, Lock, J, le Grange D, Jones, J, Marcus S, Weaver J, Dobrow, I. Open trial of family-based treatment for full and partial anorexia nervosa in adolescence: Evidence of successful dissemination. *Journal of the American Academyof Child & Adolescent Psychiatry* 2007;**46**(7):792–800.

Perkins 2005 ***{published data only}***
Perkins S, Schmidt U, Eisler I, Treasure J, Yi I, Winn S, Robinson P, Murphy R, Keville S, Johnson-Sabine E, Jenkins M, Frost S, Dodge L, Berelowitz M. Why do adolescents with bulimia nervosa choose not to involve their parents in treatment?. *European Child and Adolescent Psychiatry* 2005;**14**(7):376–85.
Schmidt U, Lee S, Beecham J, Perkins S, Treasure J, Yi I, Winn S, Robinson P, Murphy R, Keville S, Johnson-Sabine E, Jenkins M, Frost S, Dodge L, Berelowitz M, Eisler I. A randomized controlled trial of family therapy and cognitive behavior therapy guided self-care for adolescents with bulimia nervosa and related disorders. *American Journal of Psychiatry* 2007;**164**(4):591–8.

Salbach 2006 ***{published data only}***
Salbach H, Bohnekamp I, Lehmkuhl U, Pfeiffer E, Korte A. Family-oriented group therapy in the treatment of female patients with anorexia and bulimia nervosa-a pilot study. *Zeitschrift fur Kinder-und Jugendpsychiatrie und Psychotherapie* 2006;**34**:267–274.

Slagerman 1989 ***{published data only}***
Slagerman M, Yager J. Multiple family group treatment for eating disorders: A short term program. *Psychiatric Medicine* 1989;**7**:269–283.

Treasure 2007 ***{published data only}***
Treasure J, Sepulveda AR, Whitaker W, Todd G, Lopez C, Whitney J. Collaborative care between professionals and non-professionals in the management of eating disorders: A description of workshops focused on interpersonal maintaining factors. *European Eating Disorders Review* 2007;**15**:24–34.

Wallin 2000 ***{published data only}***
Wallin U, Kronovall P, Majewski M. Body awareness therapy in teenage anorexia nervosa: outcome after 2 years. *European Eating Disorders Review* 2000;**8**(1):19–30.

References to studies awaiting assessment

Gower 2009 ***{published data only}***
Byford S, Barrett B, Roberts C, Clark A, Edwards V, Smethurst N, Gowers SG. Economic evaluation of a randomised controlled trial for anorexia nervosa in adolescents. *British Journal of Psychiatry* 2007;**191**:436–40.
Gowers S. Evidence based decision making in adolescent anorexia nervosa. 33rd Annual Conference of the British

Association for Behavioural and Cognitive Psychotherapies. Canterbury, 2005, July 21–23:87.
Gowers SG, Clark A, Robert C, Griffiths A, Edwards V, Bryan C, SmethurstN, Byford S, Barrett B. Clinical effectiveness of treatments for anorexia nervosa in adolescents: randomised controlled trial. *British Journal of Psychiatry* 2009;**191**:427–35.

Li 2006 ***{published data only}***
Li Y, Wang J, Ma J. A controlled clinical trial of citalopram and citalopram combined with family therapy in the treatment of anorexia nervosa. *Shanghai Archives of Psychiatry* 2006;**18**(3):158–6.

Rhodes 2008 ***{published data only}***
Rhodes P, Baillee A, Brown J, Madden S. Can parent-to-parent consultation improve the effectiveness of the Maudsley model of family-based treatment for anorexia nervosa? A randomized control trial. *Journal of Family Therapy* 2008;**30**(1):96–108.
Rhodes P, Brown J, Madden S. The Maudsley model of family-based treatment for anorexia nervosa: a qualitative evaluation of parent-to-parent consultation. *Journal of Marital and Family Therapy* 2009;**35**(2):181–92.

Santoni Rugiu 1999 ***{published data only}***
Santoni Rugiu A, De Giacomo P, Calo P, De Giacomo A, Catucci A, Viola G. A comparison of family therapy and day hospital integrated treatment in anorexia and bulimia nervosa. *Current Opinion in Psychiatry* 1999;**12**(Suppl 1): 335.

References to ongoing studies

Agras ***{published data only}***
Agras WS. Family therapy in the treatment of adolescent anorexia nervosa. NIH CRISP.

Eisler ***{published data only}***
Eisler I. A multi-centre randomised trial of the outcome, acceptability and cost-effectiveness of family therapy and multi-family day treatment compared with inpatient care and outpatient family therapy for adolescent anorexia nervosa. controlled-trials.com.

le Grange ***{published data only}***
le Grange D, Hewell K, Doyle P. Treatment for Adolescent Anorexia Nervosa. ClinicalTrials.gov.

Lock ***{published data only}***
Lock JD, Beenhakker JG. Treatment of Adolescents With Anorexia Nervosa. ClinicalTrials.gov.

Zucker ***{published data only}***
Zucker NL. Group parent training for adolescent eating disorders (GPT-AN). ClinicalTrials.gov.

Additional references

APA 1994
American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*. 4th Edition. Washington, DC: American Psychiatric Association, 1994.

APA 2006
American Psychological Association. Practice Guideline for the Treatment of Patients with Eating Disorders: Third Edition. 2006. American Psychiatric Association.. http://www.psychiatryonline.com/pracGuide/loadGuidelinePdf.aspx?file=EatingDisorders3ePG_04-28-06. 2006; Vol. Accessed April 30 2010..

Berkman 2006
Berkman ND, Bulik CM, Brownley KA, Lohr KN, Sedway JA, Rooks A, Gartlehner G. Management of Eating Disorders. Evidence Report/Technology Assessment No. 135. (Prepared by the RTI International-University of North Carolina Evidence-Based Practice Center under Contract No. 290-02-0016.) AHRQ Publication No. 06-E010. *Management of Eating Disorders. Evidence Report/Technology Assessment No. 135. (Prepared by the RTI International-University of North Carolina Evidence-Based Practice Center under Contract No. 290-02-0016.)*. Rockville, MD: Agency for Healthcare Research and Quality, 2006.

Berkman 2007
Berkman ND, Lohr KN, Bulik CM. Outcomes of eating disorders: a systematic review of the literature. *International Journal of Eating Disorders* 2007;**40**(4):293–309.

Bulik 2007
Bulik CM, Berkman ND, Brownley KA, Sedway JA, Lohr KN. Anorexia nervosa treatment: a systematic review of randomized controlled trials. *International Journal of Eating Disorders* 2007;**40**(4):310–20.

Claudino 2006
Claudino AM, Hay P, Lima MS, Bacaltchuk J, Schmidt U, Treasure J. Antidepressants for anorexia nervosa. *Cochrane Database of Systematic Reviews* 2006, Issue 1. [Art. No.: CD004365. DOI: 10.1002/14651858.CD004365.pub2]

Cole 1988
Cole JD, Kazarian SS. The level of expressed emotion scale: A new measure of expressed emotion. *Journal of Clinical Psychology* 1988;**44**:392–397.

Cooper 1987
Cooper PJ, Taylor MJ, Cooper Z, Fairburn CG. The development and validation of the Body Shape Questionniare. International Journal of Eating Disorders 1987; Vol. 6:485–94.

Cooper 1987a
Cooper Z, Fairburn CG. The Eating Disorders Examination: a semi-structured interview for the assessment of the specific psychopathology of eating disorders. International Journal of Eating Disorders 1987; Vol. 6:1–8.

Court 2008
Court A, Mulder C, Hetrick S, Purcell R, McGorry PD. What is the scientific evidence for the use of antipsychotic medication for anorexia nervosa?. Eating Disorders 2008; Vol. 16, issue 3:217–23.

Crown 1979
Crown S, Crisp AH. *Crown-Crisp Experiential Index*. London: Hodder and Stoughton, 1979.

Dare 1997
Dare C, Eisler I. Family therapy for anorexia nervosa. In: D. M. Garner, P. E. Garfinkel editor(s). *Handbook of treatment for eating disorders*. 2nd Edition. New York: Guilford Press, 1997:307–324.

DerSimonian 1986
DerSimonian R, Laird N. Meta-analysis in clinical trials. *Controlled Clinical Trials* 1986;**7**:177–88.

Eisler 1997
Eisler I, Dare C, Russell GF, Szmukler G, le Grange D, Dodge E. Family and individual therapy in anorexia nervosa. A 5-year follow-up. *Archives of General Psychiatry* 1997;**54**(11):1025–30.

Eisler 2008
Eisler I. Data sent for post intervention outcomes by subgroup. Letter (postmark 13.10.08) 2008.

Fairburn 2003
Fairburn CG, Harrison PJ. Eating disorders. *Lancet* 2003; **361**:407–416.

Fichter 2006
Fichter MM, Quadflieg N, Hedlund S. Twelve-year course and outcome predictors of anorexia nervosa. *International Journal of Eating Disorders* 2006;**39**:87–100.

Garner 1979
Garner DM, Garfinkle PE. The Eating Attitudes Test: An Index of the symptoms of anorexia nervosa. Psychological Medicine 1979; Vol. 10:647–56.

Garner 1982
Garner DM, Bemis KM. A cognitive-behavioral approach to anorexia nervosa. *Cognitive Therapy and Research* 1982;**6**: 123–50.

Garner 1983
Garner DM, Olmstead MP, Polivy K. Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. International Journal of Eating Disorders 1983; Vol. 2:15.

Garner 1991
Garner DM. *Eating Disorders Inventory-2: Professional Manual*. Odessa, FL: Psychological Assessment Resources, 1991.

Harris 1998
Harris EC, Barraclough B. Excess mortality of mental disorder. *British Journal of Psychiatry* 1998;**173**:11–53.

Hay 2003
Hay P, Bacaltchuk J, Claudino A, Ben-Tovim D, Yong PY. Individual psychotherapy in the outpatient treatment of adults with anorexia nervosa. *Cochrane Database of Systematic Reviews* 2003, Issue 4. [DOI: 10.1002/ 14651858.CD003909; : CD003909. PMID 14583998]

Higgins 2003
Higgins JPT, Thompson SG, Deeks JJ, Altman DG. Measuring inconsistency in meta-analyses. *BMJ* 2003;**327** (7414):557–60.

Higgins 2008
Higgins JPT, Green S (editors). Cochrane Handbook for Systematic Reviews of Interventions Version 5.0.2 [updated September 2009]. The Cochrane Collaboration, 2008. Available from www.cochrane-handbook.org 2008.

Hoek 2003
Hoek HW, van Hoeken D. Review of the Prevalence and incidence of eating disorders. *International Journal of Eating Disorders* 2003;**24**:383–396.

Juni 2001
Juni P, Altman DG, Egger M. Assessing the quality of controlled clinical trials. *British Medical Journal* 2001;**323**: 42–6.

Katzman 2005
Katzman DK. Medical complications in adolescents with anorexia. nervosa:A review of the literature. *International Journal of Eating Disorders* 2005;**37**:s52–59.

Kaufman 1997
Kaufman J, Birmhaher B, Brent D, et al.Schedule for affective disorders and schizophrenia for school-age children-present and lifetime version (KSADS-PL: initial reliability and validity. Journal of the American Academy of Child and Adolescent Psychiatry 1997; Vol. 36:980–8.

Keel 2008
Keel PK, Haedt A. Evidence-Based Psychosocial Treatments for Eating Problems and Eating Disorders. *Journal of Clinical Child and Adolescent Psychology* 2008;**37**(1):39–61.

Kingston 1988
Kingston W. The Family Health Scales for global assessment of family functioning. Innovations in Clinical Practice: A Source Book. Sarasota, FI: Professional Resource Exchange Inc, 1988:299–330.

Kinston 1984
Kinston W, Loader P. Eliciting whole-family interaction with a standardized clinical interview. Journal of Family Therapy 1984; Vol. 6:347–63.

Kordy 2005
Kordy H. Counting the COST: A European collaboration on the efficacy of psychotherapeutic treatment of patients with eating disorders. *European Eating Disorders Review* 2005;**13**:153–158.

le Grange 2005
le Grange D, Lock J. The Dearth of Psychological Treatment Studies for Anorexia Nervosa. *International Journal of Eating Disorders* 2005;**37**(2):79–91.

Leff 1985
Leff J, Vayghn CE. *Expressed Emotion in families: its significance for mental illness*. New York: Guilford Press, 1985.

Liebman 1974
Liebman R, Minuchin S, Baker L. An integrated treatment program for anorexia nervosa. *American Journal of Psychiatry* 1974;**131**(4):432–436.

Lock 2006
Lock J, Couturier J, Agras WS. Comparison of long-term outcomes in adolescents with anorexia nervosa treated with family therapy. *Journal of the American Academy of Child and Adolescent Psychiatry* 2006;**45**(6):666–72.

Lucas 1999
Lucas AR, Crowson CS, O'Fallon WM, Melton LJ. The ups and down of anorexia nervosa. *International Journal of Eating Disorders* 1999;**26**:397–405.

Madanes 1981
Madanes C. *Strategic family therapy*. San Francisco, CA: Jossey-Bass, 1981.

Mantel 1959
Mantel N, Haenszel W. Statistical aspects of the analysis of data from retrospective studies of disease. *Journal of the National Cancer Institute* 1959;**22**:719–48.

Mazure 1995
Mazure S, Halmi C, Einhorn A. The Yale-Brown-Cornell Eating Disorder Scale: a new scale to assess eating disorder symptomatology. International Journal of Eating Disorders 1995; Vol. 18:237–45.

Minuchin 1978
Minuchin S, Rosman BL, Baker L. *Psychosomatic families: Anorexia nervosa in context*. Vol. **viii**, Oxford, England: Harvard University Press, 1978.

Moos 1994
Moos R, Moos B. *Family Environment Scale Manual*. Palo Alto, CA: Consulting Psychologists Press, 1994.

Morgan 1988
Morgan HG, Russell GFM. Clinical assessment of anorexia nervosa: the Morgan-Russell Outcome Assessment Schedule. British Journal of Psychiatry 1988; Vol. 152: 367–71.

Nielsen 1990
Nielsen S. The epidemiology. of anorexia nervosa in. Denmark from 1973 to 1987: a nationwide register study of psychiatric admission. *Acta Psychiatrica Scandinavica* 1990;**81**:507–514.

Olsen 1979
Olsen DH, Sprenkle DH, Russell CS. Circumplex Model of marital and family systems: I. Cohesion and Adaptability dimension, family types and clinical applications. Family Process 1979; Vol. 18:3–28.

Olsen 1985
Olsen DH, Portner J, Lavee Y. *FACES-III*. Minnesota: Family Social Science: University of Minnesota, 1985.

Robin 1989
Robin AL, Foster SL. *Negotiating parent-adolescent conflict: a behavioural-family systems approach*. New York: Guilford, 1989.

Robin 1990
Robin AL, Koepke T, Moye A. Multidimensional assessment of parent-adolescent relations. Psychological Assessment: Journal of Consulting and Clinical Psychology 1990; Vol. 2:451–9.

Robin 1994
Robin A L, Siegel PT, Koepke T, Moye A W, Tice S. Family therapy versus individual therapy for adolescent females with anorexia nervosa. *Journal of Development and Behavioral Pediatrics* 1994;**15**:111–116.

Robin 1995
Robin AL, Siegel PT, Moye A. Family versus individual therapy for anorexia: impact on family conflict. *International Journal of Eating Disorders* 1995;**17**(4): 313–22.

Selvini 1978
Selvini Palazzoli M, Boscolo L, Cecchin G, Prata G. *Paradox and Counterparadox*. New York: Aronson, 1978.

Skinner 1991
Skinner HA, Steinhauer PD, Santa-Barbara J. *The Family Assessment Measure*. Toronto: Multi-Health Systems, 1991.

Sullivan 1995
Sullivan PF. Mortality of anorexia nervosa. *American Journal of Psychiatry* 1995;**152**:1073–1074.

Tolkien II Team 2006
Tolkien II Team. *A needs-based, costed, stepped care model for Mental Health Services*. Sydney: World Health Organisation Collaborating Centre for Classification in Mental Health. Competitive Edge Graphics, 2006.

Treasure 2010
Treasure J, Claudina AM, Tucker N. Eating Disorders. *The Lancet* 2010;**375**:583–93.

Vandereycken 1992
Vandereycken W. Validity and reliability of the Anorectic Behavior Observation Scale for parents. Acta Psychiatrica Scandiavica 1992; Vol. 85:163–6.

Vaughan 1976
Vaughan CE, Leff J. The influence of family and social factors on the course of psychiatry illness: a comparison of schizophrenic and depressed neurotic patients. British Journal of Psychiatry 1976; Vol. 129:125–37.

WHO 1992
World Health Organisation. *The Tenth Revision of the International Classification of Diseases and Related Health Problems (ICD-10)*. http://www.who.int/classifications/apps/icd/icd10online/: World Health Organisation, 1992.

Zipfel 2003
Zipfel S, Lowe B, Herzog W. Medical complications. In: J Treasure, U Schmidt editor(s). *Handbook of Eating Disorders*. Chichester, UK: John Wiley & Sons Ltd, 2003: 191–206.

* *Indicates the major publication for the study*

CHARACTERISTICS OF STUDIES

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

Ball 2004

Methods	RCT
Participants	Country: Australia Diagnostic tool: DSM-IV modified to also include patients 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* 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 hospitalization - severe physical complications or suicidal ideation 7. Recent history of untreated physical of 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' (Robin 1989), plus 4 nutritional counseling sessions. Length: 25 sessions of one hour duration over 12 months **Intervention group 2** Description: 'individual CBT' Based on Garner 1982, therapy to address maladaptive core beliefs often associated with feelings of failure and inadequacy. Plus 4 nutritional counseling sessions Length: 25 sessions of one hour duration over 12 months
Outcomes	Eating psychopathology Eating Disorders Examination Cooper 1987; Cooper 1987a Scales of Body Dissatisfaction, Eating Disorders Inventory Garner 1983 Anorectic Behaviour Observation Scale Vandereycken 1992 Behavioural indices Weight, BMI Menstruation Good outcome/Intermediate outcome/poor outcome General psychopathology Depression (Beck, 1961) State Trait Anxiety Inventory (Speilberger, 1970) Obsessionality Perfectionism Scale from the Eating Disorders Examination Cooper 1987; Cooper 1987a Global pathology and interpersonal functioning State Self Esteem Scale (Heatherton, 1991) Family functioning Eating Conflict Scale of the Interaction Behaviour Code (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

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	No detail
Allocation concealment?	Unclear	No detail
Blinding? All outcomes	Unclear	No detail

Ball 2004 (*Continued*)

Incomplete outcome data addressed? All outcomes	No	1. There is not a full description of why people left the intervention in each group. 2. There are three hospitalisations but it is unclear from which groups. 3. No intention-to-treat (ITT) analysis 4. On the main outcome they do compare ITT to completer analysis.
Free of selective reporting?	No	1. Do not report outcomes from the Eating Conflict subscale of the Interaction Behaviour Code. 2. Authors report that they collect data on both general and family functioning, but the data are not reported in a format that is usable for analysis.
Free of other bias?	No	1. Small sample size 2. Baseline imbalance - for sub-type 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%)

Crisp 1991

Methods	RCT
Participants	Country: UK Diagnostic tool: DSM-IIIR 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 (one died); Assessment only: 20 No dropped out during intervention: (not fully reported): Outpatient (includes FT): 3 (attended 5 sessions or less); 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* 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)

Crisp 1991 (*Continued*)

	Duration of illness in months (SD): Total: 39; range 4 to 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 Mean Matched Population Weight (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 (Morgan Russell, 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: Not residing close enough for outpatient treatment (> 40 miles), ≥ ten year duration of illness, males
Interventions	Setting of care: Inpatients 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 / family therapy' 12 outpatient sessions including individual work and which nearly always but to a variable extent included some family work (more with the younger patients). Family work emphasized 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 groups' 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**

Crisp 1991 (*Continued*)

	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 patient and the family Length: Several months of inpatient plus outpatient treatment over several months **Intervention group 4** Description: 'one off' - no further treatment 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% Mean Matched-Population Weight (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 less than 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

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	no detail : *Methods paper pg. 446 " treatment option drawn by random allocation" with no other statement*
Allocation concealment?	Unclear	no detail
Blinding? All outcomes	Unclear	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

Crisp 1991 (*Continued*)

		given“ pg. 453
Incomplete outcome data addressed? All outcomes	Yes	All patients were followed up regardless of compliance with treatment. Analysis included all 90 participants who were randomised
Free of selective reporting?	No	1. Vaguely stated hypotheses. 2. No report of restricting or purging behaviours at follow-up despite these measures being taken at baseline. 3. Two year outcomes only reported for two groups. Authors report that they collected data on weight, relapse and dropouts but the data are not reported in a format that is usable for analysis
Free of other bias?	No	1. Many “no treatment” patients received treatment. 2. Treatment dosages uneven. 3. 50% more allocation to inpatient group at randomization. 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 two and four 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 both in regards to assessors and method of obtaining outcome data.

Dare 2001

Methods	RCT
Participants	Country: UK Diagnostic tool: DSM-IV No. screened: *No detail* No. randomised: Total : 84: Psychoanalytic psychotherapy: 21; Family therapy: 22; Cognitive analytic therapy: 22; Routine treatment: 19

	No. started trial: *No detail* 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 don't match with the numbers for each group.* Number dropped out during follow-up: *No detail* Number analysed (last observation carried forward): Total : 84; Psychoanalytic psychotherapy: 21; Family therapy: 22; Cognitive analytic therapy: 22; Routine treatment: 19 Number analysed (observed case): Total : 54; Psychoanalytic psychotherapy: 12; Family therapy: 16; Cognitive analytic therapy: 13; Routine treatment: 13 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) Age range: *No detail* Gender %: Total: 2% male (all in the family therapy group):98% female Subtype: *No detail* 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) Duration of illness in years: Total : 6.3 years (5.9); 79% had had previous treatment (43% of these as inpatients and 19% requiring multiple admissions); Psychoanalytic psychotherapy: 6.7 (5.9) (71% had had previous treatment - 24% as inpatient); Family therapy: 5.8 (4.9) (82% had had previous treatment - 55% as inpatient); Cognitive analytic therapy: 6.7 (7.6) (77% had had previous treatment - 36% as inpatient); Routine treatment: 6.1 (5.0) (84% had had 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: Mental or physical state was considered so dangerous as to require urgent admission to hospital e.g. suicidal risk, 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 therapy' Family based therapy. Phase 1 focused on the family control of refeeding but patients took an active role to oppose the anorectic eating habits Length: Mean of 13.6 sessions of 1 hour to 1 hour 15 minutes sessions between once a week and once every three 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 patients history and their experience with their family, b) the effects of the symptom and its influence on the patients 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' Patients 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 three months but mean number of 12.9 sessions of 50 minute duration **Intervention group 2** 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	Eating psychopathology Morgan Russell Assessment Schedule Morgan 1988 Behavioural indices BMI Recovered: weight >85% ABW; menstruation returned, no bulimic symptoms

	Significantly improved: weight more than 85% of ABW but amenorrhoea persists and/or occasional bulimic symptoms (<weekly) Improved: weight >75% ABW and 10% weight gain and/or regular bulimic symptoms (weekly) Poor: weight <75% ABW or weight gain < 10% or frequent bulimic symptoms (daily)
Notes	Included in family therapy vs standard care/treatment as usual Family therapy categorised as family based therapy Also included in family therapy vs individual psychological intervention Family therapy categorised as family based therapy Personal communication stated that the cause of death of the patient who died in the routine group was not available in research files. Funded by: Leverhulme Foundation and the Mental Health Research Fund

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Yes	"a stratified randomization procedure...the minimization method (Pocock 1982) was used to control for age of onset and the duration of the illness." Pg. 216 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
Allocation concealment?	Yes	"sealed envelopes"
Blinding? All outcomes	No	"the follow-up research clinician was not blind to treatment" pg. 216
Incomplete outcome data addressed? All outcomes	Unclear	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 one patient who died). Intention-to-treat analysis done. 2. 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. 3. Personal communication states that an attempt to follow-up all patients was undertaken, regardless of how much therapy they received.
Free of selective reporting?	No	1. Abstract describes specific interventions as superior, however, the results suggest this was only for weight, not for any measures of psychopathology. 2. We obtained group totals for cognitive distortion and

Dare 2001 (*Continued*)

		weight via personal communication
Free of other bias?	Unclear	1. Uneven treatment dosages and duration 2. Expertise differed in treatment group therapists

Eisler 2000

Methods	RCT
Participants	Country: UK Diagnostic tool: DSM-IV or ICD 10 No. screened: 57 No. randomised: 40: Conjoint FT:19; Separated FT:21 No. started trial: *No details* No dropped out during intervention: 4 (not given by group) No dropped out during follow-up: No follow up data collected just end of treatment No. analysed: 40 (LOCF): Conjoint FT: 19; Separated FT: 21 Mean age in years (SD): Total: 15.5 (1.6); Conjoint FT: 15.5; Separated FT: 15.5 Age range in years: Total: 11.5 - 17.8 (not given by group) Gender: 1male : 39 female (not given by group) Subtype: *No details* Age of onset in years: Total: 14.5 (1.6) (range 10.6 - 17.0); Conjoint FT: 14.4; Separated FT: 14.5 Duration of illness in months: Total: 12.9 (9.4) mths (range 2-36 months); Conjoint FT: 13.9; Separated FT: 12.0 Baseline weight in kgs: Total: 40.0 (6.4) kgs (range 28 - 53kg); Conjoint FT: 39.3 kg; Separated FT: 40.7 kg Baseline ABW: Total: 74.3 (9.8) % (range 50.0% - 95%); Conjoint FT: 72.2%; Separated FT: 76.2% Baseline BMI: *No details* Baseline eating disorder scale score: EDI: 56.2 (33.9) (not given by group); EAT: 47.7 (25.7) (not given by group) Baseline purging (bulimic symptoms >weekly): Total: 25: Conjoint FT: 31.6; Separated FT: 19.0 Comorbidity: *No details* 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 % 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 % Recruitment strategy: Consecutive referrals of adolescents to the eating disorders service at the Maudsely hospital

Eisler 2000 (*Continued*)

	Exclusion criteria: *No details*
Interventions	Setting of care: Outpatient Training/qualification of care provider(s): *No details* Treatment manual: No Supervision of treatment: Yes Adherence to treatment: No **Intervention group 1** Description: 'conjoint family therapy' Family based therapy including all three phases 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	Eating psychopathology Morgan Russell Assessment Schedule Morgan 1988 Eating Disorders Inventory Garner 1983 Eating Attitudes Test Garner 1979 Behavioural indices Kilograms/% of AWB/ BMI Good outcome/Intermediate outcome/poor outcome Analogous rating to score for the presence of binging, vomiting, laxative abuse, depression, obsessional symptoms, and psychosomatic tension General psychopathology Mood - Short Mood and Feeling Questionnaire (Angold, 1995) Obsessionality (Hodgson, 1977) Global pathology and interpersonal functioning Self-Esteem Rosenberg Self-Esteem Scale (RSE) (Rosenberg, 1965) Family Functioning Standardised Clinical Family Interview (SCFI) Kinston 1984; Expressed emotions (ratings from video Leff 1985) FACES III (Olsen 1979; Olsen 1985)
Notes	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
Risk of bias	

Eisler 2000 (*Continued*)

Item	Authors' judgement	Description
Adequate sequence generation?	Yes	"randomly assigned", "using a stratified design controlling for levels of critical comments using the Expressed Emotion index" - stated in abstract "randomized controlled trial" pg. 728 no other statement Personal communication stated that stratified randomisation was undertaken, taking into account parental criticism with the random number sequence generated by computer
Allocation concealment?	Yes	Personal communication stated that sealed envelopes were opened after consent to the study was obtained
Blinding? All outcomes	Unclear	"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
Incomplete outcome data addressed? All outcomes	No	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 intention-to-treat analysis pg. 730 and that assessments were carried out on all subjects regardless of whether they completed the course of therapy. 3. Personal communication stated that while all patients were followed up regardless of how much treatment they received (including all dropouts), data analysis was based only on those patients for whom data were available. Author also stated that using last observation carried forward data may have over inflated treatment result as it does not take into account data for patients who relapsed. 4. No Intention-to-treat analysis
Free of selective reporting?	No	1. Authors report that they collect 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.
Free of other bias?	No	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	Country: Spain Diagnostic tool: DSM-IV No. screened: *No details* No. randomised: Family therapy: 44; Group Therapy: 27 No. started trial: *No details* No dropped out during intervention: Family therapy: 9; Group Therapy: 2 No dropped out during follow-up: *No details* No. analysed: *No details* 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 group but data for this subgroup are not provided 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) Age range: *No detail* Gender %: Family therapy: Anorexia Restricting Males 7.1%; Females 92.9%; Anorexia Purging Males 0%; Females 100%, Group therapy: Anorexia Purging Males 0%; Females 100% Subtype: In the family therapy 14 number are of the restricting type 12 are of the purging type; In the group therapy group 100% are of the purging type 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) 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) Baseline weight: *No detail* 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 1974; 1998, Minuchin 1974; 1978 Length: Unclear **Intervention group 2**

Espina 2000 (*Continued*)

	Description: 'patient support group plus group therapy' Length: Unclear
Outcomes	Eating psychopathology Eating Disorders Inventory Garner 1991; Garner 1991a; Garner 1983 Eating Attitudes Test Garner 1979 Anorectic Behavior Observation Scale Vandereycken 1992 Body Shape Questionnaire Cooper 1987; Cooper 1987a Bulimic Investigatory Test Edinburg (Henderson, 1987) Behavioural indices BMI Menstruation General Psychopathology Brief Psychiatric Rating Scale-Expanded (BPRS-E) (Lukoff, 1986) Symptom Checklist 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 Bask Country (Spain)

Risk of bias

Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Unclear	No detail: *Stated 'random allocation' with no detail*
Allocation concealment?	Unclear	No detail
Blinding? All outcomes	Yes	"Outcome assessors blind to treatment allocation"
Incomplete outcome data addressed? All outcomes	No	No detail on dropouts. No intention-to-treat analysis.
Free of selective reporting?	Unclear	Authors report that they collect data on both dropouts and cognitive distortion, but the data are not reported in a format that is usable for analysis
Free of other bias?	Unclear	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	Country: Canada Diagnostic tool: DSM-IV; but current weight below <90% IBW and self imposed food restriction No. screened: 120 No. randomised: Total: 25; Family therapy: 12; Family Group Psychoeducation: 13 No. started trial: *No detail* No dropped out during intervention: *No detail* No dropped out during follow-up: *No detail* No. analysed (unclear if Observed Case or Last Observation Carried Forward): Total: 25; Family therapy: 12; Family Group Psychoeducation: 13 Mean age in years (SD): Family therapy: 14.3 (1.5); Family group psychoeducation: 14.9 (1.7) Age range: Total: 12 to 17.3 Gender %: Total: 0%male: 100% female Subtype: *No detail* Age of onset: *No detail* Duration of illness: *No detail* Baseline weight in kgs (SD): Family therapy: 41.1 (7.0); Family group psychoeducation: 41.1 (6.3) Baseline BMI: *No detail* Baseline eating disorder scale score (EDI drive for thinness): Family therapy: 11.1 (5.8) ; Family group psychoeducation: 13.7 (6.2) Baseline eating disorder scale score (EDI body dissatisfaction): Family therapy: 9.1 (6.6); Family group psychoeducation: 11.0 (5.0) Baseline eating disorder scale score (EDI bulimia): Family therapy: 1.2 (1.3); Family group psychoeducation: 1.9 (1.6) Baseline purging: *No detail* Comorbidity: *No detail* Details on living arrangements: *No detail* Family education/employment/income: *No detail* Recruitment strategy: "Assessed and admitted to the inpatient program" Exclusion criteria: 1. < 12 years 2. > 17.4 years 3. males 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

Geist 2000 (*Continued*)

	11. abstract states "newly diagnosed"
Interventions	Setting of care:Initially inpatients at screening, - once medically stable and met their weight goals - D/C to outpatient clinic for remainder of therapy. Training/qualification of care provider(s):Family therapy: 2 Social Workers, I Psychiatrist - with 4 to 10 years experience with family therapy and AN; Family Group Psychoeducation: 2 Dietician, 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 normalization 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 Eating Disorders Inventory (EDI-2) Garner 1991 DICA (Welner 1987) Behavioural indices BMI Menstruation General Psychopathology Depression Children's Depression Inventory (CDI) (Kovacs 1992) Symptom Checklist 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	

Geist 2000 (*Continued*)

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	No detail
Allocation concealment?	Unclear	No detail
Blinding? All outcomes	Unclear	No detail
Incomplete outcome data addressed? All outcomes	Unclear	"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 intention-to-treat analysis undertaken
Free of selective reporting?	No	Nothing noted
Free of other bias?	Unclear	1. Small trial

Hall 1987

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

	Baseline purging: *No detail* Comorbidity: *No detail* Details on living arrangements: *No detail* Family education/employment/income:Total : social classes I-III Recruitment strategy: Consecutive referrals to one 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" ph 186 no other statement* Treatment manual: No: *"proportions of individual psychodynamic therapy and family therapy depended on clinical judgment" pg. 186* Supervision of treatment: *No detail* Adherence to treatment: *No detail* **Intervention group 1** Description: 'combined individual & family psychotherapy' Focus on the role of AN in relationship of the patient with her family and others with efforts made to change those aspects of relationship that stifled patients development and maintained AN especially over-protectedness, conflict avoidance enmeshment and distancing within the family. Broad goals to encourage patient development both within and separate from the family and to promote insight. Length: 12 sessions **Intervention group 2** Description: 'dietary advice' Length: 12 sessions
Outcomes	Eating psychopathology Crown-Crisp Experimental Index 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

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	No detail

Hall 1987 (*Continued*)

Allocation concealment?	Unclear	No detail
Blinding? All outcomes	Unclear	"one year after the assessment interview, all the subjects - were interviewed by an assessor who was blind to the treatment allocated" pg. 186. However, unclear whether the pre treatment assessor was also blinded
Incomplete outcome data addressed? All outcomes	Yes	Numbers of dropouts described. No details on why participants did not complete treatment. Intention-to-treat analysis undertaken
Free of selective reporting?	Unclear	Authors report that they collect data on cognitive distortion, but the data are not reported in a format that is usable for analysis. No reporting on eating behaviour outcomes i.e. restricting, purging behaviours
Free of other bias?	No	1. Family therapy group also includes some individual psychodynamic psychotherapy but no psychodynamic therapy alone arm so impossible to make 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. No usable data 4. Within group analysis 5. Baseline imbalance - slightly longer duration of untreated illness in the treatment group

le Grange 1992

Methods	RCT
Participants	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 males:16 Females 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;

le Grange 1992 (*Continued*)

	Family counseling: ABW 80.5 SD 5.3 Baseline BMI: *No details* Baseline eating disorder scale score (EAT): Family therapy: 36.9 (27.6); Family counseling: 35.3 (22.8) Baseline eating disorder scale score (Morgan Russell): Family therapy: 3.9 (1.7); Family counseling: 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 Exclusion criteria: 1. over 18 years 2. less than 3 years illness duration 3. if medical state of risk of suicide warranted hospitalization 4. comorbidity
Interventions	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* **Intervention group 1** Description: "conjoint family therapy" Family based therapy including all three phases with the whole family required to attend every session Length: 6 months **Intervention group 2** Description: "family counseling" 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	Eating psychopathology Morgan Russell Assessment Schedule Morgan 1988 Eating Attitudes Test (EAT) Garner 1979 Behavioural indices Weight, height, menstruation Good/intermediate/poor outcome on MR scales Global pathology and interpersonal functioning Self-Esteem Rosenberg Self-Esteem Scale (RSE) (Rosenberg, 1965)

le Grange 1992 (*Continued*)

	Family Functioning Standardised Clinical Family Interview (SCFI) (Kingston 1988) (Kingston 1984) Expressed emotions (ratings from video, Vaughan 1976 FACES III (Olsen 1979; Olsen 1985)
Notes	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*

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	Personal communication stated a random number sequence was used
Allocation concealment?	Yes	Personal communication stated sealed envelopes were used.
Blinding? All outcomes	Unclear	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 addressed? All outcomes	No	1. There are no details of dropouts given. 2. Intention-to-treat analysis is undertaken with no apparent dropouts in terms of the analysis. 3. Personal communication stated no intention-to-treat analysis was undertaken.
Free of selective reporting?	No	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 3. Only 1 FACES subscale reported -dissatisfaction 4. Authors report that they collect data on family functioning, but the data are not reported in a format that is usable for analysis
Free of other bias?	No	1. Baseline imbalance in weight patients with co-morbid BN (more BN in the counselling group) 2. Small trial 3. Unclear how many were randomized to each arm 4. Unclear duration between end of treatment and collection of outcome data

Lock 2005

Methods	RCT
Participants	Country: USA Diagnostic tool: DSM-IV, with some partially weight restored participants included, and requirement of only 1 instead of 3 missed menstrual periods No. screened: 241 No. randomised: 86, Short term FT: 44; Long term FT: 42 No. started trial: *No details* No dropped out during intervention: Total: 9; Short term FT: 2; Long term FT: 7 No dropped out during follow-up: Total: 8; Short term FT: 5; Long term FT: 3 No. analysed: Total: 86 (at 6 and 12 months) (LOCF); Short term FT: 44; Long term FT: 42 Short term FT: OC BMI 37; EDE20 at 12 months Long term FT: OC BMI 34; EDE15 at 12 months Mean age (SD): Short term FT: 15.2 (1.6) years; Long term FT: 15.2 (1.7) years Age range in years: 12 to 18 (not given by group) Gender: Total: 9 males: 77 females; Short term FT: 5(11%):39 (89%); Long term FT: 4 (9%):38 (91%) Subtype:Short term FT: Purging (7) 16%; Restricting (37) 84%; Long term FT: Purging (9) 21%; Restricting (33) 79% Age of onset: *No details* Duration of illness: Total : 30% had been previously hospitalized 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 Baseline weight (SD): Short term FT: 44.6 (5.5) kg; Long term FT: 46.7 (7.2) kg Baseline BMI: Total : 17.1 (1.4); Short term FT: 17.0 (1.3); Long term FT: 17.3 (1.5) Baseline eating disorder scale score (EDE Eating concern): Short term FT: 1.35 (1.13); Long term FT: 1.04 (1.33) Baseline eating disorder scale score (EDE Restraint): Short term FT: 2.76 (1.97); Long term FT: 2.64 (1.96) Baseline eating disorder scale score (EDE shape concerns): Short term FT: 2.61 (1.73); Long term FT: 2.41 (1.67) Baseline eating disorder scale score (EDE weight concern): Short term FT: 2.32 (1.51); Long term FT: 1.96 (1.52) Baseline purging: *No details* 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 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) Family education/employment/income: Short term FT: 9% < 50K; 33% 50 - 100 K; 57% > 100K; Long term FT: 10% < 50K; 43% 50 -100 K; 48%, > 100K Recruitment strategy: Recruited by referral from paediatricians and therapists to a specialty evaluation clinic fro child and adolescent eating disorders Exclusion criteria: 1. serious medical condition (diabetes mellitus) 2. psychiatric illness (psychosis)

Lock 2005 (*Continued*)

Interventions	Setting of care: Outpatient, with some hospitalized 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 & 2 (refeeding and problem solving regarding issues that interfere with refeeding) Length; 6 months **Intervention group 2** Description: 'long term family therapy' Family based therapy and consisting of only Phase 1, 2 & 3 (refeeding and problem solving regarding issues that interfere with refeeding) Length: 12 months
Outcomes	Eating psychopathology Eating Disorders Examination Cooper 1987; Cooper 1987a Behavioural indices BMI Menstruation General Psychopathology & Obsessionality Schedule for Affective Disorders and Schizophrenia for School-Aged Children Kaufman 1997 Yale-Brown-Cornell Eating Disorders Scale (YBC-ED) Mazure 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

Item	Authors' judgement	Description

Lock 2005 (*Continued*)

Adequate sequence generation?	Unclear	"randomized 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?	Unclear	"randomized by a research assistant not involved in assessment to either a short or long term treatment"
Blinding? All outcomes	Yes	"assessments were conducted by trained assessors who were not involved with the treatment of patients-not told which group that the patient was randomized to for treatment" pg. 634
Incomplete outcome data addressed? All outcomes	No	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 one appears to include all participants, however this is not the case for long term outcomes. 3. Intent-to-treat analysis: for year one but not for long term outcomes
Free of selective reporting?	No	1. Authors report that they collect data on family functioning, but the data are not reported in a format that is usable for analysis 2. Authors state they collect EDE measures. However the data are not presented in a usable format, and thus, the Yale Brown Scale had to be utilised for the cognitive distortion analysis measure.
Free of other bias?	Yes	No other problems noted

Rausch 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*
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: 'family-based therapy' Length: No details **Intervention group 2** Description: 'family meal intervention' family based therapy plus meal Length: No details
Outcomes	Eating psychopathology Morgan Russell (Morgan 1988); Eating Attitudes Test (Garner 1979) Eating Disorders Inventory II (EDI-II) (Garner 1983) Behavioural indices Weight, BMI General Psychopathology & Obsessionality SCL-90-R, Beck Depression Inventory (BDI-II) Family Functioning ESF (Family Health Scale)

Rausch 2006 (*Continued*)

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: N*o detail*

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	No detail
Allocation concealment?	Unclear	No detail
Blinding? All outcomes	Unclear	'Outcome assessors blind to allocation'
Incomplete outcome data addressed? All outcomes	No	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 intention-to-treat analysis.
Free of selective reporting?	Unclear	1. Authors report that they collect data on general functioning, but the data are not reported in a format that is usable for analysis. 2. From personal correspondence it is noted that Family Health Scale is not administered at follow-up
Free of other bias?	Unclear	Data extracted by Spanish speaking colleague who was not part of the main review team

Robin 1999

Methods	RCT
Participants	Country: USA Diagnostic tool:DSM-IIIR No. screened: "approximately 120 telephone enquiries and scheduled 60 for intake interviews" No. randomised: "41 agreed to participate and 4 dropped out, leaving 37 participants". Does not say when participants dropped out. BFST: 19, EOIT: 18 No. started trial: *No detail* 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. No dropped out during follow-up: "41 agreed to participate and 4 dropped out, leaving

	37 participants". Does not say when pp dropped out. No. analysed: Total: 37 (LOCF) BFST: Different N's for each measure, EOIT: Different N's for each measure Mean age in years (SD): BFST: 14.9; EOIT: 13.4 Age range in years: Total: 11 to 20 Gender %: Total: 0 male, 37 female; BFST: 0 male, 19 Female; EOIT: 0 male, 18 Female Subtype: *No detail* Age of onset: *No detail* Duration of illness: Total: ≤ 12 months Baseline weight: Total: BFST: 86.5 pounds (39.3 kg); EOIT: 86.8 pounds (39.5kg) Baseline BMI: Total: BFST: 15.0 (1.4), EOIT: 16.3 (2.8) Baseline eating disorder scale score (EAT): BFST: n=19 32.6 (SD 15.6); EOIT: n=16 20.6 (SD 15.6) Baseline purging: BFST: 0; EOIT: 0 Comorbidity: Total: 54% mood disorder, 13% anxiety disorder; BFST: BDI score 19.4 (12.3); EOIT: BDI score 11.3 (10.5) Details on living arrangements: Total: All residing at home with one or both parents 934 in 2 parent homes; 3 in single mother households Family education/employment/income (Socioeconomic Status (Hollingshead Four Factor Scale):, BFST: 47.5 (13.6); EOIT: 47.9 (12.0) 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 Exclusion criteria: *No detail*
Interventions	Setting of care: Outpatient treatment provided. Some patients hospitalized with treatment provided as inpatients (11 in the family group and 5 in the individual group) Training/qualification of care provider(s): Yes: *Four doctoral psychologists, one masters social worker* Treatment manual: Yes Supervision of treatment:*No details* Adherence to treatment: Yes: *All audiotaped and 40 sessions sampled with checklist* **Intervention group 1** Description: 'behavioral family systems' Description in the report similar to Family based therapy including all three phases Length: Average 15.9 months **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	Eating psychopathology Eating Attitudes Test Garner 1979 The body shape questionnaire & the dissatisfaction scale of The Eating Disorder Inven-

	tory (EDI) Garner 1983 Behavioural indices BMI Percentage who reached/exceeded target weight Menstruation General psychopathology Beck Depression Inventory (Beck, 1961) Child Behaviour Checklists Internalising Behaviour Problems Score (Achenbach, 1991) Global pathology and interpersonal functioning Ego functioning - the ineffectiveness interpersonal distrust & interoceptive awareness scale (Garner 1983). Family functioning General and Eating Related Conflict Robin 1990 Observed family conflict - Interaction Behaviour Code for videotaped interactions Robin 1989
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

Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Yes	Correspondence from author stated 'coin tossing' was used
Allocation concealment?	Unclear	Correspondence from author suggested concealment was not possible, however, this was followed by a description of blinding
Blinding? All outcomes	No	Correspondence from author stated that this was no possible except for those coding the family interactions
Incomplete outcome data addressed? All outcomes	No	1. 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. 2. Correspondance 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. 3. Intention-to-treat data not provided nor analysed in paper.

Robin 1999 (*Continued*)

Free of selective reporting?	No	1. 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 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 collect data on dropouts, but the data are not reported in a format that is usable for analysis
Free of other bias?	No	1. (1999 paper) Imbalance at the commencement of treatment:11 pts from BFST and 5 pts from EOIT were hospitalized for refeeding. Duration of stay not specified by group, or for all patients 2. Uneven treatment duration - not standardised and not reported for all groups 3. Uneven/inconsistent N's for most measures with no explanation of why N's 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

Russell 1987

Methods	RCT
Participants	Country: United Kingdom Diagnostic tool: DSM-III + extreme self induced weight loss, fear of fatness psychopathology, endocrine disorder (amenorrhea or females, sexual dysfunction in males) No. screened: *No detail* No. randomised: Total : 80; Family therapy: 41 (includes the BN subjects); Individual therapy: 38 (includes the BN subjects) No. dropped out after randomization and before commencement 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 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 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 patients who refused 5 year follow-up they used 3 year outcomes) No. analysed: 1 year: Family Therapy 5 did not get included in one year analysis; Indi-

	vidual Therapy 2 in individual therapy did not get included in one year analysis, 5 years: total 77 NOTE: for this study most data are not given by intervention group but by subgroup: Group 1: AN, onset ≤ 18 onset , < 3 yrs duration; Group 2: AN ≤ 18 onset, ≥ 3 yrs duration; Group 3: AN ≥19 onset (Group 4 was made up of participants with Bulimia Nervosa) Mean age in years (SD): Group 1 (AN, onset ≤ 18 onset,< 3 yrs duration): 16.6 (1.7); Group 2 (AN ≤ 18 onset, ≥ 3 yrs duration): 20.6 (4.0); Group 3 (AN ≥19 onset): 27.7 (7.8) Age Range: *No details* Gender %: Total (including BN group): 9% males:91% females Subtype: *No details* Age of onset in years (SD): Group 1 (AN, onset ≤ 18 onset,< 3 yrs duration): 15.3 (1.8) ; Group 2 (AN ≤ 18 onset, ≥ 3 yrs duration): 14.3 (2.4); Group 3 (AN ≥19 onset): 24. 6 (5.8) Duration of illness: Group 1: by definition < 3 yrs duration,;Group 2: by definition ≥ 3 yrs duration; Group 3: by definition no details Baseline weight (on discharge from inpatient admission):Group 1 (AN, onset ≤ 18 onset, < 3 yrs duration): 88.9 (7.4) ABW%; Group 2 (AN ≤ 18 onset, ≥ 3 yrs duration): 91.4 (5.5) ABW%; Group 3 (AN ≥19 onset): 85.8 (7.3) ABW% 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 of an average of 10.4 weeks) Training/qualification of care provider(s): Yes: *Three social workers and one psychologist* Treatment manual: *No details* Supervision of treatment: Yes Adherence to treatment: *No details* **Intervention group 1** Description: 'family therapy' Family based therapy including all three phases Length: One 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: One 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 Crown Crisp Experiential Index (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. One 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

Item	**Authors' judgement**	**Description**
Adequate sequence generation?	Unclear	Personal communication stated stratified randomisation by diagnostic and prognostic groups
Allocation concealment?	Yes	Personal communication stated sealed envelopes were used
Blinding? All outcomes	Unclear	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. Patients were reminded not to reveal their treatment but it was not always possible.

Incomplete outcome data addressed? All outcomes	No	1. It appears that intention-to-treat analysis was undertaken for those who commenced therapy (i.e. excluding the 7 who dropped out prior to commencement). 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 *Interpretation of the Effects of "Dropping Out" o*n outcome results (page 1054), and the types of dropouts and their distribution. 3. Personal communication stated that all patients were followed up regardless of how much treatment they received. 4. Intention-to-treat analysis was used for the main comparison of the general outcome on the MR scale, which included all patients regardless of the treatment they received. 5. Other comparisons excluded patients who refused treatment, nevertheless, patients were followed up.
Free of selective reporting?	No	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 sated 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 cognitive distortion and weight obtained via personal communication
Free of other bias?	No	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 patient lost weight, the intensity of treatment was increased 3. Pre-therapy imbalance - higher ABW % on commencement of therapy (i.e. reported discharge ABW%) in Group 2 (AN $\leq$ 18 onset, $\geq$ 3 yrs duration) 4. Differences in the mean ABW% given for Group 2 (compare tables 1 and 7), due to missing unaccounted for data from one patient). Difficult to judge whether pre-therapy ABW's are significantly different. 5. Data reporting anomalies - subgroup numbers are inconsistently reported. Compare tables 1 and 7. In Table 1 it 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 1987 group 1

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

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	See Russell 1987
Allocation concealment?	Unclear	See Russell 1987
Blinding? All outcomes	Unclear	See Russell 1987
Incomplete outcome data addressed? All outcomes	Unclear	See Russell 1987
Free of selective reporting?	Unclear	See Russell 1987
Free of other bias?	Unclear	See Russell 1987

Russell 1987 group 2

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

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	See Russell 1987
Allocation concealment?	Unclear	See Russell 1987

Russell 1987 group 2 (*Continued*)

Blinding? All outcomes	Unclear	See Russell 1987
Incomplete outcome data addressed? All outcomes	Unclear	See Russell 1987
Free of selective reporting?	Unclear	See Russell 1987
Free of other bias?	Unclear	See Russell 1987

Russell 1987 group 3

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

Risk of bias

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	See Russell 1987
Allocation concealment?	Unclear	See Russell 1987
Blinding? All outcomes	Unclear	See Russell 1987
Incomplete outcome data addressed? All outcomes	Unclear	See Russell 1987
Free of selective reporting?	Unclear	See Russell 1987
Free of other bias?	Unclear	See Russell 1987

Whitney unpublished

Methods	RCT
Participants	Country: UK Diagnostic tool: DSM-IV

Whitney unpublished (*Continued*)

	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 females, FDW: 0 male; 25 females 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 ± 5 years; 25% had ± 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 patients 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 randomization)
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*

Whitney unpublished (*Continued*)

	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 three follow-up sessions **Intervention group 2** Description: 'standard family systems therapy' Highly structured intervention working with two 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 organization 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 Short evaluation of eating Disorders (SEED) Kordy 2005 Behavioural indices Weight change (BMI) Global pathology and interpersonal functioning Inventory of Interpersonal Problems Family functioning Level of Expressed Emotion 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

Item	Authors' judgement	Description
Adequate sequence generation?	Unclear	"randomly allocated" pg. 4 no detail
Allocation concealment?	Yes	"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 envelops" pg. 5

Whitney unpublished (*Continued*)

Blinding? All outcomes	Unclear	1. "The researcher collecting baseline and short term follow-up data was blind to treatment allocation" pg. 5. However, there was no statement regarding blinding of assessor for data collected at discharge (for patient outcomes) and long term follow-up (3 years) (for patient and carer outcomes). 2. BMI was often obtained through patient notes, and it is unclear if this assessment was blinded.
Incomplete outcome data addressed? All outcomes	No	1. Reasons for missing data were not clearly reported and there was no investigation of the impact of missing data on the outcome. 2. No ITT analysis. 3. There were large amounts of missing data for the secondary outcomes.
Free of selective reporting?	Yes	1. Means and SD for all measures stated in the methods section were reported. 2. There is no remission measure included.
Free of other bias?	Unclear	1. Baseline imbalance - numbers of patients living with parents 2. Therapist delivered both interventions 3. Unclear reporting of dropouts/missing data. 4. In text report two family randomized to FDW received IFW but were analysed according to randomization. 5. In Figure 2 flow chart it is evident that one other family received work but refused assessment, however, figure indicates that there is primary outcome measure data for the full 25 randomised (notes suggest BMI was obtained from clinical notes). 6. Figure 2 also indicates 3 families randomized to IFW did not receive this intervention and it is unclear how they were analysed. 7. In the IFW group only 22 of the 23 randomised had primary outcome measured. 8. For the three year follow-up, Figure 2 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. 9. Far fewer had data for the secondary outcomes. 10. Numbers also vary between Figure 2 and Table 4. 11. BMI was often obtained through patient notes, and it is unclear if this assessment was blinded.

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

Study	Reason for exclusion
Buddeberg 1979	Two case histories presented
Le Grange 2005	Not an RCT
Loeb 2007	Not an RCT
Perkins 2005	Not Anorexia Nervosa
Salbach 2006	Not an RCT
Slagerman 1989	Not an RCT
Treasure 2007	Not an RCT
Wallin 2000	All participants received family therapy and were randomised to receive individual body awareness therapy

Characteristics of studies awaiting assessment *[ordered by study ID]*

Gower 2009

Methods	RCT
Participants	Outpatients with anorexia nervosa. No other detail.
Interventions	Parental Counseling +// Cognitive Behavioral Therapy +// Motivational Interviewing +// Combined Modality// Family Therapy//
Outcomes	Not stated.
Notes	Gowers SG. Evidence based decision making in adolescent anorexia nervosa. 33rd Annual Conference of the British Association for Behavioural and Cognitive Psychotherapies; 2005 July 21 - 23, Canterbury , 87. 2005 From CCDAN Studies register.

Li 2006

Methods	RCT
Participants	Participants with anorexia nervosa. No other detail.
Interventions	Family Therapy plus or minus citalopram over 12 weeks.
Outcomes	Not stated.

Li 2006 (*Continued*)

Notes	Li Y, Wang J, & Ma J. A controlled clinical trial of citalopram and citalopram combined with family therapy in the treatment of anorexia nervosa. Shanghai Archives of Psychiatry 18[3], 158-6-. 2006 From CCDAN Studies register.

Rhodes 2008

Methods	RCT Twenty families were randomised into two groups, ten receiving standard treatment and ten receiving an additional parent-to-parent consultation session between weeks three and five
Participants	Girls aged 12-16 with a DSM IV-TR diagnosis of anorexia nervosa (AN) Four had co-morbid obsessive-compulsive disorder (OCD); two had major depression and one had both disorders All patients had previously been admitted to hospital via casualty, where they had presented with protein calorie malnutrition and associated medical compromise
Interventions	Arm 1: Treatment as usual plus parent-to-parent consultation: Five therapist-led interviews with parents of the participants Arm 2: Treatment as usual.
Outcomes	1.Parental efficacy was measured using the Parent versus Anorexia Scale (PVA) 2. Patient distress was measured using the Depression Anxiety and Stress Scale (DASS) 3. Weight was measured by percentage ideal body weight (% IBW) according to the metropolitan life tables
Notes	

Santoni Rugiu 1999

Methods	The subjects selected for the study were randomly allocated to two 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

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

Agras

Trial name or title	Family therapy in the treatment of adolescent anorexia nervosa
Methods	Multi-center RCT 240 adolescents with anorexia nervosa (AN) and their families will be randomly allocated to one of four groups: behavioral family therapy (BFT) + placebo; BFT + fluoxetine; systems family therapy (SFT) + placebo; and SFT + fluoxetine. Medication will be continued for 6-months beyond the end of family therapy to assess medication effects on the maintenance of therapeutic gains Treatment and assessment will be carried out at 6 clinical sites with 40 subjects per site with separate data and coordinating centres. The treatment sites will follow common assessment and treatment protocols with detailed monitoring of recruitment, treatment, assessment and human subjects procedures by the coordinating centre
Participants	12-18 year olds with anorexia nervosa and their families
Interventions	The most promising treatment for adolescent AN is a specific form of family therapy, (the Maudsley approach) called here, behavioral family therapy (BFT). This treatment is focused on the disordered eating behavior that characterizes AN and enables parents to refeed their child. Additionally, there is preliminary evidence that fluoxetine may be useful in reducing comorbid psychopathology and enhancing maintenance in AN. However, there has been no placebo controlled study of fluoxetine in adolescent AN. Moreover, although there have been several small-scale studies of BFT there has been no controlled comparison with another form of family therapy. Hence, we propose to use systems family therapy (SFT) which has been developed and manualised to represent the type of family therapy practiced in the community Arm 1: BFT + placebo Arm 2: BFT + fluoxetine Arm 3: SFT + placebo Arm 4: SFT + fluoxetine
Outcomes	Not stated
Starting date	1 July 2006
Contact information	Professor Emeritus William Stewart Agras, Stanford University Email: sagras@stanford.edu Phone: +1 (650) 723-7107
Notes	

Eisler

Trial name or title	A MultiCentre randomised Trial of the outcome, acceptability and cost-effectiveness of family therapy and multi-family day treatment compared with inpatient care and outpatient family therapy for Adolescent Anorexia Nervosa
Methods	Multi-centre randomised treatment trial

Eisler (*Continued*)

Participants	Patients referred to five eating disorder services (South London and Maudsley NHS Trust, St Georges and South West London NHS Trust , Blackwater Valley Primary Health Care Trust, Central & Northwest London Trust, The Child and Adolescent Eating Disorder Service of the Royal Free Hampstead Trust), who meet Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) criteria for anorexia nervosa or eating disorders not otherwise specified and who are aged between 13 and 20 years Exclusion Criteria: 1. Patients in care 2. Patients with learning disabilities, psychosis or alcohol/substance dependence 3. Patients with medical condition that may lead to significant weight loss (e.g. Crohn's disease)
Interventions	Group one: 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 patients. Patients 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 patient 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 two weeks. Following discharge from hospital they will receive regular follow-up treatment for six months for themselves and their families. We are currently developing a modification of the outpatient family therapy treatment manual so that it can be used for patients entering family therapy at a point when their weight is normal. To ensure continuity of treatment the therapist responsible for the follow-up treatment will engage the patient and her family during the last two weeks of the inpatient stay. The overall length of treatment (i.e. inpatient plus follow-up) will be 12 months. Group two: Outpatient family therapy for adolescent anorexia nervosa has been the focus of our previous treatment trials and a treatment manual has been developed to guide the therapists' interventions. Patients are seen for a number of sessions over a period of 12 months. These are mainly conjoint family meetings although some individual sessions are included where appropriate (particularly with older adolescents at later stages of the treatment). Therapy begins with an emphasis on the parents taking control of re-nutrition, with a gradual move towards conversations exploring more general implications of adolescence for children and parents as soon as the nutrition level is safe. The aim is to help the family to disentangle individual psychological issues (e. g. self esteem, individuation, psychosocial functioning) and family relationship issues from the eating disorder behaviour and the interactional patterns that have developed around it. Group three: MFDT is a new treatment programme that has been developed over the past three 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, MFDT 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 six families and is followed by a further four to five one day meetings at four to eight week intervals. Individual

Eisler (*Continued*)

	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 adolescent groups as well as individual family meetings. There is also practical input around managing mealtimes and food
Outcomes	Primary Outcomes 1. Symptomatic change: a. Body Mass Index (kg/m^2) b. Severity of Eating Disorder (SEED) symptomatology c. Eating Disorder Examination (EDE) d. Children's Eating Disorder Examination (C-EDE) 2. Health economic costs: a. Client service receipt inventory Secondary Outcomes 1. Client/family satisfaction questionnaire 2. Experience of caregiving
Starting date	01/07/2003
Contact information	**Dr Ivan** Eisler i.eisler@iop.kcl.ac.uk Ph +44 (0)20 7848 0199
Notes	

le Grange

Trial name or title	Comparing the Effectiveness of Three Types of Therapy for the Treatment of Anorexia Nervosa in Adolescents
Methods	"Randomized, Open Label, Active Control, Single Group Assignment, Efficacy Study"
Participants	12 - 18 year olds. Inclusion Criteria: - Meets DSM-IV criteria for anorexia nervosa Exclusion Criteria: - Any psychotic illness
Interventions	This study will compare specific family therapy (FT), standard family systems therapy (FS), and standard individual psychotherapy (IT) to determine which is most effective in treating adolescent anorexia nervosa. The study also aims to determine potential predictors and moderators of outcomes, as well as the cost-benefit ratio of each treatment. Participants in this open-label study will be randomly assigned to one of three treatment groups. Group 1 will receive FT, Group 2 will receive FS, and Group 3 will receive IT. All participants will receive a total of 24 hours of their assigned therapy over a period of 12 months. Study visits will occur at baseline, immediately post-intervention, and again six months and one year post-intervention

le Grange (*Continued*)

Outcomes	Primary: Weight (BMI); measured at Month 12 and 6 months and 1 year post-treatment Secondary: Changes in shape and weight concerns; measured with Eating Disorder Examination subscales at Month 12 and 6 months and 1 year post-treatment
Starting date	April 2004
Contact information	**Kristen Hewell BA** **tel: 773-834-5677** **khewell@yoda.bsd.uchicago.edu** Peter Doyle MA tel: 773-702-0789 pdoyle@yoda.bsd.uchicago.edu
Notes	

Lock

Trial name or title	Treatment of Adolescents With Anorexia Nervosa
Methods	This study will compare the effectiveness of family-based therapy versus ego-oriented individual psychotherapy for the treatment of adolescent anorexia nervosa. Simultaneously, it will examine potential predictors, mediators, and moderators of weight gain, psychological concerns about weight and shape, and changes in family functioning. Participants in this open-label study will be randomly assigned to receive one of two types of therapy: family-based therapy or ego-oriented individual psychotherapy. Both types of therapy will be given for a total of 24 hours over the course of 12 months. Physical and psychological assessments will be completed during study visits at baseline, immediately post-treatment, six months post-treatment, and one year post-treatment. Amount of weight gain will be evaluated, along with changes in weight and body shape concerns, as measured by the Eating Disorder Examination
Participants	Adolescents (12 - 18 years) with anorexia nervosa. Inclusion Criteria: - Meets DSM-IV criteria for anorexia nervosa - Lives with at least one parent who is willing to participate - Medically stable - Adequate transportation to clinic - Proficient at speaking, reading, and writing English Exclusion Criteria: - Currently undergoing treatment or taking medication that may affect eating or weight

Lock (*Continued*)

Interventions	Family-based therapy versus ego-oriented individual psychotherapy. Both types of therapy will be given for a total of 24 hours over the course of 12 months
Outcomes	Physical and psychological assessments will be completed during study visits at baseline, immediately post-treatment, six months post-treatment, and one year post-treatment. Amount of weight gain will be evaluated, along with changes in weight and body shape concerns, as measured by the Eating Disorder Examination Primary outcome: Weight increase to 90% or higher from baseline to end of treatment. Scores on the Eating Disorders Examination from baseline to end of treatment
Starting date	October 2004
Contact information	**Judy G. Beenhakker MS** **tel: 650-723-7885** **judybeen@stanford.edu**
Notes	

Zucker

Trial name or title	Novel group parent training program for anorexia nervosa
Methods	Dr. Zucker will conduct a two-stage research design. Phase 1 will consist of focus groups comprised of members of parent training groups that Dr. Zucker has previously conducted. Results from Phase I will be used to improve the intervention. She will then subject the improved intervention to a pilot, pre-post, randomized design to assess preliminary efficacy in Phase 2. This initial trial will lead to further enhancements of the program, 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 Allocation: Randomized Control: Active Control Endpoint Classification: Safety/Efficacy Study Intervention Model: Parallel Assignment Masking: Single Blind (Outcomes Assessor) Primary Purpose: Treatment
Participants	Inclusion Criteria: • age 11-18 years old • living at home • meet criteria for anorexia nervosa or subthreshold anorexia nervosa Exclusion Criteria: • no active psychosis • no current suicidality • medically safe for outpatient treatment
Interventions	The intervention combines skills in behavior modification and dialectical behavior therapy while targeting parent variables that have been reported in families of adolescents with anorexia nervosa Arm 1 (experimental): Group Parent Training Skills: group for parents that provides psychoeducation for eating disorder and skills in behavior management, self-regulation, and emotion regulation

Zucker (*Continued*)

	Arm 2 (active comparator): Maudsley Family Therapy: Family therapy specifically adapted for the treatment of adolescent anorexia nervosa
Outcomes	Primary: Body Mass Index (BMI) Secondary: Eating disorder symptoms other than body weight
Starting date	30 September 2005
Contact information	Nancy L Zucker, Ph.D, Duke University Email: zucke001@mc.duke.edu Phone: +1 (919) 668 228
Notes	

DATA AND ANALYSES

Comparison 1. Family therapy 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, Fixed, 95% CI)	3.83 [1.60, 9.13]
1.1 family based therapy	1	41	Risk Ratio (M-H, Fixed, 95% CI)	6.91 [0.95, 50.35]
1.2 other	1	40	Risk Ratio (M-H, Fixed, 95% CI)	3.0 [1.16, 7.73]
2 Maintenance of remission (follow-up)	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
2.1 family based therapy	1	41	Risk Ratio (M-H, Fixed, 95% CI)	6.09 [0.33, 110.84]
3 Drop outs during therapy	2	77	Risk Ratio (M-H, Fixed, 95% CI)	0.88 [0.31, 2.47]
3.1 systems family therapy	1	36	Risk Ratio (M-H, Fixed, 95% CI)	0.58 [0.11, 2.96]
3.2 family based therapy	1	41	Risk Ratio (M-H, Fixed, 95% CI)	1.15 [0.29, 4.51]
4 Cognitive distortion post intervention (MR)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
4.1 other	1	50	Mean Difference (IV, Fixed, 95% CI)	-0.90 [-2.54, 0.74]
5 Relapse during treatment	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
5.1 family based therapy	1	41	Risk Ratio (M-H, Fixed, 95% CI)	0.52 [0.14, 1.89]

Comparison 2. Family therapy vs psychological interventions

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission post intervention	6	149	Risk Ratio (M-H, Random, 95% CI)	1.13 [0.72, 1.76]
1.1 family based therapy	6	149	Risk Ratio (M-H, Random, 95% CI)	1.13 [0.72, 1.76]
2 Maintenance of remission (follow-up) follow-up	5	107	Risk Ratio (M-H, Random, 95% CI)	1.07 [0.81, 1.41]
2.1 family based therapy (note russell is 5 year)	5	107	Risk Ratio (M-H, Random, 95% CI)	1.07 [0.81, 1.41]
3 Drop outs during treatment	5	126	Risk Ratio (M-H, Random, 95% CI)	0.85 [0.33, 2.21]
3.1 family based therapy	5	126	Risk Ratio (M-H, Random, 95% CI)	0.85 [0.33, 2.21]
4 Cognitive distortion post intervention (Robin-EAT; Ball, Russell, Crisp-MR)	6	159	Std. Mean Difference (IV, Random, 95% CI)	0.11 [-0.49, 0.72]
4.1 Family based therapy	5	109	Std. Mean Difference (IV, Random, 95% CI)	0.21 [-0.58, 1.00]
4.2 other	1	50	Std. Mean Difference (IV, Random, 95% CI)	-0.21 [-0.78, 0.35]
5 Cognitive distortion follow-up (Robin-EAT; Ball, Russell, Crisp-MR)	5	104	Std. Mean Difference (IV, Random, 95% CI)	-0.10 [-0.75, 0.56]
5.1 family based therapy	5	104	Std. Mean Difference (IV, Random, 95% CI)	-0.10 [-0.75, 0.56]
6 Weight (BMI) post intervention	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
6.1 family based therapy	2	54	Mean Difference (IV, Fixed, 95% CI)	0.75 [-0.26, 1.76]
7 Weight (BMI) follow-up	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only

7.1 family based therapy	2	54	Mean Difference (IV, Fixed, 95% CI)	1.01 [-0.29, 2.30]
8 Weight (%ABW) post intervention	3	53	Mean Difference (IV, Random, 95% CI)	1.50 [-10.30, 13.30]
8.1 family based therapy	3	53	Mean Difference (IV, Random, 95% CI)	1.50 [-10.30, 13.30]
9 Weight (%ABW) follow-up (5 years)	3	51	Mean Difference (IV, Random, 95% CI)	-1.71 [-12.41, 8.99]
9.1 family based therapy	3	51	Mean Difference (IV, Random, 95% CI)	-1.71 [-12.41, 8.99]
10 Relapse during treatment	4	101	Risk Ratio (M-H, Random, 95% CI)	1.06 [0.54, 2.08]
10.1 family based therapy	4	101	Risk Ratio (M-H, Random, 95% CI)	1.06 [0.54, 2.08]

Comparison 3. Family therapy vs educational interventions

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission follow-up	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
1.1 other	1	30	Risk Ratio (M-H, Fixed, 95% CI)	9.0 [0.53, 153.79]

Comparison 4. Family therapy short vs family therapy long

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Maintenance of remission (follow-up) (mean 3.96 years)	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
1.1 family based therapy	1	71	Risk Ratio (M-H, Fixed, 95% CI)	0.95 [0.80, 1.12]
2 Drop outs during therapy	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
2.1 family based therapy	1	86	Risk Ratio (M-H, Fixed, 95% CI)	3.67 [0.81, 16.66]
3 Return to functioning (school or work) follow-up	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
3.1 family based therapy	1	71	Risk Ratio (M-H, Fixed, 95% CI)	1.03 [0.95, 1.12]
4 Cognitive distortion post intervention (Yale Brown Cornell)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
4.1 family based therapy	1	86	Mean Difference (IV, Fixed, 95% CI)	-4.5 [-7.96, -1.04]
5 Cognitive distortion follow-up (EDE) note large drop out	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
5.1 family based therapy	1	35	Mean Difference (IV, Fixed, 95% CI)	-0.43 [-1.23, 0.37]
6 Weight (BMI) post intervention	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
6.1 family based therapy	1	86	Mean Difference (IV, Fixed, 95% CI)	0.5 [-0.43, 1.43]
7 Weight (BMI) follow-up	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
7.1 family based therapy	1	71	Mean Difference (IV, Fixed, 95% CI)	0.17 [-0.83, 1.17]
8 Relapse during treatment	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
8.1 family based therapy	1	86	Risk Ratio (M-H, Fixed, 95% CI)	0.94 [0.43, 2.09]

Comparison 5. Family therapy conjoint vs family therapy separated

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission post intervention	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
1.1 family based therapy	1	40	Risk Ratio (M-H, Fixed, 95% CI)	0.62 [0.37, 1.06]
2 Maintenance of remission (follow-up) (5 years)	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
2.1 family based therapy	1	38	Risk Ratio (M-H, Fixed, 95% CI)	0.86 [0.65, 1.15]
3 Drop outs during therapy	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
3.1 family based therapy	1	40	Risk Ratio (M-H, Fixed, 95% CI)	1.47 [0.38, 5.75]
4 Drop outs during follow-up (5 years)	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
4.1 family based therapy	1	38	Risk Ratio (M-H, Fixed, 95% CI)	1.11 [0.07, 16.49]
5 Cognitive distortion post intervention (EAT)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
5.1 family based therapy	2	58	Mean Difference (IV, Fixed, 95% CI)	-1.85 [-10.01, 6.31]
6 Cognitive distortion follow-up (EAT)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
6.1 family based therapy	1	14	Mean Difference (IV, Fixed, 95% CI)	4.40 [-25.72, 34.52]
7 Cognitive distortion post intervention (MR)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
7.1 family based therapy	2	58	Mean Difference (IV, Fixed, 95% CI)	-0.96 [-1.95, 0.03]
8 Cognitive distortion post intervention (EDI)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
8.1 family based therapy	1	40	Mean Difference (IV, Fixed, 95% CI)	-10.50 [-26.96, 5.96]
9 Cognitive distortion follow-up (EDI)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
9.1 family based therapy	1	20	Mean Difference (IV, Fixed, 95% CI)	-7.90 [-37.73, 21.93]
10 Weight (%ABW) post intervention	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
10.1 family based therapy	2	58	Mean Difference (IV, Fixed, 95% CI)	-0.09 [-5.87, 5.68]
11 Weight (%ABW) follow-up (5 years)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
11.1 family based therapy	1	33	Mean Difference (IV, Fixed, 95% CI)	-6.70 [-14.14, 0.74]
12 Relapse post intervention	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
12.1 family based therapy	1	40	Risk Ratio (M-H, Fixed, 95% CI)	3.32 [0.38, 29.23]
13 Relapse follow-up (5 years)	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
13.1 family based therapy	1	38	Risk Ratio (M-H, Fixed, 95% CI)	0.56 [0.12, 2.68]

Comparison 6. Family therapy vs family therapy plus meal

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Remission post intervention	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
1.1 family based therapy	1	12	Risk Ratio (M-H, Fixed, 95% CI)	1.0 [0.75, 1.34]
2 Maintenance of remission (follow-up)	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
2.1 family based therapy	1	12	Risk Ratio (M-H, Fixed, 95% CI)	1.0 [0.75, 1.34]
3 Drop outs	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
3.1 family based therapy	1	13	Risk Ratio (M-H, Fixed, 95% CI)	0.38 [0.02, 7.93]
4 Family function post intervention Family Health Scale - need to find direction	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
4.1 family based therapy	1	12	Mean Difference (IV, Fixed, 95% CI)	-0.62 [-1.16, -0.08]
5 Cognitive distortion post intervention (MR)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
5.1 family based therapy	1	12	Mean Difference (IV, Fixed, 95% CI)	1.04 [-1.29, 3.37]
6 Cognitive distortion follow-up (MR)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
6.1 family based therapy	1	12	Mean Difference (IV, Fixed, 95% CI)	0.33 [-1.85, 2.51]
7 Weight (BMI) post intervention	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
7.1 family based therapy	1	12	Mean Difference (IV, Fixed, 95% CI)	0.52 [-1.81, 2.85]
8 Weight (BMI) follow-up	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
8.1 family based therapy	1	12	Mean Difference (IV, Fixed, 95% CI)	0.60 [-2.10, 3.30]

Comparison 7. Individual family therapy vs group family therapy

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Drop outs	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
1.1 other	1	48	Risk Ratio (M-H, Fixed, 95% CI)	1.09 [0.24, 4.86]
2 Family function post intervention (carers' LEE)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
2.1 other	1	66	Mean Difference (IV, Fixed, 95% CI)	1.10 [-2.93, 5.13]
3 Family function follow-up (carers' LEE)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
3.1 other	1	58	Mean Difference (IV, Fixed, 95% CI)	-0.90 [-5.23, 3.43]
4 Cognitive distortion post intervention (SEED-AN)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
4.1 other	1	25	Mean Difference (IV, Fixed, 95% CI)	0.20 [-0.62, 1.02]
5 Cognitive distortion follow-up (SEED-AN)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
5.1 other	1	29	Mean Difference (IV, Fixed, 95% CI)	-0.20 [-0.79, 0.39]
6 Weight (BMI) post intervention	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
6.1 other	1	47	Mean Difference (IV, Fixed, 95% CI)	-0.80 [-1.86, 0.26]

7 Weight (BMI) follow-up	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
7.1 other	1	44	Mean Difference (IV, Fixed, 95% CI)	1.0 [-0.42, 2.42]

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

Review: Family therapy for anorexia nervosa

Comparison: 1 Family therapy vs standard care/treatment as usual

Outcome: 1 Remission post intervention

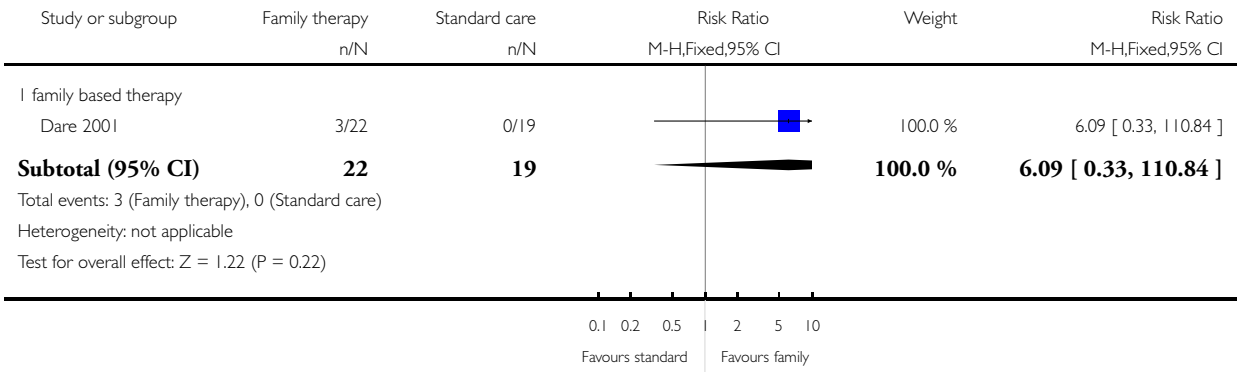
Study or subgroup	Family therapy n/N	Standard care n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 family based therapy					
Dare 2001	8/22	1/19		21.2 %	6.91 [0.95, 50.35]
Subtotal (95% CI)	**22**	**19**		**21.2 %**	**6.91 [0.95, 50.35]**
Total events: 8 (Family therapy), 1 (Standard care)					
Heterogeneity: not applicable					
Test for overall effect: Z = 1.91 (P = 0.056)					
2 other					
Crisp 1991	12/20	4/20		78.8 %	3.00 [1.16, 7.73]
Subtotal (95% CI)	**20**	**20**		**78.8 %**	**3.00 [1.16, 7.73]**
Total events: 12 (Family therapy), 4 (Standard care)					
Heterogeneity: not applicable					
Test for overall effect: Z = 2.27 (P = 0.023)					
Total (95% CI)	**42**	**39**		**100.0 %**	**3.83 [1.60, 9.13]**
Total events: 20 (Family therapy), 5 (Standard care)					
Heterogeneity: Chi^2 = 0.59, df = 1 (P = 0.44); I^2 =0.0%					
Test for overall effect: Z = 3.03 (P = 0.0025)					

Analysis 1.2. Comparison 1 Family therapy vs standard care/treatment as usual, Outcome 2 Maintenance of remission (follow-up).

Review: Family therapy for anorexia nervosa

Comparison: 1 Family therapy vs standard care/treatment as usual

Outcome: 2 Maintenance of remission (follow-up)

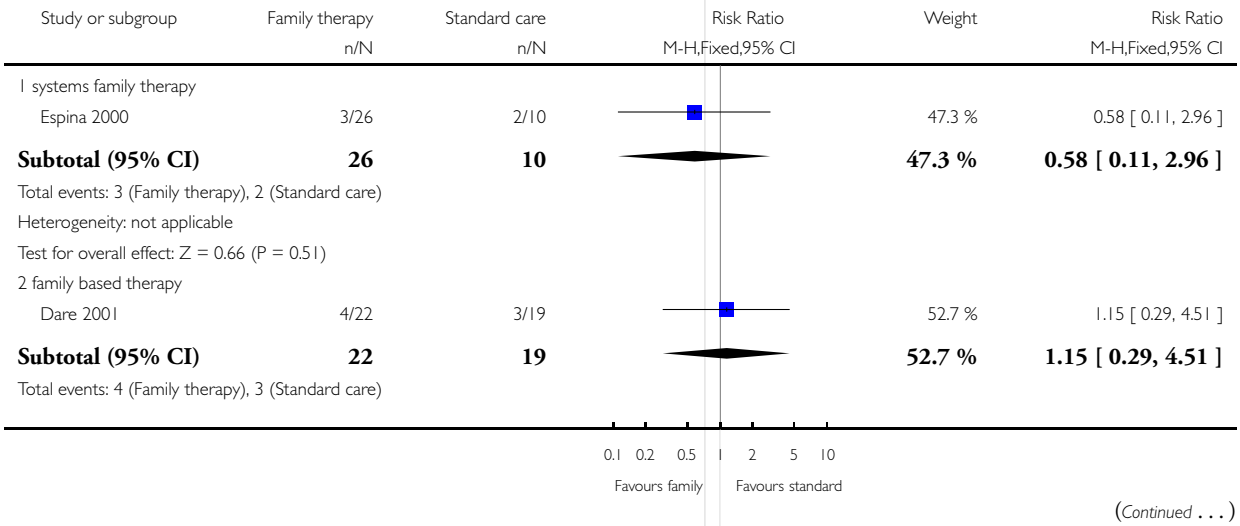


Analysis 1.3. Comparison 1 Family therapy vs standard care/treatment as usual, Outcome 3 Drop outs during therapy.

Review: Family therapy for anorexia nervosa

Comparison: 1 Family therapy vs standard care/treatment as usual

Outcome: 3 Drop outs during therapy



(*Continued* . . .)

(. . . *Continued*)

Study or subgroup	Family therapy n/N	Standard care n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
Heterogeneity: not applicable					
Test for overall effect: Z = 0.20 (P = 0.84)					
Total (95% CI)	**48**	**29**		**100.0 %**	**0.88 [0.31, 2.47]**
Total events: 7 (Family therapy), 5 (Standard care)					
Heterogeneity: Chi^2 = 0.41, df = 1 (P = 0.52); I^2 =0.0%					
Test for overall effect: Z = 0.24 (P = 0.81)					

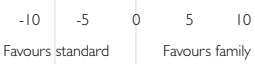
Analysis 1.4. Comparison 1 Family therapy vs standard care/treatment as usual, Outcome 4 Cognitive distortion post intervention (MR).

Review: Family therapy for anorexia nervosa

Comparison: 1 Family therapy vs standard care/treatment as usual

Outcome: 4 Cognitive distortion post intervention (MR)

Study or subgroup	Family therapy N	Mean(SD)	Standard care N	Mean(SD)	Mean Difference IV,Fixed,95% CI	Weight	Mean Difference IV,Fixed,95% CI
1 other							
Crisp 1991	30	5.5 (3.3)	20	6.4 (2.6)		100.0 %	-0.90 [-2.54, 0.74]
Subtotal (95% CI)	**30**		**20**			**100.0 %**	**-0.90 [-2.54, 0.74]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.07 (P = 0.28)							
Test for subgroup differences: Not applicable							



Analysis 1.5. Comparison 1 Family therapy vs standard care/treatment as usual, Outcome 5 Relapse during treatment.

Review: Family therapy for anorexia nervosa

Comparison: 1 Family therapy vs standard care/treatment as usual

Outcome: 5 Relapse during treatment

Study or subgroup	Family therapy n/N	Standard Care n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 family based therapy					
Dare 2001	3/22	5/19		100.0 %	0.52 [0.14, 1.89]
Subtotal (95% CI)	**22**	**19**		**100.0 %**	**0.52 [0.14, 1.89]**
Total events: 3 (Family therapy), 5 (Standard Care)					
Heterogeneity: not applicable					
Test for overall effect: Z = 1.00 (P = 0.32)					

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

Review: Family therapy for anorexia nervosa

Comparison: 2 Family therapy vs psychological interventions

Outcome: 1 Remission post intervention

Study or subgroup	Family therapy n/N	Psychological n/N	Risk Ratio M-H,Random,95% CI	Weight	Risk Ratio M-H,Random,95% CI
1 family based therapy					
Ball 2004	7/9	7/9		32.4 %	1.00 [0.61, 1.64]
Dare 2001	3/22	3/21		7.8 %	0.95 [0.22, 4.21]
Robin 1999	12/18	11/16		33.9 %	0.97 [0.61, 1.54]
Russell 1987 group 1	9/10	2/11		10.1 %	4.95 [1.39, 17.64]
Russell 1987 group 2	4/10	3/9		11.2 %	1.20 [0.36, 3.97]
Russell 1987 group 3	1/7	3/7		4.6 %	0.33 [0.04, 2.48]
Total (95% CI)	**76**	**73**		**100.0 %**	**1.13 [0.72, 1.76]**
Total events: 36 (Family therapy), 29 (Psychological)					
Heterogeneity: $Tau^2 = 0.10$; $Chi^2 = 7.69$, df = 5 (P = 0.17); $I^2 = 35\%$					
Test for overall effect: Z = 0.51 (P = 0.61)					

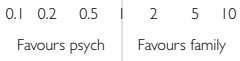
Analysis 2.2. Comparison 2 Family therapy vs psychological interventions, Outcome 2 Maintenance of remission (follow-up) follow-up.

Review: Family therapy for anorexia nervosa

Comparison: 2 Family therapy vs psychological interventions

Outcome: 2 Maintenance of remission (follow-up) follow-up

Study or subgroup	Family therapy n/N	Psychological n/N	Risk Ratio M-H,Random,95% CI	Weight	Risk Ratio M-H,Random,95% CI
1 family based therapy (note russell is 5 year)					
Ball 2004	7/9	7/9		25.1 %	1.00 [0.61, 1.64]
Robin 1999	15/19	11/16		34.2 %	1.15 [0.77, 1.72]
Russell 1987 group 1	9/10	6/11		19.4 %	1.65 [0.93, 2.94]
Russell 1987 group 2	4/10	5/9		7.8 %	0.72 [0.28, 1.88]
Russell 1987 group 3	4/7	6/7		13.6 %	0.67 [0.33, 1.35]
Total (95% CI)	**55**	**52**		**100.0 %**	**1.07 [0.81, 1.41]**
Total events: 39 (Family therapy), 35 (Psychological)					
Heterogeneity: $Tau^2 = 0.02$; $Chi^2 = 4.73$, df = 4 (P = 0.32); $I^2 = 16\%$					
Test for overall effect: Z = 0.45 (P = 0.65)					



Analysis 2.3. Comparison 2 Family therapy vs psychological interventions, Outcome 3 Drop outs during treatment.

Review: Family therapy for anorexia nervosa

Comparison: 2 Family therapy vs psychological interventions

Outcome: 3 Drop outs during treatment

Study or subgroup	Family therapy n/N	Psychological n/N	Risk Ratio M-H,Random,95% CI	Weight	Risk Ratio M-H,Random,95% CI
1 family based therapy					
Ball 2004	3/12	4/13		28.3 %	0.81 [0.23, 2.91]
Dare 2001	4/22	2/22		22.1 %	2.00 [0.41, 9.82]
Russell 1987 group 1	1/10	7/11		17.4 %	0.16 [0.02, 1.06]
Russell 1987 group 2	2/11	3/10		22.5 %	0.61 [0.13, 2.92]
Russell 1987 group 3	3/8	0/7		9.7 %	6.22 [0.38, 102.93]
Total (95% CI)	**63**	**63**		**100.0 %**	**0.85 [0.33, 2.21]**

Total events: 13 (Family therapy), 16 (Psychological)

Heterogeneity: $Tau^2 = 0.42$; $Chi^2 = 6.22$, df = 4 (P = 0.18); $I^2 = 36\%$

Test for overall effect: Z = 0.33 (P = 0.74)

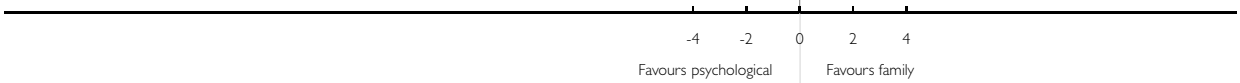
Analysis 2.4. Comparison 2 Family therapy vs psychological interventions, Outcome 4 Cognitive distortion post intervention (Robin-EAT; Ball, Russell, Crisp-MR).

Review: Family therapy for anorexia nervosa

Comparison: 2 Family therapy vs psychological interventions

Outcome: 4 Cognitive distortion post intervention (Robin-EAT; Ball, Russell, Crisp-MR)

Study or subgroup	Family therapy N	Mean(SD)	Psychological N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 Family based therapy							
Ball 2004	9	9.33 (2.65)	9	9.38 (1.98)		15.8 %	-0.02 [-0.94, 0.90]
Robin 1999	19	-11.2 (13.6)	16	-7.9 (9.6)		19.2 %	-0.27 [-0.94, 0.40]
Russell 1987 group 1	10	9.7 (2)	11	5.7 (2)		14.1 %	1.92 [0.85, 2.99]
Russell 1987 group 2	10	7.1 (3)	10	6.1 (2.7)		16.3 %	0.34 [-0.55, 1.22]
Russell 1987 group 3	8	6.1 (2.2)	7	8.1 (2.6)		14.1 %	-0.79 [-1.85, 0.28]
Subtotal (95% CI)	**56**		**53**			**79.5 %**	**0.21 [-0.58, 1.00]**
Heterogeneity: $Tau^2 = 0.59$; $Chi^2 = 15.24$, df = 4 (P = 0.004); $I^2 = 74\%$							
Test for overall effect: Z = 0.52 (P = 0.60)							
2 other							
Crisp 1991	30	5.5 (3.3)	20	6.2 (3.1)		20.5 %	-0.21 [-0.78, 0.35]
Subtotal (95% CI)	**30**		**20**			**20.5 %**	**-0.21 [-0.78, 0.35]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.74 (P = 0.46)							
Total (95% CI)	**86**		**73**			**100.0 %**	**0.11 [-0.49, 0.72]**
Heterogeneity: $Tau^2 = 0.39$; $Chi^2 = 16.14$, df = 5 (P = 0.01); $I^2 = 69\%$							
Test for overall effect: Z = 0.37 (P = 0.71)							



Analysis 2.5. Comparison 2 Family therapy vs psychological interventions, Outcome 5 Cognitive distortion follow-up (Robin-EAT; Ball, Russell, Crisp-MR).

Review: Family therapy for anorexia nervosa

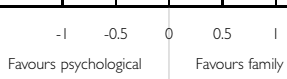
Comparison: 2 Family therapy vs psychological interventions

Outcome: 5 Cognitive distortion follow-up (Robin-EAT; Ball, Russell, Crisp-MR)

Study or subgroup	Family therapy N	Mean(SD)	Psychological N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 family based therapy							
Ball 2004	9	9.85 (1.94)	9	9.97 (1.91)		20.1 %	-0.06 [-0.98, 0.86]
Robin 1999	19	-8.1 (10)	16	-4.7 (6.1)		24.8 %	-0.39 [-1.07, 0.28]
Russell 1987 group 1	10	11 (0.4)	9	9.3 (2.1)		19.1 %	1.10 [0.12, 2.09]
Russell 1987 group 2	9	7.6 (3)	9	7.6 (2.5)		20.1 %	0.0 [-0.92, 0.92]
Russell 1987 group 3	7	7.8 (2.8)	7	10.6 (1)		16.0 %	-1.25 [-2.43, -0.07]
Total (95% CI)	**54**		**50**			**100.0 %**	**-0.10 [-0.75, 0.56]**

Heterogeneity: $Tau^2 = 0.33$; $Chi^2 = 10.17$, df = 4 (P = 0.04); $I^2 = 61\%$

Test for overall effect: Z = 0.29 (P = 0.77)

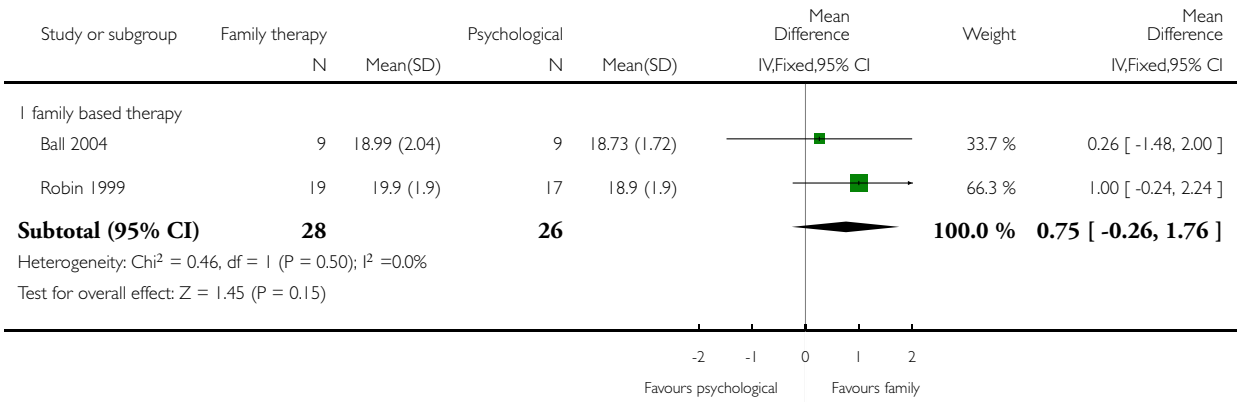


Analysis 2.6. Comparison 2 Family therapy vs psychological interventions, Outcome 6 Weight (BMI) post intervention.

Review: Family therapy for anorexia nervosa

Comparison: 2 Family therapy vs psychological interventions

Outcome: 6 Weight (BMI) post intervention

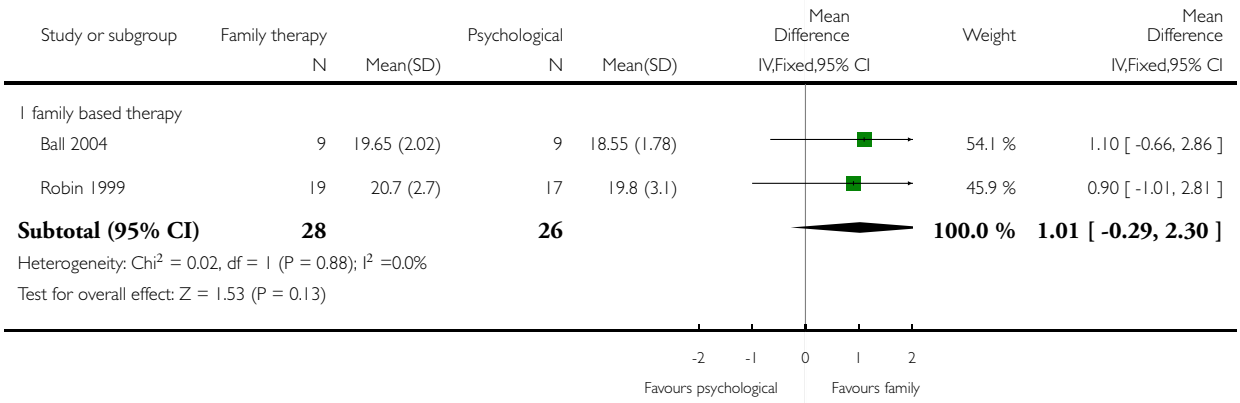


Analysis 2.7. Comparison 2 Family therapy vs psychological interventions, Outcome 7 Weight (BMI) follow-up.

Review: Family therapy for anorexia nervosa

Comparison: 2 Family therapy vs psychological interventions

Outcome: 7 Weight (BMI) follow-up

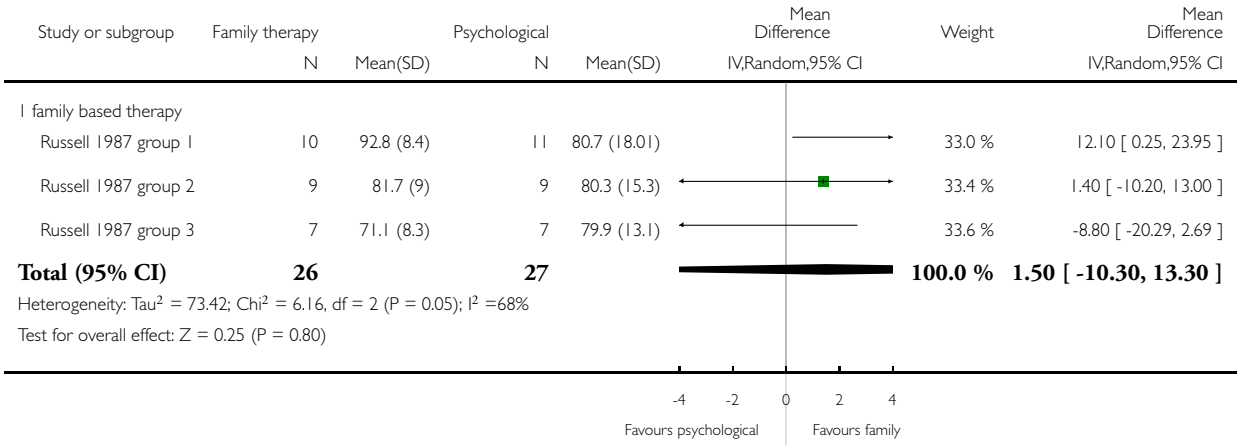


Analysis 2.8. Comparison 2 Family therapy vs psychological interventions, Outcome 8 Weight (%ABW) post intervention.

Review: Family therapy for anorexia nervosa

Comparison: 2 Family therapy vs psychological interventions

Outcome: 8 Weight (%ABW) post intervention

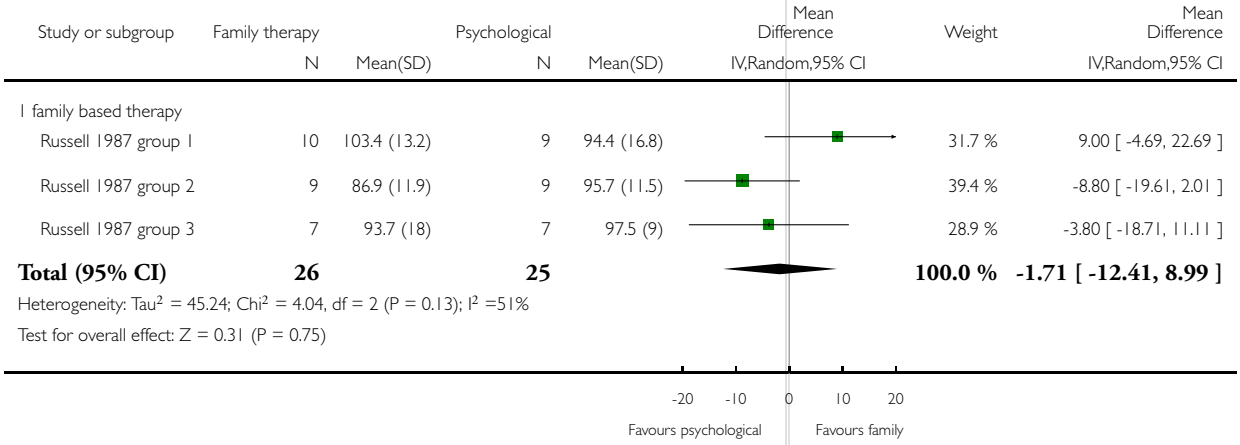


Analysis 2.9. Comparison 2 Family therapy vs psychological interventions, Outcome 9 Weight (%ABW) follow-up (5 years).

Review: Family therapy for anorexia nervosa

Comparison: 2 Family therapy vs psychological interventions

Outcome: 9 Weight (%ABW) follow-up (5 years)

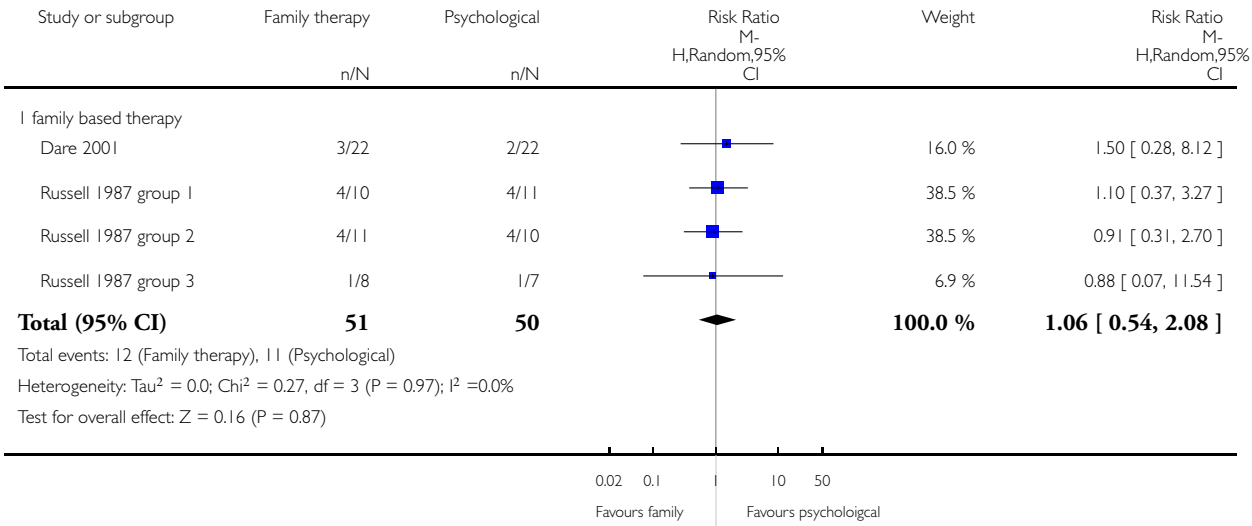


Analysis 2.10. Comparison 2 Family therapy vs psychological interventions, Outcome 10 Relapse during treatment.

Review: Family therapy for anorexia nervosa

Comparison: 2 Family therapy vs psychological interventions

Outcome: 10 Relapse during treatment

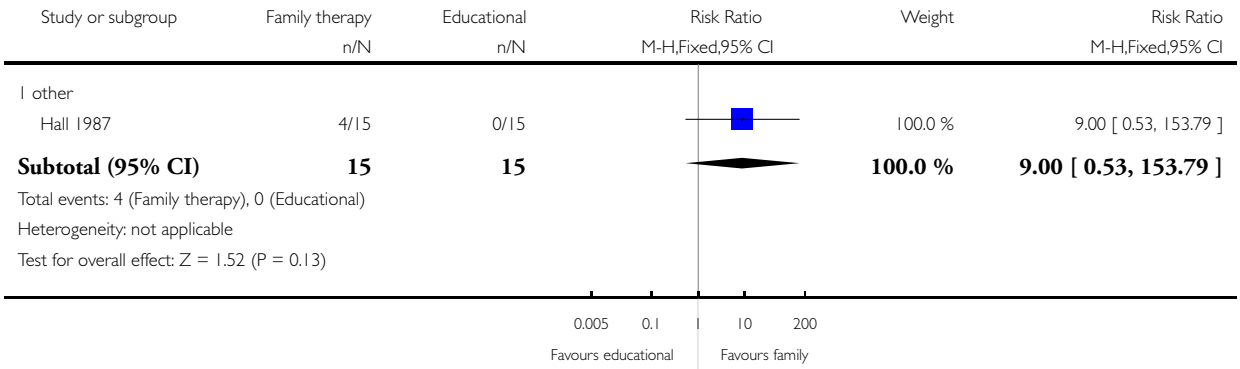


Analysis 3.1. Comparison 3 Family therapy vs educational interventions, Outcome 1 Remission follow-up.

Review: Family therapy for anorexia nervosa

Comparison: 3 Family therapy vs educational interventions

Outcome: 1 Remission follow-up

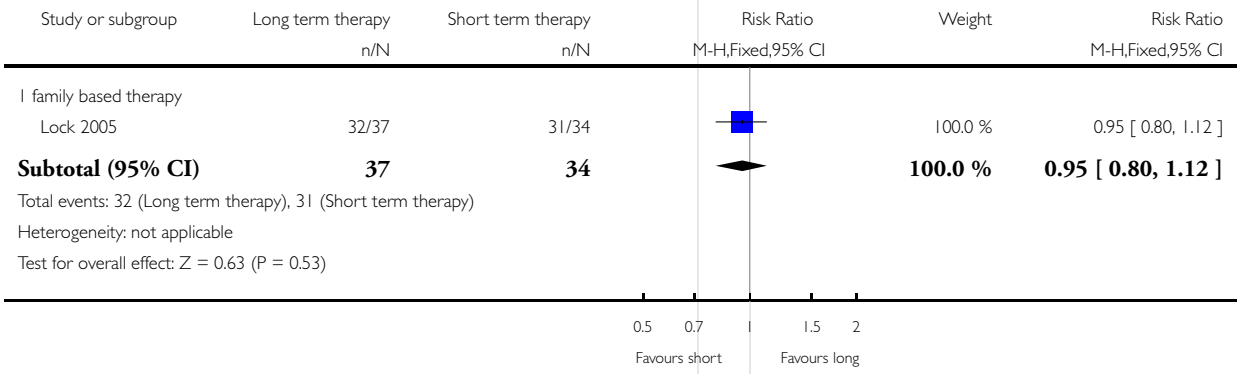


Analysis 4.1. Comparison 4 Family therapy short vs family therapy long, Outcome 1 Maintenance of remission (follow-up) (mean 3.96 years).

Review: Family therapy for anorexia nervosa

Comparison: 4 Family therapy short vs family therapy long

Outcome: 1 Maintenance of remission (follow-up) (mean 3.96 years)

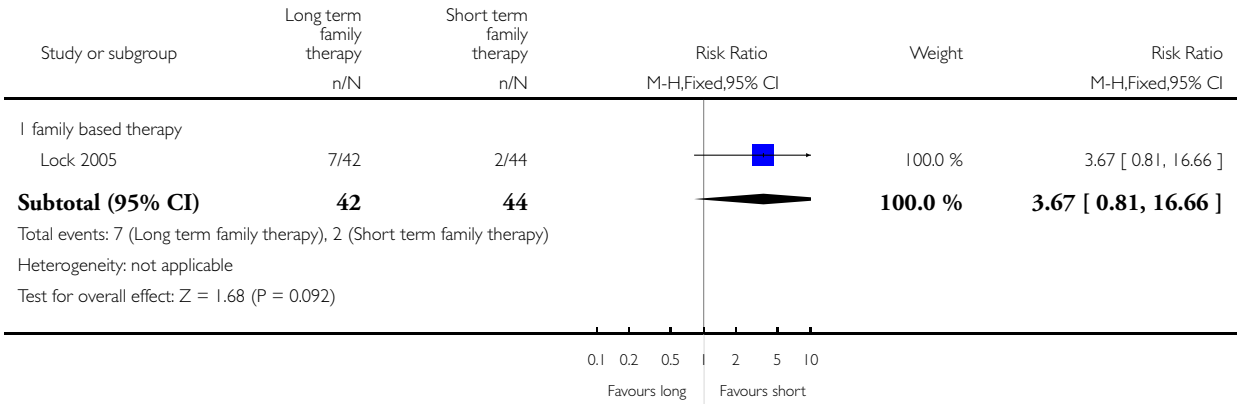


Analysis 4.2. Comparison 4 Family therapy short vs family therapy long, Outcome 2 Drop outs during therapy.

Review: Family therapy for anorexia nervosa

Comparison: 4 Family therapy short vs family therapy long

Outcome: 2 Drop outs during therapy

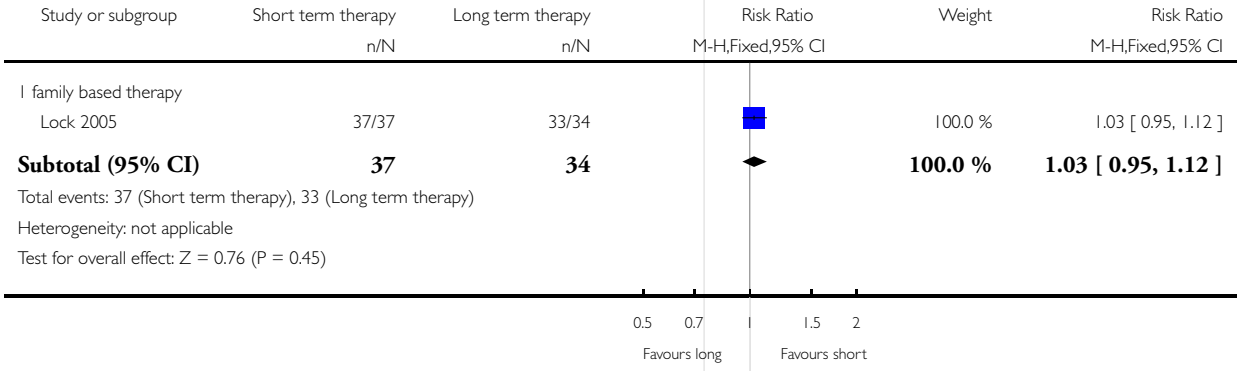


Analysis 4.3. Comparison 4 Family therapy short vs family therapy long, Outcome 3 Return to functioning (school or work) follow-up.

Review: Family therapy for anorexia nervosa

Comparison: 4 Family therapy short vs family therapy long

Outcome: 3 Return to functioning (school or work) follow-up

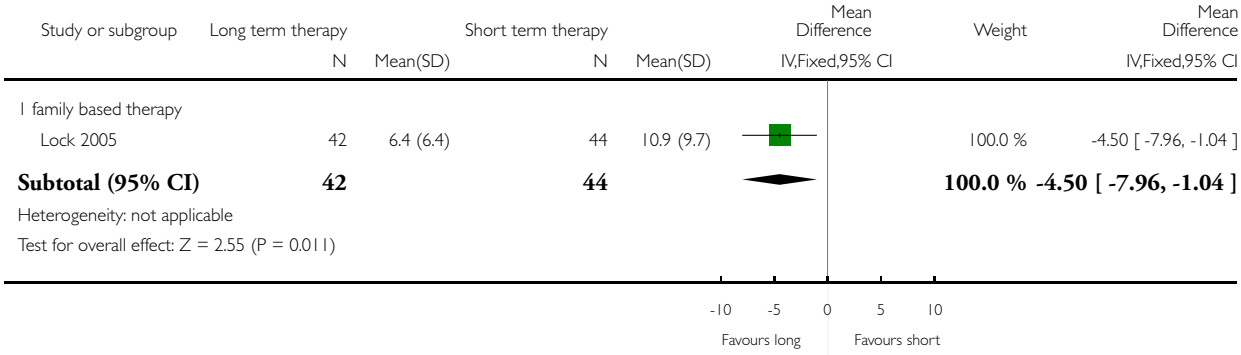


Analysis 4.4. Comparison 4 Family therapy short vs family therapy long, Outcome 4 Cognitive distortion post intervention (Yale Brown Cornell).

Review: Family therapy for anorexia nervosa

Comparison: 4 Family therapy short vs family therapy long

Outcome: 4 Cognitive distortion post intervention (Yale Brown Cornell)

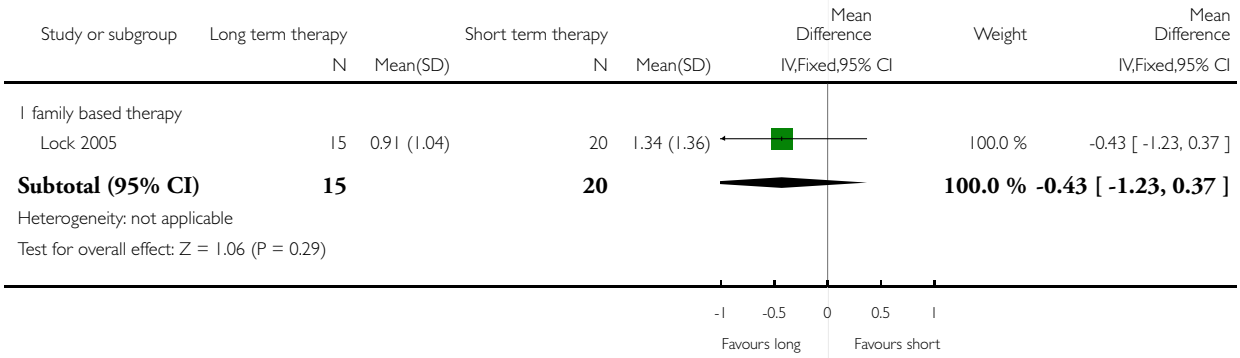


Analysis 4.5. Comparison 4 Family therapy short vs family therapy long, Outcome 5 Cognitive distortion follow-up (EDE) note large drop out.

Review: Family therapy for anorexia nervosa

Comparison: 4 Family therapy short vs family therapy long

Outcome: 5 Cognitive distortion follow-up (EDE) note large drop out

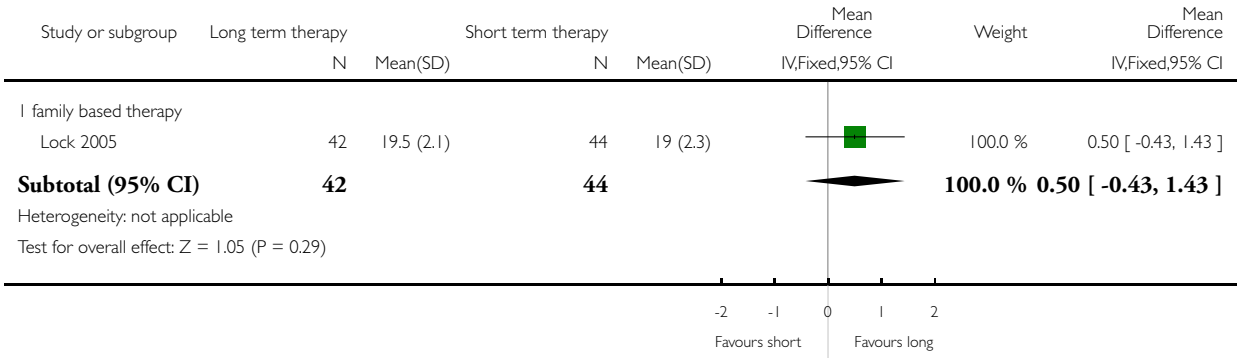


Analysis 4.6. Comparison 4 Family therapy short vs family therapy long, Outcome 6 Weight (BMI) post intervention.

Review: Family therapy for anorexia nervosa

Comparison: 4 Family therapy short vs family therapy long

Outcome: 6 Weight (BMI) post intervention

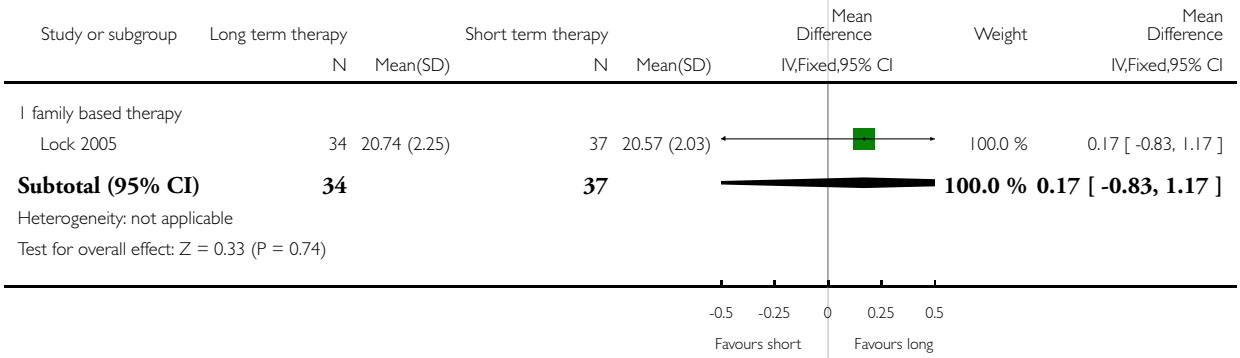


Analysis 4.7. Comparison 4 Family therapy short vs family therapy long, Outcome 7 Weight (BMI) follow-up.

Review: Family therapy for anorexia nervosa

Comparison: 4 Family therapy short vs family therapy long

Outcome: 7 Weight (BMI) follow-up

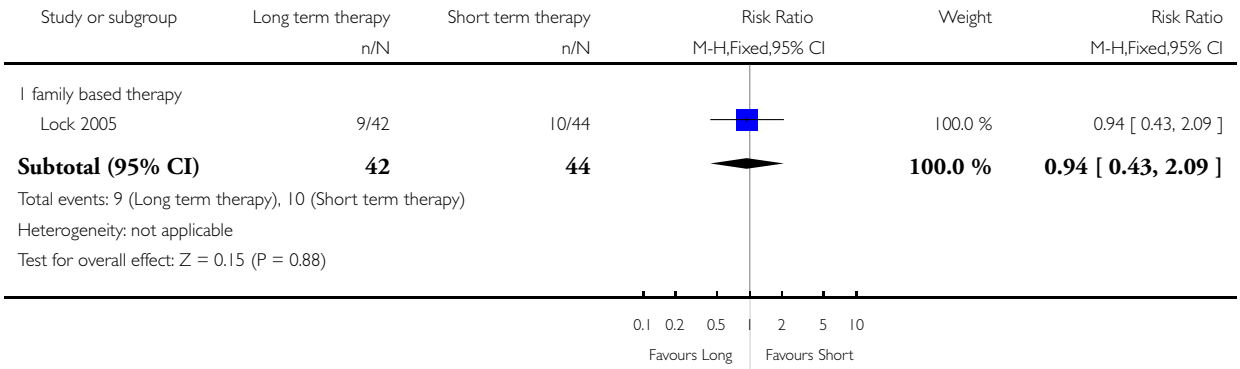


Analysis 4.8. Comparison 4 Family therapy short vs family therapy long, Outcome 8 Relapse during treatment.

Review: Family therapy for anorexia nervosa

Comparison: 4 Family therapy short vs family therapy long

Outcome: 8 Relapse during treatment

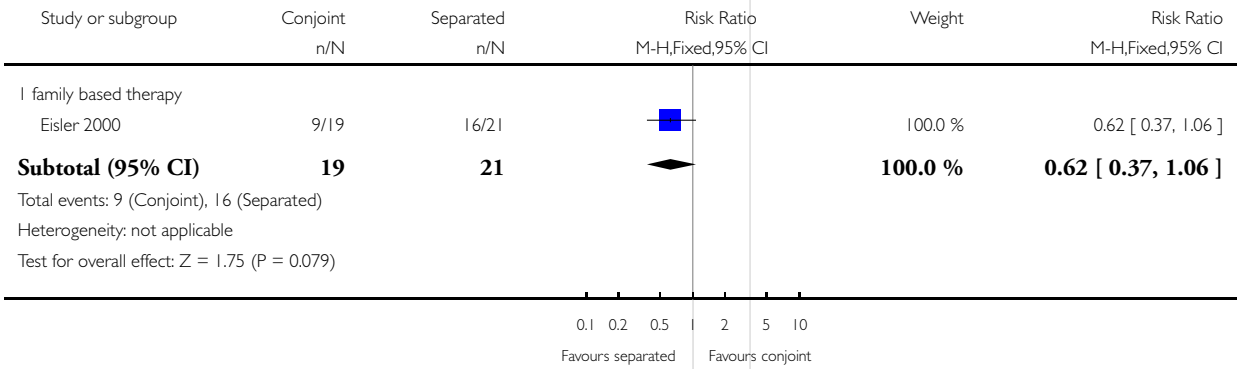


Analysis 5.1. Comparison 5 Family therapy conjoint vs family therapy separated, Outcome 1 Remission post intervention.

Review: Family therapy for anorexia nervosa

Comparison: 5 Family therapy conjoint vs family therapy separated

Outcome: 1 Remission post intervention

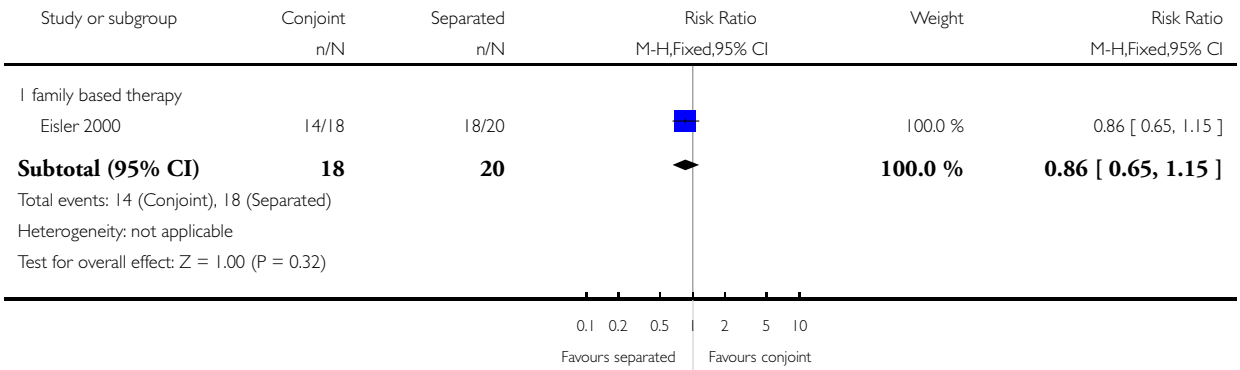


Analysis 5.2. Comparison 5 Family therapy conjoint vs family therapy separated, Outcome 2 Maintenance of remission (follow-up) (5 years).

Review: Family therapy for anorexia nervosa

Comparison: 5 Family therapy conjoint vs family therapy separated

Outcome: 2 Maintenance of remission (follow-up) (5 years)

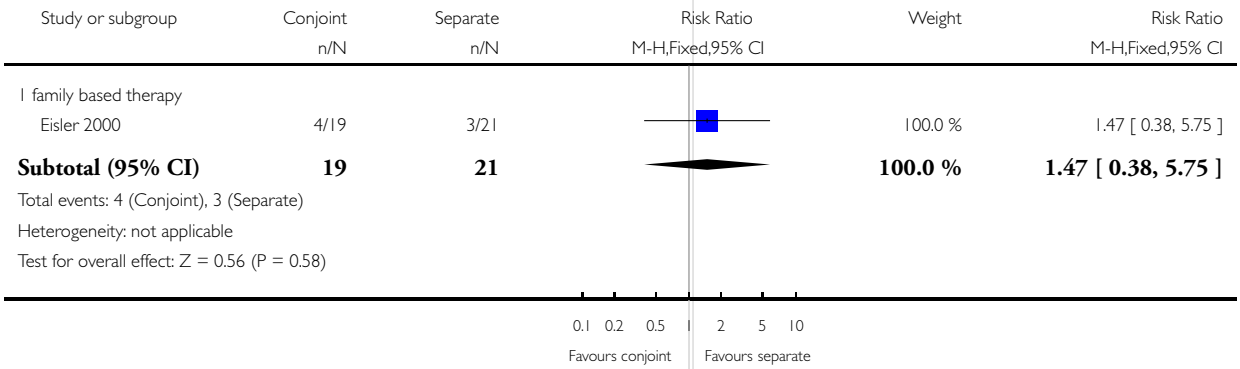


Analysis 5.3. Comparison 5 Family therapy conjoint vs family therapy separated, Outcome 3 Drop outs during therapy.

Review: Family therapy for anorexia nervosa

Comparison: 5 Family therapy conjoint vs family therapy separated

Outcome: 3 Drop outs during therapy

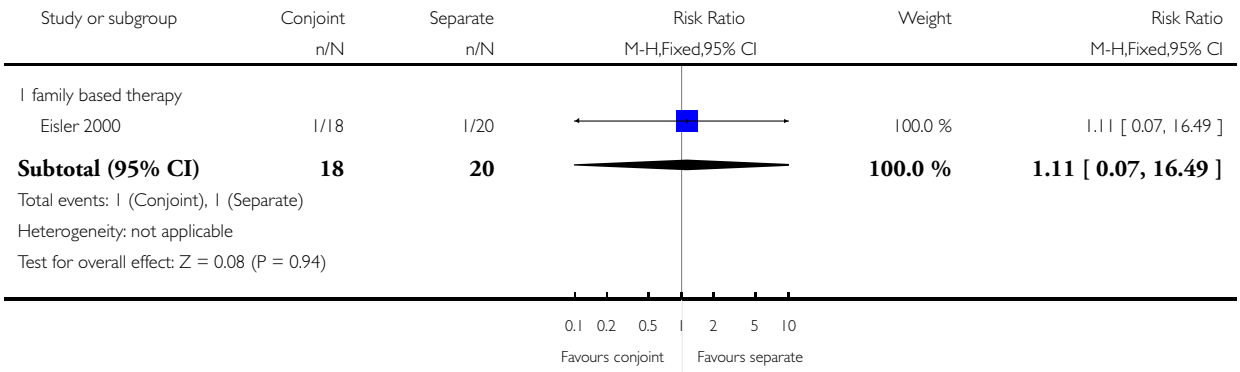


Analysis 5.4. Comparison 5 Family therapy conjoint vs family therapy separated, Outcome 4 Drop outs during follow-up (5 years).

Review: Family therapy for anorexia nervosa

Comparison: 5 Family therapy conjoint vs family therapy separated

Outcome: 4 Drop outs during follow-up (5 years)

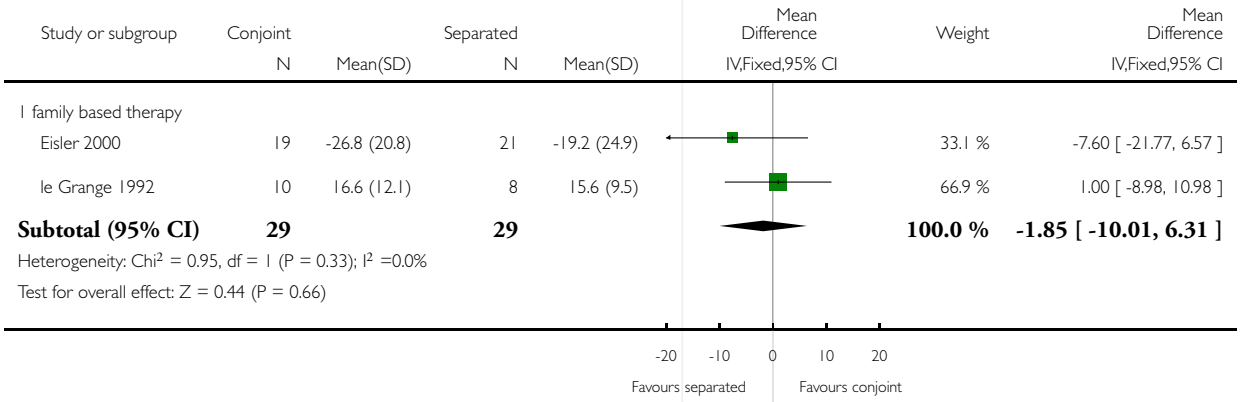


Analysis 5.5. Comparison 5 Family therapy conjoint vs family therapy separated, Outcome 5 Cognitive distortion post intervention (EAT).

Review: Family therapy for anorexia nervosa

Comparison: 5 Family therapy conjoint vs family therapy separated

Outcome: 5 Cognitive distortion post intervention (EAT)

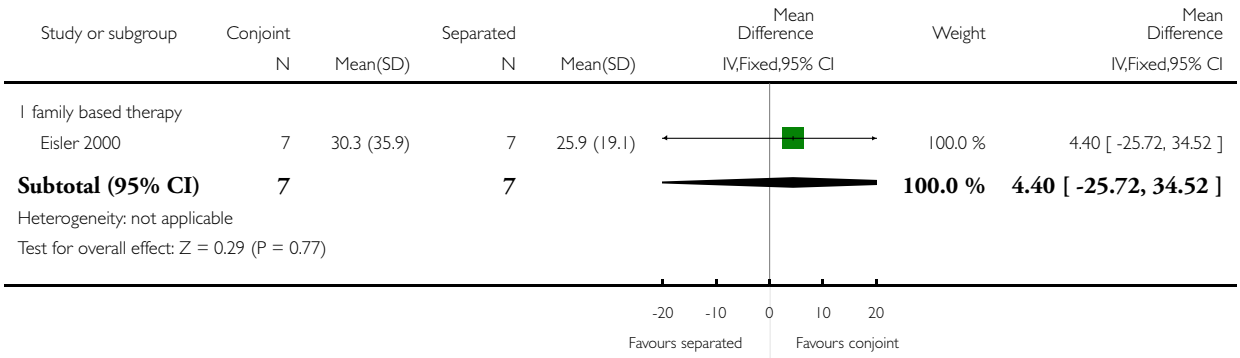


Analysis 5.6. Comparison 5 Family therapy conjoint vs family therapy separated, Outcome 6 Cognitive distortion follow-up (EAT).

Review: Family therapy for anorexia nervosa

Comparison: 5 Family therapy conjoint vs family therapy separated

Outcome: 6 Cognitive distortion follow-up (EAT)

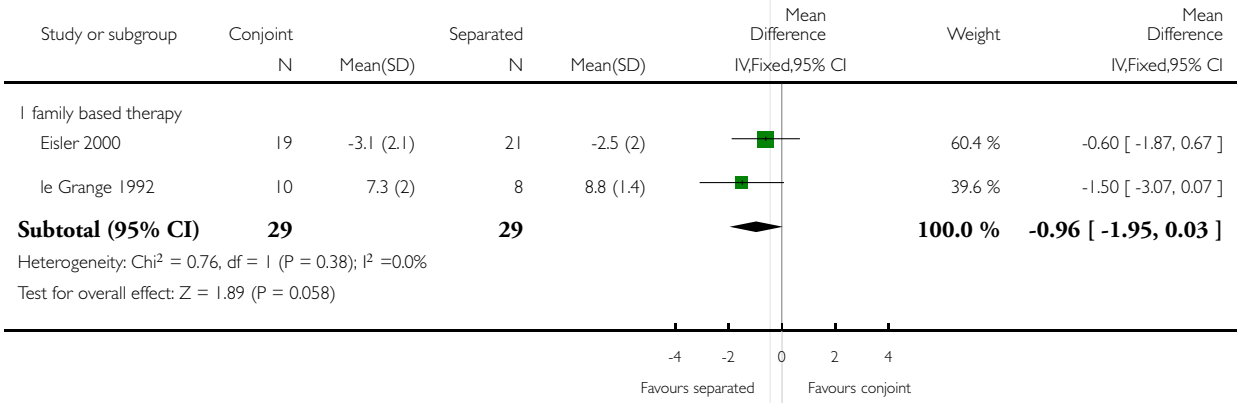


Analysis 5.7. Comparison 5 Family therapy conjoint vs family therapy separated, Outcome 7 Cognitive distortion post intervention (MR).

Review: Family therapy for anorexia nervosa

Comparison: 5 Family therapy conjoint vs family therapy separated

Outcome: 7 Cognitive distortion post intervention (MR)

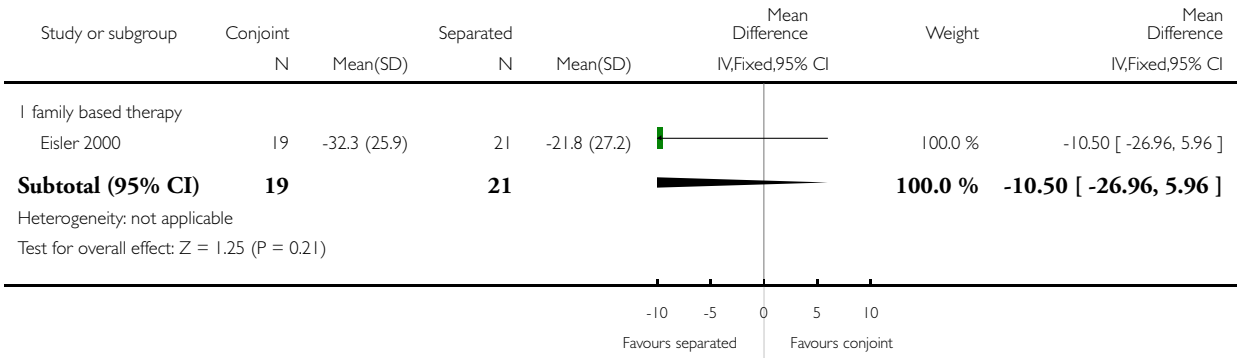


Analysis 5.8. Comparison 5 Family therapy conjoint vs family therapy separated, Outcome 8 Cognitive distortion post intervention (EDI).

Review: Family therapy for anorexia nervosa

Comparison: 5 Family therapy conjoint vs family therapy separated

Outcome: 8 Cognitive distortion post intervention (EDI)

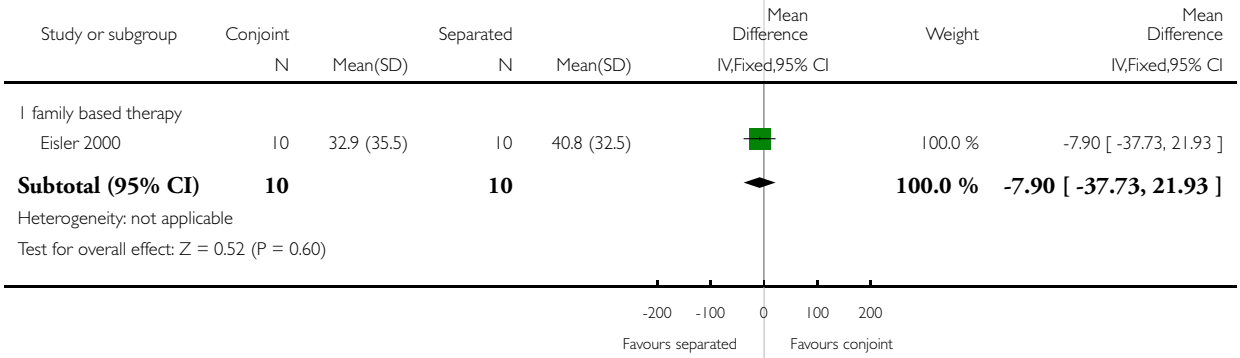


Analysis 5.9. Comparison 5 Family therapy conjoint vs family therapy separated, Outcome 9 Cognitive distortion follow-up (EDI).

Review: Family therapy for anorexia nervosa

Comparison: 5 Family therapy conjoint vs family therapy separated

Outcome: 9 Cognitive distortion follow-up (EDI)



Analysis 5.10. Comparison 5 Family therapy conjoint vs family therapy separated, Outcome 10 Weight (%ABW) post intervention.

Review: Family therapy for anorexia nervosa

Comparison: 5 Family therapy conjoint vs family therapy separated

Outcome: 10 Weight (%ABW) post intervention

Study or subgroup	Conjoint N	Mean(SD)	Separated N	Mean(SD)	Mean Difference IV,Fixed,95% CI	Weight	Mean Difference IV,Fixed,95% CI
1 family based therapy							
Eisler 2000	19	-10.2 (11.3)	21	-15 (11)		69.6 %	4.80 [-2.12, 11.72]
le Grange 1992	10	89.1 (13.5)	8	100.4 (9.1)		30.4 %	-11.30 [-21.78, -0.82]
Subtotal (95% CI)	**29**		**29**			**100.0 %**	**-0.09 [-5.87, 5.68]**

Heterogeneity: Chi^2 = 6.31, df = 1 (P = 0.01); I^2 =84%

Test for overall effect: Z = 0.03 (P = 0.97)

Analysis 5.11. Comparison 5 Family therapy conjoint vs family therapy separated, Outcome 11 Weight (%ABW) follow-up (5 years).

Review: Family therapy for anorexia nervosa

Comparison: 5 Family therapy conjoint vs family therapy separated

Outcome: 11 Weight (%ABW) follow-up (5 years)

Study or subgroup	Conjoint N	Mean(SD)	Separated N	Mean(SD)	Mean Difference IV,Fixed,95% CI	Weight	Mean Difference IV,Fixed,95% CI
1 family based therapy							
Eisler 2000	16	91 (12.2)	17	97.7 (9.32)		100.0 %	-6.70 [-14.14, 0.74]
Subtotal (95% CI)	**16**		**17**			**100.0 %**	**-6.70 [-14.14, 0.74]**

Heterogeneity: not applicable

Test for overall effect: Z = 1.76 (P = 0.078)

Analysis 5.12. Comparison 5 Family therapy conjoint vs family therapy separated, Outcome 12 Relapse post intervention.

Review: Family therapy for anorexia nervosa

Comparison: 5 Family therapy conjoint vs family therapy separated

Outcome: 12 Relapse post intervention

Study or subgroup	Conjoint n/N	Separated n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 family based therapy					
Eisler 2000	3/19	1/21		100.0 %	3.32 [0.38, 29.23]
Subtotal (95% CI)	**19**	**21**		**100.0 %**	**3.32 [0.38, 29.23]**
Total events: 3 (Conjoint), 1 (Separated)					
Heterogeneity: not applicable					
Test for overall effect: Z = 1.08 (P = 0.28)					

Analysis 5.13. Comparison 5 Family therapy conjoint vs family therapy separated, Outcome 13 Relapse follow-up (5 years).

Review: Family therapy for anorexia nervosa

Comparison: 5 Family therapy conjoint vs family therapy separated

Outcome: 13 Relapse follow-up (5 years)

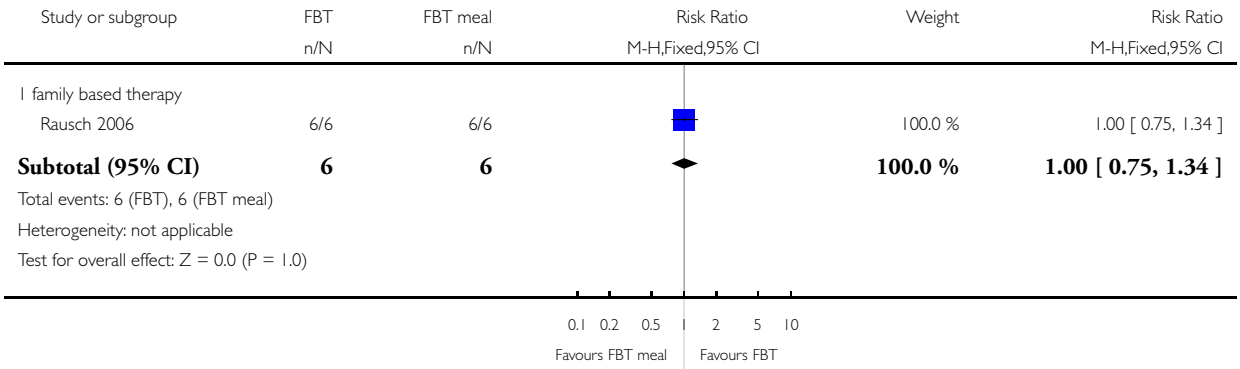
Study or subgroup	Conjoint n/N	Separate n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 family based therapy					
Eisler 2000	2/18	4/20		100.0 %	0.56 [0.12, 2.68]
Subtotal (95% CI)	**18**	**20**		**100.0 %**	**0.56 [0.12, 2.68]**
Total events: 2 (Conjoint), 4 (Separate)					
Heterogeneity: not applicable					
Test for overall effect: Z = 0.73 (P = 0.46)					

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

Review: Family therapy for anorexia nervosa

Comparison: 6 Family therapy vs family therapy plus meal

Outcome: 1 Remission post intervention

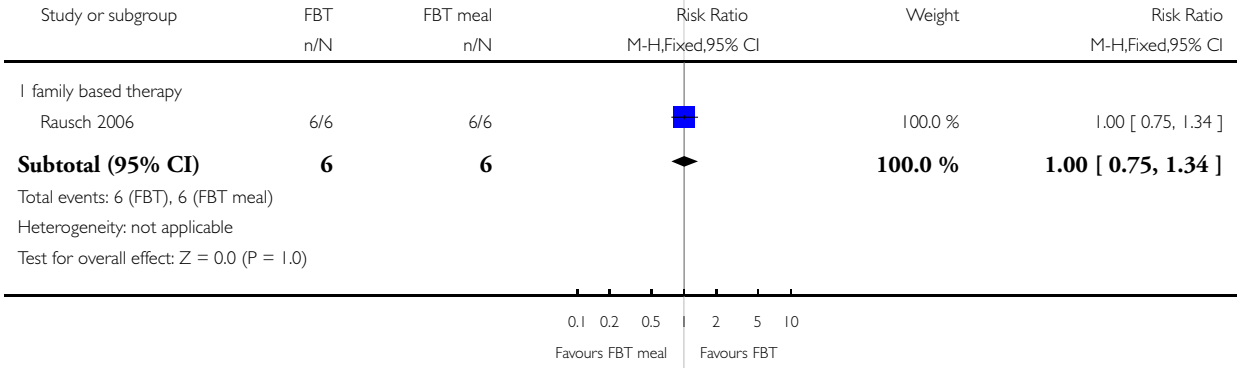


Analysis 6.2. Comparison 6 Family therapy vs family therapy plus meal, Outcome 2 Maintenance of remission (follow-up).

Review: Family therapy for anorexia nervosa

Comparison: 6 Family therapy vs family therapy plus meal

Outcome: 2 Maintenance of remission (follow-up)



Analysis 6.3. Comparison 6 Family therapy vs family therapy plus meal, Outcome 3 Drop outs.

Review: Family therapy for anorexia nervosa

Comparison: 6 Family therapy vs family therapy plus meal

Outcome: 3 Drop outs

Study or subgroup	FBT n/N	FBT meal n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 family based therapy					
Rausch 2006	0/6	1/7		100.0 %	0.38 [0.02, 7.93]
Subtotal (95% CI)	**6**	**7**		**100.0 %**	**0.38 [0.02, 7.93]**
Total events: 0 (FBT), 1 (FBT meal)					
Heterogeneity: not applicable					
Test for overall effect: Z = 0.62 (P = 0.53)					

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

Review: Family therapy for anorexia nervosa

Comparison: 6 Family therapy vs family therapy plus meal

Outcome: 4 Family function post intervention Family Health Scale - need to find direction

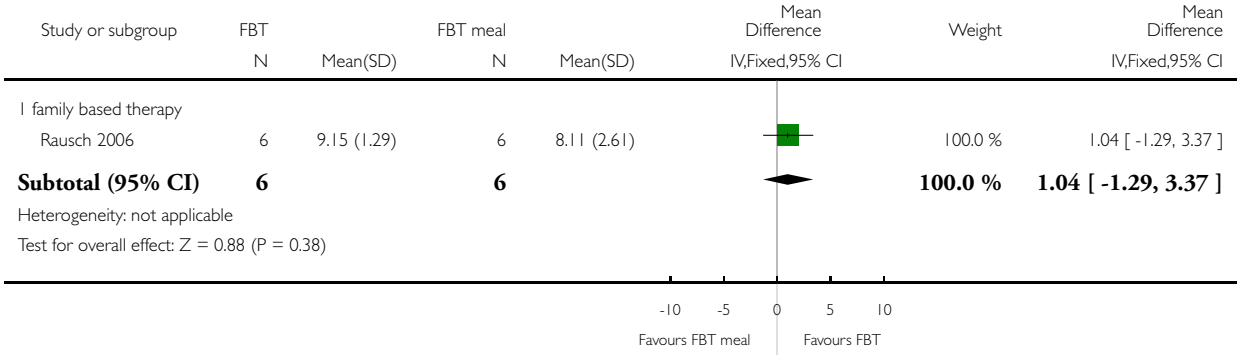
Study or subgroup	FBT N	Mean(SD)	FBT meal N	Mean(SD)	Mean Difference IV,Fixed,95% CI	Weight	Mean Difference IV,Fixed,95% CI
1 family based therapy							
Rausch 2006	6	4.96 (0.59)	6	5.58 (0.34)		100.0 %	-0.62 [-1.16, -0.08]
Subtotal (95% CI)	**6**		**6**			**100.0 %**	**-0.62 [-1.16, -0.08]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.23 (P = 0.026)							

Analysis 6.5. Comparison 6 Family therapy vs family therapy plus meal, Outcome 5 Cognitive distortion post intervention (MR).

Review: Family therapy for anorexia nervosa

Comparison: 6 Family therapy vs family therapy plus meal

Outcome: 5 Cognitive distortion post intervention (MR)

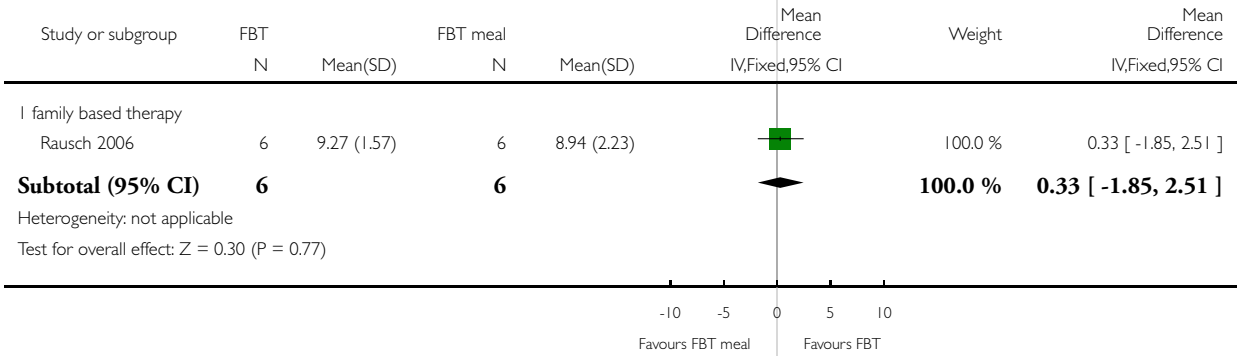


Analysis 6.6. Comparison 6 Family therapy vs family therapy plus meal, Outcome 6 Cognitive distortion follow-up (MR).

Review: Family therapy for anorexia nervosa

Comparison: 6 Family therapy vs family therapy plus meal

Outcome: 6 Cognitive distortion follow-up (MR)

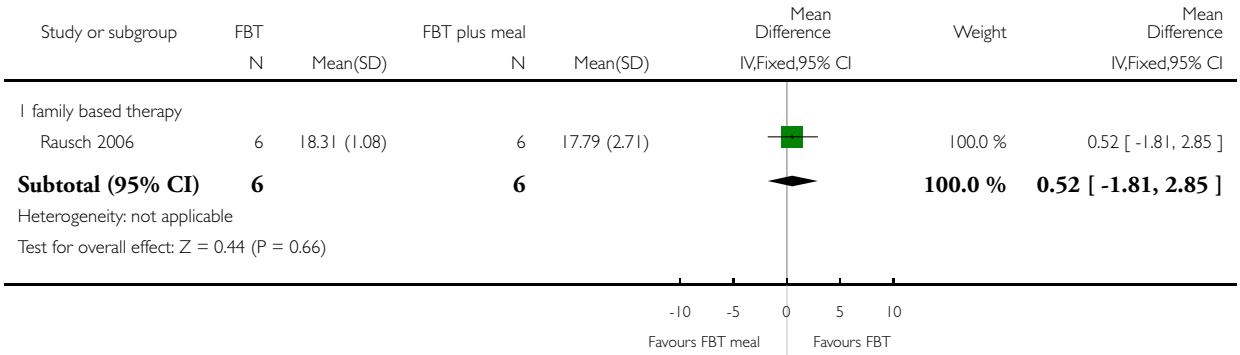


Analysis 6.7. Comparison 6 Family therapy vs family therapy plus meal, Outcome 7 Weight (BMI) post intervention.

Review: Family therapy for anorexia nervosa

Comparison: 6 Family therapy vs family therapy plus meal

Outcome: 7 Weight (BMI) post intervention

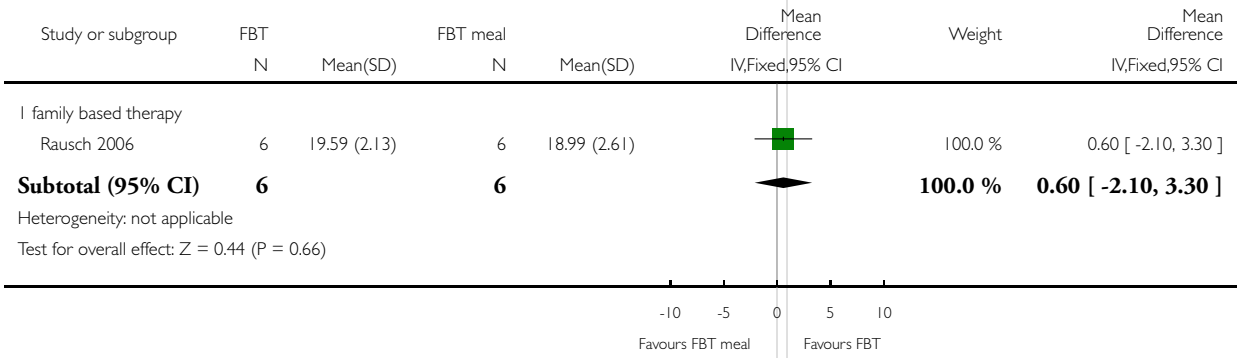


Analysis 6.8. Comparison 6 Family therapy vs family therapy plus meal, Outcome 8 Weight (BMI) follow-up.

Review: Family therapy for anorexia nervosa

Comparison: 6 Family therapy vs family therapy plus meal

Outcome: 8 Weight (BMI) follow-up

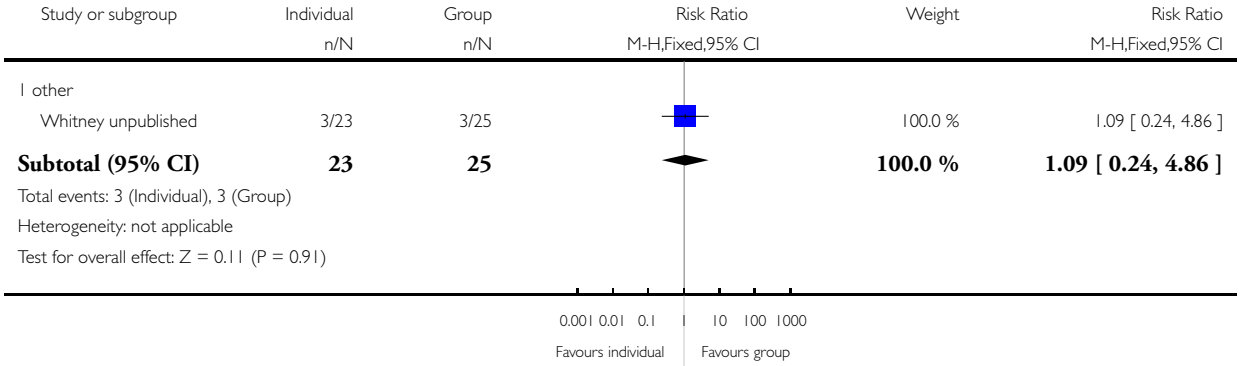


Analysis 7.1. Comparison 7 Individual family therapy vs group family therapy, Outcome 1 Drop outs.

Review: Family therapy for anorexia nervosa

Comparison: 7 Individual family therapy vs group family therapy

Outcome: 1 Drop outs

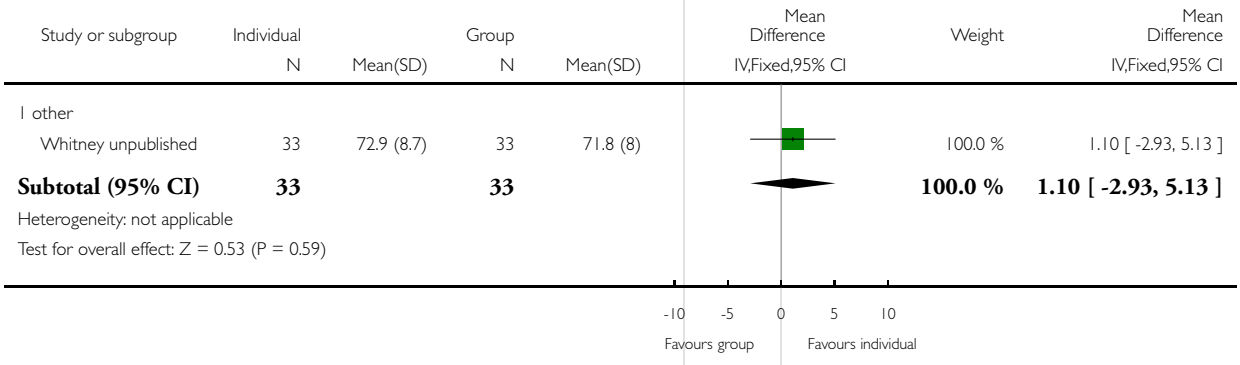


Analysis 7.2. Comparison 7 Individual family therapy vs group family therapy, Outcome 2 Family function post intervention (carers' LEE).

Review: Family therapy for anorexia nervosa

Comparison: 7 Individual family therapy vs group family therapy

Outcome: 2 Family function post intervention (carers' LEE)

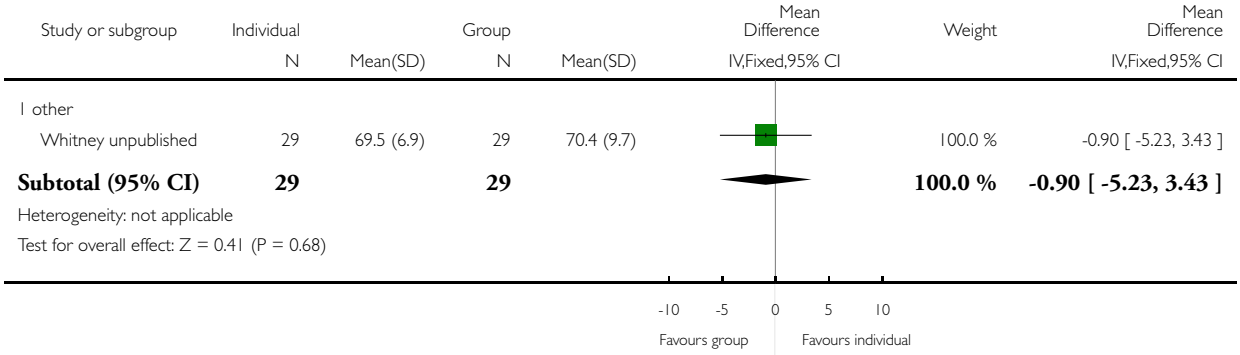


Analysis 7.3. Comparison 7 Individual family therapy vs group family therapy, Outcome 3 Family function follow-up (carers' LEE).

Review: Family therapy for anorexia nervosa

Comparison: 7 Individual family therapy vs group family therapy

Outcome: 3 Family function follow-up (carers' LEE)

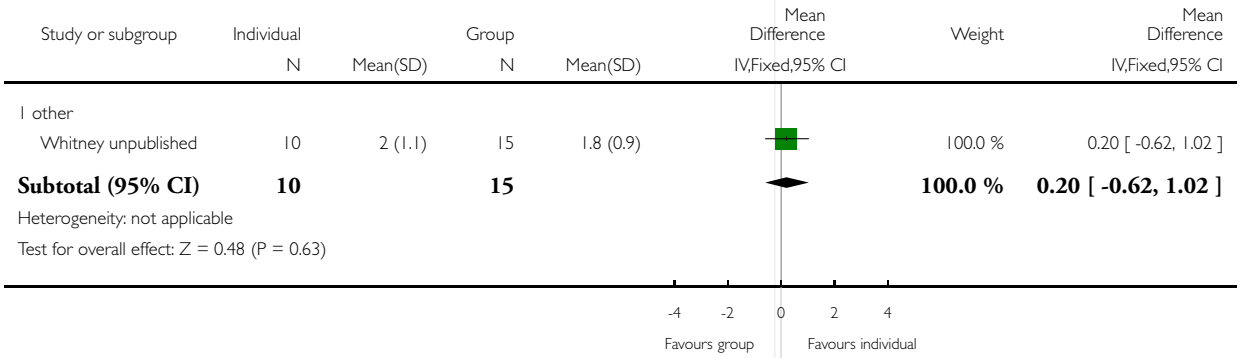


Analysis 7.4. Comparison 7 Individual family therapy vs group family therapy, Outcome 4 Cognitive distortion post intervention (SEED-AN).

Review: Family therapy for anorexia nervosa

Comparison: 7 Individual family therapy vs group family therapy

Outcome: 4 Cognitive distortion post intervention (SEED-AN)

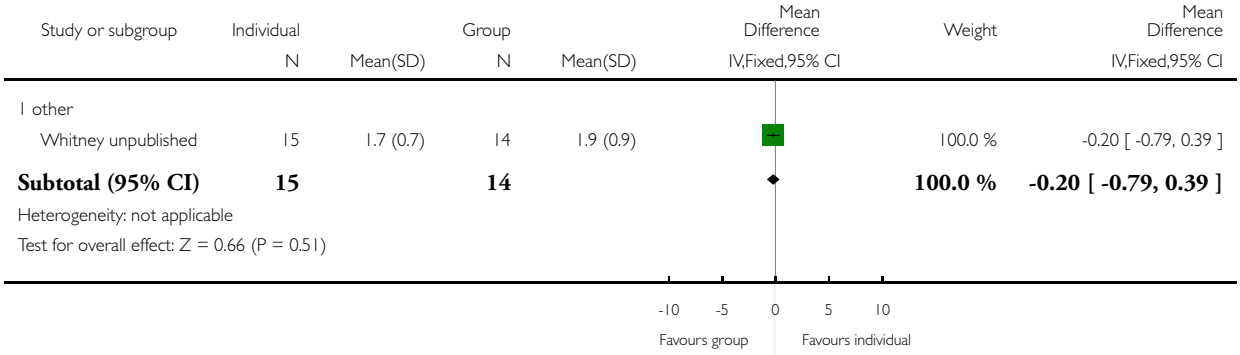


Analysis 7.5. Comparison 7 Individual family therapy vs group family therapy, Outcome 5 Cognitive distortion follow-up (SEED-AN).

Review: Family therapy for anorexia nervosa

Comparison: 7 Individual family therapy vs group family therapy

Outcome: 5 Cognitive distortion follow-up (SEED-AN)

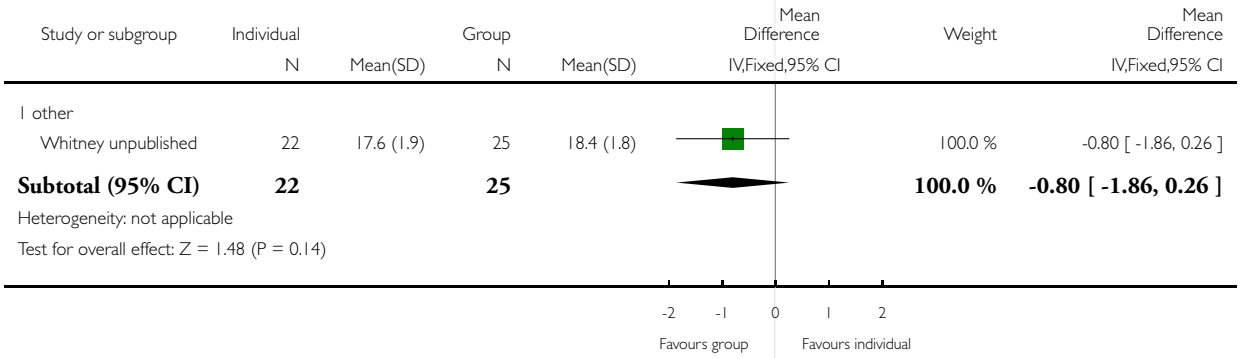


Analysis 7.6. Comparison 7 Individual family therapy vs group family therapy, Outcome 6 Weight (BMI) post intervention.

Review: Family therapy for anorexia nervosa

Comparison: 7 Individual family therapy vs group family therapy

Outcome: 6 Weight (BMI) post intervention

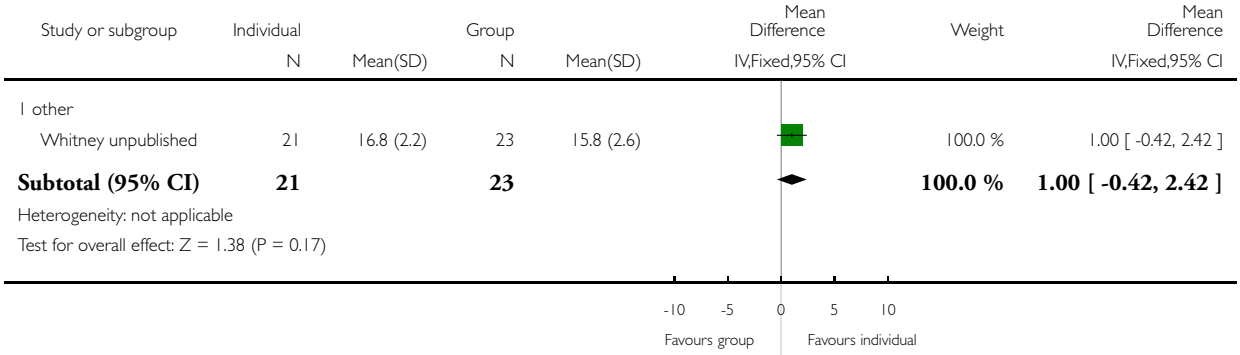


Analysis 7.7. Comparison 7 Individual family therapy vs group family therapy, Outcome 7 Weight (BMI) follow-up.

Review: Family therapy for anorexia nervosa

Comparison: 7 Individual family therapy vs group family therapy

Outcome: 7 Weight (BMI) follow-up



ADDITIONAL TABLES

Table 1. Search Strings

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

Table 1. Search Strings (*Continued*)

	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	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 25. 3 and 4 and 24

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.

WHAT'S NEW

Last assessed as up-to-date: 31 July 2008.

Date	Event	Description
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'

HISTORY

Protocol first published: Issue 2, 2004

Review first published: Issue 4, 2010

Date	Event	Description
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

CF and SH extracted all of 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 wrote up a draft of the results. All authors contributed to the write up of the discussion and final preparation of the manuscript.

DECLARATIONS OF INTEREST

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

Where we have undertaken different methods in the review compared to what was intended in the protocol, we have made note of this in the text.

NOTES

The current team took over from previous review authors who were unable to complete the review. We updated and republished the protocol before undertaking development of the current review.

INDEX TERMS

Medical Subject Headings (MeSH)

Anorexia Nervosa [*therapy]; Family Therapy [*methods]; Randomized Controlled Trials as Topic; Treatment Outcome

MeSH check words

Humans