REVIEW

Augmentative Approaches in Family-Based Treatment for Adolescents with Restrictive Eating Disorders: A Systematic Review

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Abstract

Objective: To systematically review the literature reporting outcomes of augmentative family-based treatment (FBT) interventions for adolescents with restrictive eating disorders (EDs).
Method: Articles were identified through a systematic search of five electronic databases (PsycINFO, MEDLINE, EMBASE, CINAHL, Cochrane Database).
Results: Thirty articles were included, reporting on FBT augmentations featuring adjunctive treatment components, modified treatment structure and/or content with adherence to FBT principles, and adaptations allowing FBT delivery in different settings. All reported significant improvements in weight and/or ED symptoms at end-of-treatment, although few compared augmentative and standard FBT interventions and good quality follow-up data was generally lacking.
Conclusions: There is early evidence for the effectiveness of augmentative FBT-based approaches in facilitating weight and/or ED symptom improvements for adolescents with restrictive EDs. There remains a lack of robust evidence demonstrating superior effects of such approaches over standard FBT, and further controlled studies are required to expand on the current evidence.

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Keywords
anorexia nervosa; family therapy; treatment

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1. Introduction

Anorexia nervosa (AN) is characterised by peak onset in adolescence, with the highest mortality rate (~20%) among the psychiatric disorders and 20–30% of patients expected to suffer a persistent and enduring illness (Franko et al., 2013; Hurst, Read, & Wallis, 2012; Steinhausen, 2002). As the risk of poorer treatment response increases with illness duration, it is crucial that outcomes are optimised for young people with AN as early as possible (Treasure & Russell, 2011).

Family-based treatment (FBT) is a manualised outpatient therapy for AN (Lock & Le Grange, 2012) which is generally regarded as the most effective treatment for medically stable children and adolescents with AN of short illness duration (<3 years) (Couturier, Kimber, & Szatmari, 2013; Murray & Le Grange, 2014). FBT consists of ~20 family therapy sessions involving all family members across three phases of decreasing intensity over 6–12 months, and the therapeutic approach focuses on encouraging parental control and consistency, externalising the child's illness, restructuring the family to re-establish healthy boundaries between parental and sibling subsystems, and encouraging siblings to support the patient cope with their distress (Lock & Le Grange, 2012). Phase I, which includes an in-session family meal, focuses on weight restoration, throughout which parents are empowered and supported in assuming responsibility for their child's eating and interfering with AN-related behaviours. As weight restoration progresses, focus is given in Phase II to the impact of AN on the family and the adolescent's gradual individuation and regaining of some autonomy over eating. Phase III addresses individual, developmental and familial issues, relapse prevention and a reintegration of the young person and their family into normal family activities (Lock & Le Grange, 2012). Rates of 'good' outcomes within 1 year of FBT are often cited in the 50–70% range (Le Grange & Eisler, 2009; Murray, Griffiths, & Le Grange, 2014), yet it is important to consider the substantial proportion of adolescents for whom FBT does not facilitate such outcomes or who drop-out (Lock, Couturier, Bryson, & Agras, 2006). These rates have largely been based on the criterion of patients' maintenance of >85% of their ideal body weight (IBW) rather than recovery from the disorder in terms of weight restoration and ED symptom reductions (Strober, 2014). Considering that more stringent full remission criteria require

restoration of weight to ≥95%IBW *and* reduction of ED symptom scores to within 1SD of community norms (Couturier & Lock, 2006), it is noteworthy that rates of remission from cognitive ED symptoms within 1 year of FBT only reach 40% (Lock et al., 2010). Where these full remission criteria are used, the rates of patients achieving good outcomes within 1 year of FBT are reduced to 28–50% (Agras et al., 2014; Couturier, Isserlin, & Lock, 2010; Lock et al., 2010; Madden et al., 2015). Thus, research focus has also turned towards investigating how FBT can be improved and how augmentative approaches might be used.

Alterations to FBT for adolescents with AN and other restrictive-type EDs (EDNOS-R) have thus been developed. Following early FBT studies (Eisler et al., 1997; Le Grange, Eisler, Dare, & Russell, 1992), initial modifications to treatment delivery were suggested due to observations that higher levels of maternal criticism predicted adolescents' poorer outcomes. The first modified FBT investigation was Eisler et al.'s (2000) trial comparing separated- (SFT) and conjoint family therapy (CFT). It was observed that overall outcomes were equivalent at end-of-treatment and follow-up (Eisler, Simic, Russell, & Dare, 2007), yet families with higher expressed emotion had better weight outcomes when treated with SFT. Subsequently, a short-term FBT (10-session) was demonstrated to facilitate outcomes comparable to standard FBT, with lower drop-out rates (Lock, Agras, Bryson, & Kraemer, 2005). However, patients with higher obsessive–compulsive (OC) symptoms and patients from non-intact families achieved better outcomes in standard FBT (Lock et al., 2006; Lock, Couturier, & Agras, 2006). Based on such trials, data from end-of-treatment and follow-up periods of up to 5 years demonstrate that several factors predict poorer outcomes or higher drop-out in FBT, including longer pre-treatment illness, greater early weight-loss, psychiatric comorbidities, and greater ED-specific obsessionality (Le Grange et al., 2012; Lock et al., 2006). Superior outcomes have been demonstrated among adolescents achieving higher weight-gain in the first four FBT sessions (Doyle, Le Grange, Loeb, Doyle, & Crosby, 2010; Le Grange et al., 2014; Madden et al., 2015). Higher expressed emotion between family members is associated with earlier drop-out from FBT (Eisler et al., 2007), and other family characteristics such as less effective parental control, familial structural problems, and lower levels of parental warmth have also predicted poorer engagement and outcomes in FBT (Le Grange et al., 2012; Le Grange, Hoste, Lock, & Bryson, 2011; Lock et al., 2006).

Augmentative FBT approaches for adolescents with restrictive EDs have increased in variety, in response to treatment accessibility factors across different clinical settings and/or with specific aims to improve outcomes for patients at risk of poorer outcomes (Loeb, Le Grange, & Lock, J. (Eds.)., 2015). In addition to those described earlier, these include (i) adjunctive approaches, wherein components are added to FBT with treatment remaining otherwise FBT-consistent, (ii) modifications to the therapy structure or content while maintaining adherent to FBT's core theoretical tenets, and (iii) adaptations of FBT to deliver treatment in specific settings or populations (see Loeb et al., 2015; Loeb & Le Grange, 2009). While numerous, the available literature on such interventions has not been reviewed in a systematic fashion. It is crucial to review and consolidate current knowledge on the nature of these interventions and evidence for their outcomes, to ensure treatment development and refinement according to the existing evidence base.

1.1. Objective

Given the previously mentioned poor recovery rates and risk of severe and enduring illness for adolescents with restrictive EDs, this study was designed to investigate the possible potential of augmentative FBT interventions for facilitating weight and symptom improvement in this population. We thus aimed to systematically review the literature on augmentative FBT-based interventions for adolescents with restrictive EDs, and to review the available evidence for their effects. Specifically, this study was conducted with the aim to identify studies reporting on weight and ED symptom outcomes of augmentative FBT-based interventions, and provide a review of these interventions' design and delivery, the reasons for their use and the evidence for their effects in terms of weight-gain and ED symptom reduction.

2. Method

This review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009).

2.1. Data sources and search strategy

Five electronic databases (PsycINFO, EMBASE, MEDLINE, CINAHL, Cochrane Database of Randomised Controlled Trials) were searched for eligible studies published since the databases' inception to the date of the final search on 21 March 2017. Controlled vocabulary terms, identified using MeSH terms and database-specific subject headings and thesauri, were combined with key words and phrases to form a search comprising three stems as per the following concepts: (i) patient age (e.g., 'adolescent', 'young people', 'teen'), (ii) patient diagnoses (e.g., 'anorexia nervosa', 'eating disorder'), and (iii) intervention characteristics (e.g., 'family therapy', 'family intervention', 'Maudsley'). Reference sections of identified articles were scanned for relevant studies, and the accuracy of the search strategy was also checked by ensuring known relevant articles had been identified in the database search. All duplicate studies were removed, and the results of individual searches were merged.

2.2. Study selection

Studies were eligible for inclusion in the final review if they satisfied each of the following criteria:

i study participants were diagnosed with AN or EDNOS/OSFED according to DSM-IV or DSM-V criteria (American Psychiatric Association [APA], 2000, 2013). Studies with samples of mixed diagnoses were included if the majority of participants were diagnosed with a restrictive-type eating disorder (AN *or* EDNOS-R/OSFED-R), or if outcome data were provided for subgroups of participants by ED diagnosis;

ii the participants diagnosed with the eating disorder were described by the study authors as adolescents or were aged <19 years. Studies with samples including children and young adults (19–25 years) were included if the majority of participants were within the adolescent age range (11–18 years) or

if outcome data were provided for subgroups of participants by age range;

iii the studied intervention included a FBT approach in a non-standard modified or adapted form or with adjunctive treatment components;

iv the study aimed to investigate the effects of an intervention by assessing changes on at least weight outcomes for patients, with data collected at baseline and at least one subsequent time point.

Studies were ineligible if they were not published in English or were case reports (assessing one or two participants only), or provided no details about the content of family therapy, preventing its identification as an augmentative FBT approach. All studies were screened independently by two authors (IR and AS), first by title and abstract, and then through full-text review. Disagreements were resolved through discussion and in consultation with a third author (PR). For studies in which intervention content, design, delivery, and outcomes were described in insufficient detail for the purposes of this review, authors were contacted for additional information, although details were not returned prior to the completion of this report, and these studies were excluded from the final data extraction. A PRISMA Flow Diagram depicts this procedure in Figure 1. Review papers and case reports were not eligible for inclusion; however, full-texts were retrieved for those reporting on relevant interventions for patients of demographic and diagnostic characteristics of interest to screen reference lists for potentially relevant outcome studies.

2.3. Data extraction

Data from the reviewed studies were extracted using a form developed for this study, modified from those developed for similar reviews (e.g., Friedman et al., 2016). Two authors (IR and AS) each extracted all relevant data from half of the included studies, and checked the data extracted by the other author. The data extracted were used to describe and categorise studies according to elements including intervention characteristics, target populations and symptoms, sample characteristics, assessment measures and administration, and intervention outcomes. As the reporting of treatment allocation and comparison group characteristics

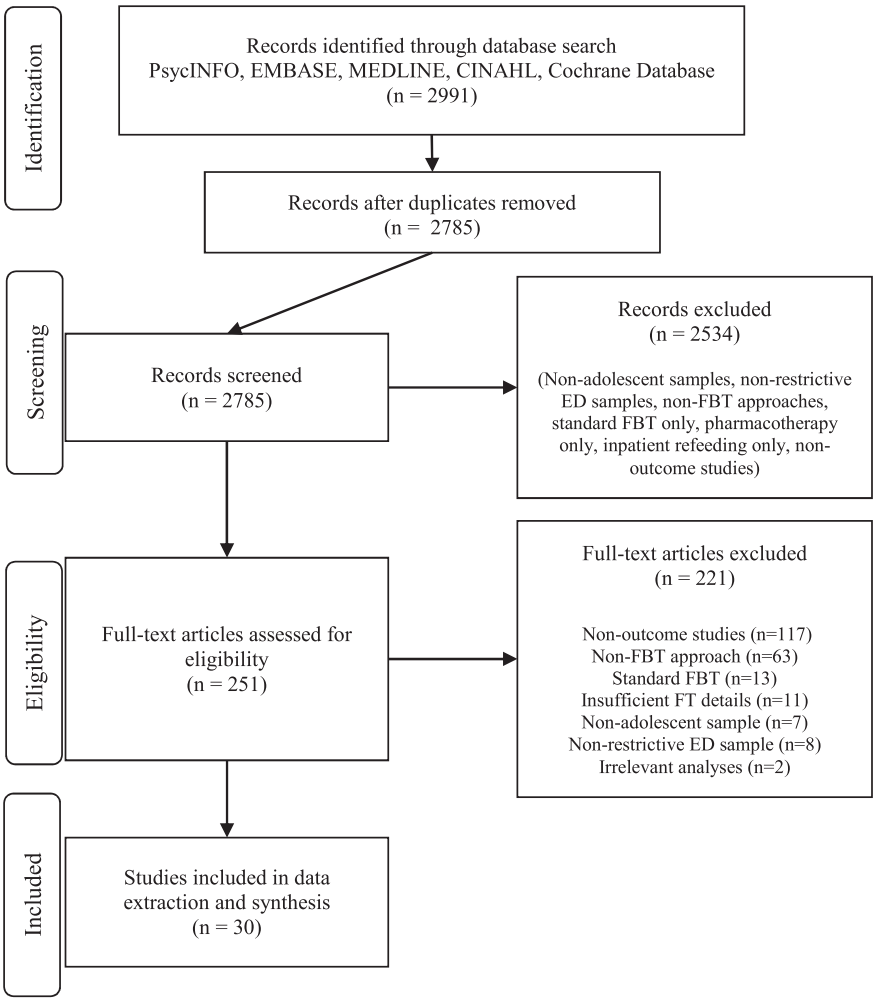

Figure 1. PRISMA flow diagram

were not relevant for most studies given that the majority were of observational, uncontrolled designs, the extracted information is presented separately for studies with and without comparison groups, in Tables 2 and 3.

2.4. Assessment of study quality

To assess the quality and risk of bias within included studies, two authors (IR and AS) performed a quality appraisal using the Effective Public Health Practice Project (EPHPP) quality assessment tool (National Collaborating Centre for Methods and Tools, 2008), which is designed to rate the quality of intervention evaluation studies of various methodological designs. Each study was assigned a score on each of the eight scales of the EPHPP scoring protocol, where higher scores indicated higher quality on the following components: selection bias, study design, confounders, blinding, data collection methods, withdrawal/drop-outs, and analyses. Global ratings of 'weak', 'moderate' or 'strong' study quality were assigned based on the frequency of weak ratings across each of these components (Table S1). Both authors agreed on the majority of scales, and disagreements were discussed and revisions made accordingly.

2.5. Data synthesis

Given the very small number of controlled studies identified and the heterogeneity across intervention and methodological designs among the included studies, a meta-analysis was not performed and a narrative synthesis was conducted.

3. Results

3.1. Study selection

A PRISMA Flow Diagram depicting the study screening and selection process is shown in Figure 1. The search returned 2991 references, and 206 duplicates were removed. The titles and abstracts of 2785 records were screened. Through initial screening, 2534 records were excluded, most commonly as they included no reporting of outcome data, described interventions targeted at adult patient populations or individuals not diagnosed with restrictive EDs, or focused on interventions for restrictive EDs in the target population but which included family therapy that was either non-FBT based or in a standard FBT form. Excluded studies also often reported on pharmacotherapeutic or inpatient refeeding interventions only. A full-text screen was conducted for 251 articles, and of these, 221 were excluded, most frequently because outcome data was not reported or the described family interventions were non-FBT. Two studies (Le Grange et al., 2011; Utzinger, 2013) reported additional analyses on data from a controlled clinical trial included in the final review (Eisler et al., 2000); however, these were excluded as analyses were not conducted separately for the treatment groups of the original trial and thus provided no further information on the effects of the short-term FBT intervention being investigated. A total of 30 articles were included in the final review, of which four were articles reporting either follow-up data or additional analyses for previous studies. The included studies therefore referred to 26 unique data sets.

3.2. Results of quality assessment

Quality appraisal results are presented in Table S1. Two studies (Eisler, Simic, Blessitt, Dodge, & Team, 2016; Lock et al., 2015) received 'strong' global ratings. Among the remaining studies, half were rated as 'moderate' and half as 'weak'. Most articles (17/30) reported on studies which did not include treatment comparison groups, and therefore received 'weak' or 'moderate' global ratings, given the frequently high risk of bias particularly due to the lack of randomisation as well as a lack of assessor and participant blinding. The remaining 13 articles reported on nine unique data sets from comparative studies, and among these, only two (Eisler et al., 2016; Lock et al., 2015) reported randomisation methods and thus received 'strong' quality ratings. 'Weak' ratings among the remaining comparative studies were often given due to high attrition rates and lack of blinding.

3.3. Characteristics of selected studies

Characteristics of interventions described in the reviewed studies, including intervention components and, where available, specified reasons for the intervention approach, are summarised in Table 1. Intervention outcomes for non-comparative studies are summarised in Table 2, and data from comparative studies are summarised in Table 3. Studies reporting on the same intervention are included as single entries in Table 1, and those reporting on the same data set are included as single entries in relevant tables. Of the 30 included articles, 10 reported on RCTs or controlled clinical trials, four reported on cohort analytic studies, 14 were single cohort studies and the remaining two were case series designs.

3.4. Participant characteristics

3.4.1. Patient age

The mean sample age in the included studies ranged from 12.8 to 17.7 years, with studies including the youngest (8 years) (Hoste, 2015; Ornstein, Lane-Loney, & Hollenbeak, 2012) and oldest (24 years) (Rienecke et al., 2016) participants both reporting on FBT-based partial hospitalisation programs or intensive outpatient programs. All participants in comparative studies were aged 10–20 years at baseline. Five non-comparative studies (Gelin, Hendrick, & Simon, 2015; Girz, Robinson, Foroughe, Jasper, & Boachie, 2013; Hurst & Zimmer-Gembeck, 2015; Paulson-Karlsson, Engstrom, & Nevonen, 2009; Robinson, Strahan, Girz, Wilson, & Boachie, 2013) had adolescent-only samples, with the remaining samples comprising a mixture of children (<11 years), adolescents and young adults (>18 years) (Doyle, 2013; Henderson et al., 2014; Hoste, 2015; Johnston, O'Gara, Koman, Baker, & Anderson, 2015; Jones, Volker, Lock, Taylor, & Jacobi, 2012; Ornstein et al., 2012; Rienecke, Richmond, & Lebow, 2016; Rockwell, Boutelle, Trunko, Jacobs, & Kaye, 2011). Three non-comparative studies reported mean ages of 14–15 years without stating overall age ranges (Hollesen, Clausen, & Rokkedal, 2013; Robinson et al., 2013; Salaminiou, Campbell, Simic, Kuipers, & Eisler, 2015), while Doyle et al. (2013) reported outcomes in an intensive outpatient program separately for children (10–13 years) and adolescents (14–18 years), between whom there were no significant differences on any assessments.

Table 1 Summary of intervention characteristics

Study ID	Intervention description	Identified reasons for approach and/or treatment targets
Non-comparative studies		
Doyle, 2013	**Child and Adolescent Intensive Outpatient Program** 3 Afternoons/week, weekly FBT Patient groups (Problem solving, CBT, DBT, Psychoeducation, Creative expressions) Parent groups (Parent support, Psychoeducation, Parent DBT guidance skills) 3 Coached family meals and snacks Medical and psychiatric monitoring	Higher-intensity level of care due to patients' elevated ED symptom severity and other patient factors including emotion regulation skills deficits and need for additional weight stabilisation support, and parent factors including low parental authority and self-efficacy
Gelin et al., 2015	**Modified Multiple Family Therapy (described in Gelin et al., 2016)** 5–6 families attend 21 full-day treatment sessions together over 11–12 months Three-phase structure similar to FBT (Phase I across 5 months with initial 4-day intensive MFT followed by monthly 2-day modules, Phase II and III including remaining treatment days at monthly intervals) FBT, structural therapy, and systemic-therapy based techniques similar to those above (Dare & Eisler, 2000), with integration of CBT exposure techniques to reduce food avoidance	Designed as an alternative to hospitalisation, single family therapy, and individual therapy.
Girz et al., 2013	**FBT-based Day Program** 5 days/week, school included Weekly FBT, MFT, parent support groups, multiple-family meals Patient group sessions (food desensitisation and interpersonal skills, not specified) Weekly parent-therapist check in, all meals supervised Medical and psychiatric monitoring	Designed for adolescents with EDs identified as requiring further support in addition to that available in standard outpatient FBT (specific factors not reported).
Henderson et al., 2014	**FBT-based Day Program** 5 days/week, school included Weekly FBT, regular meal support, group therapy (modality/content not specified), all meals supervised Medical and psychiatric monitoring	Families requiring intensive level of treatment based on high symptom severity to ensure or maintain medical stabilisation and normalisation of eating.
Hildebrandt et al., 2014	**Exposure-based Family Therapy (FBT-E)** Integration of FBT with exposure techniques throughout. Phase I focusing on weight gain and parents' skills in refeeding and reducing patient's avoidance of food using exposure hierarchies, Phase II includes continued exposure exercises with 5 optional modules targeting bingeing/purging, compulsive exercise, body image concerns, rumination/worry about weight gain, or internalising symptoms, Phase III as per FBT with further focus on generalisation and consolidation of families' anxiety and weight management skills	As per FBT with additional aims to provide families with skills to manage anxiety symptoms (e.g., fear of weight gain, avoidance of food groups) proposed as etiological and maintenance factors in AN. Not specifically targeted at patients with elevated anxiety and/or ED symptoms.
Hollesen et al., 2013	**FBT combined with individual therapy and Maudsley-based Multiple Family Therapy** Individual therapy content/modalities not specified, MFT as described earlier (Dare & Eisler, 2000).	MFT aims as described earlier, delivered in addition to single-family FBT and individual therapy to provide more intensive level of care.
Hoste,2015, Rienecke et al., 2016	**FBT-Based Partial Hospitalisation Program and Intensive Outpatient Program** Weekly FBT, individual and group therapy (content/modalities not specified) Parents included in all daily supervised meals, Medical and psychiatric monitoring	As above in Girz et al. (2013).
Hurst et al., 2015	**FBT with CBT for Perfectionism** CBT sessions in parallel with FBT Phase II sessions including psychoeducation and CBT exercises (e.g., behavioural experiments) conducted during and between sessions.	To target patients' high levels of perfectionism, cognitive and behavioural inflexibility and obsessional/rigid thinking styles associated with poorer treatment response in FBT.
Johnston et al., 2015	**Intensive Outpatient Program** 7–8 weeks, 3 afternoons/week Weekly FBT, adolescent groups (DBT, Body Image), parents' DBT group, MFT groups, multiple-family meals	Targeting a 'subset' of patients with greater difficulties with emotion regulation and/or personality disorder features who may have poorer responses or greater drop-out rates in standard FBT. The integration

Continues

Table 1. (Continued)

Study ID	Intervention description	Identified reasons for approach and/or treatment targets
	Medical and psychiatric monitoring	of DBT skills aims to improve coping with refeeding-related distress and provide patients with strategies to manage emotions other than through ED behaviours
Jones et al., 2012	**Parents Act Now Online FBT-based intervention for Parents of adolescents with early-stage EDs or high ED risk**	
	6-week online intervention sessions moderated by ED clinicians Online discussion groups and symptom monitoring, telephone contact with clinicians Content based on FBT Phase I (Psychoeducation, elevation of parental anxiety and empowerment regarding ED symptoms, practical strategies for meal support and intervening in ED behaviours)	To provide early intervention for adolescents with sub-clinical ED features (recent rapid weight loss, body image concerns, weight control behaviours) and/or meeting criteria for restrictive-type ED diagnoses for a duration of <6 months, without prior inpatient hospital admissions.
Mehl et al., 2013	**Maudsley Multiple Family Therapy for AN (modified structure)**	
	Content as above in Dare and Eisler (2000), delivered in intensive 3 consecutive days with 5 monthly 1-day modules Additional components including relaxation, yoga, art, and drama therapy groups Families may also attend single family therapy sessions and/or individual patient sessions	Described as a 'last chance' intervention for families often having had 3 or more previous attempts at outpatient family treatment.
Ornstein et al., 2012	**FBT-based Partial Hospitalisation Program**	
	5 days/week with gradual decrease in attendance while transitioning to full outpatient care Weekly FBT, family members included in meals Individual and group therapy (content/modalities not specified)	Provided as a program to ensure medical and symptom stabilisation as an alternative to or upon discharge from inpatient care to facilitate transition to outpatient care in the community.
Paulson-Karlsson et al., 2009	**Combination of Separated and Conjoint FBT**	
	Standard conjoint FBT provided in parallel with separated-family therapy sessions during Phases I and II	Not specified.
Robinson et al., 2013	**FBT-based Day Program**	
	Weekly FBT Individual therapy (content/modalities not specified) Dietetic counselling, medical, and psychiatric monitoring	Patients with more severe presentations (criteria not specified) offered treatment in Day Program over standard outpatient care
Rockwell et al., 2011	**Short-term Intensive FBT**	
	5 full consecutive days' intensive single family therapy including the following: 3 FBT sessions, 3 supervised family meals, parent coaching sessions with video reviews 3 Systemic Family Therapy sessions, patient and sibling individual psychotherapy, 2 family CBT sessions, 1–2 DBT-based family sessions, 2 parent support sessions, 7 family psychoeducation, goal setting, and discharge planning sessions	To provide specialised treatment for AN to families with limited regular access to services due to location.
Comparative Studies		
Bean et al., 2010	**FBT-based Partial Hospitalisation Program**	
	5 days/week Weekly FBT, families included in some meals Individual and group therapy (CBT, interpersonal and experiential therapy) Nutritional counselling, medical, and psychiatric monitoring	Specific reasons for referral to partial hospitalisation program over outpatient treatment not reported.
Eisler et al., 2000; Dare et al., 2000; Eisler et al., 2007	**Separated Family Therapy**	
	FBT delivered in separate parent- and adolescent-only sessions, no family meal session Parent sessions focus on parental skills without therapists able to intervene directly in parent-patient interactions. Adolescent sessions focused on supportive counselling focusing on AN symptoms, relationships, and adolescent developmental issues	Separated family sessions suggested to facilitate better treatment outcomes for families with higher levels of maternal criticism/ expressed emotion.
Eisler et al., 2016a; Gabel et al., 2014; Salaminiou et al., 2015	**Maudsley Multiple Family Therapy (MFT) for AN (described in Dare & Eisler,** 2000**; manualised in Eisler et al., 2016b)**	
	5–8 families attend 10 full days of treatment together over ~9 months	Designed as a standalone treatment or to be used in conjunction with FBT, not specifically for complex cases. Therapeutic aims in addition to those of standard FBT include reducing families' social

Continues

Table 1. (Continued)

Study ID	Intervention description	Identified reasons for approach and/or treatment targets
	Three-phase structure similar to FBT including an intensive 4 consecutive days followed by 6 days at 4–8 week intervals Techniques additional to those in FBT include further psychoeducation, experiential and creative activities, separate parent and adolescent groups, three supervised family meals/snacks each day Families may also attend single family FBT sessions throughout intervention period	isolation and stigmatisation, facilitating families' mutual learning and skill development, and increasing patients' and family members' expectations and hopefulness for recovery.
Lock 2005; Lock et al., 2006; Lock et al., 2006a	**Short-term FBT** FBT delivered in 10 sessions over 6 months Phase I in sessions 1–7 weekly, Phase II in sessions 8–9 monthly, Phase III in session 10 after 2 month interval	A shorter-term delivery of FBT content intended to increase cost effectiveness and reduce risk of family drop-out
Lock et al., 2015	**Adaptive FBT with Intensive Family Coaching (IPC)** 3 additional IPC sessions introduced after Session 4, including one session focusing on insufficient weight gain as a 'crisis' requiring families' 'reinvigoration', one parent-only refeeding skills session, and a second family meal, followed by remainder of standard FBT treatment.	To prevent overall poor treatment response for families identified as having a 'poor early response' in FBT, defined by weight gain of less than 2.3 kg by Session 4.
Le Grange et al., 2016	**Parent-focused FBT** FBT phases delivered in 18 parent-only sessions over 6 months, no family meal session Adolescent attends 15-minute medical check with supportive counselling	As above in Eisler et al. (2000).
Marzola et al., 2015	**Single-family Short-term Intensive FBT** As above in Rockwell et al. (2011) **Multiple-family Short-term Intensive FBT** As above in Rockwell et al. (2011) simultaneously involving several families incorporating Maudsley Multiple Family Therapy for AN principles (Dare & Eisler, 2000)	As above in Rockwell et al. (2011).
Rhodes et al., 2008	**Parent-to-Parent Consultation** Parents having recently completed FBT are invited as 'consultants' to attend one session with parents currently attending treatment between Week 3 and 5 of Phase I, to provide accounts of their experiences of FBT.	To reduce parents' isolation and increase parents' hope and self-efficacy in supporting their child to gain weight and recover.

3.4.2. Patient diagnoses

All comparative studies included only patients with restrictive-type EDs, with two studies including a minority of patients diagnosed with EDNOS-R at baseline (Eisler et al., 2016; Marzola et al., 2015). Of the 17 non-comparative studies, two included mixed-diagnosis samples of *only* patients with restrictive-type EDs (Hoste, 2015; Rienecke et al., 2016), and a single study included an AN-only sample (Hurst & Zimmer-Gembeck, 2015), albeit with only three participants in a case-series design. Two studies stated patients met diagnostic criteria for restrictive-type EDs without specifying diagnoses (Jones et al., 2012; Mehl, Tomanová, Kuběna, & Papežová, 2013), and the remaining 12 studies included patients with restrictive *and* non-restrictive ED diagnoses. In each of these studies, participants with non-restrictive EDs represented a minority of each sample, and weight outcomes did not differ significantly by diagnosis. One study reporting on an online FBT-based early intervention and prevention program for AN in adolescents (Jones et al., 2012) reported data separately for those with and without existing ED diagnoses, and data only for participants with diagnoses were included in this review.

3.5. Intervention characteristics

As demonstrated in Table 1, there was considerable variability in the content, structure, and mode of delivery of the described interventions. The specific reasons for the application of an augmentative FBT approach could not be determined in one study reporting on the combination of separated and conjoint FBT (Paulson-Karlsson et al., 2009), nor could the reasons for which patients were referred to a FBT-based partial hospitalisation program rather than to outpatient therapy in another study by Bean, Louks, Kay, Cornella-Carlson, and Weltzin (2010). Further, while several partial hospitalisation or intensive outpatient programs were described as designed for adolescents requiring a more intensive level of care for severe ED symptoms, it was not clear as to how the severity of such presentations was determined (Girz et al., 2013; Hoste, 2015; Rienecke et al., 2016; Robinson et al., 2013).

FBT-based interventions featuring adjunctive components included the use of additional individual or group CBT (Hurst & Zimmer-Gembeck, 2015; Doyle, 2013; Rockwell et al., 2011) or DBT (Doyle, 2013; Johnston et al., 2015; Marzola et al., 2015; Rockwell et al., 2011) sessions, and Lock et al. (2015) introduced

Table 2 Summary of baseline to end of treatment and follow-up results for non-comparative studies

Study ID	Intervention, study design	Initial N (%females)	Mean time to EOT	EOT data N(% initial)	Patient age M (SD), range	Illness duration in months, M (SD)	Diagnoses % initial N	Baseline data (weight +/− other outcomes)	EOT data (weight +/− other outcomes)	Time to FU	FU Data N, (% initial)	FU data (weight +/− other outcomes) and/or main findings
Doyle, 2013	**IOP (FBT, DBT, CBT)** Single cohort pre-/post-test repeated measures with 6-mo FU	179	8 wks	179 (100%)	Children 10–13 Adolescents 14–18	N/A	AN 34% BN 2% EDNOS 64%	**%IBW = 90.77 (6.49)** EDE-Q Global = 2.67 (1.63) **%IBW = 89.67 (6.02)** EDE-Q Global = 3.63 (1.56)	**%IBW = 96.15 (3.83)**** EDE-Q Global = 1.64 (1.51)* **%IBW = 91.27 (7.43)** EDE-Q Global = 1.96 (1.45)***	6mo	179 (100%)	**%IBW = 98.08 (5.85)**** EDE-Q Global = 1.36 (1.47)* **%IBW = 99.10 (8.03)** EDE-Q Global = 1.85 (1.39)***
Gelin et al., 2015	**Maudsley MFT** Single cohort pre-/post-test repeated measures, no FU	82 (98%)	9.85 (1.69) mo	61 (74%)	16.0 (1.5), 14–17	74.4% less than 12 months	AN 95% BN 5%	**%IBW = 76.99 (9.75)** EDI-2 DT = 12.50 (5–18)* EDI-2 B = 1.00 (0–3) EDI-2 BD = 12.50 (7–20) OQ-45 Total = 77.78 (27.26)	**%IBW = 86.75 (11.20)***$^{◊◊}$ EDI-2 DT = 4.00 (1–11)***$^{◊◊}$ EDI-2 B = 0.00 (0–2) EDI-2 BD = 9.71 (3.00–18.18)**$^{◊◊}$ OQ-45 Total = 46.36 (32,62)***$^{◊◊}$	N/A	N/A	N/A
Girz et al., 2013[†]	**FBT-based Day Program (MFT, Individual, Group)** Single cohort repeated measures with 3- and 6-mo FU	17 (100%)	149.76 days	17 (100%)	16.1 (1.0), 13–18	30 (13.2)	AN 23% BN 35% EDNOS-R 35% EDNOS-BP 6%	**%IBW = 88 (SD N/A)** EDI-3 DT = 49.24 (12.61) EDI-3 B = 55.41 (12.76) EDI-3 BD = 48.47 (11.85) CDI = 73.47 (18.97) MASC = 65.24 (9.37) Maternal PvA = 17.58 (4.87) Paternal PvA = 17.00 (3.02)	**12/17 met IBW** EDI-3 DT = 42.06 (11.52)** EDI-3 B = 40.59 (7.42)** EDI-3 BD = 46.65 (11.74)** CDI = 73.47 (18.97) MASC = 64.00 (16.95) Maternal PvA = 23.42 (3.82)* Paternal PvA = 21.33. (3.82)	6mo	17 (100%)	**16/17 met IBW, 1/17 at 99%IBW** EDI-3 DT = 31.06 (13.11)** EDI-3 B = 39.35 (7.58)** EDI-3 BD = 36.88 (12.32)** CDI = 38.47 (20.57)^ MASC = 51.59 (11.73)^ Maternal PvA = 24.83 (4.34)*^ Paternal PvA = 23.50 (3.37)
Henderson et al., 2014	**FBT-based Day Program** Single cohort pre-/post-test repeated measures with 6-mo FU	65 (100%)	14.79 wks	41 (63%)	15.0 (1.3), 11–17	N/A	AN 64%BN 10% EDNOS 26%	**BMI = 18.72 (2.40)** EDI-2 DT = 16.05 (6.04) EDI-2 BD = 19.85 (8.39) CDI = 69.85 (16.87) MASC = 62.04 (12.22)	**BMI = 20.50 (1.98)***** EDI-2 DT = 11.56 (7.42)** EDI-2 BD = 17.31 (9.21)* CDI = 60.53 (15.23)** MASC = 58.13 (13.17)	6mo	41 (63%)	**BMI = 19.84 (2.21)***** EDI-2 DT = 11.72 (7.33)*** EDI-2 BD = 16.69 (9.31)** CDI = 62.75 (17.35) MASC = 57.39 (14.49)*
Hildebrandt et al., 2014	**Exposure-based Family Therapy (FBT-E)** Single cohort pre-/post-test repeated measures, no FU	10 (100%)	20.4 wks	100%	15.3 (1.5), 11–17	N/A	AN 40% EDNOS/SAN 60%	**%IBW = 81.0 (7.0)** EDE-Q Global = 3.71 (1.60) CDI = 16.9 (6.66) SCARED Child = 25.80 (8.94)	**%IBW = 91.0 (6.0)*** EDE-Q Global = 2.46 (1.59)* CDI = 9.7 (9.43)* SCARED Child = 16.10(10.48)**	N/A	N/A	N/A
Hollesen et al., 2013	**FBT + MFT/ Individual** Single cohort pre-/post-test repeated measures	20 (100%)	12 mo	20 (100%)	14.9 (1.1), range N/A	N/A	AN 40% EDNOS 60%	**BMI = 16.21 (1.35)** EDI DT = 2.50 (5.66) EDI IA = 8.35 (4.76) EDE-R = 3.18 (1.15) EDE-EC = 1.95 (1.14)	**BMI = 18.38 (1.36)***$^{◊◊}$ EDI DT = 6.05 (5.75)***$^{◊◊◊}$ EDI IA = 5.20 (5.66)***$^{◊◊◊}$ EDE-R = 1.75 (1.64)***$^{◊◊◊}$ EDE-EC = 1.07 (1.06)***$^{◊◊}$	N/A	N/A	N/A

Continues

Table 2. (Continued)

Study ID	Intervention, study design	Initial N (%females)	Mean time to EOT	EOT data N(% initial)	Patient age M (SD), range	Illness duration in months, M (SD)	Diagnoses % initial N	Baseline data (weight +/− other outcomes)	EOT data (weight +/− other outcomes)	Time to FU	FU Data N, (% initial)	FU data (weight +/− other outcomes) and/or main findings
								EDE-WC = 3.12 (1.65) EDE-SC = 3.27 (1.74)	EDE-WC = 2.00 (1.32)$^{*◊}$ EDE-SC = 2.56 (1.30)$^{◊}$			
Hoste, 2015	**FBT-Based PHP and IOP** Single cohort pre-/post-test repeated measures	28	31.7 days	28 (100%)	16.6 (3.5) 8–24	19 (21.4)	AN 71% OSFED-R 29%	**%IBW = 82.1 (9.6)** EDE-Q Global = 3.2 (1.9) CDI = 63.8 (19.3) CES-D = 33.4 (13.1) Mother PvA = 17.5 (4.1) Father PvA = 17.5 (3.4)	**%IBW = 93.1 (6.5)***** EDE-Q Global = 1.9 (1.4)* CDI = 59.2 (19.8) CES-D = 13.1 (10.2)** Mother PvA = 25.3 (4.2)*** Father PvA = 23.1 (3.8)***	N/A	N/A	N/A
Hurst et al., 2015	**FBT + CBT for Perfectionism** Case series	3 (100%)	12 mo	3 (100%)	16–17	24, 4, 5	AN 100%	**%IBW = 76, 81, 74** EDE Global not reported. CFI = 98, 83, 28	**%IBW = 92, 98, 93** EDE Global = 0.97, 0.67, 1.65 CFI = 97, 110, 95	N/A	N/A	N/A
Johnston et al., 2015	**IOP (FBT, DBT, MFT)** Single cohort pre-/post-test repeated measures with 3-, 6- and 12-mo FU	51 (100%)	22.2 days	36 (71%)	14.8 (1.5), 12–17	22.8 (18.6)	AN 33% BN 12% EDNOS-R 55%	**%IBW (AN only) = 81.24 (2.05)** EDE-Q Global = 3.15 (1.52)	**%IBW = 93.47% (8.22)***** (overall sample, NS group differences) EDE-Q Global = 2.11 (1.49)***	3 mo 6 mo 12 mo	34 (67%) 28 (55%) 27 (53%)	**%IBW = 96.09 (8.74)**^^ **%IBW = 98.18% (8.31)** EDE-Q Global = 1.64 (1.17)*** **%IBW = 100.78 (7.95)**^^ EDE-Q Global = 1.59 (1.54)*** M-R Good outcome = 64%
Jones et al., 2012	**Parents Act Now Online FBT-based early intervention** Single cohort pre-/post-test repeated measures	12 (100%)	6 wks	3 (25%)	13.9 (SD N/A), 11–17	N/A	Specific restrictive ED diagnoses not reported	**%IBW = 90.1 (9.7)** EDE-Q Global = 4.0 (0.9) EDI-2 DT = 4.5 (0.7) EDI-2 *P* = 3.6 (0.5) WCS = 67.2 (27.5) RSE = 26.0 (3.6) Frost MPS = 76.7 (3.2) PVA = 26 (4.6)	**%IBW = 97.3 (6.9)** $^{◊◊◊}$ EDE-Q Global = 1.8 (0.8)$^{◊◊◊}$ EDI-2 DT = 3.4 (0.8)$^{◊◊◊}$ EDI-2 *P* = 3.4 (0.6)$^{◊}$ WCS = 0.9 (0.8)$^{◊}$ RSE = 28.3 (2.1) $^{◊◊◊}$ Frost MPS = 83.0 (11.5) $^{◊◊◊}$ PVA at EOT not reported.	N/A	N/A	N/A
Mehl et al., 2013	**Adapted Maudsley MFT** Single cohort pre-/post-test repeated measures	15 (100%)	24 wks	15 (100%)	17.7 (2.5), 14–23	N/A	Specific restrictive ED diagnoses not reported	**BMI = 16.87 (1.46)** RSES = 25.73 (4.20) Quality of Life SOS-10 = 25.73 (9.05)	**BMI Z-score = 2.215*** RSES Z = −2.721** Quality of Life SOS-10 = 35.13 (9.57)**$^{◊}$	N/A	N/A	N/A
Ornstein et al., 2012	**FBT-based PHP** Single cohort retrospective chart review	56 (87%)	10.3 wks	30 (54%)	12.8 (2), 8–16	12 (9.9)	AN 33% BN 7% EDNOS 60%	**%IBW = 86.0 (10.0)** ChEAT Total = 20 (SD N/A) CDI, RCMAS (data not reported)	**%IBW = 96.0 (7.0)***** ChEAT Total = 9.0 (SD N/A)*** CDI*, RCMAS* (data not reported)	N/A	N/A	N/A
Paulson-Karlsson et al., 2009	**Separated/ Conjoint FBT combination** Single cohort pre-/post-test repeated measures with FU	55 (100%)	18 mo	29 (53%)	15.4 (1.4), 13–17	14 (0.76)	AN 100%	**BMI = 16.3 (1.0)** EDI-C DT = 11.63 (6.45) EDI-C B = 2.06 (2.80) EDI-C BD = 14.28 (7.39)	**BMI = 19.4 (1.9), Full remission = 72%** EDI-C DT = 4.38 (7.00)***$^{◊◊◊}$ EDI-C B = 0.66 (.70)***$^{◊◊}$ EDI-C BD = 7.16 (7.11)***$^{◊◊}$ All BAB-C Subscales***$^{◊◊◊}$	36 mo	30 (55%)	**BMI = 20.1 (2.8), Full remission = 78%** EDI-C DT = 3.43 (6.11)***$^{◊◊◊}$ EDI-C B = 1.00 (3.07)$^{*◊}$ EDI-C BD = 6.97 (7.16)***$^{◊◊◊}$ All BAB-C Subscales***$^{◊◊◊}$

Continues

Table 2. (Continued)

Study ID	Intervention, study design	Initial N (%females)	Mean time to EOT	EOT data N(% initial)	Patient age M (SD), range	Illness duration in months, M (SD)	Diagnoses % initial N	Baseline data (weight +/− other outcomes)	EOT data (weight +/− other outcomes)	Time to FU	FU Data N, (% initial)	FU data (weight +/− other outcomes) and/or main findings
Reinecke et al., 2016	**FBT-Based PHP** Single cohort pre−/post-test repeated measures	56 (92.9%)	27.6 days	51 (91%)	15.8 (2.9), 12–24	16.3 (17.91)	AN 73% EDNOS-R 27%	**%IBW = 82.56% (7.41%)** EDE-Q Global = 3.40 (1.71) WAI-SR Patient = 61.25 (15.22) WAI-SR Mother = 72.44 (6.32) WAI-SR Father = 64.83 (8.91)	**%IBW = 93.00 (5.20)*** ◊◊◊ EDE-Q Global = 2.17 (1.39)*** WAI-SR Patient = 63.05 (15.04) WAI-SR Mother = 71.81 (9.35) WAI-SR Father = 67.83 (7.75)	N/A	N/A	N/A
Robinson et al., 2013	**FBT-based Day Program** Single cohort repeated measures with 3- and 6-mo FU	49	N/A	48 (98%)	15.6 (1.5), range N/A	N/A	AN 24% BN 27% EDNOS-R 31% EDNOS-P 18%	**22% met IBW Remainder mean % IBW = 87.95** EDI-3 DT = 44.75 (2.57) EDI-3 BD = 37.00 (1.93) MASC = 59.63 (1.66) CDI = 64.86 (3.39) PVA = 17.43 (0.58)	**43% met IBW Remainder mean % IBW = 93.67** EDI-3 DT = 37.00 (1.93)* EDI-3 BD = 39.76 (2.06) MASC = 54.11 (2.39)* CDI = 57.50 (3.22)* PVA = 21.17 (0.69)*	6 mo	46 (94%)	**57% met IBW Remainder mean % IBW = 96.5** EDI-3 DT = 31.39 (2.47)* EDI-3 BD = 34.83 (2.18)* MASC = 49.30 (2.41)* CDI = 48.39 (2.72)* PVA = 22.61 (0.67)*
Rockwell et al., 2011 [A]	**Short-term Intensive FBT** Single cohort retrospective chart review	19 (100%)	5 days	N/A	15.0 (2.1), 10–18	N/A	AN 79% BN 5% EDNOS-R 16%	**%IBW = 84.3 (8.7)**	N/A	52–738 days	18 (95%)	**%IBW = 99.3 (12.06), 17/18 maintained weight gain**
Salaminiou et al., 2015	**Maudsley MFT** Single cohort pre-/post-test repeated measures with 2 FU	30 (90%)	9 mo	28 (93.3%)	15.4 (1.8), range N/A	11.7 (10.2)	AN 90% EDNOS-R 10%	**%IBW = 75.8 (6.5)** EDI-2 Total = 80.5 (33.0) BDI-II = 27.8 (12.1) RSES = 18.4 (6.9)	**%IBW = 83.0% (7.8%)** EDI-2 Total = 66.3 (38.9) BDI-II = 21.9 (14.4) RSES = 22.1 (6.3) M-R Good outcome = 6.7% M-R Intermediate outcome = 41.5% M-R Poor outcome = 51.8%	6 mo	29 (97%)	**%IBW = 86.1% (8.7%)***** ◊◊◊ EDI-2 Total = 57.3 (43.1)** ◊◊ BDI-II = 17.2 (14.6)** ◊◊◊ RSES = 24.5 (8.3)** ◊◊◊ M-R Good outcome = 20.7% M-R Intermediate outcome = 41.4% M-R Poor outcome = 37.9%

M = mean; SD = standard deviation; Mo = months; PHP = partial hospitalisation program; IOP = intensive outpatient program; MFT = multiple family therapy; FU = follow-up; %IBW = %ideal body weight; DBT = dialectical behaviour therapy; CBT = cognitive behaviour therapy; EOT = end of treatment; AN = anorexia nervosa; BN = bulimia nervosa; EDNOS/OSFED(−R/P/BP) = eating disorder not otherwise specified/other specified feeding and eating disorder(-restrictive/purge/binge-purge); SAN = subthreshold anorexia nervosa; N/A = not available.

BMI = body mass index; %IBW = percentage expected body weight, EDE = Eating Disorder Examination; EDE-Q = Eating Disorder Examination Questionnaire; ChEAT = Children's Eating Attitudes Test, EDI = Eating Disorder Inventory (DT, drive for thinness subscale; B, bulimia subscale; BD, body dissatisfaction subscale), SCARED = Screen for Child Anxiety and Related Disorders, CDI = Child Depression Inventory; MASC = Multidiagnostic Anxiety Screen Something, WSC = Weight and Shape Concerns Scale, BDI = Beck Depression Inventory; CDI = Children's Depression Inventory; RCMAS = Revised Children's Manifest Anxiety Scale; RSES = Rosenberg Self Esteem Scale; YSR = Youth Self Report; WAI-SR = Working Alliance Inventory Short Revised.

M-R = Morgan-Russell (1975) outcome criteria (good ≥ 85%IBW, regular menses; intermediate ≥ 85%IBW, amenorrhea persists; Poor ≤ 85%IBW or development of bulimic symptoms).

The following indicates significant differences from baseline:

The following indicates significant differences from previous assessment time-point: $^p < .05$, $^{\wedge\wedge}p < .01$, $^{\wedge\wedge\wedge}p < .001$.

The following indicates reported effect sizes (Cohen's *d*): ◊◊◊large, ◊◊medium, ◊small.

$^*p < .05$,

[†]These studies did not report EOT data, rather, outcomes were assessed at baseline and each specified FU time point regardless of whether patients had been discharged.

$^{**}p < .01$,

$^{***}p < .001$.

*Median, IQR reported.

Table 3 Summary of baseline, end of treatment, and follow-up data for comparative studies

Study ID	Interventions, study design	Initial N (% female)	Mean time to EOT	EOT data (%initial)	Patient age M (SD), range	Illness duration in months, M (SD)	Diagnoses (% initial N)	Test condition baseline data, M (SD), (weight +/− other outcomes)*	Test condition EOT data, M (SD), (weight +/− other outcomes) [1]	FU data N, (%initial)	Time to FU	Test condition FU data, M (SD), (weight +/− other outcomes) and/or main study findings [1]
Bean et al., 2010	**FBT-based PHP (*n* = 9)** *vs* non-FBT PHP (*n* = 7) Case–control Study	16 (87.5%)	10wks	100%	15.4 (2.6), 12–20	N/A	AN 100%	**BMI = 16.9 (SD N/A)** EDE-Q Global = 3.8^ (>non-FBT) BDI = 22 (SD N/A)	**BMI = 19.2* (SD N/A)** EDE-Q Global = 1.6*^ (<non-FBT PHP) BDI = 8* (SD N/A)	N/A	N/A	FBT-based PHP group made significantly greater improvements on EDE-Q Global score than controls, yet non-significant between-group differences in weight and depression outcomes.
Eisler et al., 2000; Dare et al., 2000 Eisler et al., 2007	**S-FT (*n* = 21)** *vs* C-FT (*n* = 19) Controlled Clinical Trial	40 (97.5%)	12mo	90%	15.5 (N/A), 10–17	12.9 (9.4)	AN 100%	**%ABW = 74.3 (9.8)** EDI = 59.6 (40.7)	**%ABW = 91.2 (12.3)** M-R Good/Intermediate[6] = 76% in SFT *vs* 47% in CFT (difference not significant) EDI = 21.8 (27.2)^ (<CFT) M-R Obsessionality = 1.2 (3.5)^ (<CFT)	38 (95%)	60mo	**%ABW = 97.7 (9.32)***, SFT > CFT^ if high expressed emotion at baseline M-R Good/ Intermediate = 90% in SFT *vs* 78% in CFT (difference not significant) No 60mo FU data for EDI outcome
Eisler et al., 2016	MFT + FBT (*n* = 85) *vs* FBT alone (*n* = 82) Controlled Clinical Trial	169 (91%)	12mo	88%	15.7 (1.7), 13–20	9.6 (10.5)	AN 76% EDNOS-R 24%	**%IBW = 77.6 (6.3)** **M-R Intermediate [6] = 8%** **M-R Poor = 92%**	**%IBW = 91.03 (N/A)** **M-R Good/ intermediate = 76% in MFT *vs* 58% in FBT** Odds of M-R good/ intermediate outcome significantly (2.55×) higher if in MFT. No significant between-group differences in %IBW, EDE, BDI or RSES scores.	122 (72%)	6mo	**%IBW = 91.68 (N/A)****, MFT > FBT **M-R Good/ intermediate = 78% in MFT *vs* 57% in FBT** Odds of M-R good/ intermediate outcome 2.01× higher in MFT *vs* FBT, effect not significant No significant between-group differences in EDE, BDI or RSES scores.
Gabel et al., 2014	**MFT + TAU (*n* = 25)** *vs* TAU (*n* = 25) Case–control Study	50 (100%)	12mo	100%	14.1 (1.87), 11–18	N/A	AN 100%	**%IBW = 77.71 (SD N/A)** EDE-Q Global = 3.13 (1.04) CDI Total = 64.80 (15.16)	**%IBW = 99.6% (7.27%)^ (>TAU)** EDE-Q Global = 2.13 (1.56)** CDI Total = 52.90 (18.23)*	N/A	N/A	Significantly higher %IBW for MFT + TAU participants at EOT. MFT + TAU participants displayed significant reductions at EOT from baseline in ED and depression symptoms, although these were not

Continues

Table 3. (Continued)

Study ID	Interventions, study design	Initial N (% female)	Mean time to EOT	EOT data (%initial)	Patient age M (SD), range	Illness duration in months, M (SD)	Diagnoses (% initial N)	Test condition baseline data, M (SD), (weight +/− other outcomes)*	Test condition EOT data, M (SD), (weight +/− other outcomes) [1]	FU data N, (%initial)	Time to FU	Test condition FU data, M (SD), (weight +/− other outcomes) and/or main study findings [1]
												compared with TAU at EOT.
Le Grange et al., 2016	**Parent-focused FBT (*n* = 52)** *vs* FBT (*n* = 55) Controlled Clinical Trial	107 (87.7%)	6mo	88%	15.5 (1.5), 12–18	10.5 (8.8)	AN 100%	**%IBW = 82.8 (6.2)** EDE Global = 2.09 (1.54)	**%IBW = 93.9 (10.4)** **Full remission[4] = 43.1%^ (>FBT)** EDE Global = 0.81 (1.22)*	62 (58%)	6mo 12mo	**BMI = 95.0 (11.4), Full remission[4] = 39.2%** EDE Global = 0.74 (1.01)* **BMI = 95.6 (10.0), Full remission[4] = 37.3%,** PFT > FBT^ if lower baseline ED/OC symptoms or longer illness duration EDE Global = 0.81 (1.13)*
Lock 2005; Lock et al., 2006; Lock et al., 2006a	**Short-term FBT (*n* = 44)** *vs* Long-term FBT (*n* = 42) Controlled Clinical Trial	86 (91%)	6mo[2] 12mo	80%	15.1 (N/A), 12–18	11.3 (10.4)	AN 100%	**BMI = 17.0 (1.3)**	**BMI = 19.0 (2.3)***	69 (80%) 71 (83%)	12mo27-72mo	**BMI = 19.5 (2.2)***, ST < LT^ if higher OC symptoms Full remission[3] = 47.8% in ST *vs* 50% in LT (difference not significant) **BMI = 20.57 (2.03)*** EDE Global = 1.34 (1.36)*, ST < LT^ if non-intact family
Lock et al., 2015	**FBT/IPC+ (*n* = 12)** ***vs* FBT/IPC- (*n* = 23)** *vs* FBT (*n* = 10) Randomised Controlled Trial	45 (93.3%)	6mo	80%	14.6 (1.4), 12–18	12.6 (13.7)	AN 100%	**%IBW = 83.2 (2.9)** EDE Global = 2.7 (1.6) Mother PVA = 21.82 (3.57)^ (<IPC-)	**%IBW = 96.7 (6.5)*** Weight recovered[5] = 58.3% (=IPC-) EDE Global = 2.7 (1.6)*^ (>IPC-) Mother PVA = 24.1 (2.96)* (=IPC-)	N/A	N/A	EDE Global significantly higher at EOT among IPC+ poor early responders compared with early responders (IPC-), yet similar weight recovery between groups at EOT. Differences in Session 2 maternal PVA for IPC+ poor early responders *vs.* early responders non-existent at EOT. No differences in IPC *vs.* FBT groups at EOT.
Marzola[5] et al., 2015	**S-IFT (*n* = 28)** *vs* **M-IFT (*n* = 64)** Cohort Analytic Study	92 (92.4%)	5 days	80.5%	14.8 (2.74), N/A	22.8 (23.4)	AN 62% EDNOS-R 38%	**%IBW = 86.36 (8.74)**	N/A	N/A	4–83mo	**%IBW = 102.17(17.47)** **S-IFT, 97.83 (10.14)** **M-IFT** Full remission = 65% S-IFT, 59.3% M-IFT Partial remission = 25% S-IFT, 27.7% M-IFT No remission = 10% S-IFT, 13% M-IFT

Continues

Table 3. (Continued)

Study ID	Interventions, study design	Initial N (% female)	Mean time to EOT	EOT data (%initial)	Patient age M (SD), range	Illness duration in months, M (SD)	Diagnoses (% initial N)	Test condition baseline data, M (SD), (weight +/− other outcomes)*	Test condition EOT data, M (SD), (weight +/− other outcomes) [1]	FU data N, (%initial)	Time to FU	Test condition FU data, M (SD), (weight +/− other outcomes) and/or main study findings [1]
Rhodes et al., 2008	**FBT + Parent-to-Parent Consultation (*n* = 10)** *vs* FBT (*n* = 10) Controlled Clinical Trial	20 (100%)	6mo	100%	14 (N/A), 12–16	95% less than 12 months	AN 100%	**%IBW = 81.21 (SD N/A)**	**%IBW = 90.91*** **(SD N/A)** M-R Good outcome [6] = 40% M-R Intermediate outcome = 30% M-R Poor outcome = 30%	N/A	N/A	NS between-group differences in weight outcomes, or parental self-efficacy and parental distress outcomes (PVA and DASS-21 descriptives not reported).

Note. Intervention highlighted in **bold** text represents the augmentative FBT approach in the study test condition.
N/A = not available; S-FT = separated family-therapy; C-FT = conjoint family-therapy; ST = short-term FBT; LT = long-term FBT; S-IFT = single-family intensive family therapy; M-IFT = multiple-family intensive family therapy; IPC = intensive parent coaching; PHP = partial hospitalisation program; PFT = parent-focused FBT; TAU = treatment as usual; BMI = body mass index; ABW = average body weight; IBW = ideal body weight; M = mean; SD = standard deviation; EOT = end of treatment; FU = follow-up; M-R = Morgan-Russell; EDI = Eating Disorder Inventory; EDE = Eating Disorder Examination; PVA = Parents *Versus* Anorexia Scale; BDI = Beck depression inventory; CDI = Children's Depression Inventory; DASS-21 = Depression Anxiety Stress Scale—21.
[1]Descriptive data provided for test condition only.
[2]EOT = 6 months in ST group. 12-month data represent EOT for LT group and 6-month FU for ST group.
[3]Full remission defined by achievement of >95%IBW and *all* EDE scores within 2SDs of community means.
[4]Full remission defined by achievement of >95%IBW and EDE Global scores within 1SD of community means.
[5]Weight recovery defined by achievement of >95%IBW.
[6]Treatment outcome was defined according to Morgan–Russell (1975) criteria (good ≥ 85%IBW, regular menses, no binge/purge; intermediate ≥ 85%IBW, amenorrhea persists and/or binge/purge; Poor ≤ 85%IBW or development of bulimic symptoms).
The following indicates significant between-group differences:
$^{p} < .05$,
$^{^}p < .01$,
$^{^^}p < .001$. The following indicates significant within-group differences for test condition compared with baseline:
$^{*}p < .05$,
$^{**}p < .01$,
$^{***}p < .001$.

three additional parent skills-focused sessions to the standard FBT for families identified as responding poorly with regard to early weight gain upon reassessment mid-Phase I (this group of families was labelled FBT/IPC+, whereas early responders were in the FBT/IPC− group). Rhodes, Baillee, Brown, and Madden (2008) introduced a 'parent-to-parent consultation' into FBT Session 10, wherein parents currently attending FBT met with parents who had recently completed treatment, with the aim to increase parental self-efficacy and thereby patients' weight-gain. In these adjunctive approaches, the remainder of the treatment protocols remained consistent with the standard FBT intervention.

Modifications to FBT often involved Multiple Family Therapy (MFT) approaches (Gabel, Pinhas, Eisler, Katzman, & Heinmaa, 2014; Gelin et al., 2015; Hollesen et al., 2013; Mehl et al., 2013; Salaminiou et al., 2015) and combinations of conjoint- *and* separated-family or the use of separated-family sessions only throughout FBT (Eisler et al., 2000; Le Grange et al., 2016). Several interventions also modified the length of treatment. As described previously, 'Short-term FBT' delivered the same therapeutic content as the standard 20-session FBT in 10 sessions over 6 months (Lock et al., 2005). Still shorter-term 'Intensive FBT' interventions were delivered both in single-family and multiple-family formats (Marzola et al., 2015; Rockwell et al., 2011), wherein families attended treatment for five consecutive days to receive intensified Maudsley-based interventions, generally to allow the provision of specialised AN treatment to families with limited regular access to services. FBT-E (Hildebrandt, Bacow, Greif, & Flores, 2014) combined CBT-based exposure techniques across all FBT phases to facilitate parents' and patients' understanding and management of anxiety-specific difficulties proposed to contribute to the aetiology and maintenance of the ED.

Adaptations of FBT were those featuring changes to the form of delivery of FBT content for specific settings or populations. The ParentsActNow online intervention (Jones et al., 2012) was categorised as such, as FBT was adapted for delivery in an online format and to be relevant for parents of adolescents with or at high-risk of developing early stage EDs without previous inpatient admissions. Other adaptations of FBT featured the delivery of FBT in hospital settings, all of which also included modifications to the content and/or structure of FBT and adjunctive treatment components, as afforded by the more intensive treatment setting. These combinations (partial hospitalisation programs or intensive outpatient programs) were designed with the aim to provide an intensive level of care to patients and families, with adolescents attending treatment for 3–5 days per week, receiving psychotherapy in a combination of individual, group, FBT and MFT formats. These programs also included psychiatric and medical monitoring, dietetic counselling and support for patients and parents at supervised meal-times. Group and individual therapy modalities were generally CBT-based and DBT-based, although were not described in detail in two programs (Henderson et al., 2014; Ornstein et al., 2012; Robinson et al., 2013). Two studies reported on different samples participating in the same partial hospitalisation program (Hoste, 2015; Rienecke et al., 2016). All such studies except one (Bean et al., 2010) were described as designed for patients and families requiring a higher-intensity level of care due to medical instability or more severe ED symptom severity.

3.6. Outcome assessments and findings

Study findings are summarised below, separately for non-comparative and comparative study groups.

3.7. Non-comparative studies

Of these 17 studies, five reported outcomes at EOT and at least one follow-up assessment, whereas nine reported EOT outcomes only. Two intensive outpatient program studies (Girz et al., 2013; Robinson et al., 2013) assessed outcomes at baseline, 3-months and 6-months regardless of patients' discharge status, and Rockwell et al. (2011) reported outcomes of a 5-day intervention at 9-months follow-up.

3.7.1. Weight outcomes

For those studies conducting analyses on weight outcomes as continuous variables (mean BMI or %IBW), significant weight improvements between baseline and EOT were reported for all interventions, and these gains were all either maintained or significantly approved upon at follow-up. For studies without analyses for measures of weight change (Girz et al., 2013; Hurst & Zimmer-Gembeck, 2015; Robinson et al., 2013; Rockwell et al., 2011), each reported overall rates of complete weight restoration of 57–94%.

3.7.2. ED symptomatology

Of the included non-comparative studies, all except two (Mehl et al., 2013; Rockwell et al., 2011) reported formal assessments of ED symptoms, most frequently assessed using validated measures such as the Eating Disorder Examination (Fairburn & Cooper, 1993), Eating Disorder Examination Questionnaire (Fairburn & Beglin, 1994), Eating Disorder Inventory (Garner, Olmstead, & Polivy, 1983), and Children's Eating Attitudes Test (Smolak & Levine, 1994). In these 15 studies, significant improvements were observed in core ED symptomatology within 6-months from baseline or by EOT. Follow-up data were available in eight of these 15 studies with follow-up periods ranging from 3 to 36 months. Studies commonly had higher proportions of missing data on psychological measures when compared with weight measures.

3.7.3. Recovery and remission rates

Four non-comparative studies included categorical remission outcomes, albeit with variations in criteria applied. Paulson-Karlsson (2009) classified patients as having achieved full remission following 18-months of separated *and* conjoint FBT sessions if they no longer met DSM-IV (APA, 2000) criteria for AN, an outcome achieved for 72% and 78% of patients at EOT- and 36-month follow-up, respectively. Johnston et al. (2015) reported 64% of patients completing a multimodal intensive outpatient program met Morgan-Russell 'good outcome' criteria (>85%IBW, regular menses) at 1-year follow up. They also reported that 42% of treatment completers met these criteria *and* had EDE Global Scores within 1SD of community norms, the additional criterion applied in more stringent definitions of full remission from AN (e.g., Agras et al., 2014; Couturier & Lock, 2006; Eisler et al., 2000; Madden et al., 2015). Hurst and Zimmer-Gembeck (2015) reported 1/3 patients was fully remitted and two

were partially remitted following FBT with additional CBT for perfectionism sessions, according to more stringent weight range criteria (>95%IBW for full remission, >85%IBW for partial remission).

3.7.4. Other outcomes

Most studies described participants as frequently meeting criteria for comorbid anxiety and mood disorders, and changes in anxiety and depression symptoms as secondary treatment outcomes. These symptoms were assessed in each study using validated measures on which significant improvements were reported at EOT and follow-up from intensive outpatient/partial hospitalisation programs, MFT and FBT-E interventions (Girz et al., 2013; Henderson et al., 2014; Hildebrandt et al., 2014; Ornstein et al., 2012; Paulson-Karlsson et al., 2009; Robinson et al., 2013). Salaminiou et al. (2015) found significant increases in patients' self-esteem at 6-month follow-up following an intensive 9-month MFT intervention, whereas Mehl et al. (2013) reported contradictory findings, with patients' self-esteem significantly lower despite significantly higher quality of life ratings after a similar 6-month MFT intervention, which the authors attributed to individuals' increased body image concerns due to reportedly marked progress in weight restoration. Three studies all investigating FBT-based intensive outpatient/partial hospitalisation programs also reported significant improvements in parental self-efficacy by EOT (Girz et al., 2013; Hoste, 2015; Robinson et al., 2013). Hildebrandt et al.'s (2014) study on FBT-E reported significant reductions in patients' anxiety and mood symptoms from baseline to end-of-treatment, although to what extent these participants' baseline anxiety symptoms were reflective of or elevated in comparison to the general AN population was not addressed. Hurst and Zimmer-Gembeck (2015) also reported improvements from baseline to end of FBT in patients' cognitive flexibility as targeted in an adjunctive CBT module, although these data were limited to three participants. Notably, among the studies including DBT components, no measures of relevant factors such as emotion dysregulation were administered.

3.8. Comparative studies

In all nine comparative studies, significant improvements in weight and/or ED symptom outcomes were observed at EOT and/or follow-up for all treatment groups. Notably, within several studies, there were no significant overall differences in weight or ED symptom outcomes between participants in test and control (standard FBT) conditions (Eisler et al., 2000; Lock et al., 2005; Lock et al., 2015; Rhodes et al., 2008), although such findings had different implications for the conclusions made regarding the relative efficacy of the augmentative FBT approach under investigation, as described later.

Rhodes et al. (2008) found that the degree of improvement in parental self-efficacy, parental distress, and patients' EOT weight outcomes did not differ between groups who did and did not participate in parent-to-parent consultations in addition to FBT, and the authors concluded that the intensity of the additional intervention was insufficient to result in detectable changes in the assessed variables. Patient ED and comorbidity symptom severity measures were not included in this study; thus, differences in outcomes on or predicted by other such variables were not reported.

Eisler et al. (2000) and Le Grange et al. (2016) compared 'conjoint' (standard) FBT to 'separated' (SFT) and 'parent-focused' FBT respectively, both reporting non-significant between-group differences in overall weight and ED outcomes at EOT and follow-up. Eisler et al. (2000) found, however, that while rates of Morgan-Russell 'good'/ 'intermediate' outcomes did not differ between groups, participants in conjoint FBT achieved significantly greater improvements in ED, depression and OC symptom scores compared with those in SFT at EOT, whereas patients from families with high levels of expressed emotion reached significantly higher %ABW at SFT compared with conjoint FBT at follow-up. Furthermore, Le Grange et al. (2016) found that parent-focused FBT resulted in significantly higher full remission rates (>95%IBW, Global EDE-Q within 1SD of community norms) compared with FBT at EOT, but not follow-up, whereas significantly higher full remission rates were observed at 12-month follow-up for patients with a longer pre-treatment illness duration *or* lower baseline ED or OC symptoms when treated with parent-focused FBT compared with standard FBT.

In two studies, the lack of treatment group differences in fact supported the effectiveness of the novel interventions under investigation. Lock et al. (2015) indicated similar overall outcomes at each assessment for patients in short-term and long-term (standard) FBT conditions, indicating that a modified 10-session approach was as effective as the standard 20-session FBT. However, patients with higher baseline OC symptoms had reached a significantly higher mean BMI at 12-months in standard *versus* short-term FBT, and for patients from non-intact families, improvements in EDE-Q Global scores at long-term FU were significantly greater in the standard *versus* short-term FBT condition.

Lock et al. (2015) reported no EOT differences in %IBW or parental self-efficacy outcomes between families showing good early responses to FBT and those identified as 'poor early responders', who at reassessment after session 4 of Phase I had achieved <2.3 kg in weight-gain and had significantly lower maternal self-efficacy (which have been shown to predict poorer overall outcomes in standard FBT) (Doyle et al., 2010). The authors concluded this indicated that the use of three additional Phase I 'Intensive Parent Coaching' (IPC) sessions including a second family meal may have successfully afforded 'poor early responders' greater benefits from FBT, thus preventing ongoing discrepancies in treatment response and EOT outcomes. Of note, however, was the observation that in comparison to early responders, 'poor early responders' receiving IPC still had significantly higher EDE Global scores at EOT, which the authors attributed to the relative delay in these patients' weight restoration and thus associated delay in dependent ED symptom remission. Additionally, it should be emphasised that the specific effects of the IPC+ intervention are unclear, as due to small sample sizes and the identification of only 2/12 participants as 'poor early responders' in the non-adaptive FBT group, there was no direct comparison between 'poor early responders' receiving IPC with those displaying similarly poor early responses continuing to participate in standard FBT without additional sessions.

Finally, Eisler et al.'s (2016) RCT compared families attending MFT-AN with FBT with those attending FBT alone, and found that patients in the MFT-AN arm were significantly (2.55 times) more likely to achieve a good or intermediate outcome using Morgan-Russell outcome criteria (Russell et al., 1987) by EOT compared with those receiving FBT alone, although there were no significant between-group differences at 6-month follow-up. Due to this study's use of >85% IBW, return of menses and absence of bulimic symptoms as criteria to define 'good' outcomes (as per Russell et al., 1987), it was not possible for this study to compare outcomes in this sample with the aforementioned rates of 28–50% of full remission of AN as defined using the higher weight criterion (>95%EBW) and remission of cognitive symptoms to classify full remission of AN.

Of the remaining three comparative studies, two included non-FBT based control conditions. Firstly, in a retrospective case–control study of 16 AN patients, Bean et al. (2010) reported equivalent weight improvements between patients attending a 10-week FBT-based or non-FBT-based partial hospitalisation program. While both groups had similarly significant reductions in depressive symptoms, ED symptom improvements at EOT were significantly greater among those attending the FBT-based program. Secondly, Gabel et al.'s (2014) findings indicated that participants who participated in a 12-month MFT program in addition to treatment as usual reached a significantly higher mean %IBW, compared with patients in treatment-as-usual, which featured single-family therapy sessions of a 'supportive' (non FBT-based) nature. There were significant improvements in ED and depression symptoms by EOT for patients who received MFT in this study, although these outcomes were not compared with those in treatment-as-usual. Finally, in Marzola et al.'s (2015) comparison of two different augmentative FBT approaches (single- *versus* multiple-family 5-day intensive FBT), no significant between-group differences in %IBW at follow-up were found, and while descriptive EDE-Q statistics were not reported, the authors found that 65% and 59.3% of patients were in full remission (>95%IBW, Global EDE-Q within 1SD of community norms, absence of binge-purge behaviours). These findings, however, were based on follow-up assessments conducted between 4- and 83-months post-baseline, and many participants in each group had received ongoing outpatient or inpatient treatment in the interim.

4. Discussion

4.1. Overview

The purpose of this study was to systematically review available research reporting on the outcomes of augmentative FBT approaches for adolescents with restrictive EDs. Thirty articles reporting outcomes of 26 unique samples were included, all reporting on augmented FBT with the aim to facilitate weight restoration and reduce ED symptomatology for adolescents, the large majority of whom were diagnosed with AN or EDNOS-R. Multiple Family Therapy for AN (Dare & Eisler, 2000; Eisler, Lock, & le Grange, 2010) was reported on most frequently, and was delivered either as a standalone treatment, in conjunction with FBT, or as a component of FBT-based partial hospitalisation programs. FBT-based intensive partial hospitalisation programs were designed to treat adolescents displaying elevated ED severity and requiring higher levels of care, and included group and individual therapy sessions of various modalities in addition to frequent parental involvement in therapy and supervised meals. Approaches involving adjunctive therapy added CBT, DBT or parent-focused sessions to standard FBT, and other approaches included modifications to the length of FBT, to its mode of delivery and through the integration of exposure techniques targeting anxiety. All studies reported significant increases in weight from baseline to EOT, and these improvements were at least maintained at follow-up where such data was available. There was evidence of statistically significant improvement across these periods in secondary outcomes such as patients' self-esteem and anxiety, depressive and OC symptoms, and parents' self-efficacy and psychological distress. Each controlled study demonstrated that the novel FBT approaches were at least as effective as standard FBT, and some conclusions about the relative utility of these interventions were possible. Firstly, FBT delivered in separated parent-only and adolescent sessions resulted in higher full remission rates than standard FBT at end-of-treatment (but not follow-up) (Le Grange et al., 2016), and in greater overall treatment benefits for patients from families with higher expressed emotion (Eisler et al., 2007), longer pre-treatment illness duration or lower ED or OC symptom severity (Le Grange et al., 2016). Secondly, a short-term FBT approach may not be as effective for patients from non-intact families or with more severe OC symptoms, and patients with lower early treatment weight-gain appeared to achieve good outcomes at rates similar to early responders when provided with three additional parent-skills and mealtime-focused sessions in Phase I (Le Grange et al., 2016). Finally, the MFT approach (Dare & Eisler, 2000) received support as a supplementary or standalone treatment, as patients attending MFT in addition to FBT (Eisler et al., 2016) or treatment-as-usual consisting of 'supportive' family sessions (Gabel et al., 2014) had superior end-of-treatment outcomes compared with those without MFT.

Overall, this review indicated there is promising early evidence of the utility of these augmentative FBT-based approaches in facilitating improvements in weight and ED symptoms for adolescents with restrictive EDs. This conclusion should be considered in light of this review's findings of generally weak to moderate study quality, highlighting that future research is required to expand on this evidence base. Such considerations are discussed further later.

4.2. Limitations

Study quality was generally weak to moderate, with two receiving a strong quality rating (Eisler et al., 2016; Lock et al., 2015). For many studies, it was unclear whether physiological outcomes were collected *via* patient-, parent- or assessor report and inconsistencies were observed across studies' reporting of group-specific outcomes and attrition rates (*i.e.*, by diagnosis, treatment completion status). Notably,, eight samples (Girz et al., 2013; Henderson et al., 2014; Jones et al., 2012; Marzola et al., 2015; Ornstein et al., 2012; Robinson et al., 2013), of which two were samples in the same study separated by age (Doyle, 2013), had baseline %IBW

or BMI above that expected for AN patients according to previous DSM-IV criteria (%IBW < 85%, BMI < 17.5; APA, 2000). Conclusions regarding these interventions' effects on weight outcomes for underweight patients should therefore be guarded. Of these seven studies, five reported on partial hospitalisation programs, with the remaining including an online intervention for parents of adolescents at high risk of or very early stage (<6 months illness duration) EDs (Jones et al., 2012) and a 5-day intensive intervention for AN or EDNOS-R patients (Marzola et al., 2015). It would be expected that adolescents included in Jones et al. 's (2012) study may not have been below these weight thresholds as the intervention was designed for those at early illness stages and no prior hospitalisations. Further, partial hospitalisation programs were often designed for patients with limited progress in previous treatment, and it may be that patients were admitted to these intensive programs after some initial weight-gain progress which, in addition to symptom change, had then stalled due to ED severity, comorbidity or family factors necessitating a higher level of care. Only one of these seven studies tested for outcome differences according to baseline diagnoses; Marzola et al. (2015) reported that patients with AN at baseline did not differ from those diagnosed with EDNOS-R in terms of weight or symptom changes, medications used or hospitalisations during follow-up. While it is possible to argue the potential utility of these authors' brief intensive intervention for both diagnostic groups, the same is not possible for the remaining abovementioned studies, and such analyses differentiating between diagnostic groups may be helpful in clarifying such findings in future.

This overall lack of strong quality studies may reflect the documented challenges faced in this field of research, including the significant funding required to resource the high levels of care needed for this population and the frequently low recruitment and retention rates due to the egosyntonic nature and relatively low prevalence of the disorders (eg., Attia, 2010). Indeed, treatment and follow-up attrition rates among AN outpatients, estimated in the 29–73% range, are generally higher than among other mental health populations (DeJong, Broadbent, & Schmidt, 2012; Fassino, Pierò, Tomba, & Abbate-Daga, 2009). With respect to the absence of good quality long-term follow-up data among the included studies, it is noteworthy that, although 50–70% of adolescents with AN are expected to achieve weight restoration by the end of standard FBT (Le Grange & Eisler, 2009), a range largely mirrored in the results of studies included in this review, such rates of restoration are not clearly predictive of long term remission status (Lock et al., 2013), with approximately 1/3 patients maintaining these outcomes after 4 years (Le Grange et al., 2014). The included studies generally had high attrition rates, particularly for psychological measures, and most did not use intent-to-treat analyses nor longer follow-up assessments beyond 6-months; thus, the utility of the findings of the current review are somewhat limited. Indeed, the effectiveness of outpatient FBT is often largely attributed to its combination of a highly controlled approach to weight restoration with the advantage of enhanced ecological validity of such restoration occurring through refeeding *within* the patient's family system and home setting (Brown & Keel, 2012), and three of the seven studies investigating intensive outpatient or partial hospitalisation programs did not include follow-up assessments. The question thus remains whether FBT-based intensive care settings with such high levels of professional involvement lack this potentially necessary ecological validity during the weight restoration phase, and whether improvements reported at EOT could therefore be maintained after families' transition back into home-settings at follow-up beyond the 6-month periods most frequently reported in the available studies.

In the included studies, descriptions of families with respect to their previous engagements in and responses to standard treatment were for the most part lacking, and while theoretical and practical justifications for deviations from a standard FBT approach were often given, results of baseline assessments were generally not specified as indicating the necessity for an enhanced approach in light of existing literature on predictors of treatment response. For example, although FBT-based intensive outpatient programs and partial hospitalisation programs were often described as providing a necessarily more intensive level of care to patients with higher ED symptom severity, it was not specified how such patients were identified, how differences in their presentations were either observed or assumed to impact their responses to outpatient treatment, and how and to what extent these patients' ED or familial characteristics may differ from those of participants demonstrated in controlled trials to have achieved good outcomes in outpatient FBT. As this was a theme across most studies, it is important to remain guarded in conclusions that the reviewed interventions could address known barriers to progress or engagement in FBT if it is unclear as to whether results were obtained from participants who did indeed present with such difficulties. That is, for studies identifying specific psychological factors as reasons for the use of the innovative approach, such as anxiety, cognitive rigidity, OC symptoms or emotion dysregulation and/or personality disorder features, it was similarly not reported to what extent these patients' presentations differed from those who would be expected to achieve good outcomes in standard treatment. For example, in the studies reporting on DBT-integrated FBT to target emotion regulation and distress tolerance skills proposed to impact responses to FBT (Doyle, 2013; Johnston et al., 2015), the absence of assessments of these variables resulted in a lack of clarity as to whether these interventions were provided to individuals with such features or skills deficits, and if changes in these did occur and were related to overall outcome throughout treatment.

Rhodes et al. (2008) suggested that because the inclusion of one parent-to-parent consultation session during FBT did not lead to differences in treatment responses, enhanced FBT approaches need be more intensive in nature. These parent-to-parent sessions were included with the aim to reduce parents' isolation and distress during treatment, increase parental self-efficacy and thereby facilitate patients' weight-gain. These same factors are targeted in MFT-AN (Dare & Eisler, 2000), which may be considered one such intensive enhancement when provided in conjunction with single-family sessions, and while several studies supported the addition of MFT-AN (Eisler et al., 2016; Gabel et al., 2014; Salaminiou et al., 2015) to single-family treatment, it cannot currently be determined from the available quantitative evidence

whether superior outcomes observed for families attending this in addition to single-family therapy may be attributable to increased contact with services or whether there are other specific changes facilitating recovery that might not otherwise be achieved through equivalent service contact in the existing single-family therapy model. Further quantitative research extending on qualitative literature in this area (e.g., Engman-Bredvik, Carballeira Suarez, Levi, & Nilsson, 2016; Voriadaki, Simic, Espie, & Eisler, 2015) could more clearly inform such conclusions on mechanisms of change specific to the multiple-family therapy treatment context.

More generally, the lack of comparisons of standard FBT with augmentative approaches is an important limitation. While there is some evidence that families may respond differently to various FBT-based approaches depending on baseline factors, there was no robust evidence to suggest that any one augmentation is superior on overall outcomes to standard FBT. Further investigations employing a truly 'adaptive' approach specifically based on reassessments of families' early responses to standard treatment (Lock et al., 2015) are required to demonstrate that augmentations can provide more favourable outcomes than standard FBT for patients with specific characteristics necessitating such alternatives.

4.3. Review limitations, future directions, and conclusions

This review is not an exhaustive account of the available FBT augmentations currently implemented in hospital-based and community-based services, as numerous retrieved articles describing such interventions were excluded due to a lack of outcome data. These include emotion-focused FBT (Robinson, Dolhanty, & Greenberg, 2015), wherein attachment-focused and emotion-coaching techniques are introduced to help parents assist their child to cope with distress throughout the process of weight restoration. Other adaptations not addressed include telehealth-disseminated FBT to facilitate access to treatment for remote families (Dare, Chania, Eisler, Hodes, & Dodge, 2000; Goldfield & Boachie, 2003; Anderson et al., 2015). Cognitive remediation techniques addressing cognitive rigidity and problem-solving in both patients and family members has been introduced as an adjunct to FBT, which has as yet only been described in case report form (Pretorius, Espie, & Simic, 2015). A 'Family Admission Program' (Wallis et al., 2013) provided a two-week intensive residential FBT intervention to facilitate families' transition from inpatient to outpatient care, and many authors have described applications of MFT approaches across various service settings (e.g., Depestele, Claes, & Lemmens, 2015; Honig, 2005; Scholz & Asen, 2001). Several of these excluded articles reported qualitative analyses of patients', parents' and therapists' experiences in FBT augmentations, and a systematic investigation of such reports may further inform implications for future research, intervention development and implementation in this area. Moreover, several of the included studies reported FBT-based interventions combined with multidisciplinary, multi-modal treatment approaches without specifying the content of individual and group therapy modalities. More frequent and specific reporting of clinical content is recommended, whereby authors' provision of details regarding the structure of therapy programs and theoretical models underlying adjunctive individual and group therapies provided may allow clearer conclusions about the potential effectiveness and utility of various augmentations. Additionally, a synthesis of current knowledge based on quantitative, qualitative and clinical expertise is required to further inform clinical practice. It was observed that all included studies reported significant outcome results and while one may speculate about issues of publication bias, with further research in this area it is recommended that meta-analytic approaches investigate this question in more detail.

This review highlights the diversity in the approaches to augmenting FBT for adolescents with restrictive EDs. While there appears to be promising early evidence for the utility of such treatments in facilitating weight and symptom improvement for patients and families of various presentations and clinical needs, this area of research remains in its infancy in terms of robust conclusions about the most suitable change(s) that should be made to existing FBT models of care for the large proportion of adolescents who do not remit during FBT, and how this can be determined based on their/their families' presentations. Specifically, Multiple Family Therapy for AN (Dare & Eisler, 2000) is gathering evidence as an alternative approach for AN patients and controlled studies expanding on Eisler et al.'s (Eisler et al., 2016) trial may better identify for which families this intervention may be indicated over traditional FBT. Lock et al.'s (2015) pilot also indicated a promising avenue for larger scale investigations into post-baseline adaptations to FBT, where additional treatment components are provided given assessments of families' progress in the first month of standard treatment. Finally, while there were several observational studies suggesting the effectiveness of partial hospitalisation programs for patients needing high levels of care, controlled studies of such interventions are required to understand for whom and when these are best applied, although this may prove challenging given the considerable resources required for their operation and evaluation.

Overall, recommendations for the development and application of augmentative FBT interventions may become clearer if future studies (i) specify the clinical content of and reasons for the use of the novel approach, (ii) operationalise, assess and indicate the presence of factors relevant to these reasons among study participants, and (iii) demonstrate that the intervention is more effective than a standard FBT approach in targeting that factor to facilitate ED recovery. A particular consideration which is likely to impact investigators' decisions on the design, let alone feasibility, of clinical trials in this area is the fact that these interventions are often intended for patients likely to present with the very characteristics which have been predictive of higher rates of drop-out from the highest quality controlled studies available in the field (Lock et al., 2006). As rigorous controlled studies are often not feasible across all treatment settings, improvements in the quality of non-comparative observational studies are also required to ensure the development of knowledge and effective practice in this field, by ensuring the use of comprehensive assessment of patients' and families baseline and EOT characteristics, in addition to follow-up assessments after longer time periods where possible.

REFERENCES

Agras, W. S., Lock, J., Brandt, H., Bryson, S. W., Dodge, E., Halmi, K. A., et al. (2014). Comparison of 2 family therapies for adolescent anorexia nervosa: a randomized parallel trial. *JAMA Psychiatry*, *71*(11), 1279–1286. https://doi.org/10.1001/jamapsychiatry.2014.1025.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., Text Revision). Washington, DC: American Psychiatric Association.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*. (5th Ed). Washington, DC: American Psychiatric Association, DOI: https://doi.org/10.1176/appi.books.9780890425596.

Anderson, L. K., Murray, S. B., Ramirez, A. L., Rockwell, R., Le Grange, D., & Kaye, W. H. (2015). The integration of family-based treatment and dialectical behavior therapy for adolescent bulimia nervosa: Philosophical and practical considerations. *Eating Disorders: The Journal of Treatment & Prevention*, *23*(4), 325–335. https://doi.org/10.1080/10640266.2015.1042319.

Attia, E. (2010). Anorexia nervosa: current status and future directions. *Annual Review of Medicine*, *61*, 425–435. https://doi.org/10.1146/annurev.med.050208.200745.

Bean, P., Louks, H., Kay, B., Cornella-Carlson, T., & Weltzin, T. (2010). Clinical observations of the impact of Maudsley therapy in improving eating disorder symptoms, weight, and depression in adolescents receiving treatment for anorexia nervosa. *Journal of Groups in Addiction & Recovery*, *5*(1), 70–82. https://doi.org/10.1080/15560350903550142.

Brown, T. A., & Keel, P. K. (2012). Current and emerging directions in the treatment of eating disorders. *Substance Abuse: Research and Treatment*, *6*, 33–61. https://doi.org/10.4137/SART.S7864.

Couturier, J., Isserlin, L., & Lock, J. (2010). Family-based treatment for adolescents with anorexia nervosa: A dissemination study. *Eating Disorders*, *18*(3), 199–209. https://doi.org/10.1080/10640261003719443.

Couturier, J., & Lock, J. (2006). What is remission in adolescent anorexia nervosa? A review of various conceptualizations and quantitative analysis. *International Journal of Eating Disorders*, *39*(3), 175–183. https://doi.org/10.1002/eat.20224.

Couturier, J., Kimber, M., & Szatmari, P. (2013). Efficacy of family-based treatment for adolescents with eating disorders: A systematic review and meta-analysis. *International Journal of Eating Disorders*, *46*(1), 3–11. https://doi.org/10.1002/eat.22042.

Dare, C., & Eisler, I. (2000). A multi-family group day treatment programme for adolescent eating disorder. *European Eating Disorders Review*, *8*(1), 4–18. https://doi.org/10.1002/(SICI)1099-0968(200002)8:1%3C4::AID-ERV330%3E3.0.CO;2-P.

Dare, C., Chania, E., Eisler, I., Hodes, M., & Dodge, E. (2000). The Eating Disorder Inventory as an instrument to explore change in adolescents in family therapy for anorexia nervosa. *European Eating Disorders Review*, *8*(5), 369–383. https://doi.org/10.1002/1099-0968(200010)8:5%3C369::AID-ERV375%3E3.0.CO;2-6.

DeJong, H., Broadbent, H., & Schmidt, U. (2012). A systematic review of dropout from treatment in outpatients with anorexia nervosa. *International Journal of Eating Disorders*, *45*(5), 635–647. https://doi.org/10.1002/eat.20956.

Depestele, L., Claes, L., & Lemmens, G. M. (2015). Promotion of an autonomy-supportive parental style in a multi-family group for eating-disordered adolescents. *Journal of Family Therapy*, *37*(1), 24–40. https://doi.org/10.1111/1467-6427.12047.

Doyle, P. M., Le Grange, D., Loeb, K., Doyle, A. C., & Crosby, R. D. (2010). Early response to family-based treatment for adolescent anorexia nervosa. *International Journal of Eating Disorders*, *43*, 659–662. https://doi.org/10.1002/eat.20764.

Doyle, T. E. (2013). Outcome differences between children and adolescents utilizing a family-based treatment approach in an intensive outpatient program for eating disorders. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, *75*(5-B(E)).

Eisler, I., Dare, C., Hodes, M., Russell, G., Dodge, E., & Grange, D. L. (2000). Family therapy for adolescent anorexia nervosa: The results of a controlled comparison of two family interventions. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *41*(6), 727–736. https://doi.org/10.1111/1469-7610.00660.

Eisler, I., Dare, C., Russell, G. F. M., Szmukler, G., Grange, D. L., & Dodge, E. (1997). Family and individual therapy in anorexia nervosa: A 5-year follow-up. *Archives of General Psychiatry*, *54*(11), 1025–1030. https://doi.org/10.1001/archpsyc.1997.01830230063008.

Eisler, I., Lock, J., & le Grange, D. (2010). Family-based treatments for adolescents with anorexia nervosa. Single-family and multi-family approaches. In C. M. Grilo, & J. E. Mitchell (Eds.), *Treatment of eating disorders. A clinical handbook* (, pp. 150–174). New York: Guilford Press.

Eisler, I., Simic, M., Blessitt, E., Dodge, L., & Team (2016, July). *Maudsley service manual for child and adolescent eating disorders*. South London and Maudsley NHS Foundation Trust: Child and Adolescent Eating Disorders Service Retrieved from: http://www.national.slam.nhs.uk/wp-content/uploads/2011/11/Maudsley-Service-Manual-for-Child-and-Adolescent-Eating-Disorders-July-2016.pdf.

Eisler, I., Simic, M., Hodsoll, J., Asen, E., Berelowitz, M., Connan, F., et al. (2016). A pragmatic randomised multi-centre trial of multifamily and single family therapy for adolescent anorexia nervosa. *BMC Psychiatry*, *16*(1), 422. https://doi.org/10.1186/s12888-016-1129-6.

Eisler, I., Simic, M., Russell, G. F. M., & Dare, C. (2007). 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, and Allied Disciplines*, *48*(6), 552–560. https://doi.org/10.1111/j.1469-7610.2007.01726.x.

Engman-Bredvik, S., Carballeira Suarez, N., Levi, R., & Nilsson, K. (2016). Multi-family therapy in anorexia nervosa—A qualitative study of parental experiences. *Eating Disorders*, *24*(2), 186–197. https://doi.org/10.1080/10640266.2015.1034053.

Fairburn, C. G., & Cooper, Z. (1993). The eating disorder examination. In C. G. Fairburn, & G. T. Wilson (Eds.), *Binge eating: Nature, assessment and treatment* (12th ed.,). New York: Guilford Press.

Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders*, *16*(4), 363–370.

Fassino, S., Pierò, A., Tomba, E., & Abbate-Daga, G. (2009). Factors associated with dropout from treatment for eating disorders: A comprehensive literature review. *BMC Psychiatry*, *9*(1), 67. https://doi.org/10.1186/1471-244X-9-67.

Franko, D. L., Keshaviah, A., Eddy, K. T., Krishna, M., Davis, M. C., Keel, P. K., et al. (2013). A longitudinal investigation of mortality in anorexia nervosa and bulimia nervosa. *The American Journal of Psychiatry*, *170*, 917–925. https://doi.org/10.1176/appi.ajp.2013.12070868.

Friedman, K., Ramirez, A. L., Murray, S. B., Anderson, L. K., Cusack, A., Boutelle, K. N., et al. (2016). A narrative review of outcome studies for residential and partial hospital-based treatment of eating disorders. *European Eating Disorders Review*, *24*(4), 263–276. https://doi.org/10.1002/erv.2449.

Gabel, K., Pinhas, L., Eisler, I., Katzman, D., & Heinmaa, M. (2014). The effect of multiple family therapy on weight gain in adolescents with anorexia nervosa: Pilot data. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, *23*(3), 196–199.

Garner, D. M., Olmstead, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*, *2*(2), 15–34. https://doi.org/10.1002/1098-108X(198321)2:2%3C15::AID-EAT2260020203%3E3.0.CO;2-6.

Gelin, Z., Hendrick, S., & Simon, Y. (2015). Multiple family therapy for adolescents with anorexia nervosa: A one-year follow-up. *European Psychiatry*, *30*, 643. https://doi.org/10.1016/S0924-9338(15)30508-3.

Girz, L., Robinson, A. L., Foroughe, M., Jasper, K., & Boachie, A. (2013). Adapting family-based therapy to a day hospital programme for adolescents with eating disorders: Preliminary outcomes and trajectories of change. *Journal of Family Therapy*, *35*(Suppl 1), 102–120. https://doi.org/10.1111/j.1467-6427.2012.00618.x.

Goldfield, G. S., & Boachie, A. (2003). Delivery of family therapy in the treatment of anorexia nervosa using telehealth. *Telemedicine Journal and E-Health*, *9*(1), 111–114. https://doi.org/10.1089/153056203763317729.

Henderson, K., Buchholz, A., Obeid, N., Mossiere, A., Maras, D., Norris, M., et al. (2014). A family-based eating disorder day treatment program for youth: Examining the clinical and statistical significance of short-term treatment outcomes. *Eating Disorders: The Journal of Treatment & Prevention*, *22*(1), 1–18. https://doi.org/10.1080/10640266.2014.857512.

Hildebrandt, T., Bacow, T., Greif, R., & Flores, A. (2014). Exposure-based family therapy (FBT-E): An open case series of a new treatment for anorexia nervosa. *Cognitive and Behavioral Practice*, *21*(4), 470–484. https://doi.org/10.1016/j.cbpra.2013.10.006.

Hollesen, A., Clausen, L., & Rokkedal, K. (2013). Multiple family therapy for adolescents with anorexia nervosa: A pilot study of eating disorder symptoms and interpersonal functioning. *Journal of Family Therapy*, *35*(Suppl 1), 53–67. https://doi.org/10.1111/1467-6427.12000.

Honig, P. (2005). A multi-family group programme as part of an in-patient service for adolescents with a diagnosis of anorexia nervosa. *Clinical Child Psychology and Psychiatry*, *10*(4), 465–475. https://doi.org/10.1177/1359104505056309.

Hoste, R. R. (2015). Incorporating family-based therapy principles into a partial hospitalization programme for adolescents with anorexia nervosa: Challenges and considerations. *Journal of Family Therapy*, *37*(1), 41–60. https://doi.org/10.1111/1467-6427.12055.

Hurst, K., & Zimmer-Gembeck, M. (2015). Focus on perfectionism in female adolescent anorexia nervosa. *International Journal of Eating Disorders*, *48*(7), 936–941. https://doi.org/10.1002/eat.22417.

Hurst, K., Read, S., & Wallis, A. (2012). Anorexia nervosa in adolescence and Maudsley Family-Based Treatment. *Journal of Counseling & Development*, *90*(3), 339–345. https://doi.org/10.1002/j.1556-6676.2012.00042.x.

Johnston, J. A., O'Gara, J. S., Koman, S. L., Baker, C. W., & Anderson, D. A. (2015). A pilot study of Maudsley family therapy with group dialectical behavior therapy skills training in an intensive outpatient program for adolescent eating disorders. *Journal of Clinical Psychology*, *71*(6), 527–543. https://doi.org/10.1002/jclp.22176.

Jones, M., Volker, U., Lock, J., Taylor, C. B., & Jacobi, C. (2012). Family-based early intervention for anorexia nervosa. *European Eating Disorders Review*, *20*(3), e137–e143. https://doi.org/10.1002/erv.2167.

Le Grange, D., & Eisler, I. (2009). Family interventions in adolescent anorexia nervosa. *Child and Adolescent Psychiatric Clinics of North America*, *18*(1), 159–173. https://doi.org/10.1016/j.chc.2008.07.004.

Le Grange, D., Eisler, I., Dare, C., & Russell, G. F. M. (1992). Evaluation of family treatments in adolescent anorexia nervosa: A pilot study. *International Journal of Eating Disorders*, *12*(4), 347–357. https://doi.org/10.1002/1098-108X(199212)12:4%3C347::AID-EAT2260120402%3E3.0.CO;2-W.

Le Grange, D., Hoste, R. R., Lock, J., & Bryson, S. W. (2011). Parental expressed emotion of adolescents with anorexia nervosa: Outcome in family-based treatment. *International Journal of Eating Disorders*, *44*(8), 731–734. https://doi.org/10.1002/eat.20877.

Le Grange, D., Lock, J., Accurso, E. C., Agras, W., Darcy, A., Forsberg, S., et al. (2014). Relapse from remission at two- to four-year follow-up in two treatments for adolescent anorexia nervosa. *Journal of the American Academy of Child & Adolescent Psychiatry*, *53*(11), 1162–1167. https://doi.org/10.1016/j.jaac.2014.07.014.

Le Grange, D., Lock, J., Agras, W., Moye, A., Bryson, S. W., Jo, B., et al. (2012). Moderators and mediators of remission in family-based treatment and adolescent focused therapy for anorexia nervosa. *Behaviour Research and Therapy*, *50*(2), 85–92. https://doi.org/10.1016/j.brat.2011.11.003.

Le Grange, D., Hughes, E. K., Court, A., Yeo, M., Crosby, R. D., & Sawyer, S. M. (2016). *Randomized clinical trial of parent-focused treatment and family-based treatment for adolescent anorexia nervosa. Journal of the American Academy of Child & Adolescent Psychiatry*. Advance online publication.

Lock, J., & Le Grange, D. (2012). *Treatment manual for anorexia nervosa: A family-based approach* (2nd ed.,). New York, NY: Guilford Press; US.

Lock, J., Agras, W., Bryson, S., & Kraemer, H. C. (2005). A comparison of short- and long-term family therapy for adolescent anorexia nervosa. *Journal of the American Academy of Child & Adolescent Psychiatry*, *44*(7), 632–639. https://doi.org/10.1097/01.chi.0000161647.82775.0a.

Lock, J., Agras, W., Le Grange, D., Couturier, J., Safer, D., & Bryson, S. (2013). Do end of treatment assessments predict outcome at follow-up in eating disorders? *International Journal of Eating Disorders*, *46*, 771–778. https://doi.org/10.1002/eat.22175.

Lock, J., Couturier, J., & Agras, W. S. (2006). Comparison of long-term outcomes in adolescents with anorexia nervosa treated with family therapy. *Journal of the American Academy of Child and Adolescent Psychiatry*, *45*(6), 666–672. https://doi.org/10.1097/01.chi.0000215152.61400.ca.

Lock, J., Couturier, J., Bryson, S., & Agras, S. (2006). Predictors of dropout and remission in family therapy for adolescent anorexia nervosa in a randomized clinical trial. *International Journal of Eating Disorders*, *39*(8), 639–647. https://doi.org/10.1002/eat.20328.

Lock, J., Le Grange, D., Agras, W. S., Fitzpatrick, K. K., Jo, B., Accurso, E., et al. (2015). Can adaptive treatment improve outcomes in family-based therapy for adolescents with anorexia nervosa? Feasibility and treatment effects of a multi-site treatment study. *Behaviour Research and Therapy*, *73*, 90–95. https://doi.org/10.1016/j.brat.2015.07.015.

Lock, J., Le Grange, D., Agras, W. S., Moye, A., Bryson, S. W., & Jo, B. (2010). Randomized clinical trial comparing family-based treatment with adolescent-focused individual therapy for adolescents with anorexia nervosa. *Archives of General Psychiatry*, *67*(10), 1025–1032. https://doi.org/10.1001/archgenpsychiatry.2010.128.

Loeb, K. L., & Le Grange, D. (2009). Family-based treatment for adolescent eating disorders: Current status, new applications and future directions. *International Journal of Child and Adolescent Health*, *2*(2), 243–253.

Loeb, K. L., Le Grange, D., & Lock, J. (Eds.). (2015). *Family therapy for adolescent eating and weight disorders: New applications*. Routledge.

Madden, S., Miskovic-Wheatley, J., Wallis, A., Kohn, M., Lock, J., Le Grange, D., et al. (2015). A randomized controlled trial of in-patient treatment for anorexia nervosa in medically unstable adolescents. *Psychological Medicine*, *45*(2), 415–427. https://doi.org/10.1017/S0033291714001573.

Marzola, E., Knatz, S., Murray, S. B., Rockwell, R., Boutelle, K., Eisler, I., et al. (2015). Short-term intensive family therapy for adolescent eating disorders: 30-month outcome. *European Eating Disorders Review*, *23*(3), 210–218. https://doi.org/10.1002/erv.2353.

Mehl, A., Tomanová, J., Kuběna, A., & Papežová, H. (2013). Adapting multi-family therapy to families who care for a loved one with an eating disorder in the Czech Republic combined with a follow-up pilot study of efficacy. *Journal of Family Therapy*, *35*, 82–101. https://doi.org/10.1111/j.1467-6427.2011.00579.x.

Moher, D., Liberati, A., Tetzlaff, J., Altman, D., & The PRISMA Group (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Journal of Clinical Epidemiology*, *62*, 1006–1012. https://doi.org/10.1016/j.jclinepi.2009.06.005.

Murray, S. B., & Le Grange, D. (2014). Family therapy for adolescent eating disorders: An update. *Current Psychiatry Reports*, *16*(5), 447. https://doi.org/10.1007/s11920-014-0447-y.

Murray, S. B., Griffiths, S., & Le Grange, D. (2014). Adolescent eating disorders & family therapy: An overview of current evidence-based treatments. *Minerva Psichiatrica*, *55*(3), 153–160.

National Collaborating Centre for Methods and Tools. 2008. Quality assessment tool for quantitative studies method. Hamilton, ON: McMaster University. Available: http://www.nccmt.ca/registry/%20view/eng/15.html.

Ornstein, R., Lane-Loney, S., & Hollenbeak, C. (2012). Clinical outcomes of a novel family-centered partial hospitalization program for young patients with eating disorders. *Eating and Weight Disorders*, *17*(3), e170–e177. https://doi.org/10.1007/BF03325344.

Paulson-Karlsson, G., Engstrom, I., & Nevonen, L. (2009). A pilot study of a family-based treatment for adolescent anorexia nervosa: 18- and 36-month follow-ups. *Eating Disorders: The Journal of Treatment & Prevention*, *17*(1), 72–88.

Pretorius, N., Espie, J., & Simic, M. (2015). *Evaluation of a cognitive remediation therapy group for adolescents with anorexia nervosa in a day patient setting*. In K. Tchanturia (Ed.), pp. 130–143.

Rhodes, P., Baillee, A., Brown, J., & Madden, S. (2008). 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*, *30*(1), 96–108. https://doi.org/10.1111/j.1467-6427.2008.00418.x.

Rienecke, R. D., Richmond, R., & Lebow, J. (2016). Therapeutic alliance, expressed emotion, and treatment outcome for anorexia nervosa in a family-based partial hospitalization program. *Eating Behaviors*, *22*, 124–128. https://doi.org/10.1016/j.eatbeh.2016.06.017.

Robinson, A. L., Dolhanty, J., & Greenberg, L. (2015). Emotion-focused family therapy for eating disorders in children and adolescents. *Clinical Psychology & Psychotherapy*, *22*(1), 75–82. https://doi.org/10.1002/cpp.1861.

Robinson, A. L., Strahan, E., Girz, L., Wilson, A., & Boachie, A. (2013). 'I know I can help you': Parental self-efficacy predicts adolescent outcomes in family-based therapy for eating disorders. *European Eating Disorders Review*, *21*(2), 108–114. https://doi.org/10.1002/erv.2180.

Rockwell, R. E., Boutelle, K., Trunko, M. E., Jacobs, M., & Kaye, W. H. (2011). An innovative short-term, intensive, family-based treatment for adolescent anorexia nervosa: Case series. *European Eating Disorders Review*, *19*(4), 362–367. https://doi.org/10.1002/erv.1094.

Salaminiou, E., Campbell, M., Simic, M., Kuipers, E., & Eisler, I. (2015). Intensive multi-family therapy for adolescent anorexia nervosa: An open study of 30 families. *Journal of Family Therapy*, *39*, 498–513. https://doi.org/10.1111/1467-6427.12075.

Scholz, M., & Asen, E. (2001). Multiple family therapy with eating disordered adolescents: Concepts and preliminary results. *European Eating Disorders Review*, *9*(1), 33–42. https://doi.org/10.1002/erv.364.

Smolak, L., & Levine, M. P. (1994). Psychometric properties of the children's eating attitudes test. *International Journal of Eating Disorders*, *16*(3), 275–282. https://doi.org/10.1002/1098-108X(199411)16:3%3C275::AID-EAT2260160308%3E3.0.CO;2-U.

Steinhausen, H. C. (2002). The outcome of anorexia nervosa in the 20th Century. *American Journal of Psychiatry*, *159*, 1284–1293. https://doi.org/10.1176/appi.ajp.159.8.1284.

Strober, M. (2014). Proposition: Family-based treatment is overvalued position: Proposer. *Advances in Eating Disorders: Theory, Research and Practice*, *2*(3), 264–284. https://doi.org/10.1080/21662630.2014.898390.

Treasure, J., & Russell, G. (2011). The case for early intervention in anorexia nervosa: Theoretical exploration of maintaining factors. *The British Journal of Psychiatry*, *199*, 5–7. https://doi.org/10.1192/bjp.bp.110.087585.

Utzinger, L. (2013). Transdiagnostic response to family-based treatment for eating disorders in adolescents: Predictors of outcome (Doctoral dissertation, Palo Alto University).

Voriadaki, T., Simic, M., Espie, J., & Eisler, I. (2015). Intensive multi-family therapy for adolescent anorexia nervosa: Adolescents' and parents' day-to-day experiences. *Journal of Family Therapy*, *37*(1), 5–23. https://doi.org/10.1111/1467-6427.12067.

Wallis, A., Alford, C., Hanson, A., Titterton, J., Madden, S., & Kohn, M. (2013). Innovations in Maudsley family-based treatment for anorexia nervosa at the Children's Hospital at Westmead: A family admission programme. *Journal of Family Therapy*, *35*(Suppl 1), 68–81. https://doi.org/10.1111/j.1467-6427.2012.00604.x.

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