



UiT Norges arktiske universitet

Det Helsevitenskapelige Fakultet – Institutt for Psykologi

Effects of Cognitive-behavioral and Psychodynamic-interpersonal Treatments for Eating Disorders:
A Meta-analytic Inquiry Into the Role of Patient Characteristics, and Change in Eating Disorder-
specific and General Psychopathology in Remission.

Leif Tore Ledaal Moberg & Birgitte Solvang

Hovedoppgave i Profesjonsstudiet i psykologi, PSY-2901, Mai 2020

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Preface

The study was conducted in fulfilment of course PSY 2901, and represents the candidates' master thesis in clinical psychology for the cand.psychol. degree at the University of Tromsø - UiT. Both candidates find themselves having a pronounced interest in eating disorders and in research on therapeutic processes and treatment effects, which generated the focus of the study. Additionally, both candidates have over the last year gained clinical experience in treating eating disorders.

Due to the meta-analytical design of the study and need for methodological supervision, the candidates contacted associate professor Rannveig Grøm Sæle at the department of Psychology in October 2018. Later on, doctoral research fellow Anna Dahl Myrvang was contacted, as the candidates needed an assistant supervisor with a specific interest in eating disorders. Rannveig has also contacted other relevant professionals, associate professor Mattias Mittner and senior academic librarian Torstein Låg, to answer questions about systematic literature search, statistical method/design and interpretation of results. The candidates have proposed variables and study design. Research questions were exploratory, thus formulated in advance without having any hypotheses about the results. The supervision has focused on moderating the scope of the study, discussing operationalization of the variables regarding eating disorders, clarifying the research question, discussing the results and feedback on drafts. Most of the supervision has occurred via skype meetings or e-mail.

The meta-analysis is performed by both candidates. However, only Leif Tore had access to the Comprehensive Meta-Analysis Software. Full-text review and coding were completed by both candidates. Disagreement was solved through discussion. The study was submitted for pre-

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

registration in Prospero in February 2020, and is still being evaluated for eligibility. Given approval of the submission, the candidates will try to publish the study.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Abstract

Background: Knowledge about the outcomes of different psychotherapeutic approaches for eating disorders in terms of remission is limited. Also, knowledge is limited about how therapies and patient characteristics interact to affect outcomes, and by which therapeutic processes.

Method: Reports on the psychotherapeutic treatment of eating disorders by CBT and PIT were searched. Rates of remission and changes in eating disorder specific and general psychopathology were computed and meta-analytically synthesized. Regression models were made to predict summary event rates by patient characteristics and changes in specific and general psychopathology. **Results:** Only CBT produced remission rates (34.2%) significantly different from waitlist conditions, and only CBT led to significantly greater change in specific psychopathology than waitlist/nutritional counseling conditions. However, CBT and PIT were equally effective in changing general psychopathology. Reduction in general psychopathology predicted higher remission for PIT. For CBT, change in specific psychopathology predicted remission only when controlling for differences between diagnostic categories. Change in general psychopathology predicted remission only for PIT. The presence of comorbid personality disorder decreased the effect of CBT. **Discussion:** A subgroup of eating disorder patients may require therapy aimed at strengthening deficits in self functions not easily ameliorable by cognitive behavioral techniques alone. However, although effective in changing specific and general psychopathology, PIT is not effective in producing behavioral change. Further research should be aimed at identifying treatment interventions that effectuate both behavioral change and strengthening self-functions to substitute eating-disordered behavior as a means to meet psychological needs.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Eating disorders are multifaceted psychiatric states that bring about several aspects to psychotherapy that complicate the process of recovery. Rates of dropout from treatment range from 20 % to 73 %, and patients often have chronic courses of illness (Lock & Fitzpatrick, 2009; Steinhausen & Weber, 2009). Eating disorders are associated with several medical complications (Westmoreland, Krantz & Mehler, 2016) and increased mortality (Arcelus, Mitchell Wales & Nielsen, 2011). There are different theoretical understandings of eating disorders, pertaining to their etiology and maintaining factors, and thus how best to address the difficulties patients face in treatment.

Eating disorders, as defined by the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5; American Psychiatric Association [APA], 2013), are “characterized by persistent disturbance of eating or eating-related behavior that results in the altered consumption or absorption of food and that significantly impairs health or psychosocial functioning”. DSM-5 (APA, 2013) recognizes three different eating disorders; anorexia nervosa (AN), bulimia nervosa (BN) and binge eating disorder (BED). These diagnostic categories intend to reflect independent manifestations of eating disorders, relating to the expression and severity of diagnose-specific core cognitions and behavior. Eating-disordered cognitions are characterized by thoughts about and over-evaluation of body weight, shape and eating. Eating-disordered behavior, such as subjective or objective episodes of binge-eating, and dietary restriction and compensatory strategies (e.g., use of laxatives, vomiting and excessive exercise) aimed at controlling body weight, shape and eating. These cognitive and behavioral aspects represent the specific psychopathology, distinctive of eating disorders. In the DSM-5, AN is defined by significant weight loss following dietary restriction, lasting three months. BN is defined by the number of compensatory behaviors per week, and BED is defined by the number

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

of uncontrolled bingeing episodes per week. For BN and BED, the eating-disordered behavior has to be present once a week for a three months period to satisfy diagnostic criteria.

Furthermore, in addition to the eating disorder specific psychopathology, the clinical presentations of eating disorders are accompanied by interpersonal difficulties and comorbidity. Personality disorders have meta-analytically been estimated to be comorbid with eating disorders in 50% of the cases (Martinussen, Friborg, Schmierer, et al., 2017). Also, a large comorbidity survey for eating disorders by Hudson, Hiripi, Pope & Kessler (2007) showed high rates of comorbid disorders (depressive, anxiety and substance use) across eating disorder diagnoses (56 % for AN, 94 % for BN and 78 % for BED). For patients with eating disorders, interpersonal difficulties (Jones, Lindekilde, Lubeck & Clausen, 2015) and psychiatric comorbidities (Berkman, Lohr & Bulik, 2007) are associated with poor outcomes of psychotherapy, and persistence of eating-disordered symptoms.

Two historically prominent theoretical frameworks for understanding the psychopathology present in eating disorders are (a) The cognitive-behavioral schools of thought based off Becks (1979) cognitive-behavioral model of depression and adapted to the symptomatology and clinical presentations of EDs (e.g., Garner & Bemis, 1982; Fairburn, Marcus & Wilson, 1993) and (b) The psychodynamic (Gabbard, 2014) or interpersonal (Klermann, Weissmann, Rounsaville & Chevron, 1984) models converging on the emphasis of the role of others in the development of the self, and relating the development of psychopathology to deficits or difficulties in self-other relations. Regarding the treatment of EDs, these two traditions are distinguished by the extent to which they target eating-disordered cognitions and behaviors - what makes eating disorders special, or deficiencies in the development of the self - what eating disorders share with other mental disorders. The focus of

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

this meta analytic review was the therapeutic processes and treatment effects of these different theoretical treatment approaches.

In line with the cognitive-behavioral model of eating disorders (Fairburn, Cooper & Shafran, 2003), and the transdiagnostic understanding of eating disorders, all eating- disordered behaviors are assumed to be driven by the core eating-disordered cognitions, i.e., the over-evaluation of shape and weight, and their control. For eating disorder patients, self-evaluation is based largely on the extent to which they can control their shape and weight, a feature commonly associated with a subjective experience of low self worth. The over-evaluation is hypothesized to lead to dietary restraint; understood as attempts to restrict food intake. The cognitive and behavioral traits are assumed to be mutually reinforcing and self-perpetuating maintaining mechanisms seen in AN, BN and BED. Thus, the different categories of eating disorders do not necessarily represent independent disorders; rather, they may all reflect different manifestations of the patient's attempts to restore the emotional and cognitive unbalance associated with eating disorders. Fairburn et al., (2003) proposes that the main difference between the eating disorder diagnoses is reflected by the relative balance between under-eating and over-eating. Thus, eating disorders can be understood transdiagnostically as different manifestations of similar cognitive-behavioral mechanisms.

Cognitive behavioral therapies aim to break the cognitive triangle consisting of thoughts, emotions and behavior (Beck, 1979) by restructuring dysfunctional thoughts, beliefs and attitudes pertaining to eating, body shape and weight (Fairburn, 2008) The patient is helped to identify the over-evaluation, and to reflect upon the consequences for emotional and social functioning. The patient is then able to decide whether behavior should be guided by the over-evaluation (i.e., eating-disordered behavior), or not. Self-monitoring of eating- and compensatory

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

behaviors, and the thoughts and emotions preceding and following these behaviors, are established (Fairburn, 2008; Waller et al., 2018). Early on in treatment, the patient is encouraged to establish regular eating, and abstain from bingeing, and compensatory behaviors.

Psychoeducation about the consequences of eating disorders and the relevant cognitive-behavioral mechanisms is used to increase patients' understanding of their psychological processes and help them to make an informed choice of behavior (Fairburn, 2008). In cognitive behavior theory the specific eating-disordered psychopathology and behaviors are mutually reinforcing (Fairburn, 2003). By simultaneously challenging the specific psychopathology of eating disorders, and deciding not to engage in eating-disordered behaviors, the cognitive-behavioral links that maintain the disorders are gradually dissolved.

Furthermore, eating disorders have been conceptualized as disorders of the self, stemming from a deficiency in the organization of the personality. The lack of sense of self can be regarded as the core psychological deficiency leading to difficulties in emotion regulation and interpersonal difficulties (Schore, 2002; Tasca & Balfour 2014). The deficiency in the sense of self is apparent in the patients experience of self-cohesion, and evaluation of self-worth and self-agency (Beasten & Touyz, 2019). The sense of self is a transdiagnostic construct that has been shown to play important roles in the development of borderline personality disorder, depression and eating disorders (Beasten & Touyz, 2019).

Psychodynamic and interpersonal theories have to various extents emphasised that development of the personality and psychopathology is dependent upon the relation of the self to others. With the advent of attachment theory (Ainsworth 1970; Bowlby, 1958) and the empirical research it inspired (Schore, 2009), the role of deficiencies in self-other relations were increasingly recognized. In light of attachment theory, the development of the personality can be

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

understood as being dependent upon the quality of the early attachment relationships. Through being emotionally mirrored and regulated by caregivers, the individual develops a cohesive sense of self, capable of containing emotional experiences and needs as real and legitimate. Also, this development underpins an individual's understanding of the affective, motivational and cognitive states of the self and of others, referred to as reflective functioning/mentalization ability (Allen, Fonagy & Bateman, 2008; Fonagy, Gergely, Jurist & Target, 2002). The ability to mentalize make up important areas of functioning of the self, and is closely related to the person's ability to regulate emotions and to form meaningful interpersonal bonds (Tasca & Balfour, 2014).

Studies have shown associations between impaired mentalization skills and insecure attachment styles (Kuipers & Bekker, 2012) in patients with eating disorders. While good mentalization skills are influenced by a fundamental trust in oneself and others; impaired mentalization is often congruent with a fundamental distrust, and thus misconceptions regarding other's intentions. The ability to effectively mentalize is dynamic, and depends on attachment style, emotional arousal and situation.

The deficit in self-cohesion and functioning in adolescence and adulthood can be seen as a result of dissociation of the needs of the self (i.e., the need for self esteem, control and agency, and soothing of aversive emotional states) when frustration of these needs in the past became exceedingly distressing (Schoore 2009). However, this defence comes at a high price. In the absence of a cohesive self that can contain basic needs as expressed in a differentiated set of emotions and motivations, it makes the person susceptible to undifferentiated states of general discomfort, which is often expressed as general psychiatric symptoms of anxiety and depressive states, that the self can not contain and modulate (Schoore, 2002). A developmentally based lack

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

of self-cohesion and self esteem has been associated with a higher degree of eating-disordered symptoms in nonclinical college samples (Perry, Silvera, Neilands, Rosenvinge & Hanssen, 2007), the severity of symptoms in AN samples (Bacher-Melman, Zohar, Ebstein & Bachar 2007) and it prospectively predicted the onset of eating disorders in a large sample of schoolgirls (Bachar, Gur, Canetti, Berry & Stein, 2010).

The eating-disordered behaviors may thus serve as surrogate strategies for restoring the patients' sense of self-worth and self-agency, and regulating relations and emotions (Gabbard, 2014). In this sense they are expressions of psychological needs of the self that are disavowed through the defence of dissociation. For instance, research has shown both through qualitative (Espeset, Gulliksen, Nordbø, Skårderud, & Holte, 2012) and quantitative (Greeno, Wing & Shiffman 2000; Meule et al., 2019; Steinberg Tobin & Johnson, 1990) methods that eating-disordered behaviors (i.e., purging, bingeing, dietary restriction, exercising and body checking) reduce negative affect, thus fulfilling the need for emotion regulation. Furthermore, the sense of self-worth and relations may be regulated through the exertion of power and discipline over one's own body, and eliciting care from others (Serpell, Treasure, Teasdale & Sullivan, 1998; Serpell & Treasure, 2002).

To summarize, impairment of different features of the self (e.g., poor mentalizing ability, emotion regulation and interpersonal functioning) is associated with general psychopathology such as anxious and depressive features in patients with EDs (Ivanova, Tasca, Proulx & Bissada, 2015; Tasca et al., 2009). Experienced emotional distress may thus be an important maintaining factor, linking deficiency in the patients self-functions with the specific cognitive and behavioral features of EDs, and psychiatric disorders in general.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

The aim of psychodynamic-interpersonal therapy is to heighten the patient's awareness, acceptance and tolerance of affective and motivational experiences. Furthermore, the aim is to help the patient to integrate and contain previously disavowed affective and motivational content into her sense of self (Gabbard, 2014). Several areas of focus that are characteristic of PIT (e.g., mentalization-based therapy, interpersonal therapy, psychodynamic therapy) are thought to be conducive to this process; (a) affect and expression of emotions; (b) exploration of avoidance related to facilitation of the therapy process; (c) identifying patterns in the patient, relating to actions, thoughts, feelings, experiences and relationships; (d) past experiences; (e) interpersonal experiences; (f) therapeutic relationship; and/or (g) exploration of wishes, dreams or fantasies (Blagys & Hilsenroth, 2000).

The National Institute for Clinical Excellence (2004) recommends outpatient psychotherapy as a first-line treatment for EDs. Symptom-focused CBT is recommended for AN, BN and BED. For AN, it is also recommended using psychodynamic or interpersonal therapy approaches, but no specific therapy is recommended over another.

Some meta-analytic evidence has been found for specific treatment effects for CBT relative to other treatment conditions. CBT has been found to be more effective in reducing eating-disordered cognitions (Linardon, 2018a), depressive symptoms (Linardon, Wade, Garcia & Brennan, 2017b) and increasing quality of life (Linardon & Brennan 2017). Furthermore, reduction of eating disorder psychopathology predicted the reduction of behavioral symptoms for BN and BED samples (Linardon, 2018a), and reduction of binge/purge symptoms have been found to predict greater reduction of depressive symptoms in BN samples receiving CBT, compared to other treatments (Linardon et al., 2017b). These findings lend preliminary support

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

for the cognitive-behavioral model of eating disorders, and thus the core behavioral and cognitive symptoms as principal targets of therapeutic interventions.

However, inferences as to the effect of different specified therapeutic approaches have been difficult to make from meta-analytic inquiries (e.g., Couturier, Kimber & Szatmari 2013; Linardon 2018a, Linardon & Brennan, 2017; Linardon et al., 2017b; Murray et al., 2018; Vocks et al., 2010). This difficulty is due to heterogeneity within the treatments under study and their comparator-treatments with regards to therapeutic approach employed (e.g., different combinations of active psychotherapies, treatment as usual, or wait-list conditions). In addition, outcomes have mainly been focusing on the degree to which eating disorder psychopathology has changed due to treatment, instead of remission. Thus the clinical relevance of differences in treatment effects have been difficult to assess.

Rates of remission, in terms of abstinence from the core behavioral symptoms have, however, been synthesized meta-analytically for BN (Linardon & Wade, 2017) and BED (Linardon, 2018b). For BN the rate was 30% and for BED 45%, for all patients who started therapy. Such figures are to date missing for AN. Comparisons made between treatments included in the studies were specifically defined in terms of their therapeutic foci and yielded mixed results. Interpersonal therapy produced the highest rates of remission for BED. For BN, CBT was most effective. In a direct comparison with interpersonal therapy, CBT led to higher remission rates across eating disorder diagnoses (Linardon, Wade, Garcia & Brennan 2017a).

Knowledge is to date incomplete, as to how different psychotherapeutic foci act on different aspects of eating disorders, as well as the relative contributions of reduction of specific and general psychopathology to remission. Meta-analysis could inform on these issues by basing the assignment of different therapeutic interventions to treatment-arms based on their common

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

therapeutic focus more consistently and examine their effects on different clinical features presented.

The aim of this meta-analytic review is to shed light on how two specific and conceptually different treatment approaches work for patient samples with varying presentations of eating disorders. Given the high rates of interpersonal problems and psychiatric comorbidity in eating disorder presentations, it is important also to understand the extent to which changes in specific and general psychopathology influence the outcome of therapy in terms of remission. For example, anxious and depressive features often constitute a considerable part of the clinical presentations of eating disorders. These features may be linked to, and maintain the symptoms. The specific and the general psychopathology may also respond differently to different therapeutic approaches. Thus, knowing the way in which these treatment constructs are modified by specific psychotherapeutic approaches would help inform which treatment construct to target and how to target them. To this end we raise three research questions:

1. Do CBT and psychodynamic-interpersonal therapies differ in treatment efficacy, and what are their respective effects with regards to remission, and change in specific and general psychopathology?
2. To what extent are rates of remission, for each of the two treatment approaches, dependent upon changes in specific and general psychopathology?
3. How does patient characteristics, such as eating disorder diagnosis, comorbid personality disorder, and mean patient age affect remission rates for each of the treatment approaches?

Method

This meta-analytic review was submitted for pre-registration in February 2020 at International Prospective Register of Systematic Reviews (PROSPERO). All analyses were planned before the systematic searches, literature review and data extraction were performed.

Search strategy

This review was conducted and reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (Moher, Liberati, Tetzlaff, & Altman, 2009). Electronic databases that were searched are PsycInfo, Embase, Medline, Proquest Dissertations and Theses, and Cinahl. Three search strings were constructed to represent the constructs “eating disorders”, “cognitive behavior therapy”, and “psychodynamic-interpersonal therapy”. The search strings representing the treatment approaches were first combined with the operator OR, then combined with the construct “eating disorder” with the operator AND, in the respective databases. The complete search strategy is attached in appendix A. In order to maximize sensitivity and specificity, a broad spectrum of established practiced forms of therapy within the theoretical traditions of interest were included in the searches. Thesauruses that appeared in the searches were screened, and used if deemed relevant.

Study selection and data management

Reports were pooled in a common library, across databases, using EndNote X9. The references were reviewed, and data from included studies were extracted by the two authors independently. As eating disorders first was included as an independent chapter in DSM-3 in 1980, papers older than 1980 were excluded. Additionally, cognitive behavioral therapy first became a mainstream treatment option for eating disorders in the same period of time. A pilot-review was conducted to ensure inter-rater agreement on the extracted data. Discrepancy was

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

solved by discussion. When calculating effect sizes, data based on intention to treat analyses were prioritized over data based on completers analysis.

Eligibility criteria

During screening, all references to original clinical trials on the treatment of eating disorders were considered for full text review. To be considered eligible for final inclusion, the reports had to provide information to calculate a between-group or within-groups effect size for the proportion of patients in remission, or changes specific or general psychopathology across at least two time-points; for at least one psychotherapeutic intervention that has a cognitive-behavioral focus or a psychodynamic-interpersonal focus; and directed to outpatients with a clinical eating disorder. Waitlist/nutritional counseling (WL/NC) conditions were included if present in reports that met other inclusion criteria.

Exclusion criteria in the fulltext review included multimodal therapies combining, e.g., milieu therapy, medication, exercise; treatments combining aspects of CBT and PIT, e.g., emotion focused therapy; purely behavioral interventions not targeting the cognitive or psychodynamic-interpersonal aspects of eating disorders, e.g., exposure and response prevention, dietary advice or specialist supportive care; treatments that target some of the treatment constructs targeted by CBT and PIT, but can not be categorized as such because they are broader in scope than either of these therapies, or does in part target different treatment constructs entirely, e.g., dialectical behavior therapy, and acceptance and commitment therapy.

Data extraction and coding

Outcome variables

All outcome variables were coded across two time-points; pre-treatment (t0) and 12 months follow-up (t1). Because relapse rates are high for eating disorders, 12 months follow up

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

was used to assess treatment effects that can be said to be stable over time. If outcome assessments were available for several time-points after the end of treatment, the time-point closest to 12 months was prioritized. If follow-up assessment was unavailable, end of treatment assessment were used and coded as 0.

The number of patients intended to be treated at t_0 , and the number of patients in remission at t_1 were extracted. For the continuous outcomes, standardized between group and within group changes in the form of Cohen's d , were computed based on means and standard deviations at t_0 and t_1 , or from correlations or p-values for pre-post changes. Computing Cohen's d , the correlation between the pre and post measures are needed, but rarely reported in primary studies. It is recommended that this correlation is an approximation of the test-retest reliability of the relevant measures (Lipsey & Wilson, 2001). We followed convention and set this correlation to .70 for all measures, which is considered sufficiently close to the test-retest reliability of many psychometric scales (Lipsey & Wilson, 2001).

Primary outcome variable. Remission was defined as the proportion of patients in the treated sample that has undergone weight normalization (AN-samples), cessation of compensatory behaviors (AN- and BN-samples), and cessation of bingeing at t_1 (BN- and BED-samples).

Secondary outcome variables. Furthermore, two secondary outcome variables were coded. First, specific psychopathology was coded for t_0 and t_1 . Scales such as the Eating Disorder Examination (EDE) were preferred if primary studies reported several measures. These instruments consist of the subscales; restraint, eating concerns, shape concerns, and weight concerns, assumed to encompass the specific psychopathology. In studies where other instruments were used for measuring specific psychopathology, each subscale were evaluated in

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

terms of relevance to its core features, e.g., “the drive for thinness” and “body dissatisfaction” subscale in the Eating Disorders Inventory (Garner, Olmstead & Polivy, 1983). The remaining subscales of the EDI were not used because they targeted non-specific aspects of eating disorder psychopathology, or purely behavioral aspects. Second, change in general psychopathology from t0 to t1 was quantified using assessment scales for depressive (e.g., BDI, HAM-D) or anxious (e.g., STAI-S, STAI-T, HAM-A) symptomatology. In cases where several subscales were reported, composite change scores were made from subscale scores measuring specific or general psychopathology. Each sample contributed only with one effect size per outcome measure.

Predictors variables

Treatment approaches were coded categorically as either cognitive-behavioral therapy or psychodynamic-interpersonal therapy. The CBT approach was included and coded based on the focus on dysfunctional thoughts, beliefs and attitudes regarding eating, body shape and weight, and how these relate to behavior and emotions. The PIT approach was included and coded according to the definition by Blagys & Hilsenroth (2000).

Standardized change scores for specific and general psychopathology were also used as predictors of remission in the analyses.

Three patient variables/moderator variables were coded. First, eating disorder diagnosis were coded as either AN, BN, BED or mixed samples. Second, personality disorder was coded as the number of patients in the treated sample with a personality disorder diagnosis. Third, mean patient age was coded as a continuous variable.

Additional study-level predictors. To examine the potential moderating role of follow-up time on treatment effect, the number of months from end of treatment to follow up was coded

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

as a continuous variable. This variable will allow an assessment of the stability of treatment effects over time.

Data synthesis and meta-analysis

Meta analyses were performed by using the Comprehensive Meta Analysis Software version 3. All meta-analytic models were constructed with effect sizes weighted by their inverse variance, assuming random effects, as is recommended when the true treatment effects reported by studies are expected to vary (Borenstein, Hedges, Higgins & Rothstein, 2011).

To answer question 1, computation of main effects of treatment approach were planned in separate between- and within-groups analyses. Synthesis of between-group effect sizes were planned for the relative effects of CBT and PIT versus WL/NC in direct comparisons using odds ratios for remission and Cohen's *d* for standardized differences in changes in specific and general psychopathology. Within-group summary effect sizes were calculated for individual treatment arms where CBT, PIT or WL/NC were delivered, using event rates for remission and Cohen's *d* for pre-post changes in psychopathology. Because effect sizes were derived from studies with different designs and patient samples, significant statistical heterogeneity were expected and were subjected to examination.

To answer question 2, the impact of change in specific and general psychopathology on remission was assessed. The value of change scores were centered as is recommended for continuous variables used in multiple regression with categorical variables (Frazier, Tix & Barron, 2015). Regression models were made for each treatment approach, where remission rates were independently predicted by change scores. Additional regression models were planned where remission was regressed on change scores and treatment approach compared to WL/NC as simultaneous covariates. In accordance with the conceptual model described by Baron & Kenny

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

(1986) the effect of one variable on another is dependent upon, i.e., mediated by a third variable to the extent it is accounted for by that variable. A mediated effect would be indicated if the regression weights for the direct relationship between treatment approach and remission decrease to a nonsignificant level when controlling for the effect of purported mediators. Furthermore, the relative importance of each hypothesized mediator was examined by comparing their respective regression coefficients, the variance explained by, and significance of the addition of this variable to the model.

To answer question 3, regression analyses of remission on patient-characteristics (eating disorder diagnosis, age and comorbidity), for each treatment approach were performed. The strength and direction of relationships, significance-levels, as well as variance explained by the models were examined. Regression analyses of remission rates on treatment approach and patient variables as simultaneous predictors were planned.

Analyses were performed to assess the possible significance of design characteristics, i.e., follow-up time and allocation to treatment conditions.

Publication bias assessment

One vulnerability of meta-analyses is the potential presence of publication bias, i.e., if studies with weak or non-significant effects are not published and therefore not included in the analysis. Publication bias has been identified as a problem in both psychological and medical research (van Aert, Wicherts, van Assen, 2019), but is unreliable to test with one method only. The use of several methods is therefore recommended (Coburn & Vevea, 2015). To test for publication bias we used funnel plots to visually assess publication presence of publication bias and Egger's regression for examining correlations between sample size and estimated effect sizes.

Results

Study characteristics

Table D1-D4 in appendix D contains complete descriptions of characteristics for all included studies, and complete reference list of included studies is attached in appendix B. After removal of irrelevant reference types (e.g., qualitative studies, books, reviews, comments, editorials, and papers in other languages than English). 3089 references were screened for eligibility. After fulltext review, 110 studies, with 153 samples met the inclusion criteria. Studies included had sample sizes ranging from 4 to 327 participants. The most common treatment condition was CBT ($k = 119$). PIT was represented in 25 samples, and WL/NC in 9 samples. Mean age of participants in the included samples ranged from 14.7 to 48.7 years. BED samples had a notably higher mean age compared to mixed, AN and BN samples. Follow-up length ranged from 0 to 24 months.

The studies included varied in study-design, with an even distribution of RCTs and single-arm studies. Out of 363 coded outcomes, 209 were based on intention-to-treat sample size and 136 were based on completer sample size. The remaining 18 outcomes were not specified whether based on ITT or completer analyses. All effect sizes for remission were calculated on ITT sample size.

Definitions of remission varied in the sample of studies. A post-hoc decision was made to include only studies that reported remission as abstinence bingeing and compensatory behavior for 28 days (for BN/BED); or weight restoration to a minimum BMI of 17.5 (for AN). For specific psychopathology the most common measure was EDE/EDE-Q. When the EDI subscales were reported, only the “drive for thinness” and “body dissatisfaction” subscales were included. Other measures included were EAT-26 and the “restraint” subscale of the TFE-Q. The most

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

common measures of general psychopathology were BDI, BAI and SCL-90. All scales measuring anxious and depressive symptoms were included.

Treatment effects

Direct comparison/between-group. Eight studies met inclusion criteria for direct comparisons of CBT ($k = 5$) or PIT ($k = 3$) to waitlist/nutritional counseling conditions. However, because comparisons could not be made across similar outcomes, direct comparison analyses were not performed.

Indirect comparison/within-group. Table 1 shows treatment effects for primary and secondary outcome variables. Rates of remission ($k = 81$) were significantly predicted by treatment approach ($Q(2) = 14.25, p < .001$). Remission rates for the CBT condition were significantly higher compared to WL and PIT. However, PIT was not significantly different from WL. Weighted averaged remission rates were 34.2 % for CBT ($k = 66$), 21.6 % for PIT ($k = 10$) and 15.9 % for WL/NC ($k = 5$). The within-group heterogeneity was significant ($Q(78) = 320.46, p < .001$). The amount of variance explained by the model, indicated by R^2 analog, was 9 %.

Changes in specific psychopathology ($k = 100$) were significantly predicted by treatment condition ($Q(2) = 15.59, p < .001$). Only CBT differed significantly from WL/NC. However, there was no significant difference between CBT and PIT in regard to change in specific psychopathology. The standardized differences in means were -.940 for CBT ($k = 80$), -.737 for PIT ($k = 15$) and -.145 for WL ($k = 5$). The within-group heterogeneity was significant ($Q(97) = 939.73, p < .001$). The amount of total variance explained by the model was 5 %.

Changes in general psychopathology ($k = 92$) were significantly predicted by treatment condition ($Q(2) = 20.02, p < .001$). Both CBT and PIT were significantly different from WL. However, there was no significant difference between CBT and PIT in regard to change in

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

general psychopathology. The standardized differences in means were $-.700$ for CBT ($k = 68$), $-.710$ for PIT ($k = 17$) and $-.162$ for WL ($k = 7$). The within-study heterogeneity was significant ($Q(89) = 408.08, p < .001$). The amount of total variance explained by the model was 15 %.

Table 1

Effect Sizes for Primary and Secondary Outcomes by Treatment Condition.

Remission					
	<i>k</i>	Event rate	95% CI		<i>I</i> ²
			Lower	Upper	
CBT	66	.342	.308	.377	77 %
PIT	10	.216	.153	.297	66 %
WL/NC	5	.159	.087	.275	64 %
Specific Change					
	<i>k</i>	Standard difference means	95% CI		<i>I</i> ²
			Lower	Upper	
CBT	80	-.940	-1.039	-.840	91 %
PIT	15	-.737	-.971	-.502	85 %
WL/NC	5	-.145	-.541	.251	12 %
General Change					
	<i>k</i>	Standard difference means	95% CI		<i>I</i> ²
			Lower	Upper	
CBT	68	-.700	-.772	-.627	81 %
PIT	17	-.710	-.864	-.557	67 %
WL/NC	7	-.162	-.389	.064	0 %

Note. *k* = number of samples; *I*² = the percentage of between-study heterogeneity not due to sampling error; CBT = cognitive behavior therapy; PIT = psychodynamic-interpersonal therapy; WL/NC = wait list/nutritional counseling condition.

Table 2 displays results of meta regression of logit event rates of remission on change in specific and general psychopathology. For CBT samples, remission rates were not significantly predicted by change in specific psychopathology ($Q(1) = 3.71, p = .054$), leaving significant heterogeneity ($Q(34) = 133.06, p < .001$). The amount of total variance explained by the model was 4 %. Remission rates were not significantly predicted by change in general psychopathology ($Q(1) = .00, p = .946$), leaving significant heterogeneity ($Q(29) = 114.43, p < .001$). The amount

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

of total variance explained by the model was 0 %. Neither specific or general change predicted remission for either of the diagnostic subgroups. Figure 1 and Figure 2 displays the role of specific and general psychopathology, respectively, in predicting remission for each diagnostic group.

Table 2

Meta Regression of Logit Event Rates of Remission on Change in Psychopathology

	Change in general psychopathology						Change in specific psychopathology					
	<i>k</i>	<i>B</i>	95 % CI		<i>R</i> ²	<i>p</i>	<i>K</i>	<i>B</i>	95 % CI		<i>R</i> ²	<i>p</i>
			Lower	Upper					Lower	Upper		
CBT	31	-.03	-.870	.812	.00	.946	36	.42	-.073	.844	.04	.054
AN	4	-.54	-2.678	1.605	.00	.623	7	1.36	-.093	2.814	.37	.067
BN	9	.97	-.074	2.015	.46	.069	8	.40	-.444	1.252	.00	.350
BED	8	.03	-1.141	1.192	.00	.965	9	.11	-.527	.750	.00	.733
Mixed	10	.73	-.624	2.082	.13	.291	12	.41	-.053	.863	.13	.083
PIT	6	-2.07	.381	3.756	.67	<.05	-	-	-	-	-	-

Note. *k* = number of samples; *B* = unstandardized regression coefficients; *R*² = variance explained; *p* = significance level; AN = anorexia nervosa; BN = bulimia nervosa; BED = binge eating disorder; Mixed = samples consisting of more than one eating disorder diagnose; CBT = cognitive behavior therapy; PIT = psychodynamic-interpersonal therapy.

Because of nonsignificant coefficients for change in psychopathology and significant unexplained variance, the simple regression models were followed up with hierarchical regressions, testing ED-diagnosis as a potential moderator of the effect. A second regression model was made including diagnostic subgroup as a covariate. Adding diagnostic subgroups to the model, specific change significantly predicted remission ($B = .40, p < .001$), and model fit was significantly increased ($Q(3) = 42.05, p < .001$). The model ($Q(4) = 48.54, p < .001$), explained 70 % of the variance in remission. A third model was made, testing interaction effect. Inclusion of interaction terms did not improve model fit ($Q(3) = 1.97, p = .579$).

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

A second model was also constructed for general change. Adding diagnostic subgroups to the model, general change did not significantly predict remission ($B = .61, p = .073$). However, model fit significantly increased ($Q(3) = 31.21, p < .001$), explaining 63 % of the variance in remission. A third model was made, testing interaction effect. Inclusion of interaction terms did not improve model fit ($Q(3) = 2.02, p = .569$).

For PIT samples, regression of remission on specific psychopathology could not be performed due to an insufficient number of studies. Remission rates were strongly predicted by change in general psychopathology ($k = 6, Q(1) = 5.77, b = -2.07, p < .05$). The remaining unexplained variance was not significant ($Q(4) = 6.54, p = 0.162$). Change in general psychopathology explained 67 % of the total variance in remission, for PIT. For PIT there was not a sufficient number of studies to conduct multiple regression analyses.

A formal statistical test of mediation was not performed because assumptions for mediated effects were not met for either CBT or PIT. For CBT the purported mediators (i.e., specific and general psychopathology) did not independently predict remission rates. For PIT, the treatment did not significantly predict remission over and above WL/NC.

Table 3 displays point estimates for remission rate by treatment conditions and eating disorder diagnosis. In a multiple hierarchical regression analysis, treatment condition and eating disorder diagnosis significantly predicted the total variance in remission ($Q(4) = 34.95, p < .001$), and explained 32 % of the between study variance. For CBT, eating disorder diagnosis was a significant independent predictor of logit event rate for remission ($Q(3) = 25.53, p < .001$), explaining 29 % of total variance in remission. BED had the highest remission rates. Higher mean patient age ($k = 56$) significantly predicted higher remission rates for CBT ($B = .03, Q(1) = 9.97, p < .05$), and explained 13 % of the variance. Higher frequency of comorbid personality

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

disorders in the sample ($k = 7$) significantly predicted lower remission rates for CBT ($B = -.02$, $Q(1) = 7.90$, $p < .01$), and explained 81 % of the total variance in remission.

Table 3

Point Estimates for Remission Rate by Treatment Conditions and Eating Disorder Diagnosis

CBT					
95 % CI					
	<i>k</i>	Event rate	Lower	Upper	I^2
AN	17	.33	.276	.395	77 %
BN	15	.28	.224	.339	29 %
BED	15	.50	.424	.568	0 %
Mixed	19	.30	.251	.352	83 %
PIT					
95 % CI					
	<i>k</i>	Event rate	Lower	Upper	I^2
AN	3	.24	.120	.431	52 %
BN	4	.18	.092	.321	28 %
BED	2	.27	.129	.492	0 %
Mixed	1	.15	.043	.416	0 %
WL/NC					
95 % CI					
	<i>k</i>	Event rate	Lower	Upper	I^2
AN	1	.10	.013	.481	0 %
BN	0	-	-	-	-
BED	4	.16	.068	.338	71 %
Mixed	0	-	-	-	-

Note. k = number of samples; I^2 = the percentage of between-study heterogeneity not due to sampling error; AN = anorexia nervosa; BN = bulimia nervosa; BED = binge eating disorder; Mixed = samples consisting of more than one eating disorder diagnose; CBT = cognitive behavior therapy; PIT = psychodynamic-interpersonal therapy; WL/NC = wait-list/nutritional counseling condition.

For PIT, eating disorder diagnosis did not significantly predict logit event rate for remission ($Q(3) = 1.26$, $p = .739$), and did not explain any of the variance. Significant weighted averaged remission rates were found for all diagnose samples ($p < .05$). Mean patient age ($k = 9$) did not significantly predict treatment effects of PIT ($B = .02$, $Q(1) = .28$, $p = .599$), and did not

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

explain any of the variance. For PIT, there was not enough studies to do a regression analysis of comorbid personality disorder.

The significance of design characteristics on treatment effects

Allocation to study (RCTs vs. non-RCTs) did not significantly predict logit event rate for remission ($Q(1) = .47, b = -.102, p = .495$), and did not explain any of the variance. Follow-up-time did not significantly predict logit event rate for remission ($Q(1) = 1.88, b = .010, p = .171$), and explained 6 % of the variance.

Publication bias assessment

Visual inspection of funnel plots (Figure C1-C3) were performed for remission, change in specific psychopathology and general psychopathology across all treatment conditions. For remission, the studies were symmetrically distributed around the weighted mean effect sizes, not indicative of small study bias (Borenstein et al., 2011). For remission, Egger's regression test was not significant ($t(79) = 1.36, p = .178$), indicating that sample size did not predict effect size. However, the funnel plot indicated that high-precision studies varied significantly in effect size around the weighted mean.

For specific psychopathology, visual inspection of the funnel plot suggests asymmetry with effects higher than the mean being more frequently reported. Eggers regression showed a significant association ($t(98) = 3.72, p < .001$) between sample size and effect size, indicating that sample size predicted effect sizes.

For general psychopathology, visual inspection of the funnel plot suggests asymmetry with higher effect sizes being more frequently reported in smaller studies. Eggers regression showed a significant association ($t(90) = 3.55, p < .001$) between sample size and effect size, indicating that sample sizes predicted effect sizes.

Discussion

This meta-analysis examined three research questions regarding differences in treatment effects between CBT and PIT on remission rates, and specific and general psychopathology; the predictive value of change in psychopathology for remission; and the role of patient characteristics for remission.

The results can be summarized as follows for question 1: For remission rates, only the CBT condition differed significantly from WL/NC. Only CBT produced changes in specific psychopathology significantly greater than WL/NC. However, the treatments were equally effective in changing general psychopathology. According to convention for interpreting Cohen's *d*, (Lipsey & Wilson, 2001), CBT had a large effect in reducing specific psychopathology and a medium effect in reducing general psychopathology. PIT had a medium effect in reducing both specific and general psychopathology.

For question 2, reduction in specific psychopathology was not significantly associated with higher rates of remission for CBT. When controlling for different remission rates across different diagnoses, specific change emerged as a significant predictor of remission. There was, however, no interaction effects between eating disorder diagnosis and specific change. Although not a significant predictor of remission for either of the eating disorder diagnoses, change in specific psychopathology tended to be a more important predictor of change in AN compared to the other diagnostic subgroups, explaining 37% of the variance in remission. Reduction in general psychopathology was strongly associated with higher remission rates for PIT, but not for CBT. When controlling for differences in remission rates across diagnoses there was still no effect of change in general psychopathology for CBT, and there were no interaction effects

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

between the variables. Although not a significant predictor, change in general psychopathology tended to be a more important predictor in BN than in the other diagnostic subgroups.

For question 3, eating disorder diagnosis was associated with differences in remission rates only for CBT. BED had the highest rate of remission, with 50% achieving abstinence from eating-disordered behavior for 28 days. The results further indicated that 33 % of AN patients achieved weight normalization. Among BN and mixed diagnoses patients, 28 % and 30 % respectively, achieved remission from behavioral symptoms for 28 days. For CBT, higher mean sample age was associated with higher remission rates. However, this association may possibly be confounded by eating disorder diagnosis due to consistently higher mean age among BED samples. The results showed a strong negative relationship between the proportion of patients with comorbid personality disorder in the samples and remission rates, indicating poorer prognosis for achieving remission for patients with personality disorder. Due to an insufficient number of studies, regression analyses of remission rates on these variables could not be performed for PIT.

The treatment effects described in this study are in line with treatment effects identified by Linardon et al. for CBT in BN (2018a) and BED (2018b), when using the same criteria for remission (i.e., 28 days abstinence from bingeing and purging). The present study is, however, the first meta-analytic estimation of the proportion of AN patients achieving weight restoration in outpatient samples receiving pure psychotherapeutic treatment.

In order to allow comparisons across treatment conditions, variables relevant to inclusion criteria (i.e., diagnosis, treatment approach, psychopathology and remission) in this study were strictly operationalized, either predefined based on relevant literature or the DSM-V. Remission was consistently defined, and only treatment effects in accordance with these definitions were

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

included. Treatments included were consistently delivered on an outpatient basis with clinician-led psychotherapy as the only intervention. Thereby the confounding effect of multimodal interventions was avoided, and allowing more valid inferences about the effect of different psychotherapeutic processes. Only samples consisting of patients with a diagnosed DSM-IV or DSM-V eating disorder diagnosis were included in the study, allowing generalization to clinical eating disorder populations. In addition, samples in this study represent a broad spectrum of patients with different eating disorders that received treatment both in the context of clinical research and in the setting of regular clinical practices, increasing the ecological validity of the study.

No systematic evaluation of primary study risk of bias was performed. However, measures were taken to circumvent the effect of attrition bias for remission, as effect sizes were always based on intention-to-treat samples. Furthermore the impact of detection bias was reduced by using objective criteria for remission.

The questions sought to be answered were theoretically motivated, and due to submission for pre-registration, the research questions of the study were pre-determined. Such research practice is encouraged because it reduces the amount of reporting bias in the scientific literature (Stewart, Moher, Shekelle, 2012).

Clinical implications

CBT consistently showed better treatment effect on remission, but eating-disordered behavior persists in many patients even after receiving this treatment. Although results provided by the present study shows that decrease in specific psychopathology is related to remission, the importance of change in specific psychopathology in remission is not ubiquitously clear, and may vary significantly for different eating disorder diagnoses. Such a finding for the significance

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

of change in specific psychopathology is in contrast to what may be expected by symptom-focused CBT, because of its emphasis on addressing the core cognitive symptoms of eating disorders.

Results of the present study show an apparent disjoint between decrease in general psychopathology, i.e., anxious and depressive features, and remission for CBT. Linardon et al. (2017b), however, found (a) that CBT was more effective in direct comparisons to other active psychotherapies in reducing symptoms of depression in bulimia nervosa; and (b) that the reduction of eating-disordered behavior predicted the superiority of CBT in alleviating symptoms of depression. Although causal inferences can not be made as to the mechanisms of change in CBT from either the present study or the one by Linardon et al. (2017b), these findings may jointly indicate that given that the patient succeeds in reducing eating-disordered behavior during treatment, depressive symptoms are likely to decrease. This finding may indicate that the superior effect of CBT on the behavioral symptoms of eating disorders (e.g., dietary restriction, bingeing and purging) found in the present study may be conveyed through other mechanisms than change in, and general psychopathology.

A question about similarities shared among eating disorder patients in remission may thus be warranted. Among patient factors that have previously been identified as important in enhancing rates of remission from eating disorders, are higher motivation for change, lower degree of depressive features, fewer comorbidities and better interpersonal functioning (Vall & Wade, 2015). Furthermore, important within-treatment factors predictive of good outcomes of therapy is early change in eating-disordered behavior and cognitions. These within-treatment factors have been identified meta-analytically as strong predictors of a favorable treatment response (Linardon, Brennan & Garcia, 2016). Furthermore, early behavioral change, defined as

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

a reduction of eating-disordered behavior of 65-75% early in treatment was found to mediate outcome across several clinical trials of CBT for eating disorders that examined this relationship (Linardon, Garcia & Brennan 2016).

Taken together with the present results, indicating no association between change in general psychopathology and remission; change in general psychopathology does not seem to be sufficient in itself to effectuate behavioral change in CBT. Although change in specific psychopathology did predict remission rates, the relationship was only significant when controlling for differences between diagnostic subgroups. This association may imply that the maintaining mechanisms and thus relevant targets for treatment interventions may not be uniform across all eating disorder presentations. Thus the patients' motivation for change and actual change early in treatment may be the driving factor in achieving symptom abstinence and weight restoration. In a clinical setting this means that general psychopathology may persist in the absence of behavioral symptoms of eating disorders, and vice versa.

Regarding the effects of PIT, results of the present study suggest that the gradual change of specific and general psychopathology throughout the course of treatment is often not sufficient to achieve remission as defined by behavioral criteria. To the extent that PIT is effective in treating the behavioral symptoms of eating disorders, this effect seems to be conveyed by the reduction of general psychopathology. A different mechanism of action may thus be working in PIT, decreasing both general psychopathology and the dependence on maladaptive emotion regulation strategies expressed as eating-disordered behavior. The therapeutic strategy of PIT, as opposed to symptom-focused CBT, is to ameliorate developmentally acquired deficiency in self-functions that are associated with maladaptive emotion regulation strategies. These deficiencies are reflected in one's sense of self,

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

mentalization abilities and relational skills, which cause emotional distress. In line with the theoretical assumptions for PIT, the results of this study indicate that remission following PIT seems, to a greater extent than for CBT, to depend on helping the patient develop adaptive regulation strategies to alleviate emotional distress.

Despite indications of fairly uniform remission rates across diagnoses, with the exception of BED, it is clinically relevant to identify what makes patients achieving remission different from patients who do not. This is especially important since only about one third of patients receiving even the most consistently effective treatment achieve remission.

Several factors may complicate the treatment of eating disorders. Patients may experience significant ambivalence towards the prospect of change due to the ego-syntonic nature of the eating-disordered symptoms (Vitousek, 1998). The present study identified a negative association between comorbid personality disorder and remission rate for CBT, perhaps pointing to difficulties engaging these patients in treatment. This finding is in line with the findings in the meta-analysis by Vall and Wade (2015), who found that a higher degree of personality disorders, and other comorbid psychiatric states and poor interpersonal functioning is detrimental to the results of treatment. This may indicate that patients with more severe deficiencies in their sense of self, may be more ambivalent to give up their symptoms, because they function as a means to enhance their sense of self-worth, and regulating emotions and relationships. Therefore, the prospect of change may be threatening. Roncero, Belloch, Perina & Treasure (2013) found that eating-disordered behavior is mainly governed by thoughts that are ego-syntonic, i.e., eating-disordered thoughts may be valued by the patients and may be in line with the patients' self-image. However, eating disorders are also characterized by thoughts that are ego-dystonic, i.e., they are unwanted by the patients, not in line with the patients' self-image and unwanted by the

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

patient, so that they are experienced as intrusive and demeaning. Thus, ego-syntonic thoughts can be understood as a strategy, to handle the ego-dystonic thoughts through eating-disordered behavior (Roncero et al., 2013).

One interpretation of these results may be that the strength of CBT, relative to PIT, is that this therapy is able to offer a therapeutic framework that helps patients utilize their motivation to relieve symptoms that they find bothersome (e.g., intrusive thoughts, loss of control over eating) and seek to eliminate. However, PIT seems to be effective to the extent it alleviates the underlying emotional distress associated with eating disorders. In this, it is as effective as CBT, but in achieving remission results are significantly poorer. Thus, the focus on rapid behavioral change in CBT seems to be effective for patients who have a subjective experience of suffering because of their eating disorder and who are able to commit to treatment. However, in patients where the sense of self is pervasively impaired (i.e., where there is significant lack of self-cohesion, and doubt in self-worth and self-efficacy), internal motivation to work on the behavioral aspects of the disorders may be lacking. PIT may thus offer a more favorable approach and understanding of the subjective sources of suffering for the patient.

Therefore, in line with findings of the present study, evaluation of the extent to which the patient is motivated for change; the patient's sense of self and self-efficacy; and the patient's ability to tolerate emotional distress, may be suggestive of which treatment approach the patient is most likely to benefit from. Patients who are lacking in the aspects of self-functioning may require interventions aimed at examining what needs are fulfilled through the eating-disordered behavior and working with strengthening different features of the self (e.g., mentalization abilities, emotion regulation).

Limitations of the present study

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Several features of this study may warrant caution in interpreting the results. Due to lack of randomization, both within and across studies included, this meta analytic inquiry does not demonstrate causal relationships between the variables assessed. The results serve only to represent the degree to which the variables relate to each other, at a meta level.

Furthermore, our sample of studies are characterized by a disproportionate distribution of CBT and PIT samples; CBT being more frequently represented than PIT and WL/NC. Thus, distribution of statistical variance is skewed towards CBT, with less variance contained within the PIT and WL/NC samples, decreasing statistical power. This makes statistical inferences about differences between groups of samples more prone to type 1 and type 2 error (Field, 2013).

There was evidence of publication bias for change in specific and general psychopathology, but not in rates of remission. The effect of publication bias on remission rates in this study may have been attenuated because strict criteria for remission were applied and estimates for remission were consistently based on intention-to-treat sample sizes. However, for specific and general psychopathology, all studies meeting inclusion criteria were included, and consisted of estimates based on both completers and intention-to-treat samples. Thus, publication bias may have been more pronounced in the continuous outcomes and purported mediators than in remission rates, decreasing the association between these variables.

A significant amount of unexplained variance remained for several of the models tested by subgroup and meta-regression analyses. The models indicate differences in remission rates across levels of included variables. However, these effect may be confounded by association to several variables, both included in the model and not included (i.e., diagnostic subgroups, treatment setting, comorbidity, sex, education). The models predicting remission by change in

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

general psychopathology for PIT and personality disorder indicated good model fit, but were based on few studies.

Directions for future research

During the fulltext review and data extraction, we identified aspects of the previous research that can be more thoroughly investigated in future research. The present results show that the presence of personality disorder is detrimental to the effectiveness of CBT for eating disorders. This result is, however, based on a limited number of studies. It should be made a priority to screen for personality disorders in clinical studies on CBT and PIT for eating disorders. In the pursuit of finding out what therapy works for whom, this is important, especially since meta-analytic evidence (Martinussen et al., 2017) indicates a high rate of comorbid personality disorders in eating disorders. Further research on the role of personality disorders in the treatment of eating disorders could enhance clinicians' ability to match treatment to the needs of the individual patients, and thereby providing effective treatment for a higher number of patients.

However, to make PIT a legitimate treatment alternative to CBT there is a need for more knowledge about active mechanisms of change. Specifically, further research should focus on the extent to which the reduction of general psychopathology seen in PIT is sufficient to bring about satisfying rates of abstinence from eating-disordered behavior. The present results, although based on a limited number of studies, suggest that PIT is not sufficiently effective in bringing about behavioral change. However the therapeutic focus provided by PIT may be a valuable contribution to treatment of eating disorders for targeting aspects of psychological functioning underlying the eating-disordered behavior.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

In order to achieve this knowledge, there is a need for more consistent definitions of remission and agreement on relevant outcome measures, across different treatment approaches. Studies on remission in PIT for eating disorders tend to use remission definitions pointing to those aspects of psychological functioning underlying eating-disordered behavior instead of behavioral definitions, as used by CBT studies. Perhaps, primary studies should use both definitions independently of treatment approach, making the outcomes possible to compare directly to each other.

Conclusion

The results of the present study confirm that eating disorders are multifaceted and complex psychiatric states with need for a thorough understanding about precipitating and maintaining factors. It also seems that a therapeutic focus on the eating disorder specific behavior, which is characteristic CBT is necessary to reliably produce behavioral remission. However, the effect of change in eating disorder psychopathology was in itself not sufficient to explain rates of remission. The importance of change in general psychopathology in PIT, suggests that for some patients improvements in self-worth, self-efficacy and self-cohesion may be necessary to obtain remission from eating disorder symptoms. Although the results of the present study suggest that CBT has the best effect on remission and specific psychopathology, the observations made in this study suggest that for some patients the treatment may need a wider focus, and also target aspects of the sense of self.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

References

- Ainsworth, M. D. S., & Bell, S. M. (1970). Attachment, exploration, and separation: Illustrated by the behavior of one-year-olds in a strange situation. *Child development*, 49-67.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.
- Arcelus, J., Mitchell, A. J., Wales, J., & Nielsen, S. (2011). Mortality rates in patients with anorexia nervosa and other eating disorders: a meta-analysis of 36 studies. *Archives of general psychiatry*, 68(7), 724-731.
- Bachar, E., Gur, E., Canetti, L., Berry, E., & Stein, D. (2010). Selflessness and perfectionism as predictors of pathological eating attitudes and disorders: A longitudinal study. *European Eating Disorders Review*, 18(6), 496-506.
- Bachner-Melman, R., Zohar, A. H., Ebstein, R. P., & Bachar, E. (2007). The relationship between selflessness levels and the severity of anorexia nervosa symptomatology. *European Eating Disorders Review: The Professional Journal of the Eating Disorders Association*, 15(3), 213-220.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, 51(6), 1173.
- Basten, C., & Touyz, S. (2019). Sense of Self: Its Place in Personality Disturbance, Psychopathology, and Normal Experience. *Review of General Psychology*,
- Beck, A. T. (Ed.). (1979). *Cognitive therapy of depression*. Guilford press.
- Berkman, N. D., Lohr, K. N., & Bulik, C. M. (2007). Outcomes of eating disorders: a systematic review of the literature. *International Journal of Eating Disorders*, 40(4), 293-309.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Borenstein, M., Hedges, L. V., Higgins, J. P., & Rothstein, H. R. (2011). *Introduction to meta-analysis*. John Wiley & Sons.

Bowlby, J. (1958). The nature of the child's tie to his mother. *International journal of psychoanalysis*, 39, 350-373.

Blagys, M. D., & Hilsenroth, M. J. (2000). Distinctive features of short-term psychodynamic-interpersonal psychotherapy: A review of the comparative psychotherapy process literature. *Clinical psychology: Science and practice*, 7(2), 167-188.

Coburn, K. M., & Vevea, J. L. (2015). Publication bias as a function of study characteristics. *Psychol Methods*, 20(3), 310-330. doi:10.1037/met0000046

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.

Espeset, E. M. S., Gulliksen, K. S., Nordbø, R. H. S., Skårderud, F., & Holte, A. (2012). The link between negative emotions and eating disorder behavior in patients with anorexia nervosa. *European Eating Disorder Reviews*, 20, 451-460. doi: 10.1002/erv.2183

Fairburn, C. G. (2008). *Cognitive behavior therapy and eating disorders*. Guilford Press.

Fairburn, C. G., Cooper, Z., & Shafran, R. (2003). Cognitive behaviour therapy for eating disorders: A “transdiagnostic” theory and treatment. *Behaviour research and therapy*, 41(5), 509-528.

Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th ed). Sage.

Frazier, P. A., Tix, A. P., & Barron, K. E. (2004). Testing moderator and mediator effects in counseling psychology research. *Journal of counseling psychology*, 51(1), 115.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Gabbard, G. O. (2014). *Psychodynamic psychiatry in clinical practice*. American Psychiatric Pub.

Garner, D. M., & Bemis, K. M. (1982). A cognitive-behavioral approach to anorexia nervosa. *Cognitive therapy and research*, 6(2), 123-150.

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.

Greeno, C. G., Wing, R. R., & Shiffman, S. (2000). Binge antecedents in obese women with and without binge eating disorder. *Journal of Consulting and Clinical Psychology*, 68(1), 95.

Hudson, J. I., Hiripi, E., Pope Jr, H. G., & Kessler, R. C. (2007). The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biological psychiatry*, 61(3), 348-358.

Ivanova, I. V., Tasca, G. A., Proulx, G., & Bissada, H. (2015). Does the interpersonal model apply across eating disorder diagnostic groups? A structural equation modeling approach. *Comprehensive psychiatry*, 63, 80-87.

Jones, A., Lindekilde, N., Lübeck, M., & Clausen, L. (2015). The association between interpersonal problems and treatment outcome in the eating disorders: a systematic review. *Nordic journal of psychiatry*, 69(8), 563-573.

Klerman, G. L., Weissman, M. M., Rounsaville, B., & Chevron, E. (1984). Interpersonal therapy of depression.

Kuipers, G.S. & Bekker, M.H.J. (2012). Attachment, Mentalization and Eating Disorders: A review of studies using the Adult Attachment Interview. *Current psychiatric reviews*, 8, 326-336.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Linardon, J. (2018a). Meta-analysis of the effects of cognitive-behavioral therapy on the core eating disorder maintaining mechanisms: implications for mechanisms of therapeutic change. *Cognitive behaviour therapy*, 47(2), 107-125.

Linardon, J. (2018b). Rates of abstinence following psychological or behavioral treatments for binge-eating disorder: Meta-analysis. *International Journal of Eating Disorders*, 51(8), 785-797.

Linardon, J., & Brennan, L. (2017). The effects of cognitive-behavioral therapy for eating disorders on quality of life: A meta-analysis. *International Journal of Eating Disorders*, 50(7), 715-730.

Linardon, J., Brennan, L., & De la Piedad Garcia, X. (2016). Rapid response to eating disorder treatment: A systematic review and meta-analysis. *International Journal of Eating Disorders*, 49(10), 905-919.

Linardon, J., de la Piedad Garcia, X., & Brennan, L. (2017). Predictors, moderators, and mediators of treatment outcome following manualised cognitive-behavioural therapy for eating disorders: A systematic review. *European Eating Disorders Review*, 25(1), 3-12.

Linardon, J., & Wade, T. D. (2018). How many individuals achieve symptom abstinence following psychological treatments for bulimia nervosa? A meta-analytic review. *International Journal of Eating Disorders*, 51(4), 287-294.

Linardon, J., Wade, T. D., de la Piedad Garcia, X., & Brennan, L. (2017a). The efficacy of cognitive-behavioral therapy for eating disorders: A systematic review and meta-analysis. *Journal of consulting and clinical psychology*, 85(11), 1080.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- Linardon, J., Wade, T., de la Piedad Garcia, X., & Brennan, L. (2017b). Psychotherapy for bulimia nervosa on symptoms of depression: A meta-analysis of randomized controlled trials. *International Journal of Eating Disorders*, 50(10), 1124-1136.
- Lipsey, M. W., & Wilson, D. B. (2001). Practical meta-analysis. SAGE publications, Inc.
- Lenz, A. S., Taylor, R., Fleming, M., & Serman, N. (2014). Effectiveness of dialectical behavior therapy for treating eating disorders. *Journal of Counseling & Development*, 92(1), 26-35.
- Lock, J., & Fitzpatrick, K. K. (2009). Anorexia nervosa. *BMJ Clinical evidence*, 3(1011).
- Martinussen, M., Friborg, O., Schmierer, P., Kaiser, S., Øvergård, K. T., Neunhoeffer, A. L., Marinsen, E. W. & Rosenvinge, J. H. (2017). The comorbidity of personality disorders in eating disorders: a meta-analysis. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, 22(2), 201-209.
- Meule, A., Richard, A., Schnepper, R., Reichenberger, J., Georgii, C., Naab, S., Voderholzer, U., & Blechert, J. (2019). Emotion regulation and emotional eating in anorexia nervosa and bulimia nervosa. *Eating disorders*, 1-17.
- Moher, D., Liberati, A., Tetzlaff, J. & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Medicine*, 6(7), 1-6.
- Murray, S. B., Quintana, D. S., Loeb, K. L., Griffiths, S., & Le Grange, D. (2019). Treatment outcomes for anorexia nervosa: a systematic review and meta-analysis of randomized controlled trials. *Psychological medicine*, 49(4), 535-544.
- National Institute for Clinical Excellence. (2004). *Eating disorders: Core interventions in the treatment and management of anorexia nervosa, bulimia nervosa and related eating disorders*. National Institute for Clinical Excellence.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- Perry, J. A., Silvera, D. H., Neilands, T. B., Rosenvinge, J. H., & Hanssen, T. (2008). A study of the relationship between parental bonding, self-concept and eating disturbances in Norwegian and American college populations. *Eating Behaviors, 9*(1), 13-24.
- Roncero, M., Belloch, A., Perpiná, C., & Treasure, J. (2013). Ego-syntonicity and ego-dystonicity of eating-related intrusive thoughts in patients with eating-disorders. *Psychiatry Research, 208*, 67-73
- Schore, A. N. (2002). Advances in neuropsychanalysis, attachment theory, and trauma research: Implications for self psychology. *Psychoanalytic Inquiry, 22*(3), 433-484.
- Serpell, L., & Treasure, J. (2002). Bulimia Nervosa: Friend or foe. The pros and cons of bulimia nervosa. *European Eating Disorders Review, 32*, 164-170.
- Serpell, L., Treasure, J., Teasdale, J., & Sullivan, V. (1998). Anorexia Nervosa: friend or foe? *International Journal of Eating Disorder, 25*, 177-186.
- Steinberg, S., Tobin, D., & Johnson, C. (1990). The role of bulimic behaviors in affect regulation: Different functions for different patient subgroups?. *International Journal of Eating Disorders, 9*(1), 51-55.
- Steinhausen, H. C., & Weber, S. (2009). The outcome of bulimia nervosa: findings from one-quarter century of research. *American Journal of Psychiatry, 166*(12), 1331-1341.
- Stewart, L., Moher, D., & Shekelle, P. (2012). Why prospective registration of systematic reviews makes sense.
- Sullivan, P. F. (1995). Mortality in anorexia nervosa. *American Journal of Psychiatry, 152* (7), 1073-1074.
- Tasca, G. A., & Balfour, L. (2014). Attachment and eating disorders: A review of current research. *International Journal of Eating Disorders, 47*(7), 710-717.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- Tasca, G. A., Szadkowski, L., Illing, V., Trinneer, A., Grenon, R., Demidenko, N., ... & Bissada, H. (2009). Adult attachment, depression, and eating disorder symptoms: The mediating role of affect regulation strategies. *Personality and Individual Differences, 47*(6), 662-667.
- van Aert, R. C. M., Wicherts, J. M., & van Assen, M. A. L. M. (2019). Publication bias examined in meta-analyses from psychology and medicine: A meta-meta-analysis. *PLOS ONE, 14*(4), e0215052. doi:10.1371/journal.pone.0215052
- Vitousek, K., Watson, S., & Wilson, G. T. (1998). Enhancing motivation for change in treatment-resistant eating disorders. *Clinical psychology review, 18*(4), 391-420.
- Vocks, S., Tuschen-Caffier, B., Pietrowsky, R., Rustenbach, S. J., Kersting, A., & Herpertz, S. (2010). Meta-analysis of the effectiveness of psychological and pharmacological treatments for binge eating disorder. *International Journal of Eating Disorders, 43*(3), 205-217.
- Waller, G., Tatham, M., Turner, H., Mountford, V. A., Bennetts, A., Bramwell, K., ... & Ingram, L. (2018). A 10-session cognitive-behavioral therapy (CBT-T) for eating disorders: Outcomes from a case series of nonunderweight adult patients. *International Journal of Eating Disorders, 51*(3), 262-269.
- Westmoreland, P., Krantz, M. J. & Mehler, P. S. (2016). Medical Complications of Anorexia Nervosa and Bulimia. *The American Journal of Medicine, 129*, 30-37.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Appendix A: Search strategy

For the construct “eating disorders”, the terms “eating disorder*”, “anorexia nervosa”, “bulimia” and “binge eating disorder*” were used.

For the construct “cognitive behavior therapy”, the terms “cognitive behavior psychotherapy”, “cognitive behaviour psychotherapy”, “cognitive behaviour therapy”, “cognitive behavior therapy”, “cognitive behavior treatment”, “cognitive behaviour treatment”, “cognitive behavior approach”, “cognitive behaviour approach”, “CBT-E”, “CBT-ED”, “CBT-AN”, “CBT-BN” and “CBT-T” were used.

For the construct “psychodynamic-interpersonal therapy”, the terms “psychodynamic psychotherapy”, “psychodynamic therapy”, “psychodynamic treatment”, “psychodynamic approach”, “mentalization based psychotherapy”, “mentalization based therapy”, “mentalization based treatment” “mentalization based approach”, “interpersonal psychotherapy”, “interpersonal therapy”, “interpersonal treatment”, “interpersonal approach”, “expressive psychotherapy”, “expressive therapy”, “expressive treatment”, “expressive approach”, “supportive psychotherapy”, “supportive therapy”, “supportive treatment”, “supportive approach”, “analytic psychotherapy”, “analytic therapy”, “analytic treatment”, “analytic approach”, “psychoanalytic psychotherapy”, “psychoanalytic therapy”, “psychoanalytic treatment”, “psychoanalytic approach” and “psychoanalysis” were used.

Appendix B: References for primary studies included in the meta-analyses.

- Abiles, V., Rodriguez-Ruiz, S., Abiles, J., Obispo, A., Gandara, N., Luna, V., & Fernandez-Santaella, M. C. (2013). Effectiveness of cognitive-behavioral therapy in morbidity obese candidates for bariatric surgery with and without binge eating disorder. *Nutricion Hospitalaria*, 28(5), 1523-1529. doi:<https://dx.doi.org/10.3305/nh.2013.28.5.6699>
- Agras, W., Crow, S. J., Halmi, K. A., Mitchell, J. E., Wilson, G., & Kraemer, H. C. (2000). Outcome predictors for the cognitive behavior treatment of bulimia nervosa: Data from a multisite study. *The American Journal of Psychiatry*, 157(8), 1302-1308. doi:<http://dx.doi.org/10.1176/appi.ajp.157.8.1302>
- Agras, W., Walsh, T., Fairburn, C. G., Wilson, G., & Kraemer, H. C. (2000). A multicenter comparison of cognitive-behavioral therapy and interpersonal psychotherapy for bulimia nervosa. *Archives of General Psychiatry*, 57(5), 459-466. doi:<http://dx.doi.org/10.1001/archpsyc.57.5.459>
- Aguera, Z., Krug, I., Sanchez, I., Granero, R., Penelo, E., Penas-Lledo, E., . . . Fernandez-Aranda, F. (2012). Personality changes in bulimia nervosa after a cognitive behaviour therapy. *European Eating Disorders Review*, 20(5), 379-385. doi:<http://dx.doi.org/10.1002/erv.2163>
- Aguera, Z., Riesco, N., Jimenez-Murcia, S., Islam, M. A., Granero, R., Vicente, E., . . . Fernandez-Aranda, F. (2013). Cognitive behaviour therapy response and dropout rate across purging and nonpurging bulimia nervosa and binge eating disorder: DSM-5 implications. *BMC Psychiatry*, 13(2013). doi:<http://dx.doi.org/10.1186/1471-244X-13-285>
- Allen, K. L., Fursland, A., Raykos, B., Steele, A., Watson, H., & Byrne, S. M. (2012). Motivation-focused treatment for eating disorders: A sequential trial of enhanced cognitive behaviour therapy with and without preceding motivation-focused therapy. *European Eating Disorders Review*, 20(3), 232-239. doi:<http://dx.doi.org/10.1002/erv.1131>
- Arcelus, J., Whight, D., Brewin, N., & McGrain, L. (2012). A brief form of interpersonal psychotherapy for adult patients with bulimic disorders: A pilot study. *European Eating Disorders Review*, 20(4), 326-330. doi:<http://dx.doi.org/10.1002/erv.2164>

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- Arcelus, J., Whight, D., Langham, C., Baggott, J., McGrain, L., Meadows, L., & Meyer, C. (2009). A case series evaluation of the modified version of interpersonal psychotherapy (IPT) for the treatment of bulimic eating disorders: A pilot study. *European Eating Disorders Review, 17*(4), 260-268. doi:<http://dx.doi.org/10.1002/%28ISSN%291099-096810.1002/erv.v17:410.1002/erv.932>
- Bachar, E., Latzer, Y., Kreitler, S., & Berry, E. M. (1999). Empirical comparison of two psychological therapies: Self psychology and cognitive orientation in the treatment of anorexia and bulimia. *Journal of Psychotherapy Practice & Research, 8*(2), 115-128. Retrieved from http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=psy_c3&AN=1999-10503-003
- Back, M., Gustafsson, S. A., & Holmqvist, R. (2017). Interpersonal psychotherapy for eating disorders with co-morbid depression: A pilot study. *European Journal of Psychotherapy & Counselling, 19*(4), 378-395. doi:<http://dx.doi.org/10.1080/13642537.2017.1386226>
- Bailer, U., de Zwaan, M., Leisch, F., Strnad, A., Lennkh-Wolfsberg, C., El-Giamal, N., . . . Kasper, S. (2004). Guided self-help versus cognitive-behavioral group therapy in the treatment of bulimia nervosa. *International Journal of Eating Disorders, 35*(4), 522-537. doi:10.1002/eat.20003
- Balestrieri, M., Zuanon, S., Pellizzari, J., Zappoli-Thyrion, E., & Ciano, R. (2015). Mentalization in eating disorders: A preliminary trial comparing mentalization-based treatment (MBT) with a psychodynamic-oriented treatment. *Eating and Weight Disorders, 20*(4), 525-528. doi:<http://dx.doi.org/10.1007/s40519-015-0204-1>
- Ball, J., & Mitchell, P. (2004). A Randomized Controlled Study of Cognitive Behavior Therapy and Behavioral Family Therapy for Anorexia Nervosa Patients. *Eating Disorders: The Journal of Treatment & Prevention, 12*(4), 303-314. doi:<http://dx.doi.org/10.1080/10640260490521389>
- Bandini, S., Antonelli, G., Moretti, P., Pampanelli, S., Quartesan, & Perriello, G. (2006). Factors affecting dropout in outpatient eating disorder treatment. *Eating and Weight Disorders, 11*(4), 179-184. doi:<http://dx.doi.org/10.1007/BF03327569>

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- Barga, J. L. (2004). Effects of hypnosis as an adjunct to cognitive-behavioral therapy for treating bulimia nervosa. (Ph.D.). Washington State University, Ann Arbor. Retrieved from <https://search.proquest.com/docview/305107279?accountid=17260>
- Blouin, J. H., Carter, J., Blouin, A. G., Tener, L., Schnare-Hayes, K., Zuro, C., . . . Perez, E. (1994). Prognostic indicators in bulimia nervosa treated with cognitive-behavioral group therapy. *International Journal of Eating Disorders, 15*(2), 113-123. Retrieved from <http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=medc&AN=8173557>
- Boutacoff, L. I. (1996). Bulimia nervosa group treatment: Comparison of four conditions that vary by schedule of delivery and by emphasis on abstinence. (Ph.D.). University of Minnesota, Ann Arbor. Retrieved from <https://search.proquest.com/docview/304265245?accountid=17260>
- Byrne, S. M., Fursland, A., Allen, K. L., & Watson, H. (2011). The effectiveness of enhanced cognitive behavioural therapy for eating disorders: An open trial. *Behaviour Research and Therapy, 49*(4), 219-226. doi:<http://dx.doi.org/10.1016/j.brat.2011.01.006>
- Carter, R., Yanykulovitch-Levy, D., Wertheim, H., Gordon-Erez, S., Shahimov, M., Weizman, A., & Stein, D. (2016). Group cognitive behavioral treatment in female soldiers diagnosed with binge/purge eating disorders. *Eating Disorders: The Journal of Treatment & Prevention, 24*(4), 338-353. doi:<http://dx.doi.org/10.1080/10640266.2016.1174016>
- Castellini, G., Lo Sauro, C., Lelli, L., Godini, L., Vignozzi, L., Rellini, A. H., . . . Ricca, V. (2013). Childhood sexual abuse moderates the relationship between sexual functioning and eating disorder psychopathology in anorexia nervosa and bulimia nervosa: a 1-year follow-up study. *Journal of Sexual Medicine, 10*(9), 2190-2200. doi:<https://dx.doi.org/10.1111/jsm.12232>
- Castellini, G., Mannucci, E., Lo Sauro, C., Benni, L., Lazzeretti, L., Ravaldi, C., . . . Ricca, V. (2011). Different moderators of cognitive-behavioral therapy on subjective and objective binge eating in bulimia nervosa and binge eating disorder: A three-year follow-up study. *Psychotherapy and Psychosomatics, 81*(1), 11-20. doi:<http://dx.doi.org/10.1159/000329358>
- Castellini, G., Vignozzi, L., Fisher, A., Lelli, L., Godini, L., Maggi, M., & Ricca, V. (2015). Body image disturbance, sexual functioning and hormonal levels: A longitudinal study in

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- anorexia nervosa patients. *Journal of Sexual Medicine*, 12 (Supplement 3), 196. Retrieved from
<http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=emed16&AN=619608471>
- Chen, E., Touyz, S. W., Beumont, P. J., Fairburn, C. G., Griffiths, R., Butow, P., . . . Basten, C. (2003). Comparison of group and individual cognitive-behavioral therapy for patients with bulimia nervosa. *International Journal of Eating Disorders*, 33(3), 241-254. Retrieved from
<http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=med4&AN=12655619>
- Cooper, P. J., & Steere, J. (1995). A comparison of two psychological treatments for bulimia nervosa: Implications for models of maintenance. *Behaviour Research and Therapy*, 33(8), 875-885. doi:<http://dx.doi.org/10.1016/0005-7967%2895%2900033-T>
- Craig, M., Waine, J., Wilson, S., & Waller, G. (2019). Optimizing treatment outcomes in adolescents with eating disorders: The potential role of cognitive behavioral therapy. *International Journal of Eating Disorders*, No Pagination Specified. doi:<http://dx.doi.org/10.1002/eat.23067>
- Dalle Grave, R., Calugi, S., Doll, H. A., & Fairburn, C. G. (2013). Enhanced cognitive behaviour therapy for adolescents with anorexia nervosa: An alternative to family therapy? *Behaviour Research and Therapy*, 51(1), R9-R12. doi:<http://dx.doi.org/10.1016/j.brat.2012.09.008>
- Dalle Grave, R., Calugi, S., Sartirana, M., & Fairburn, C. G. (2015). Transdiagnostic cognitive behaviour therapy for adolescents with an eating disorder who are not underweight. *Behaviour Research and Therapy*, 73, 79-82. doi:<http://dx.doi.org/10.1016/j.brat.2015.07.014>
- Dalle Grave, R., Sartirana, M., & Calugi, S. (2019). Enhanced cognitive behavioral therapy for adolescents with anorexia nervosa: Outcomes and predictors of change in a real-world setting. *International Journal of Eating Disorders*, No Pagination Specified. doi:<http://dx.doi.org/10.1002/eat.23122>

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- Dare, C., Eisler, I., Russell, G., Treasure, J., & Dodge, L. (2001). Psychological therapies for adults with anorexia nervosa: Randomised controlled trial of out-patient treatments. *The British Journal of Psychiatry*, *178*, 216-221. doi:<http://dx.doi.org/10.1192/bjp.178.3.216>
- de Zwaan, M., Herpertz, S., Zipfel, S., Svaldi, J., Friederich, H.-C., Schmidt, F., . . . Hilbert, A. (2017). Effect of Internet-based guided self-help vs individual face-to-face treatment on full or subsyndromal binge eating disorder in overweight or obese patients: The INTERBED randomized clinical trial. *JAMA Psychiatry*, *74*(10), 987-995. doi:<http://dx.doi.org/10.1001/jamapsychiatry.2017.2150>
- Dingemans, A. E., Spinhoven, P., & van Furth, E. F. (2007). Predictors and mediators of treatment outcome in patients with binge eating disorder. *Behaviour Research and Therapy*, *45*(11), 2551-2562. doi:<http://dx.doi.org/10.1016/j.brat.2007.06.003>
- Duchesne, M., Appolinario, J. C., Range, B. P., Fandino, J., Moya, T., & Freitas, S. R. (2007). The use of a manual-driven group cognitive behavior therapy in a Brazilian sample of obese individuals with binge-eating disorder. *Revista Brasileira de Psiquiatria*, *29*(1), 23-25. Retrieved from <http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=medc1&AN=17435923>
- Fahy, T. A., & Russell, G. F. (1993). Outcome and prognostic variables in bulimia nervosa. *International Journal of Eating Disorders*, *14*(2), 135-145. Retrieved from <http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=medc&AN=8401546>
- Fairburn, C. G., Bailey-Straebl, S., Basden, S., Doll, H. A., Jones, R., Murphy, R., . . . Cooper, Z. (2015). A transdiagnostic comparison of enhanced cognitive behaviour therapy (CBT-E) and interpersonal psychotherapy in the treatment of eating disorders. *Behaviour Research and Therapy*, *70*, 64-71. doi:<http://dx.doi.org/10.1016/j.brat.2015.04.010>
- Fairburn, C. G., Cooper, Z., Doll, H. A., O'Connor, M. E., Bohn, K., Hawker, D. M., . . . Palmer, R. L. (2009). Transdiagnostic cognitive-behavioral therapy for patients with eating disorders: A two-site trial with 60-week follow-up. *The American Journal of Psychiatry*, *166*(3), 311-319. doi:<http://dx.doi.org/10.1176/appi.ajp.2008.08040608>
- Fairburn, C. G., Cooper, Z., Doll, H. A., O'Connor, M. E., Palmer, R. L., & Dalle Grave, R. (2013). Enhanced cognitive behaviour therapy for adults with anorexia nervosa: A UK-

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- Italy study. *Behaviour Research and Therapy*, 51(1), R2-R8.
doi:<http://dx.doi.org/10.1016/j.brat.2012.09.010>
- Fassino, S., Daga, G., Delsedime, N., Busso, F., Piero, A., & Rovera, G. (2005). Baseline personality characteristics of responders to 6-month psychotherapy in eating disorders: Preliminary data. *Eating and Weight Disorders*, 10(1), 40-50.
doi:<http://dx.doi.org/10.1007/BF03353418>
- Fernandez-Aranda, F., Bel, M., Jimenez, S., Vinuales, M., Turon, J., & Vallejo, J. (1998). Outpatient group therapy for anorexia nervosa: a preliminary study. *Eating & Weight Disorders*, 3(1), 1-6. Retrieved from
<http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=medc&AN=11234249>
- Fernandez-Aranda, F., Krug, I., Jimenez-Murcia, S., Granero, R., Nunez, A., Penelo, E., . . . Treasure, J. (2009). Male eating disorders and therapy: A controlled pilot study with one year follow-up. *Journal of Behavior Therapy and Experimental Psychiatry*, 40(3), 479-486. doi:<http://dx.doi.org/10.1016/j.jbtep.2009.06.004>
- Fischer, S., Meyer, A. H., Dremmel, D., Schlup, B., & Munsch, S. (2014). Short-term Cognitive-Behavioral Therapy for Binge Eating Disorder: Long-term efficacy and predictors of long-term treatment success. *Behaviour Research and Therapy*, 58, 36-42.
doi:<http://dx.doi.org/10.1016/j.brat.2014.04.007>
- Fossati, M., Amati, F., Painot, D., Reiner, M., Haenni, C., & Golay, A. (2004). Cognitive-behavioral therapy with simultaneous nutritional and physical activity education in obese patients with binge eating disorder. *Eating and Weight Disorders*, 9(2), 134-138.
doi:<http://dx.doi.org/10.1007/BF03325057>
- Freeman, C. P., Barry, F., Dunkeld-Turnbull, J., & Henderson, A. (1988). Controlled trial of psychotherapy for bulimia nervosa. *British Medical Journal Clinical Research Ed.*, 296(6621), 521-525. Retrieved from
<http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=medc2&AN=3126890>
- Frostad, S., Danielsen, Y. S., Rekkedal, G. A., Jevne, C., Dalle Grave, R., & Kessler, U. (2018). Is outpatient enhanced cognitive behavior therapy (CBT-E) for eating disorders a suitable

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- treatment method for adults with severe anorexia nervosa? *European Psychiatry*, 48.
doi:<http://dx.doi.org/10.1016/j.eurpsy.2017.12.023>
- Frostad, S., Danielsen, Y. S., Rekkedal, G. A., Jevne, C., Grave, R. D., Ro, O., & Kessler, U. (2018). Implementation of enhanced cognitive behaviour therapy (CBT-E) for adults with anorexia nervosa in an outpatient eating-disorder unit at a public hospital. *Journal of Eating Disorders*, 6. Retrieved from
<http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=psyc16&AN=2018-25911-001>
- Garner, D. M., Rockert, W., Davis, R., Garner, M. V., Olmsted, M. P., & Eagle, M. (1993). Comparison of cognitive-behavioral and supportive-expressive therapy for bulimia nervosa. *The American Journal of Psychiatry*, 150(1), 37-46.
doi:<http://dx.doi.org/10.1176/ajp.150.1.37>
- Ghaderi, A. (2006). Does individualization matter? A randomized trial of standardized (focused) versus individualized (broad) cognitive behavior therapy for bulimia nervosa. *Behaviour Research and Therapy*, 44(2), 273-288. doi:<http://dx.doi.org/10.1016/j.brat.2005.02.004>
- Goldbloom, D. S., Olmsted, M., Davis, R., Clewes, J., Heinmaa, M., Rockert, W., & Shaw, B. (1997). A randomized controlled trial of fluoxetine and cognitive behavioral therapy for bulimia nervosa: Short-term outcome. *Behaviour Research and Therapy*, 35(9), 803-811.
doi:<http://dx.doi.org/10.1016/S0005-7967%2897%2900041-7>
- Gorin, A. A., Le Grange, D., & Stone, A. A. (2003). Effectiveness of spouse involvement in cognitive behavioral therapy for binge eating disorder. *International Journal of Eating Disorders*, 33(4), 421-433. Retrieved from
<http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=med4&AN=12658672>
- Gowers, S., Norton, K., Halek, C., & Crisp, A. H. (1994). Outcome of outpatient psychotherapy in a random allocation treatment study of anorexia nervosa. *International Journal of Eating Disorders*, 15(2), 165-177. doi:<http://dx.doi.org/10.1002/1098-108X%28199403%2915:2%3C165::AID-EAT2260150208%3E3.0.CO;2-0>
- Grilo, C. M., Masheb, R. M., Wilson, G., Gueorguieva, R., & White, M. A. (2011). Cognitive-behavioral therapy, behavioral weight loss, and sequential treatment for obese patients

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- with binge-eating disorder: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 79(5), 675-685. doi:<http://dx.doi.org/10.1037/a0025049>
- Hay, P., Touyz, S., Arcelus, J., Pike, K., Attia, E., Crosby, R. D., . . . Meyer, C. (2018). A randomized controlled trial of the compulsive exercise activity therapy (leap): A new approach to compulsive exercise in anorexia nervosa. *International Journal of Eating Disorders*, No Pagination Specified. doi:<http://dx.doi.org/10.1002/eat.22920>
- Hilbert, A., Petroff, D., Neuhaus, P., & Schmidt, R. (2020). Cognitive-Behavioral Therapy for Adolescents with an Age-Adapted Diagnosis of Binge-Eating Disorder: A Randomized Clinical Trial. *Psychotherapy and Psychosomatics*, 89(1), 51-53. doi:<http://dx.doi.org/10.1159/000503116>
- Hilbert, A., & Tuschen-Caffier, B. (2004). Body image interventions in cognitive-behavioural therapy of binge-eating disorder: A component analysis. *Behaviour Research and Therapy*, 42(11), 1325-1339. doi:<http://dx.doi.org/10.1016/j.brat.2003.09.001>
- Hill, R., Tasca, G. A., Presniak, M., Francis, K., Palardy, M., Grenon, R., . . . Bissada, H. (2015). Changes in defense mechanism functioning during group therapy for binge-eating disorder. *Psychiatry: Interpersonal and Biological Processes*, 78(1), 75-88. Retrieved from <http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=psyc12&AN=2015-28787-008>
- Jenkins, P. E., Morgan, C., & Houlihan, C. (2019). Outpatient CBT for underweight patients with eating disorders: Effectiveness within a National Health Service (NHS) eating disorders service. *Behavioural and Cognitive Psychotherapy*, 47(2), 217-229. doi:<http://dx.doi.org/10.1017/S1352465818000449>
- Knott, S., Woodward, D., Hoefkens, A., & Limbert, C. (2015). Cognitive behaviour therapy for bulimia nervosa and eating disorders not otherwise specified: Translation from randomized controlled trial to a clinical setting. *Behavioural and Cognitive Psychotherapy*, 43(6), 641-654. doi:<http://dx.doi.org/10.1017/S1352465814000393>
- La Mela, C., Maglietta, M., Lucarelli, S., Mori, S., & Sassaroli, S. (2013). Pretreatment outcome indicators in an eating disorder outpatient group: The effects of self-esteem, personality disorders and dissociation. *Comprehensive Psychiatry*, 54(7), 933-942. doi:<http://dx.doi.org/10.1016/j.comppsy.2013.03.024>

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- Le Grange, D., Lock, J., Agras, W., Bryson, S. W., & Jo, B. (2015). Randomized clinical trial of family-based treatment and cognitive-behavioral therapy for adolescent bulimia nervosa. *Journal of the American Academy of Child & Adolescent Psychiatry, 54*(11), 886-894. doi:<http://dx.doi.org/10.1016/j.jaac.2015.08.008>
- Leitenberg, H., Rosen, J. C., Wolf, J., Vara, L. S., Detzer, M. J., & Srebnik, D. (1994). Comparison of cognitive-behavior therapy and desipramine in the treatment of bulimia nervosa. *Behaviour Research and Therapy, 32*(1), 37-45. doi:<http://dx.doi.org/10.1016/0005-7967%2894%2990082-5>
- Lelli, L., Castellini, G., Cassioli, E., Monteleone, A. M., & Ricca, V. (2019). Cortisol levels before and after cognitive behavioural therapy in patients with eating disorders reporting childhood abuse: A follow-up study. *Psychiatry Research, 275*, 269-275. doi:<http://dx.doi.org/10.1016/j.psychres.2019.03.046>
- Lock, J., Agras, W. S., Fitzpatrick, K. K., Bryson, S. W., Jo, B., & Tchanturia, K. (2013). Is outpatient cognitive remediation therapy feasible to use in randomized clinical trials for anorexia nervosa? *International Journal of Eating Disorders, 46*(6), 567-575. doi:<https://dx.doi.org/10.1002/eat.22134>
- Mathisen, T. F., Rosenvinge, J. H., Friberg, O., Vrabel, K., Bratland-Sanda, S., Pettersen, G., & Sundgot-Borgen, J. (2020). Is physical exercise and dietary therapy a feasible alternative to cognitive behavior therapy in treatment of eating disorders? A randomized controlled trial of two group therapies. *International Journal of Eating Disorders*, No Pagination Specified. doi:<http://dx.doi.org/10.1002/eat.23228>
- Maxwell, H., Tasca, G. A., Grenon, R., Faye, M., Ritchie, K., Bissada, H., & Balfour, L. (2018). Change in Attachment Dimensions in Women with Binge-Eating Disorder Following Group Psychodynamic Interpersonal Psychotherapy. *Psychotherapy Research, 28*(6), 887-901. doi:<https://dx.doi.org/10.1080/10503307.2017.1278804>
- McIntosh, V. V. W., Jordan, J., Carter, J. D., Frampton, C. M. A., McKenzie, J. M., Latner, J. D., & Joyce, P. R. (2016). Psychotherapy for transdiagnostic binge eating: A randomized controlled trial of cognitive-behavioural therapy, appetite-focused cognitive-behavioural therapy, and schema therapy. *Psychiatry Research, 240*, 412-420. doi:<https://dx.doi.org/10.1016/j.psychres.2016.04.080>

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Mitchell, J. E., Crosby, R. D., Wonderlich, S. A., Crow, S., Lancaster, K., Simonich, H., . . .

Myers, T. C. (2008). A randomized trial comparing the efficacy of cognitive-behavioral therapy for bulimia nervosa delivered via telemedicine versus face-to-face. *Behaviour Research and Therapy*, *46*(5), 581-592. doi:<http://dx.doi.org/10.1016/j.brat.2008.02.004>

Munsch, S., Biedert, E., Meyer, A., Michael, T., Schlup, B., Tuch, A., & Margraf, J. (2007). A Randomized Comparison of Cognitive Behavioral Therapy and Behavioral Weight Loss Treatment for Overweight Individuals with Binge Eating Disorder. *International Journal of Eating Disorders*, *40*(2), 102-113. doi:<http://dx.doi.org/10.1002/eat.20350>

Navarro-Haro, M. V., Botella, C., Guillen, V., Moliner, R., Marco, H., Jorquera, M., . . . Garcia-Palacios, A. (2018). Dialectical behavior therapy in the treatment of borderline personality disorder and eating disorders comorbidity: A pilot study in a naturalistic setting. *Cognitive Therapy and Research*, *42*(5), 636-649. doi:<http://dx.doi.org/10.1007/s10608-018-9906-9>

Olmsted, M. P. (1989). *Bulimia nervosa: Minimal treatment and rapid response*. (Ph.D.). York University (Canada), Ann Arbor. Retrieved from <https://search.proquest.com/docview/303804065?accountid=17260>

Palavras, M. A., Hay, P., Mannan, H., da Luz, F. Q., Sainsbury, A., Touyz, S., & Claudino, A. M. (2020). Integrated weight loss and cognitive behavioural therapy (CBT) for the treatment of recurrent binge eating and high body mass index: a randomized controlled trial. *Eating & Weight Disorders*, *25*, 25. doi:<https://dx.doi.org/10.1007/s40519-020-00846-2>

Pellizzer, M. L., Waller, G., & Wade, T. D. (2018). Ten-session cognitive behaviour therapy for eating disorders: Outcomes from a pragmatic pilot study of Australian non-underweight clients. *Clinical Psychologist*, No Pagination Specified. doi:<http://dx.doi.org/10.1111/cp.12170>

Pellizzer, M. L., Waller, G., & Wade, T. D. (2019). A pragmatic effectiveness study of 10-session cognitive behavioural therapy (cbt-t) for eating disorders: Targeting barriers to treatment provision. *European Eating Disorders Review*, No Pagination Specified. doi:<http://dx.doi.org/10.1002/erv.2684>

Pendleton, V. R., Goodrick, G., Poston, W. S., Reeves, R. S., & Foreyt, J. P. (2002). Exercise augments the effects of cognitive-behavioral therapy in the treatment of binge eating.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- International Journal of Eating Disorders*, 31(2), 172-184.
doi:<http://dx.doi.org/10.1002/eat.10010>
- Peterson, C. B., Mitchell, J. E., Crow, S. J., Crosby, R. D., & Wonderlich, S. A. (2009). The efficacy of self-help group treatment and therapist-led group treatment for binge eating disorder. *The American Journal of Psychiatry*, 166(12), 1347-1354.
doi:<http://dx.doi.org/10.1176/appi.ajp.2009.09030345>
- Poulsen, S., Lunn, S., Daniel, S. I. F., Folke, S., Mathiesen, B. B., Katznelson, H., & Fairburn, C. G. (2014). A randomized controlled trial of psychoanalytic psychotherapy or cognitive-behavioral therapy for bulimia nervosa. *American Journal of Psychiatry*, 171(1), 109-116. doi:<http://dx.doi.org/10.1176/appi.ajp.2013.12121511>
- Prestano, C., Lo Coco, G., Gullo, S., & Lo Verso, G. (2008). Group analytic therapy for eating disorders: Preliminary results in a single-group study. *European Eating Disorders Review*, 16(4), 302-310. doi:<http://dx.doi.org/10.1002/erv.871>
- Quilty, L. C., Allen, T. A., Davis, C., Knyahnytska, Y., & Kaplan, A. S. (2019). A randomized comparison of long acting methylphenidate and cognitive behavioral therapy in the treatment of binge eating disorder. *Psychiatry Research*, 273, 467-474.
doi:<http://dx.doi.org/10.1016/j.psychres.2019.01.066>
- Raykos, B. C., McEvoy, P. M., Erceg-Hurn, D., Byrne, S. M., Fursland, A., & Nathan, P. (2014). Therapeutic alliance in enhanced cognitive behavioural therapy for bulimia nervosa: Probably necessary but definitely insufficient. *Behaviour Research and Therapy*, 57, 65-71. doi:<http://dx.doi.org/10.1016/j.brat.2014.04.004>
- Raykos, B. C., Watson, H. J., Fursland, A., Byrne, S. M., & Nathan, P. (2013). Prognostic value of rapid response to enhanced cognitive behavioral therapy in a routine clinic sample of eating disorder outpatients. *International Journal of Eating Disorders*, 46(8), 764-770.
doi:<http://dx.doi.org/10.1002/eat.22169>
- Ricca, V., Castellini, G., Lo Sauro, C., Mannucci, E., Ravaldi, C., Rotella, F., & Faravelli, C. (2010a). Cognitive-behavioral therapy for threshold and subthreshold anorexia nervosa: A three-year follow-up study. *Psychotherapy and Psychosomatics*, 79(4), 238-248.
doi:<http://dx.doi.org/10.1159/000315129>
- Ricca, V., Mannucci, E., Mezzani, B., Di Bernardo, M., Barciulli, E., Moretti, S., . . . Rotella, C. M. (1997a). Cognitive-behavioral therapy versus combined treatment with group

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- psychoeducation and fluoxetine in bulimic outpatients. *Eating & Weight Disorders*, 2(2), 94-99. Retrieved from <http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=medc&AN=14655848>
- Riesco, N., Aguera, Z., Granero, R., Jimenez-Murcia, S., Menchon, J. M., & Fernandez-Aranda, F. (2018). Other Specified Feeding or Eating Disorders (OSFED): Clinical heterogeneity and cognitive-behavioral therapy outcome. *European Psychiatry: the Journal of the Association of European Psychiatrists*, 54, 109-116. doi:<https://dx.doi.org/10.1016/j.eurpsy.2018.08.001>
- Rigaud, D. J., Brayer, V., Roblot, A., Brindisi, M. C., & Verges, B. (2011). Efficacy of tube feeding in binge-eating/vomiting patients: a 2-month randomized trial with 1-year follow-up. *Journal of Parenteral & Enteral Nutrition*, 35(3), 356-364. doi:<https://dx.doi.org/10.1177/0148607110382422>
- Rose, C., & Waller, G. (2017). Cognitive-behavioral therapy for eating disorders in primary care settings: Does it work, and does a greater dose make it more effective? *International Journal of Eating Disorders*, 50(12), 1350-1355. doi:<https://dx.doi.org/10.1002/eat.22778>
- Sauro, C. L., Castellini, G., Lelli, L., Faravelli, C., & Ricca, V. (2013). Psychopathological and clinical features of remitted anorexia nervosa patients: A six-year follow-up study. *European Eating Disorders Review*, 21(1), 78-83. doi:<http://dx.doi.org/10.1002/erv.2177>
- Schapman-Williams, A. M., Lock, J., & Couturier, J. (2006). Cognitive-behavioral therapy for adolescents with binge eating syndromes: A case series. *International Journal of Eating Disorders*, 39(3), 252-255. doi:<http://dx.doi.org/10.1002/eat.20253>
- Schlup, B., Meyer, A. H., & Munsch, S. (2010). A non-randomized direct comparison of cognitive-behavioral short- and long-term treatment for binge eating disorder. *Obesity Facts*, 3(4), 261-266. doi:<https://dx.doi.org/10.1159/000319538>
- Schlup, B., Munsch, S., Meyer, A. H., Margraf, J., & Wilhelm, F. H. (2009). The efficacy of a short version of a cognitive-behavioral treatment followed by booster sessions for binge eating disorder. *Behaviour Research and Therapy*, 47(7), 628-635. doi:<http://dx.doi.org/10.1016/j.brat.2009.04.003>

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- Shafran, R., Lee, M., Cooper, Z., Palmer, R. L., & Fairburn, C. G. (2008). Effect of psychological treatment on attentional bias in eating disorders. *International Journal of Eating Disorders, 41*(4), 348-354. doi:<http://dx.doi.org/10.1002/eat.20500>
- Signorini, R., Sheffield, J., Rhodes, N., Fleming, C., & Ward, W. (2018). The effectiveness of enhanced cognitive behavioural therapy (CBT-E): A naturalistic study within an outpatient eating disorder service. *Behavioural and Cognitive Psychotherapy, 46*(1), 21-34. doi:<http://dx.doi.org/10.1017/S1352465817000352>
- Stefini, A., Salzer, S., Reich, G., Horn, H., Winkelmann, K., Bents, H., . . . Kronmuller, K.-T. (2017). Cognitive-behavioral and psychodynamic therapy in female adolescents with bulimia nervosa: A randomized controlled trial. *Journal of the American Academy of Child & Adolescent Psychiatry, 56*(4), 329-335. doi:<http://dx.doi.org/10.1016/j.jaac.2017.01.019>
- Tasca, G. A., Ritchie, K., Conrad, G., Balfour, L., Gayton, J., Lybanon, V., & Bissada, H. (2006). Attachment scales predict outcome in a randomized controlled trial of two group therapies for binge eating disorder: An aptitude by treatment interaction. *Psychotherapy Research, 16*(1), 106-121. doi:<http://dx.doi.org/10.1080/10503300500090928>
- Tasca, G. A., Ritchie, K., Demidenko, N., Balfour, L., Krysan, V., Weekes, K., . . . Bissada, H. (2013). Matching women with binge eating disorder to group treatment based on attachment anxiety: Outcomes and moderating effects. *Psychotherapy Research, 23*(3), 301-314. doi:<http://dx.doi.org/10.1080/10503307.2012.717309>
- Thiels, C., Schmidt, U., Treasure, J., Garthe, R., & Troop, N. (1998). Guided self-change for bulimia nervosa incorporating use of self-care manual. *The American Journal of Psychiatry, 155*(7), 947-953. doi:<http://dx.doi.org/10.1176/ajp.155.7.947>
- Thompson-Brenner, H., Shingleton, R. M., Thompson, D. R., Satir, D. A., Richards, L. K., Pratt, E. M., & Barlow, D. H. (2016). Focused vs. broad enhanced cognitive behavioral therapy for bulimia nervosa with comorbid borderline personality: A randomized controlled trial. *International Journal of Eating Disorders, 49*(1), 36-49. doi:<http://dx.doi.org/10.1002/eat.22468>
- Tomba, E., Tecuta, L., Schumann, R., & Ballardini, D. (2017). Does psychological well-being change following treatment? An exploratory study on outpatients with eating disorders.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- Comprehensive Psychiatry*, 74, 61-69.
doi:<http://dx.doi.org/10.1016/j.comppsy.2017.01.001>
- Touyz, S., Le Grange, D., Lacey, H., Hay, P., Smith, R., Maguire, S., . . . Crosby, R. (2013). Treating severe and enduring anorexia nervosa: A randomized controlled trial. *Psychological Medicine*, 43(12), 2501-2511.
doi:<http://dx.doi.org/10.1017/S0033291713000949>
- Turner, H., Bryant-Waugh, R., & Marshall, E. (2015a). The impact of early symptom change and therapeutic alliance on treatment outcome in cognitive-behavioural therapy for eating disorders. *Behaviour Research and Therapy*, 73, 165-169.
doi:<http://dx.doi.org/10.1016/j.brat.2015.08.006>
- Turner, H., Marshall, E., Stopa, L., & Waller, G. (2015b). Cognitive-behavioural therapy for outpatients with eating disorders: Effectiveness for a transdiagnostic group in a routine clinical setting. *Behaviour Research and Therapy*, 68, 70-75.
doi:<http://dx.doi.org/10.1016/j.brat.2015.03.001>
- Valbak, K. (2001). Good outcome for bulimic patients in long-term group analysis: A single-group study. *European Eating Disorders Review*, 9(1), 19-32.
doi:<http://dx.doi.org/10.1002/erv.369>
- Wade, S., Byrne, S., & Allen, K. (2017). Enhanced cognitive behavioral therapy for eating disorders adapted for a group setting. *International Journal of Eating Disorders*, 50(8), 863-872. doi:<http://dx.doi.org/10.1002/eat.22723>
- Waller, G., Gray, E., Hinrichsen, H., Mountford, V., Lawson, R., & Patient, E. (2014). Cognitive-behavioral therapy for bulimia nervosa and atypical bulimic nervosa: Effectiveness in clinical settings. *International Journal of Eating Disorders*, 47(1), 13-17.
doi:<http://dx.doi.org/10.1002/eat.22181>
- Waller, G., Tatham, M., Turner, H., Mountford, V. A., Bennetts, A., Bramwell, K., . . . Ingram, L. (2018). A 10-session cognitive-behavioral therapy (CBT-T) for eating disorders: Outcomes from a case series of nonunderweight adult patients. *International Journal of Eating Disorders*, 51(3), 262-269. doi:<http://dx.doi.org/10.1002/eat.22837>
- Watson, H. J., Allen, K., Fursland, A., Byrne, S. M., & Nathan, P. R. (2012). Does enhanced cognitive behaviour therapy for eating disorders improve quality of life? *European Eating Disorders Review*, 20(5), 393-399. doi:<http://dx.doi.org/10.1002/erv.2186>

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

- Wilfley, D. E., Welch, R., Stein, R. I., Spurrell, E. B., Cohen, L. R., Saelens, B. E., . . . Matt, G. E. (2002). A randomized comparison of group cognitive-behavioral therapy and group interpersonal psychotherapy for the treatment of overweight individuals with binge-eating disorder. *Archives of General Psychiatry*, *59*(8), 713-721.
doi:<http://dx.doi.org/10.1001/archpsyc.59.8.713>
- Wilson, G., Eldredge, K. L., Smith, D., & Niles, B. (1991). Cognitive-behavioral treatment with and without response prevention for bulimia. *Behaviour Research and Therapy*, *29*(6), 575-583. doi:<http://dx.doi.org/10.1016/0005-7967%2891%2990007-P>
- Wilson, G. T., Wilfley, D. E., Agras, W. S., & Bryson, S. W. (2010). Psychological treatments of binge eating disorder. *Archives of General Psychiatry*, *67*(1), 94-101.
doi:<https://dx.doi.org/10.1001/archgenpsychiatry.2009.170>
- Wolf, E. M. (1985). An Evaluation of Behavioral and Cognitive Behavioral Group Interventions for the Treatment of Bulimia in Women (Eating disorders, problems, psychotherapy, research). (Ph.D). Kent State University, Ann Arbor. Retrieved from <https://search.proquest.com/docview/303402984?accountid=17260>
- Wonderlich, S., Peterson, C., Crosby, R., Smith, T., Klein, M., Mitchell, J., & Crow, S. (2014). A randomized controlled comparison of integrative cognitive-affective therapy (ICAT) and enhanced cognitive-behavioral therapy (CBT-E) for bulimia nervosa. *Psychological Medicine*, *44*(3), 543-553. doi:<http://dx.doi.org/10.1017/S0033291713001098>
- Zerwas, S. C., Watson, H. J., Hofmeier, S. M., Levine, M. D., Hamer, R. M., Crosby, R. D., . . . Bulik, C. M. (2016). CBT4BN: A randomized controlled trial of online chat and face-to-face group therapy for bulimia nervosa. *Psychotherapy and Psychosomatics*, *86*(1), 47-53. doi:<http://dx.doi.org/10.1159/000449025>
- Zipfel, S., Wild, B., Gros, G., Friederich, H.-C., Teufel, M., Schellberg, D., . . . Herzog, W. (2014). Focal psychodynamic therapy, cognitive behaviour therapy, and optimised treatment as usual in outpatients with anorexia nervosa (ANTOP study): Randomised controlled trial. *The Lancet*, *383*(9912), 127-137. doi:<http://dx.doi.org/10.1016/S0140-6736%2813%2961746-8>

Appendix C: Funnel plots

Figure C1

Funnel Plot for Logit Event Rate for Remission by Standard Error of Measurement

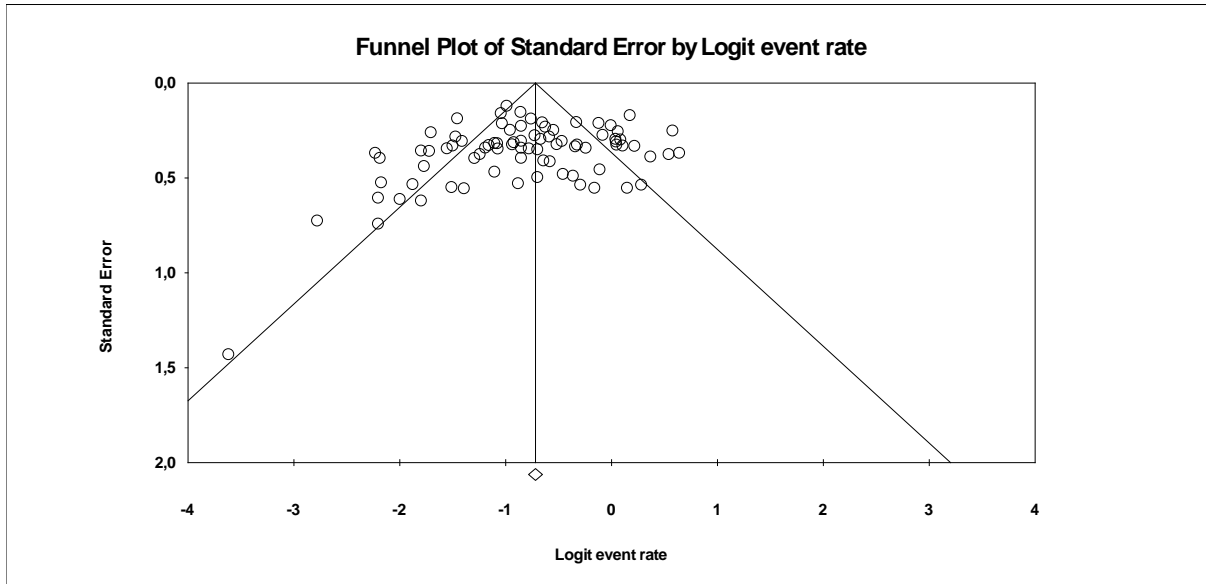
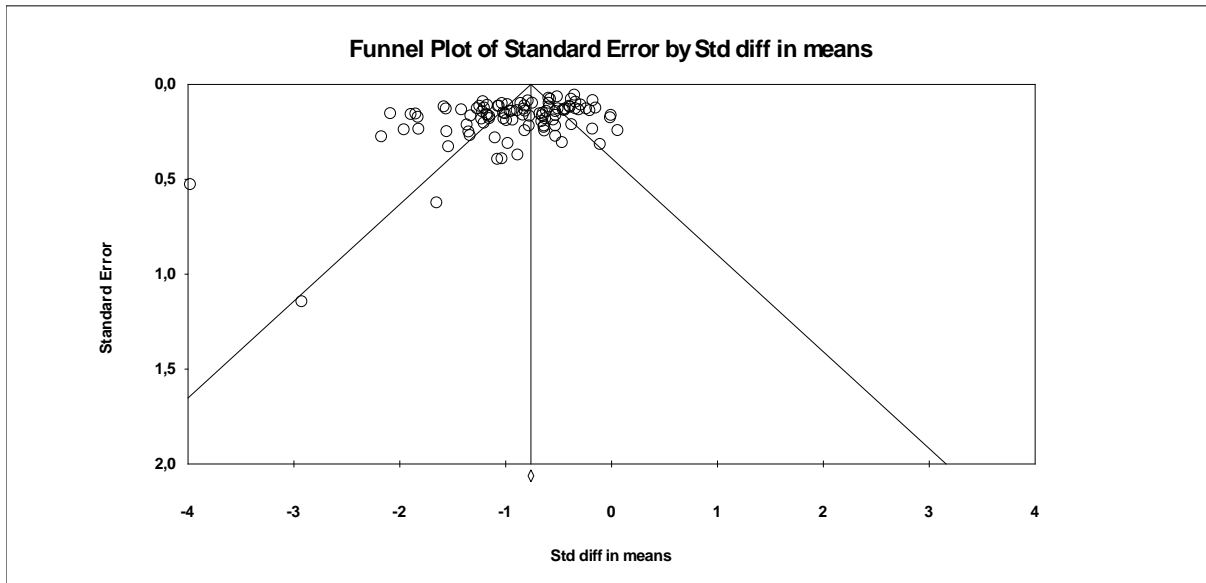


Figure C2

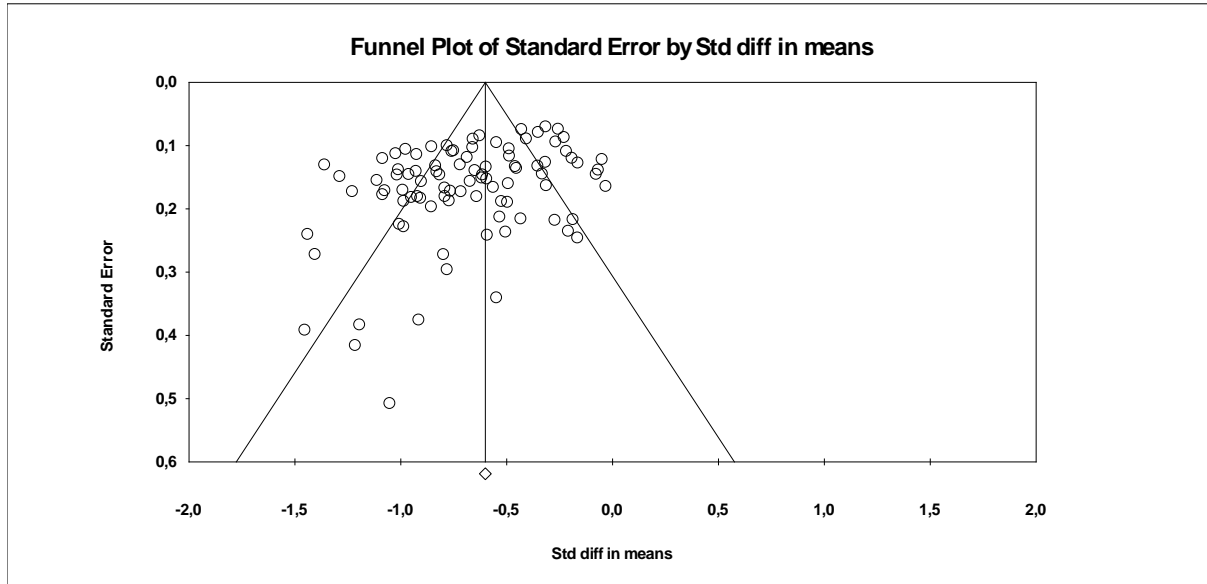
Funnel Plot for Standardized Difference in Means for Specific Psychopathology by Standard Error of Measurement



EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Figure C 3

Funnel Plot for Standardized Difference in Means for General Psychopathology by Standard Error of Measurement



Appendix D: Primary study characteristics sorted by diagnose subgroup**Table D1.***Study Characteristics for AN Samples (k = 25)*

Study name	Treatment condition	ITT (n)	Completers (n)	Specific	General	Remission (n)	Mean age	Design
Ball 2004	CBT	13		EDI-BD; EDE-global	BDI; STAI	7	18.5	RCT
Castellini 2013	CBT		27	EDE-Q-global	BDI; STAI		25.6	nRCT
Castellini 2015	CBT	32				21		nRCT
Dalle Grave 2013	CBT	46		EDE-Q-global	SCL-90	13	15.5	nRCT
Dalle Grave 2019	CBT	49		EDE-Q-global	BSI	14	15.5	nRCT
Dare 2001	PIT	21				3	26.7	RCT
Fairburn 2013	CBT	99		EDE-Q-global	GSI	34	24.0	nRCT
Fernandez 1998	CBT		22	EDI-BD; EDI-DT	BDI		20.8	nRCT
Frostad 2018a	CBT	17				5		nRCT
Frostad 2018b	CBT	44				17	23.3	nRCT
Gowers 1994	PIT	20				4	21.2	RCT
	WL	20				2	21.9	RCT
Hay 2018	CBT	78		EDE-global	Kessler-10	22	28.6	RCT
Jenkins	CBT	63		EDE-global		9	23.6	nRCT
La Mela 2013	CBT	18				6		nRCT
Lelli 2019	CBT	34				15		nRCT
Lock 2013	CBT	23		EDE-global		11	14.7	RCT
Raykos 2013	CBT	17				7		nRCT
Ricca 2010a	CBT (sample 1)	53				19	14.7	RCT
	CBT (sample 2)	50				12	23.0	RCT
Sauro 2013	CBT	134				73	27.2	nRCT
Touyz 2013	CBT	31		EDE-global	BDI		34.6	RCT
Watson 2012	CBT	34		EDE-Q-global			25.2	nRCT

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Zipfel 2014	PIT	80	28	28.0	RCT
	CBT	80	15	27.4	RCT

Note. CBT = cognitive behavior therapy; PIT = psychodynamic-interpersonal therapy; ITT = intention-to-treat sample size; RCT = randomized controlled trial design; nRCT = non-randomized/controlled trial design; EDI = eating disorder inventory; BD = *body dissatisfaction* subscale in EDI; DT = *drive for thinness* subscale in EDI; EDE = eating disorder examination; EDE-Q = EDE questionnaire; BDI = Beck's depression inventory; SCL-90 = symptom checklist including 90 items; STAI = State Trait Anxiety Inventory; Kessler-10 = Kessler psychological distress scale including 10 items; GSI = *global severity index* for SCL-90.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Table D2.

Study Characteristics for BED Samples (k = 37)

Study name	Treatment condition	ITT (n)	Completers (n)	Specific	General	Remission (n)	Mean age	Design
Abiles 2013	CBT		49	EDE-Q-w; EDE-Q-s; EDE-Q-e; EDE-Q-r	GHQ-a; GHQ-d		42.6	nRCT
Aguera 2013	CBT	87				41	34.1	nRCT
Castellini 2011a	CBT	133		EDE-Q-global	BDI; STAI			nRCT
de Zwaan 1997	CBT		80	EDE	BDI		42.7	RCT
Dingemans 2007	CBT	30		EDE-global	BDI	19	38.8	RCT
	WL	22		EDE-global	BDI	4	36.4	RCT
Duchesne 2007	CBT	21			BDI		37.2	nRCT
Fahy 1993	CBT	39		EAT				nRCT
Fischer 2014	CBT		33	EDE-Q-w; EDE-Q-s; EDE-Q-e; EDE-Q-r; EDE-Q-ows			45.6	RCT
Fossati 2004	CBT	13			HAAD; HADD		45.6	nRCT
Gorin 2003	CBT		32		BDI		45.2	RCT
	WL		31		BDI		45.2	RCT
Grilo 2011	CBT	45	37	EDE-global	BDI	23	44.8	RCT
Hilbert 2004	CBT (sample 1)	14	12	EDE-Q-w; EDE-Q-s; EDE-Q-e; EDE-Q-r	BDI	6	42.1	RCT
	CBT (sample 2)	14	12	EDE-Q-w; EDE-Q-s; EDE-Q-e; EDE-Q-r	BDI	8	38.6	RCT
Hilbert 2020	CBT	37		EDE-global	BDI	19	15.3	RCT
	WL	36		EDE-global	BDI	12	15.3	RCT
Hill 2015	PIT		75		CES-D		44.2	nRCT
Maxwell 2018	PIT		44		BDI		44.3	nRCT
McIntosh 2016	CBT	36	28	EDE-global	SCL-90-d	19		RCT
Munsch 2007	CBT	44	16	EDE-Q-w; EDE-Q-s; EDE-Q-e; EDE-Q-r	BDI; BAI	23	44.4	RCT
Olmsted 1989	CBT	30				9	23.7	RCT

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Peterson 2009	CBT	60		EDE-Q-global	IDS-SR	31	47.1	RCT
	WL	69		EDE-Q-global	IDS-SR	7	47.1	RCT
Quilty 2019	CBT	27		EDE-global		16	32.8	RCT
Schlup 2009	CBT	18				7	47.1	RCT
	WL	18				0	41.2	RCT
Schlup 2010	CBT (sample 1)	40				15	44.6	nRCT
	CBT (sample 2)	36				20	44.4	nRCT
	CBT		37		CES-D		42.8	RCT
Tasca 2006	PIT		37		CES-D		42.8	RCT
	WL		40		CES-D		42.8	RCT
Tasca 2013	PIT (sample 1)	52	31		BDI	13	46.2	nRCT
	PIT (sample 2)	50	24		BDI	15	24.2	nRCT
Wilfley 2002	CBT		67	EDE-Q-w; EDE-Q-s; EDE-Q-e; EDE-Q-r	SCL-90-d		45.6	RCT
	PIT		71	EDE-Q-w; EDE-Q-s; EDE-Q-e; EDE-Q-r	SCL-90-d		44.9	RCT
Wilson 2010	PIT	75		EDE-global			48.7	RCT

Note. CBT = cognitive behavior therapy; PIT = psychodynamic-interpersonal therapy; ITT = intention-to-treat sample size; RCT = randomized controlled trial design; nRCT = non-randomized/controlled trial design; EDI = eating disorder inventory; EDE = eating disorder examination; EDE-Q = EDE questionnaire; EDE-Q-w = *weight concern* subscale in EDE-Q; EDE-Q-s = *shape concern* subscale in EDE-Q; EDE-Q-e = *eating concern* subscale in EDE-Q; EDE-Q-r = *restraint subscale* in EDE-Q; EDE-Q-ows = *overevaluation of shape and weight scale* in EDE-Q; BDI = Beck's depression inventory; SCL-90-d = symptom checklist including 90 items *depression subscale*; STAI = Stait Trait Anxiety Inventory; GHQ-a = General health questionnaire *anxiety subscale*; GHQ-d = General health questionnaire *depression subscale*; HAAD = Hospital anxiety and depression scale *anxiety subscale*; HADD = Hospital anxiety and depression scale *depression subscale*; BAI = Beck's anxiety inventory; IDS-SR = Inventory of Depressive Symptomatology Self Report; CES-D = Center for Epidemiological Studies depression scale.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Table D3.

Study Characteristics for Mixed Samples (k = 45).

Study name	Treatment condition	ITT (n)	Completers (n)	Specific	General	Remission (n)	Mean age	Design
Allen 2012	CBT	43		EDE-global		11	26.4	nRCT
Arcelus 2009	PIT	59		EDE-global	BDI	9	28.1	nRCT
Bachar 1999	PIT		14	EAT-26	SCL-90			RCT
Bachar 1999	WL		10	EAT-26	SCL-90			RCT
Back 2017	PIT	16		REDS	PHQ-9		25.9	nRCT
Balestrieri 2015	PIT (sample 1)		7	EDI-BD; EDI-DT	HAM-A; HAM-D			nRCT
Balestrieri 2015	PIT (sample 2)		6	EDI-BD; EDI-DT	HAM-A; HAM-D			nRCT
Bandini 2006	CBT	67				43	20.9	nRCT
Byrne 2011	CBT	125		EDE-global	DASS-A; DASS-D	40	26.0	nRCT
Carter 2016	CBT		42	EDE-Q-global	CC-total		19.7	nRCT
Craig 2019	CBT	22		EDE-Q-global				nRCT
Dalle Grave 2015	CBT	68		EDE-Q-global	SCL-90	25	16.5	nRCT
Fairburn 2009	CBT	77		EDE-global	BSI		26.2	RCT
Fairburn 2015	PIT	65		EDE-global	BDI		26.8	RCT
Fairburn 2015	CBT	65		EDE-global	BDI		25.9	RCT
Fassino 2005	PIT (sample 1)		38	EDI-BD; EDI-DT				nRCT
Fassino 2005	PIT (sample 2)		19	EDI-BD; EDI-DT				nRCT
Fernandez 2009	CBT (sample 1)		150	EDI-BD; EDI-DT			26.7	nRCT
Fernandez 2009	CBT (sample 2)		19	EDI-BD; EDI-DT			22.4	nRCT
Knott 2015	CBT	246		EDE-Q-w; EDE-Q-s; EDE-Q-e; EDE-Q-r	BDI		28.7	nRCT
Mathisen 2020	CBT		39		BDI		27.7	RCT
McIntosh 2016	CBT	38	30	EDE-global	SCL-90-dep	16	34.4	RCT
Mitchell 2008	CBT	66	25	EDE-Q-w; EDE-Q-s; EDE-Q-e; EDE-Q-r	HAM-D	13	29.6	RCT
Navarro-Haro 2018	CBT	47			BDI			nRCT

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Palavras 2020	CBT	48		EDE-global			40.9	RCT
Pellizzer 2018	CBT	26		EDE-global	DASS-21	9	28.7	nRCT
Pellizzer 2019	CBT	52		EDE-Q-global	DASS	25	26.4	nRCT
Pendleton 2002	CBT	17			BDI		45.0	RCT
Prestano 2008	PIT		6	EDI-BD; EDI-DT			16.0	nRCT
Raykos 2013	CBT	38				23		nRCT
Riesco 2018	CBT (sample 1)	82				8	25.2	nRCT
Riesco 2018	CBT (sample 2)	57				10	27.4	nRCT
Riesco 2018	CBT (sample 3)	37				8	27.4	nRCT
Rigaud 2011	CBT	51				13	28.0	RCT
Rose 2017	CBT	47		EDE-Q-global	PHQ-9	11	27.1	nRCT
Schapmann-William	CBT		4	EDE-Q-global EDE-Q-w; EDE-Q-s; EDE-Q-e; EDE-Q-r			16.4	
Shafran 2008	CBT	31					25.9	RCT
Signorini 2018	CBT	111	108	EDE-Q-global	DASS-A; DASS-D		26.1	nRCT
Tomba 2017	CBT	195	185	EAT		51	28.9	nRCT
Turner 2015a	CBT		77	EDE-Q-global			28.4	nRCT
Turner 2015b	CBT	179		EDE-Q	HADS-A; HADS-D	34	27.6	nRCT
Wade 2017	CBT	39		EDE-global		4	23.9	nRCT
Waller 2014	CBT	78			BDI	39	27.8	nRCT
Waller 2018	CBT	93		EDE-Q	GAD-A; PHQ-9		27.4	nRCT
Watson 2012	CBT	75					25.6	nRCT

Note. CBT = cognitive behavior therapy; PIT = psychodynamic-interpersonal therapy; ITT = intention-to-treat sample size; RCT = randomized controlled trial design; nRCT = non-randomized/controlled trial design; EDI = eating disorder inventory; BD = *body dissatisfaction* subscale in EDI; DT = *drive for thinness* subscale in EDI; EDE = eating disorder examination; EDE-Q = EDE questionnaire; EDE-Q-w = *weight concern* subscale in EDE-Q; EDE-Q-s = *shape concern* subscale in EDE-Q; EDE-Q-e = *eating concern* subscale in EDE-Q; EDE-Q-r = *restraint subscale* in EDE-Q; BDI = Beck's depression inventory; SCL-90 = Symptom checklist including 90 items; SCL-90-d = SCL-90 *depression subscale*; HADS-A = Hospital anxiety and depression scale *anxiety subscale*; HADS-D = Hospital anxiety and depression scale *depression subscale*; GAD-A = General anxiety disorder assessment; PHQ-9 = Patient health questionnaire *major depression module*; DASS-A = Depression anxiety stress scale *anxiety subscale*; DASS-D = Depression anxiety stress scale *depression subscale*; HAM-A = Hamilton *anxiety* rating scale; HAM-D = Hamilton *depression* rating scale; BSI = Brief symptom inventory; CC-total = Cognitive checklist for *anxiety* and *depression*.

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Table D 4.

Study Characteristics for BN Samples (k = 44).

Study name	Treatment condition	ITT (n)	Completers (n)	Specific	General	Remission (n)	Mean age	Design
Agras 2000a	CBT	194				58	28.4	RCT
Agras 2000b	PIT	110	64	EDE-global	SCL-90	17	27.9	RCT
Agras 2000b	CBT	110	65	EDE-global	SCL-90 SCL-90-A; SCL-90-D	29	28.3	RCT
Aguera 2012	CBT		100	EDI-BD; EDI-DT			23.9	nRCT
Aguera 2013	CBT (sample 1)	327				89	26.2	nRCT
Aguera 2013	CBT (sample 2)	40				12	27.2	nRCT
Arcelus 2012	PIT	10		EDE-global	BDI		28.8	nRCT
Bailer 2004	CBT	41	26	EDI-BD; EDI-DT	BDI	6	24.2	RCT
Barga 2004	CBT	6		EDE-w; EDE-s				nRCT
Blouin 1994	CBT		69	EDI-BD; EDI-DT			23.6	nRCT
Boutacoff 1996	CBT (sample 1)		33	EDI-BD; EDI-DT	BDI		25.8	RCT
Boutacoff 1996	CBT (sample 2)		41	EDI-BD; EDI-DT	BDI		25.6	RCT
Boutacoff 1996	CBT (sample 3)		35	EDI-BD; EDI-DT	BDI		26.4	RCT
Boutacoff 1996	CBT (sample 4)		34	EDI-BD; EDI-DT	BDI		25.7	RCT
Castellini 2011a	CBT	85		EDE-Q-global	BDI; STAI			nRCT
Castellini 2013	CBT		31	EDE-Q-global	BDI; STAI BDI; STAI-S;		30.1	nRCT
Chen 2003	CBT (sample 1)	30		EDE-global	STAI-T BDI; STAI-S;	4	25.8	RCT
Chen 2003	CBT (sample 2)	30		EDE-global	STAI-T BDI; STAI-S;	3	25.8	RCT
Cooper 1995	CBT	13	12	EDE-r; EDE-s; EDE-w	STAI-T	6	23.8	RCT
Fahy 1993	CBT		39		MADRS		23.8	nRCT
Fassino 2005	PIT	38		EDI-DT				nRCT
Freeman 1988	CBT	32		EDI-BD; EDI-DT	IDA-a; IDA-d		24.2	RCT
Garner 1993	CBT	25		EDE-r; EDE-s; EDE-w	BDI	9	23.7	RCT

EFFECTS OF PSYCHOTHERAPY FOR EATING DISORDERS

Garner 1993	PIT	25		EDE-r; EDE-s; EDE-w	BDI	3	24.6	RCT
Ghaderi 2006	CBT	26		EDE-Q-global	BDI		27.2	RCT
Goldbloom 1997	CBT	24	13	EDE-Q-s; EDE-Q-w	BDI	6	25.8	RCT
Le Grange 2015	CBT	58	40		BDI	19	15.7	RCT
Leitenberg 1994	CBT	6		EAT-26	BSI		26.7	RCT
Poulsen 2014	CBT	36				15	25.8	RCT
Poulsen 2014	PIT	34				2	25.8	RCT
Raykos 2013	CBT	50				17		nRCT
Raykos 2014	CBT		78	EDE-Q-global				nRCT
Ricca 1997a	CBT		19	EDE-Q-global	STAI; BDI		23.4	RCT
Stefini 2017	CBT	39		EDE-global	SCL-90		18.8	RCT
Stefini 2017	PIT	42		EDE-global	SCL-90		18.6	RCT
Thiels 1998	CBT		24	EDE-r; EDE-s; EDE-s	BDI		28.7	RCT
Thompson-Brenner 2016	CBT		21	EDE-Q-global	BDI		25.6	RCT
Valbak 2001	PIT	19	10		SCL-90	9		nRCT
Watson 2012	CBT	87		EDE-Q-global			26.8	nRCT
Wilson 1991	CBT		8		BDI		19.8	RCT
Wolf 1985	CBT	15		EDI-BD; EDI-DT	SCL-90-A; SCL-90-D		25.8	RCT
Wolf 1985	WL	11		EDI-BD; EDI-DT	SCL-90-A; SCL-90-D		27.8	RCT
Wonderlich 2014	CBT	40		EDE-global	BDI; STAI	9	28.8	RCT
Zerwas 2016	CBT	90				27	27.5	RCT

Note. CBT = cognitive behavior therapy; PIT = psychodynamic-interpersonal therapy; ITT = intention-to-treat sample size; RCT = randomized controlled trial design; nRCT = non-randomized/controlled trial design; EDI = eating disorder inventory; BD = *body dissatisfaction* subscale in EDI; DT = *drive for thinness* subscale in EDI; EDE = eating disorder examination; EDE-Q = EDE questionnaire; EDE-Q-w = *weight concern* subscale in EDE-Q; EDE-Q-s = *shape concern* subscale in EDE-Q; EDE-Q-r = *restraint subscale* in EDE-Q; EAT-26 = Eating attitude test 26 items; BDI = Beck's depression inventory; SCL-90 = Symptom checklist including 90 items; SCL-90-a = SCL-90 *anxiety subscale*; SCL-90-d = SCL-90 *depression subscale*; STAI = Stait Trait Anxiety Inventory; STAI-t = STAI *trait* subscale; STAI-s = STAI *state* subscale; MADRS = Montgomery Aasberg Depression Rating Scale; IDA-a = Irritability Depression and Axiety Scale *anxiety* subscale; IDA-d = Irritability Depression and Anxiety Scale *depression* subscale.