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# Efficacy of Cognitive Behavioral Therapy in Treating Anorexia Nervosa: A Review of Literature

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## Abstract:

In this review, we examine the body of literature relating to the efficacy of cognitive behavioral therapy (CBT) in treating anorexia nervosa. We also include a brief overview of the efficacy of CBT in treating major depressive disorder, a disorder commonly comorbid with anorexia nervosa that plays a significant role in treatment outcomes. Anorexia nervosa is a mental disorder that can cause physical deterioration and death, and a treatment plan for this disorder has not been well-established. CBT is a goal-oriented form of psychotherapy that focuses on identifying patients' self-destructive thought patterns and behaviors in order to reframe their thoughts to address the psychological and behavioral symptoms of their mental illness. CBT has become a popular method for treating anorexia nervosa and depression, but research has not demonstrated whether it is superior to other treatment methods. We review a meta-analysis on the efficacy of CBT in general as well as a meta-analysis critiquing studies evaluating treatments currently available for anorexia nervosa. This review highlights several studies comparing patients receiving CBT to control groups that receive no form of psychotherapy and a study comparing the efficacy of CBT to the efficacy of behavioral family therapy (BFT) in treating anorexia nervosa. We identify several flaws and gaps in the literature to date and call for further research to find and optimize treatment for anorexia nervosa.


*Keywords:* anorexia nervosa, cognitive behavioral therapy, psychotherapy, depression, treatment evaluation, relapse prevention

Anorexia nervosa is an eating disorder in which patients restrict their intake of food and fall below 85% of a healthy body weight (American Psychiatric Association, 2000). Of all eating disorders, anorexia nervosa has the highest mortality rate (Arcelus, Mitchell, Wales, & Nielsen, 2011). ). Prognosis for this disorder is poor to fair, and

researchers and clinicians are still seeking effective forms of treatment. Major depressive disorder is often comorbid in patients diagnosed with anorexia nervosa and should be taken into consideration when creating and evaluating treatment plans (Wade, Bulik, Neale, & Kendler, 2000). Over the past couple of decades, cognitive behavioral therapy (CBT) has become an increasingly popular form of psychotherapy in treating a range of issues, including anorexia nervosa and depression. CBT focuses on identifying thought patterns and connecting these to behavior and feelings to address self-destructive behavior (Duckworth & Freedman, 2012). CBT is goal-oriented and problem-centered, with the patient taking an active role in collaborating with their therapist and reshaping their beliefs and thought habits to recover from their mental illness (Duckworth & Freedman, 2012). Research has not established whether CBT is more effective than other forms of psychotherapy.

Randomized, controlled empirical studies on treatment methods for anorexia nervosa are sparse. Much of the research that has been conducted is preliminary and has small sample sizes comprised of female participants that come from Western, educated, industrialized, rich, and democratic backgrounds (i.e., "WEIRD" participants; Azar, 2010). Further studies that include ethnic, socioeconomic, and cultural minorities are needed to verify the reliability and generalizability of whether CBT interventions are feasible and effective among various populations. Meta-analyses of research have surveyed the efficacy of CBT in general as well asthe currently known treatments for anorexia nervosa. Studies have compared the effectiveness of CBT in treating anorexia nervosa to the effectiveness of standard clinical care and to other forms of psychotherapy, but findings are mixed. Researchers have identified several gaps in the literature, and further study is required. This present review of literature focuses on examining what is currently known about the efficacy of CBT in treating anorexia nervosa. Treating patients for anorexia nervosa through psychotherapy overlaps with treating these same patients for major depressive disorder, so this review will also discuss the efficacy of CBT in treating depression as a major subcomponent of the etiology of anorexia nervosa.

## General Efficacy of CBT

Hofmann et al. (2012) provide an overview of meta-analyses on the efficacy of CBT to summarize the current body of knowledge on this form of treatment. The authors identified 269 meta-analyses and reviewed 106 of these to examine the effectiveness of CBT in treating a range of issues, including substance use disorders, mood disorders, somatoform disorders, anxiety disorders, personality disorders, eating disorders, general stress, chronic pain, and female hormonal issues. Eleven of these meta-analyses compared the efficacy of CBT to other forms of therapy, and the authors found that of these, seven found evidence supporting CBT as a more effective treatment, while

one indicated that CBT was less effective than other therapeutic approaches. The authorsconcluded that overall the literature tends to support CBT as an effective treatment method, particularly for anger control problems, anxiety disorders, eating disorders, general stress, and somatoform disorders. Although the authors evaluated an extensive body of meta-analyses, they acknowledged that the literature as it currently stands is incomplete. Hofmann et al. observed that additional randomized-controlled studies for CBT are needed, as well as more comparative research on the effectiveness of CBT within various subpopulations such as ethnic minorities and low socioeconomic groups. Nonetheless, this meta-analysis of meta-analyses provides a concise yet detailed summary of hundreds of studies indicating the efficacy of CBT as a treatment method. Numerous meta-analyses have drawn similar conclusions that indicate CBT may be an effective treatment, which suggests that the conclusions that this source draws are both reliable and valid. This particular meta-analysis is helpful in describing the efficacy of CBT individually in relation to a wide range of mental health issues. In researching the efficacy of various counseling methods, it is important to recognize that some approaches in therapy may be more effective in dealing with certain disorders over others. Hofmann et al.'s study was detailed and thorough in discussing the strengths and weaknesses of this particular treatment method in relation to a spectrum of issues. This meta-analysis by Hofmann et al. is factual and well-researched as it summarizes prior research evaluating cognitive behavior therapy overall, and it will be useful incompiling an overview of what is known of the general effectiveness of counseling. The material provided is secondary in nature, as it is an account of evidence that other researchers have documented. Hofmann et al. briefly discussed the effect of CBT in treating depression. While they found that the literature suggests CBT has a moderate effect size in treating depression (compared to no treatment), studies to date have not found CBT to have a significantly greater effect in treating depression compared to other forms of psychotherapy. This analysis aligns with the results reported by Ball and Mitchell (2010) of the effectiveness of CBT in treating depression, but it did not entirely match the findings of Fava, Rafanelli, Grandi, Conti, and Belluardo (1998), who found that CBT greatly improves treatment outcomes for depression. While Hofmann et al. found CBT to have a significantly greater impact than other forms of psychotherapy in treating bulimia nervosa, they did not discuss the impact of CBT in treating anorexia nervosa. Although the etiologies of bulimia nervosa and anorexia nervosa are distinct, Hofmann et al. have presented evidence that CBT shows promise in treating disordered eating habits. These findings warrant further investigation into whether CBT is effective in treating eating disorders more generally.

## Efficacy of CBT Compared to Clinical Treatments

*CBT and Clinical Management*

Other experimental trials have compared the efficacy of cognitive behavior therapy (CBT) to standard medical treatment without psychotherapy. Fava et al. (1998) compared the efficacy of CBT to clinical management (CM) in treating patients with major depressive disorders. Forty patients diagnosed with major depression and successfully treated with antidepressant medication were randomly divided into two groups to receive either CBT or CM as part of a 20-week treatment program. The dosage of antidepressant medication each patient received was gradually reduced and then removed. Fava et al. conducted a 2 year follow-up to test for "residual symptoms" and found that the CBT group had significantly fewer residual symptoms and a much lower relapse rate (25%) compared to the CM group (80%). This randomized, controlled experiment provides supporting evidence for CBT as a more effective treatment than clinical management in reducing recidivism rates and a potential supplement or replacement for pharmaceuticals. Although this study did not demonstrate that CBT is more effective than other forms of psychotherapy (which Ball and Mitchell (2010) questioned), it does indicate that CBT can play a key role in helping patients recover from major depressive disorder. Fava et al. hypothesized that CBT would improve patients' treatment outcomes to a greater extent than CM in recovering from major depressive disorder. These researchers examined how CBT impacted recidivism rates and residual symptoms of depression. The authors are experienced researchers in this field and did not write with a discernible bias. The experiment was well-crafted. While studies on the effect of CBT in treating depression are inconsistent, the relatively poor reliability between studies may result from differences in study design and individual characteristics. While this study is insufficient evidence on its own to authoritatively state that CBT is the optimal treatment option for depression, it suggests that the impact of CBT in reducing/eliminating symptoms of depression warrants further examination.

This study focuses on the efficacy of CBT in treating depression, as briefly covered in the meta-analysis by Hofmann et al. (2012) and Ball and Mitchell's (2010) study of the efficacy of CBT in treating anorexia nervosa (which included depression as a factor). The information discussed is factual and well-researched, although the study included several limitations. CBT was administered by a single psychiatrist, which potentially reduces the generalizability of these findings given the inevitable variability between therapists in administering the treatment plan. The findings presented offer the strongest support for the efficacy of CBT in treating major depressive disorder. Ball and Mitchell (2010) found no effect of CBT in treating mild depression in patients diagnosed with anorexia nervosa, and the meta-analysis conducted by Hofmann et al. (2012) showed a moderate-to-large effect size of CBT in treating depression. Fava et al. provide primary information that extensively

and directly addressed my main focus in evaluating the overall efficacy of CBT in treating depression and anorexia nervosa.

*CBT and Nutritional Counseling*

A similar study by Pike et al. (2003) empirically examined the impact of cognitive behavior therapy (CBT) in treating anorexia nervosa in a sample of adult patients. Prior studies had indicated that CBT was an effective treatment method for bulimia nervosa, but the efficacy of CBT in treating anorexia nervosa was not well-documented. In treating anorexia nervosa, CBT focuses on addressing the cognitive and behavioral factors influencing a patient's eating pathology and works with patients in adjusting their schema to modify their behavior and thought patterns. Thirty-three patients who had been diagnosed with anorexia nervosa were randomly divided into either a control group that received nutritional counseling or CBT as part of a 1-year outpatient treatment following hospitalization for anorexia nervosa. Patients receiving CBT had a significantly lower and later relapse rate (22%) compared to patients receiving nutritional counseling (53%). The overall treatment failure rate (i.e., rates of dropping out and relapsing combined) was much lower for individuals receiving CBT (22%) compared to those receiving nutritional counseling (73%). In addition, a significantly greater proportion of the group receiving CBT met the criteria for a "good outcome" post-treatment compared to the group receiving nutritional counseling (44% to 7%, respectively). A "good outcome" was defined by the 14-factor Morgan-Russell criteria commonly used in eating disorder studies, as well as two additional criteria: (1) cessation of binge-eating/purging behaviors, and (2) an improvement in eating attitudes and behaviors so that they were within one standard deviation of the mean eating attitudes of a non-eating disordered control. Pike et al. concluded that their study provided supportive evidence for the particular efficacy of CBT in treating anorexia nervosa.

These researchers hypothesized that patients receiving CBT would demonstrate greater progress in their recovery process and have fewer incidents of relapse compared to patients receiving nutritional counseling. While their findings do support their hypothesis, Pike et al. reported that medication may have confounded their results. Within the group receiving CBT, 7 of the 8 patients that had a "good outcome" were taking medication, whereas 4 of the 10 patients who did not meet the criteria for the "good outcome" were taking medication. Within the group receiving nutritional counseling, no significant differences attributed to medication were observed between patients with "good outcomes" and patients that did not meet the criteria of a "good outcome". Pike et al. state that their findings are preliminary and suggest that further research must be done before ascertaining the efficacy of CBT in treating anorexia nervosa. This study by Pike et al. is empirical and fact-based. The validity of the conclusions drawn is questionable as the study is weakened by the presence

of medication as a potential confound. While the information provided appears valid because of the controlled and randomized design of the experiment, further evaluation of the impact of CBT in treating anorexia nervosa is necessary to reduce and/or eliminate confounding variables.The material covered is primary information, as Pike et al. reported their findings first-hand. Pike et al. examined the relationship between CBT and anorexia nervosa, but they did not mention depression as a factor affecting the symptomatology of those with anorexia nervosa or the efficacy of CBT in treating depression in conjunction with anorexia nervosa. However, Pike et al.'s findings align with those of Fava et al. (1998), which also found CBT to be a more effective treatment method compared to traditional clinical treatment.

*CBT and Group Therapy*

Carter et al. (2009) compared the effectiveness of cognitive behavior therapy (CBT) to "treatment as usual" in maintenance treatment for patients with anorexia nervosa who had regained a healthy weight (defined as a body-mass index (BMI) of 19.5 or higher). This study was a nonrandomized clinical trial that placed 46 patients in a CBT treatment group for 1 year and 42 patients in a control group for 1 year. The control group received "treatment as usual", which was defined as being allowed to participate in optional, 90-min group therapy sessions 3 times per week for up to 12 weeks. Following regular attendance of these group therapy sessions, participants could elect to attend once weekly 90-min group therapy sessions for up to 6 months. Both groups were assessed every 3 months, and the primary outcome variable analyzed was amount of time before relapse. Relapse was defined as falling below a 17.5 BMI or continuing binge-eating/purging behaviors. After 1 year, 65% of patients receiving CBT had not relapsed, and 34% of the group receiving "treatment as usual" had not relapsed. These findings suggest that CBT may be more effective than patients not receiving regular individual psychotherapy in preventing relapse. This study focused on relapse prevention utilizing cognitive behavioral therapy as part of follow-up treatment for patients with anorexia nervosa. The objective of the study was to assess the rate and timing of relapse of patients with anorexia nervosa over the course of 1 year following weight restoration. The researchers hypothesized that CBT would be more effective than non-treatment or group therapy sessions in preventing weight loss below a 17.5 BMI. Their findings support their hypothesis, but there are several limitations to their research. Their study was nonrandomized, and treatment in the "treatment as usual" control group was not standardized. In addition, 12 participants dropped out of the CBT treatment group, and 12 dropped out of the control group. This high attrition rate weakened the statistical power of this study.

Carter et al. offered their findings as preliminary research and suggested that further research with larger sample sizes and randomized comparison groups be done to examine the efficacy of CBT in

relation to other forms of psychotherapy as well as control groups that do not receive psychotherapy. Carter et al. conducted an empirical study that examined the efficacy of CBT in treating anorexia nervosa. Their findings align with prior research that suggests CBT can reduce relapse rates of patients with anorexia nervosa; however, as in prior studies, they did not provide evidence suggesting that CBT is more effective than other forms of psychotherapy in treating anorexia nervosa. The information is consistent with other studies and provides primary evidence supporting the efficacy of CBT. The high attrition rate and nonrandomized design of this study appears characteristic of research examining treatment of anorexia nervosa, and as Bulik et al. state, these methodological flaws must be addressed before concluding that CBT is an optimal treatment form for anorexia nervosa. It is important to note that this study examines the efficacy of CBT in preventing relapse, not in initially treating patients who are underweight. Although there are additional medical and ethical challenges that may arise in recruiting participants who are severely underweight, further investigation into whether CBT can quicken recovery from the initial point of diagnosis may significantly improve prognoses for patients with anorexia nervosa.

*CBT and Behavioral Family Therapy*

While there is evidence supporting CBT as a beneficial addition to a treatment plan for patients with anorexia nervosa, research findings are inconclusive on whether CBT is a more effective treatment form than other types of psychotherapy. A study by Ball and Mitchell (2010) compared the efficacy of CBT to behavioral family therapy (BFT) as part of a 12 month outpatient treatment program for females diagnosed with anorexia nervosa. Twenty-five females between the ages of 13-23 were recruited and divided into 2 treatment groups to receive 21-25 therapy sessions. Pre- and post-tests measuring nutritional status, eating behaviors, mood, self-esteem, and family communication were used to assess treatment outcomes. Of the 18 participants that completed treatment, 72% had a "good" outcome (i.e., they maintained weight within 10% of average body weight and regular menstrual cycle) at post-treatment and at a 6 month follow-up. Differences between treatment groups were not significant, and the majority of patients did not reach full recovery. Findings did not support their hypothesis that CBT is more effective than BFT in treating anorexia nervosa, although the authors suggested that CBT is more effective than not participating in any type of psychotherapy. Ball and Mitchell (2010) found significant main effects of CBT and BFT on improving eating attitudes and behaviors; however, participants still remained within the symptomatic range for anorexia nervosa post-treatment. Similarly, improvement in self-esteem scores reached statistical significance in both treatment groups, but patients' post-treatment scores still remained below average. Significant main effects for both treatment groups were found in treating anxiety, as anxiety

scores dropped to normal averages post-treatment; however, differences in pre- and post- treatment depression scores did not reach statistical significance. While Hofmann et al.'s study is useful in comparing the efficacy of CBT in treating anorexia nervosa to another form of psychotherapy, this study would have been strengthened by including a third control group that received no treatment. Ball and Mitchell mentioned that they did not establish a causal relationship between CBT and the reduced symptomatology participants' displayed because of this lack of a no-treatment control. The information covered by Ball and Mitchell is evidence-based. However, because of the lack of a control group that did not receive treatment, the researchers' conclusions that CBT is an effective treatment approach for anorexia nervosa were not as strongly supported as they might have been.

There is a discrepancy between the findings of Ball and Mitchell, Fava et al. (1998), and Hoffman et al. (2012) in studying the efficacy of CBT in treating depression. While Ball and Mitchell did not observe a significant impact of CBT (or BFT) in reducing symptoms of depression, Hofmann et al.'s analysis has found CBT to be at least moderately effective in treating depression, with results comparable to medication and other forms of psychotherapy. However, Hofmann et al. stated that the evidence supporting the efficacy of CBT in treating depression is mixed overall, with some studies finding CBT to be superior to other treatment approaches and others finding no significant difference between CBT and other forms of psychotherapy. Nonetheless, CBT has shown some promise as a treatment method for depression, and the discrepant results between studies might be attributed to variance in methodology. Additional studies may tease out which components of CBT are effective in treating depression.

## General Efficacy of Treatments for Anorexia Nervosa

Among all forms of treatment currently available for anorexia nervosa, cognitive behavioral therapy (CBT) still remains a viable option. A meta-analysis conducted by Bulik et al. (2007) searched six databases for literature published between 1980 and 2005 on the efficacy of treatment for anorexia nervosa. This review specifically sought evidence for the efficacy of various treatment types, risks associated with treatment, and disparities in outcomes according to social status and demography. The authors identified 32 studies that either involved only pharmaceutical treatment, only behavioral treatment, or a combination of pharmaceutical and behavioral treatments. Of these, they classified 13 studies as being of "poor" quality, and they focused their analysis on the remaining 19 studies. Findings evaluating the efficacy of these treatments were inconclusive, although research suggests that CBT may help reduce relapse rates for adults with anorexia who have regained weight. Research has not indicated whether CBT is more effective

than other forms of psychotherapy (such as interpersonal psychotherapy and cognitive analytic therapy) in treating anorexia nervosa. According to Bulik et al., the efficacy of CBT in treating patients who are underweight and diagnosed with anorexia nervosa is still unknown. Evidence for treatment of anorexia nervosa and associated harms is "weak", and differences in treatment outcomes according to sociodemographic factors is "nonexistent". They identify several weaknesses in the literature on anorexia nervosa treatment to date, such as small sample sizes, high attrition rates, appropriate pace of treatment, differences in treating underweight and normal weight patients, and lack of standardized definitions for terms such as relapse, recovery, and remission. These researchers highlight a gap in the literature and call for more studies with larger sample sizes and higher retention rates of participants in clinical trials to increase generalizability of findings. They also suggest more studies of the efficacy of non-clinical treatment in treating anorexia nervosa, as many individuals with anorexia nervosa do not receive hospital-based treatment. This study was an evidence-based review on treatment studies for anorexia nervosa. Bulik et al. focused on reviewing the quality of randomized control trials according to criteria of 25 questions divided among 11 categories that they formulated in advance. Their research was detailed, thorough, and established on prior analyses. Although this study is secondary in nature, it provides well-developed guidelines to direct future research on treatment of anorexia nervosa. These researchers identify a lack of empirical studies with high statistical power to generalize findings on treatment efficacy, and they recommend areas for future study. Their call for more studies focusing on possible differences in treatment outcomes among various sociodemographic groups echoes Hoffman et al.'s call for more diverse samples, as samples tend to be homogenous with only white, upper- and middle-class females. This study is fact-based and evaluates prior literature. The validity of the conclusions drawn is strengthened through the organized, systematic methodology of the researchers. This research was commissioned by a collaboration between three reputable agencies and was vetted by the RTI International-University of North Carolina Evidence-based Practice Center. Bulik et al. identified 19 "fair" and "good" research studies, which underscores the need for additional research in this area. Their review marginally covers the efficacy of CBT in treating anorexia nervosa, but they did not find much evidence supporting CBT as a more effective treatment form than other types of psychotherapy. This aligns with other studies suggesting that CBT may be a beneficial form of treatment and complements pharmaceutical therapy, but it may not be superior to other psychotherapies.

## Conclusion

Overall, the literature to date indicates that cognitive behavioral therapy (CBT) can be beneficial in

treating patients with anorexia nervosa and with depression. Depending on the needs of each patient, CBT may be administered in conjunction with or in lieu of pharmaceutical and clinical treatment. Research suggests that CBT can reduce rates of relapse and bolster long-term maintenance plans. However, further studies comparing the efficacy of CBT to other forms of psychotherapy are warranted. While a large body of evidence indicates CBT is effective in treating depression, literature on the efficacy of CBT in treating anorexia nervosa is sparse. Researchers have identified a need for studies with greater statistical power and diverse samples to improve the generalizability and robustness of what is known about treating anorexia nervosa. It is important to also note that there are few randomized, controlled studies evaluating the efficacy of treatments in general for patients with anorexia nervosa. High attrition rates and pharmaceutical confounds are often limiting factors in studying populations diagnosed with anorexia nervosa and must be taken into consideration. A large sample size might help control for these factors. Future research should focus on moving beyond preliminary studies to address these methodological concerns and to test the validity of these initial findings.

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